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Access to Drug and Alcohol Treatment among a Cohort of Street-Involved Youth

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Abstract

Background—A number of options for treatment are available to young drug users, but little is known about the youth who actually attempt to access such services. Here we identify characteristics of a cohort of street-involved youth and highlight commonly encountered barriers.

Methods—From September 2005 to July 2007, data were collected from the At-Risk Youth Study (ARYS), a prospective cohort of 529 drug users aged 14–26 living in Vancouver, Canada. Participants who attempted to access any addiction services in the six months prior to enrollment were compared in univariate analyses and multiple logistic regression modeling of sociodemographic and drug-related factors.

Results—Factors positively associated with attempting to access services included Aboriginal ethnicity (adjusted odds ratio [AOR] = 1.66 [1.05 – 2.62]), high school education (AOR = 1.66 [1.09 – 2.55]), mental illness (AOR = 2.25 [1.50 – 3.38]), non-injection crack use (AOR = 2.93 [1.76 – 4.89]), and spending >\$50 on drugs per day (AOR = 2.13 [1.41 – 3.22]). Among those who experienced difficulty accessing services, the most commonly identified barrier was excessively long waiting lists. In a subgroup analysis comparing those who tried to access services but were unsuccessful to those who were successful, risk factors positively associated with failure included drug bingeing (odds ratio [OR] = 2.86 [1.22 – 6.76]) and homelessness (OR = 3.86 [1.11 – 13.4]).

Conclusions—In light of accumulating evidence that drug use among street youth is associated with risky health-related behaviors, improving access to treatment and other addiction services should remain an important public health priority.

Keywords

youth; street youth; adolescents; access; addiction services; methadone maintenance; drug treatment; alcohol treatment; detoxification; Aboriginal

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1. Introduction

Because illicit substance use has detrimental effects on individual users, communities, and justice and health care systems, the high prevalence of drug and alcohol use among youth remains a critical public health concern (American Society of Addiction Medicine, 1994; United Nations Office on Drugs and Crime, 2000). Particularly vulnerable to the harms of substance use are 'street youth', a term applied to adolescents and young adults living part time or full time on the street (Mallett et al., 2005). This population is generally characterized by perilous living conditions that include high rates of poverty, homelessness, and drug use (Canadian Centre on Substance Abuse, 2007; Roy et al., 2004). The factors causing youth to live on the street are complex; prior personal drug use is occasionally a primary reason for leaving home, but more commonly, family conflict or family breakdown occurs prior to youth leaving home (Mallett et al., 2005). Since many street youth do not receive parental support, it is not surprising that once on the street, youth often self-aggregate into peer networks to survive. These networks may additionally serve as the basis for social use of alcohol and narcotics and other risk-related behavior (Kissin et al., 2007).

Surveillance data from seven urban centers across Canada revealed a lifetime prevalence of illicit drug use of 95.3% among street youth (Public Health Agency of Canada, 2006). Additionally, 22.3% of street youth had injected drugs at some time in their life. Similarly, in a sample of US street youth, 20.6% had recently injected drugs and 78.7% of these users had recently shared a syringe (Gleghorn et al., 1998), a practice associated with high risk of transmission of numerous infectious diseases, including human immunodeficiency virus (HIV) and hepatitis C virus (HCV). Alarming, one recent cross-sectional study of street youth in Russia revealed an HIV prevalence of 78.6% among injection drug users and of 86.4% among those who shared needles (Kissin et al., 2007).

Readily accessible addiction treatment services are a crucial component of efforts to curb the ill effects of substance use (Cartwright, 1988; Johnson et al., 2000; Rydell et al., 1996; Wood et al., 2003). A variety of modalities exist, including residential treatment programs, professional counseling services, peer-support programs (e.g., Alcoholics' Anonymous and Narcotics' Anonymous), substitution therapies for heroin addiction (e.g., methadone maintenance therapy), and detoxification programs, to name some common examples, but ultimately, effective treatment may employ several of these and must be comprehensive and multidimensional (Leshner, 1999). In most Western settings, the demand for such services typically exceeds their availability, and an array of other barriers may further limit the ability of users to access the addiction services they seek (American Society of Addiction Medicine, 1994; Neale et al., 2007; Rydell et al., 1996; Wenger and Rosenbaum, 1994; Wood et al., 2005).

The majority of research to date examining treatment seeking and its associated barriers has focused on adults rather than youth (Battjes et al., 2003; Simpson, 2001). In general, the process of obtaining addiction treatment is understood as progressing in stages, beginning with outreach and proceeding to induction, followed by early therapeutic engagement, and finally, treatment and follow-up care (Simpson, 2001). In this model, a variety of background personal experiences and environmental characteristics are believed to predict treatment readiness. In the adult literature, it is well established that a variety of client-level and program-level factors influence whether a substance-abusing individual will access treatment (Neale et al., 2007). Users more likely to seek help may include those who are female (Fletcher et al., 2003; Zule and Desmond, 2000), are older (Wu and Ringwalt, 2004), do not belong to an ethnic minority (Wood et al., 2005), are involved in the sex trade (Zule and Desmond, 2000), have patterns of addiction marked by a high degree of abuse and/or dependence (Handelsman et al., 2005), and have health problems including HIV (Handelsman et al., 2005; Zule and Desmond, 2000).

Conceivably, a similar array of characteristics may influence whether youth seek treatment, although to date, these factors have been poorly studied in younger drug-using populations. In extending the above findings from adult users to young users, it is possible, for example, that youth experiencing more severe drug use-related consequences (such as having a high degree of abuse or dependence, contracting a blood-borne disease such as HIV or HCV, or offering sex for drugs) may be more likely to seek treatment. In this vein, other negative consequences of drug use could also cause youth to seek addiction services, such as transitioning to injection drug use, spending large amounts of money on drugs, or experiencing non-fatal overdose. Other, non-drug-related factors may lead to differential rates of treatment seeking among youth as among adults. Such factors might include, for example, age, gender, ethnicity, education level, and history of mental illness, all of which merit further study in young drug-using populations.

There is also evidence that among adult drug users who seek treatment, certain subsets of users are more likely to encounter barriers along the way. Particularly vulnerable groups among adult drug users may include women (Swift and Copeland, 1996), ethnic minorities such as those of Aboriginal ethnicity (Wood et al., 2005), rural-dwellers (Staton et al., 2001), the homeless (Deck and Carlson, 2004), and prisoners (Deck and Carlson, 2004; Staton et al., 2001). While there is a possibility that these findings would be similar among young drug users who experience difficulty accessing treatment, there is also reason to believe they might not be. When compared to adults, youth may have very different routes by which they access the treatment system (Leslie, 2008). For example, youth, when compared to adults, may be the targets of vastly different outreach programming or may have less knowledge of how to navigate health care and social service systems. Risk factors for encountering barriers to treatment among young drug users therefore deserve more attention.

A better understanding of which youth access addiction services, what their drug use patterns are, and what barriers they encounter can help inform policy to refine programs and engage young users early in the development of substance dependence. Among street youth in particular, concerns about accessing addiction services may include perceptions that program rules are too strict or that confidentiality will not be maintained (De Rosa et al., 1999). The present study attempts to identify the sociodemographic and drug-related characteristics of street youth who attempt to access addiction services, their perceived barriers, and the rates of success and failure of these attempts.

In following from the above findings that certain subgroups of adult drug users are more likely than others to seek treatment, we hypothesize that among a range of non-drug-related factors such as gender, age, ethnicity, housing status, education level, and mental health status, characteristics can be identified that are associated with street youth being more likely to seek treatment. Additionally, we expect that some aspects of drug use patterns, such as type of drug used and route of administration will be associated with treatment seeking. We also hypothesize that the negative consequences of drug use, including having recent history of overdose and spending large amounts of money on drugs per day, will be related to attempts to access addiction services. Moreover, we aim to identify barriers encountered as street youth attempt to access these services and identify factors associated with encountering these difficulties.

2. Methods

2.1 Sample

The At Risk Youth Study (ARYS) is a prospective cohort of street-involved youth in Vancouver, Canada. Study details have been described in detail elsewhere (Wood et al., 2006). Youth in the present analysis were recruited from September 2005 to July 2007. Briefly, inclusion criteria included (1) age 14 to 26 years at study enrollment, and (2) use of an illicit

drug other than or in addition to marijuana in 30 days prior to enrollment. Participants were recruited through snowball sampling and extensive street-based outreach methods. Although no explicit inclusion criterion required that youth spend a minimum amount of time on the street or actually live on the street to qualify for the study, in practice, the street-based recruitment produced a sample of youth who spent extensive time on the street, a large proportion of whom were homeless. Still, because our study lacked an explicit requirement that youth live on the street, we use throughout the present manuscript the term “street-involved youth” rather than “street youth”, since the latter of these terms is generally applied to youth known to live full-time or part-time on the street.

At baseline and every six months thereafter, participants completed a lengthy interviewer-administered questionnaire pertaining to socio-demographic information, drug- and sex-related risk behaviors, and current and prior experiences accessing and attempting to access drug or alcohol addiction services. At every visit, participants also provided blood samples in order to ascertain HIV and hepatitis C (HCV) infection status and received \$20 CAD as remuneration. ARYS was ethically approved by the Research Ethics Board of the University of British Columbia.

2.2 Outcome variable

In the present study, analyses were restricted to baseline data for all ARYS participants. The primary outcome variable was accessing or attempting on at least one occasion to access drug or alcohol addiction services in the six months prior to enrollment. These services were broadly defined in our interviews because we expected treatment modalities might have differed for the wide range of drugs possibly used in our cohort. Possible services included: detoxification programs, which provide acute, short-term treatment of the medical complications of withdrawal; residential treatment centers, where youth live in a controlled environment and receive in-house medical or alternative treatment; recovery houses, which may serve as a ‘halfway house’ for youth who have undergone detoxification and/or treatment, and are transitioning to a return to regular employment or other activities; regular meetings with an addiction counselor who may have training in psychiatry, clinical psychology, or social work; methadone maintenance therapy; and peer-based recovery programs such as Alcoholics Anonymous (AA) or Narcotics Anonymous (NA), in which former and active users establish a network of support to facilitate recovery from addiction. Since we were specifically interested in attempts to access these services rather than the success rate or outcomes of any particular program, we did not compare individual services in our analyses.

The primary outcome was defined using two survey questions. The first question asked, “In the past 6 months, have you been in any kind of alcohol or drug treatment (including methadone)?” and the second, “In the past 6 months, have you ever tried to access any treatment program but were unable?” If a participant answered yes to either or both of these questions, that participant was considered to have accessed or attempted to access drug or alcohol addiction services in the last six months. Participants who answered no to both questions were considered to not have attempted to access such services.

Of note, the group of participants answering “yes” to either or both of the questions above (i.e., those that attempted to access addiction services) was therefore composed of two related but distinct subgroups. First, participants who answered “yes” to the first question represented a subgroup that successfully obtained access to addiction services sometime during the six months prior to enrollment. (Some of these participants likely continued to receive ongoing treatment, whereas others initiated new treatment during this time. Moreover, regardless of their success in obtaining treatment, some participants may have additionally encountered some difficulty in obtaining these services, as reflected in their answer to the second question

above.) The second important subgroup of participants includes those that did not successfully receive services while trying to obtain them.

2.3 Independent variables

Univariate and multivariate analyses were then conducted in which the covariates of interest were defined *a priori* with respect to statistical analysis. Covariates were selected based on their known or hypothesized relationship with the primary outcome, accessing or attempting to access addiction services. For example, among adult drug users, previous work has shown that factors associated with treatment seeking may include female gender (Fletcher et al., 2003; Zule and Desmond, 2000), older age (Wu and Ringwalt, 2004), non-minority status (Wood et al., 2005), sex trade involvement (Zule and Desmond, 2000), and a greater degree of abuse/dependence (Handelsman et al., 2005). We hypothesized that subgroups of street-involved youth could be identified (based on sociodemographic characteristics and non-drug-use behaviors) that would have different rates of accessing or attempting to access addiction services. Variables examined included: gender (male *vs.* female); age (<18 *vs.* ≥18 years old); ethnicity (aboriginal *vs.* non-aboriginal); homelessness during the six months prior to enrollment (yes *vs.* no); prior completion of or current enrollment in high school (yes *vs.* no); self-reported previous diagnosis of mental illness at any time in the past (yes *vs.* no); and history of sex work in the last six months (had traded sex for money, gifts, food, shelter, clothes or drugs *vs.* had not traded sex for any of these).

We also hypothesized that multiple drug-use-related covariates would be associated with accessing or attempting to access addiction services. These drug-related variables included: injection drug use in the last six months (yes *vs.* no); non-injection crystal methamphetamine use in the last six months (yes *vs.* no); non-injection crack cocaine use in the last six months (yes *vs.* no); bingeing on crack or injection drugs of any kind in the last six months (yes *vs.* no); history of overdose in the last six months (yes *vs.* no); average money spent on drugs per day (<\$50 *vs.* ≥\$50); age of first drug use of any kind other than alcohol or cigarettes (<13 *vs.* ≥13 years old); and use of drug-related outreach services in the last six months (use of any services including outreach worker, street nurse, health van, home care worker/nurse, safe injection facility, or youth drop-in centre *vs.* no use of any of these services).

Initially, the primary outcome of accessing or attempting to access addiction services in the last six months was examined using Pearson's chi-square test for dichotomous variables. Following the univariate analyses, a final multivariate model was constructed using multiple logistic regression. Only factors significant at $p < 0.05$ in the univariate analyses were included in this final model. We anticipated that the univariate analyses would allow us to examine the unadjusted effect of any individual covariate on the outcome of interest, and the multivariate analysis would allow us to examine whether any of these effects were confounded by any other variable considered.

Of note, because of a current lack of evidence in the literature of predictors of attempts at accessing drug or alcohol treatment and because all covariates were hypothesized *a priori* to have a potential association with accessing or attempting to access treatment, we also conducted a second multivariate analysis in which *all* covariates included in the univariate analyses—whether significant or not—were included in the final multivariate model. We then compared these results to the results obtained by only including covariates significant in the univariate analyses.

2.4 Subgroup analysis

Following this, a subgroup analysis was conducted among the participants who had accessed or made an attempt at accessing drug or alcohol addiction services in the six months prior to

enrollment. This subgroup analysis compared two groups: (1) those who attempted to access addiction services but encountered difficulty and ultimately *did not* receive any services in the six-month period, and (2) those who attempted to access services and ultimately *did* receive treatment in the six-month period, regardless of whether they experienced any difficulty in doing so. This outcome of interest was examined in a series of Pearson chi-square univariate analyses examining the same sociodemographic and drug-related variables outlined above.

All statistical analyses were performed using Intercooled Stata 10.0 (StataCorp LP, College Station, Texas) or SAS version 9.1 (SAS Institute, Inc, Cary, North Carolina). All reported *p* values are two-sided and considered significant at $p < 0.05$.

3. Results

Between September 2005 and July 2007, 529 street youth were recruited into the ARYS cohort. Youth spent a median of 12 hours on the street per day (inter-quartile range [IQR]: 6–24 hours). The median age of participants was 22 years (IQR: 20–24 years), and 371 (70.1%) were male. In total, 372 (70.3%) were white, and of the remaining 157 non-white participants, 127 (80.9%) were of Aboriginal ancestry.

3.1 Attempts to access addiction services

Overall, 167 of 529 (31.6%) participants accessed or attempted to access drug or alcohol addiction services in the six months prior to enrollment. Of the remaining 362 participants who did not attempt to access services, the most commonly stated reasons included that they did not believe they had a problem with drugs (42.3%), that they recognized they might have a problem but did not feel a need to stop (19.1%), that they felt they could handle their drug problem on their own (19.1%), that they knew they could not conform to the behavioral requirements specified by treatment programs (16.3%), or that they had another primary reason for not seeking services (3.2%). Of note, no participants indicated that they did not know of any available programs.

Table 1 contrasts the socio-demographic characteristics of those who did and did not access or attempt to access addiction services, and Table 2 compares drug-related behavioral variables between the two groups. Univariate analyses revealed that sociodemographic characteristics significantly associated with accessing or attempting to access services included: Aboriginal ethnicity, prior completion of or current enrollment in high school, lifetime history of mental illness, and history of sex work in the last six months. Significant drug-related factors included: non-injection crack use in the last six months, drug bingeing behavior in the last six months, and spending on average more than \$50 on drugs per day.

During our exploratory data analysis, we sought to further examine the role of two strongly associated variables, namely Aboriginal ethnicity and lifetime history of mental illness. To do so, we created interaction terms between these two variables and the various drug-related behavioral variables listed in Table 2. Although our hypothesis was that Aboriginal ethnicity and lifetime history of mental illness modified the relationship between these drug use-related factors and accessing or attempting to access addiction services, none of these interaction terms was significant (data are not reported here, but are available upon request).

The seven significant sociodemographic and drug-related factors identified in the univariate analyses then served as covariates in a multiple logistic regression model. Of note, an additional multiple logistic regression model was fit in which *all* covariates included in the univariate analyses—whether significant or not—were included in the final multivariate model. We then compared these results to those obtained by only including covariates significant in the univariate analyses. Ultimately, both models produced the same set of significant variables

with AORs that were similar in magnitude. (Data for this second multiple logistic regression containing the full set of covariates are not reported here but are available upon request.)

As shown in Table 3, five of these seven significant sociodemographic and drug-related variables remained independently associated with accessing or attempting to access addiction services in multiple logistic regression. These included: Aboriginal ethnicity, prior completion of or current enrollment in high school, lifetime history of mental illness, non-injection crack use in the last six months, and spending on average more than \$50 on drugs per day. History of sex work and drug bingeing behavior in the last six months, both of which were significant in the univariate analysis, were not independently associated with accessing or attempting to access treatment in the multivariate analysis.

3.2 Barriers to accessing services

The subgroup analysis, which more closely examined the 167 participants who attempted to access addiction services in the six months prior to enrollment, revealed that 131 (78.4%) were ultimately successful in receiving treatment and 36 (21.6%) were unsuccessful. However, an additional 27 of the 131 successful participants (20.6%), reported difficulty in accessing the services they ultimately received. Therefore, in total, 63 participants experienced difficulty accessing addiction services, reflecting a combination of successful and unsuccessful participants. Of these 63 participants, the most common barrier encountered was an excessively long waiting list, which impeded 42 (66.7%) from accessing services. Other barriers included participants being turned down because their behavior would have been incompatible with a program's rules (6 participants, or 9.5%), being rejected by the program for a reason other than a long waiting list or behavioral problems (6 participants, 9.5%), the program having fees the participant could not afford (2 participants, 3.2%), the program not being able to provide the type of treatment a participant was seeking (1 participant, 1.6%), and the program being located too far from a participant's place of residence (1 participant, 1.6%). The remaining 5 (7.9%) participants did not further elaborate on what difficulty they experienced.

Of the 36 participants who were unsuccessful at accessing addiction services despite attempts, 13 (36.1%) reported that they were, at the time of study enrollment, still trying to access services. Univariate analyses comparing these 36 unsuccessful participants to the 131 successful participants revealed two factors significantly associated with not being able to access services: homelessness and drug bingeing behavior in the last six months. 33 of 36 (91.7%) unsuccessful participants were homeless in the last six months, compared to 97 of 131 (74.1%) successful participants (OR = 3.86 [1.11 – 13.4]; $p = 0.024$ in chi-square analysis). 28 of 36 (77.8%) unsuccessful participants had engaged in drug bingeing behavior in the last six months, compared to 72 of 131 (55.0%) successful participants (OR = 2.86 [1.22 – 6.76]; $p = 0.013$).

4. Discussion

In the present study, we have found that nearly one-third of street-involved youth had accessed or attempted to access addiction services in the six months prior to enrollment in the study, and that seeking help was independently associated with Aboriginal ethnicity, having completed (or being currently enrolled in) high school, having a lifetime history of mental illness, engaging in non-injection crack use, drug bingeing behavior, and spending large amounts of money on drugs per day. We have also highlighted that among those who sought help, over one-fifth encountered difficulty in doing so and ultimately did not receive any addiction services at all. Recent history of homelessness and of drug bingeing were both significantly associated with encountering such difficulty and not obtaining treatment. The majority of participants who encountered barriers to services cited excessively long waiting

lists as impeding access to programs, and importantly, lack of knowledge about available programs was not once reported.

Most of the preexisting substance use research has focused on what motivates adult users to seek drug or alcohol treatment, but increasing attention now needs to be paid to understanding this same process among youth (Battjes et al., 2003; Simpson, 2001). Recognizing this, Broome et al. presented a model for adolescent treatment engagement in which psychosocial, environmental, legal, and drug-related factors directly impact treatment readiness (Broome et al., 2001). Our results suggest that higher education status may be one such important pretreatment factor that is associated with youth seeking treatment. There are several plausible explanations for this. High school attendance may, for example, expose youth to drug use treatment and prevention programming. There may also be some intrinsic value to obtaining higher levels of education that renders a user more likely to seek treatment. Alternatively, high school attendance and completion may simply serve as a marker for youth who, for other reasons, are more likely to seek help. Female gender, another factor that in adult populations has been associated with higher odds of seeking treatment (Fletcher et al., 2003; Zule and Desmond, 2000), was not a significant factor in our study. Whether this represents a true difference between adult and youth populations certainly merits further study.

Moreover, because the negative consequences of substance use can drive youth to seek treatment (Battjes et al., 2003), it was not surprising that in our sample youth who spent large amounts of money on drugs per day were more likely to seek addiction services. The finding that negative ramifications of drug use may influence users to seek treatment has been previously demonstrated among adults. Adult users with patterns of addiction marked by a high degree of abuse and/or dependence (Handelsman et al., 2005), with drug use-related health problems such as HIV (Handelsman et al., 2005; Zule and Desmond, 2000), and with reliance on the sex trade as source for money and/or drugs (Zule and Desmond, 2000), may be more likely to seek treatment for addiction. Our results, however, did not show an independent effect of drug bingeing or of participation in the sex trade on the odds of seeking treatment among youth in our multivariate analyses. Again, whether this represents a true difference between adult and youth populations deserves further study.

Our finding that non-injection crack use was very strongly associated with accessing or attempting to access addiction services may be consistent with preexisting knowledge about the effects of this drug. Among adults, intensive crack usage has been associated with thoughts of suicide (Sherman et al., 2005), incarceration (Fischer et al., 2006), sex trade work (Kuyper et al., 2004; Ward et al., 2000), and general health problems (Fischer et al., 2006), all of which are negative consequences of drug use that may ultimately drive a user to seek treatment. An interpretation of our results is that some of these highly adverse effects of crack use might have driven the youth in our study to seek help.

The findings that youth with a history of mental illness and those of Aboriginal ethnicity were more likely to seek help are more difficult to interpret. Although in an earlier study, mental illness was associated with readiness for change among substance-using adolescents (Handelsman et al., 2005), it is also possible that in our study these youth may have been targeted more intensely by outreach efforts, or that some other factor may have caused them to seek out treatment more readily. This same consideration may also apply to Aboriginal youth. A plausible explanation is that participants with a mental illness diagnosis and those of Aboriginal descent may have received referral for drug or alcohol treatment from another social service. For example, participants who interact with the mental health system might be referred to addiction services as a component of their psychiatric treatment. Other important systems that could serve as a 'stepping stone' to drug or alcohol treatment for those with mental illness or of Aboriginal ethnicity include housing assistance services, employment and income

assistance, the justice system, and youth protective services. Further studies should carefully elucidate whether these subgroups of street youth are more likely to access such services and whether their usage is intermediary to seeking drug or alcohol treatment. Interestingly, in an earlier cohort of adult injection drug users in Vancouver, individuals of Aboriginal ethnicity were *less likely* to enroll in treatment (Wood et al., 2005). Therefore, an alternative explanation is that there remains residual confounding of this variable in our multivariate model. In other words, we may not have been able to completely control for some unmeasured drug-related factors that render the Aboriginal users in our sample more likely to seek addiction services. Regardless, the associations of mental illness and Aboriginal ethnicity with seeking help merit consideration in future studies.

The finding that a substantial proportion of street youth in our study experienced difficulty accessing addiction services has a high degree of relevance for policymakers. There is consensus that provision of treatment services has the potential to be highly cost-efficient, particularly in light of the enormous costs imposed on health care systems of treating complications of infection with HIV, HCV, and other blood-borne pathogens (Johnson et al., 2000; Rydell et al., 1996; Wood et al., 2003). In particular, policymakers might heed the multitude of possible barriers to treatment encountered by drug users: low numbers of services available to drug users, lack of availability in the face of high treatment demand, poor information among drug users about what services are available to them, lack of childcare, and the potential for stigma among treatment center staff and community members (Digiusto and Treloar, 2007; Neale et al., 2007). Among our cohort of street youth, low availability of treatment was a particularly salient concern whereas knowledge of available services was not, and policymakers and program designers alike should be made aware of this. Moreover, our finding that homeless and drug-bingeing participants were significantly more likely to encounter such barriers reveals that important disparities exist in which street youth are successfully able to navigate the system of addiction treatment services. Policymakers might carefully consider how to ensure that the services they make available to drug users are made equally accessible to homeless youth; they might consider, for example, the provision of housing during treatment for those who need it, as has been suggested previously (Freund and Hawkins, 2004).

4.1 Limitations

The present study has several limitations. First, the study design, which employed extensive street-based outreach efforts and snowball sampling methods, does not produce a random sample (as might be obtained from voters' registries or other sources). Unfortunately, these types of registries are not available for street youth, although it is worth noting that the demographics of our cohort are similar to those of other samples of street-involved youth studied in Vancouver (Miller et al., 2006; Ochnio et al., 2001). Second, as with any study drawing on self-reported information, particularly when the participants are from a marginalized population (Des Jarlais et al., 2006), there may have been socially desirable reporting among the youth interviewed in the present study. The effect of this would be to underestimate the true prevalence of some of the risky behaviors considered in the present study, even despite assuring confidentiality and building trust with all study participants. Third, our study sample of youth contained a predominance of older participants, with a median age of 22 years. Our study was largely consistent with the World Health Organization, which applies the term to young people within the age range 15 to 24 years, and with most other studies, which generally include participants close to and within this range. However, our results should be interpreted with the knowledge that our sample may be slightly older on average than other studies examining street youth.

Fourth, in our statistical analyses, we were unable to differentiate between users who sought out new addiction services and those who continued to access services they were already receiving. Conceivably, these two populations could represent two distinct subpopulations with different sociodemographic and drug use-related characteristics. Future research should attempt to explore potential differences between these populations. Also, the present study did not differentiate between internally-motivated attempts to seek addiction services (i.e., deciding on one's own to receive treatment) and externally-motivated attempts (e.g., being court-mandated to undergo treatment), and there exists evidence that these processes may differ (Battjes et al., 2003; Broome et al., 2001). Fifth, our subgroup analysis, which drew on data from the 131 youth who accessed or attempted to access addiction services, may not have had sufficient power to reveal true associations that might truly exist. Finally, due to the cross-sectional nature of our data, it is inappropriate to draw conclusions about temporality and causation for our findings; rather, these associations should serve to generate hypotheses to examine in future prospective studies.

5. Conclusions

In summary, this study contributes to the existing literature by extending important principles regarding access to treatment among adults to street youth. This vulnerable population is at once understudied and underserved, and yet represents an important target for interventions aimed at reducing risk behaviors, many of which directly or indirectly contribute to high rates of infectious disease transmission. Our findings demonstrate that a substantial increase in the provision of addiction treatment services may be required to mitigate the harms of drug use, which extend not only to street youth themselves, but also to communities and the medical system as a whole.

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Table 1
Sociodemographic factors associated with attempting to access drug or alcohol addiction services in the last six months, regardless of whether ultimately successful ($n = 529$)

Characteristic	Treatment Attempt		Odds Ratio (95% CI)	<i>p</i> value
	Yes (%)	No (%)		
Gender				
Male	120 (32.3)	251 (67.7)		
Female	47 (29.7)	111 (70.3)	0.89 (0.59 – 1.33)	0.556
Age				
< 18 years	13 (26.5)	36 (73.5)		
≥ 18 years	154 (32.1)	326 (67.9)	1.31 (0.67 – 2.54)	0.426
Aboriginal ethnicity				
No	114 (38.4)	288 (71.6)		
Yes	53 (41.7)	74 (58.3)	1.81 (1.20 – 2.74)	0.005
Homeless[*]				
No	37 (29.6)	88 (70.4)		
Yes	130 (32.2)	274 (67.8)	1.13 (0.73 – 1.75)	0.588
High school education[†]				
No	50 (23.0)	167 (77.0)		
Yes	117 (37.5)	195 (62.5)	2.00 (1.36 – 2.96)	<0.001
History of mental illness				
No	78 (24.8)	236 (75.2)		
Yes	89 (41.4)	126 (58.6)	2.14 (1.47 – 3.10)	<0.001
History of sex work[*]				
No	136 (29.0)	333 (71.0)		
Yes	31 (51.7)	29 (48.3)	2.62 (1.52 – 4.51)	<0.001

* In last six months

[†] Denotes prior completion of or current enrollment in high school

Table 2

Drug-related factors associated with attempting to access drug or alcohol addiction services in the last six months, regardless of whether ultimately successful ($n = 529$)

Characteristic	Treatment Attempt		Odds Ratio (95% CI)	<i>p</i> value
	Yes (%)	No (%)		
Injection drug use *				
No	114 (30.8)	256 (69.2)		
Yes	53 (33.3)	106 (67.7)	1.12 (0.76 – 1.67)	0.567
Non-injection crystal meth *				
No	86 (28.9)	212 (71.1)		
Yes	81 (35.1)	150 (64.9)	1.33 (0.92 – 1.92)	0.128
Non-injection crack use *				
No	38 (16.9)	187 (83.1)		
Yes	129 (42.4)	175 (57.6)	3.63 (2.39 – 5.50)	<0.001
Drug bingeing behavior *				
No	67 (23.3)	221 (76.7)		
Yes	100 (41.5)	141 (58.5)	2.34 (1.61 – 3.40)	<0.001
History of overdose *				
No	142 (30.4)	325 (69.6)		
Yes	25 (40.3)	37 (59.7)	1.55 (0.90 – 2.67)	0.115
Money spent/day on drugs				
< \$50	62 (21.8)	222 (78.2)		
≥ \$50	105 (42.9)	140 (57.1)	2.69 (1.84 – 3.92)	<0.001
Age of first drug use (any)				
< 13	92 (32.9)	194 (67.8)		
≥ 13	75 (30.9)	168 (69.1)	0.94 (0.65 – 1.36)	0.748
Used outreach services *				
No	27 (27.6)	71 (72.4)		
Yes	140 (32.5)	291 (67.5)	1.27 (0.78 – 2.06)	0.343

* In last six months

Table 3

Findings from multiple logistic regression analysis of factors associated with attempting to access drug or alcohol addiction services, regardless of whether ultimately successful ($n = 529$)

Characteristic	Adjusted Odds Ratio	95% C.I.	<i>p</i> value
Aboriginal ethnicity			
Yes vs No	1.66	1.05 – 2.62	0.030
High school education			
Yes vs No	1.66	1.09 – 2.55	0.020
History of mental illness			
Yes vs No	2.25	1.50 – 3.38	<0.001
History of sex work *			
Yes vs No	1.59	0.88 – 2.88	0.122
Non-injection crack use *			
Yes vs No	2.93	1.76 – 4.89	<0.001
Drug bingeing behavior *			
Yes vs No	1.03	0.64 – 1.66	0.902
Money spent/day on drugs			
≥\$50 vs <\$50	2.13	1.41 – 3.22	<0.001

* In last six months