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INITIATION OF DRUG DEALING AMONG A PROSPECTIVE COHORT OF STREET-INVOLVED YOUTH

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Abstract

Background—Street-involved youth who use drugs may have limited income-generation options and are known to commonly become immersed in illicit drug markets to generate funds. However, little attention has been given to factors that may drive drug dealing initiation among this vulnerable population.

Objectives—This longitudinal study examines drug dealing initiation among street-involved youth.

Methods—Data were derived from the At-Risk Youth Study from September 2005 to November 2014; a prospective cohort of 194 street-involved youth who use drugs aged 14 - 26, in Vancouver, Canada. Extended Cox model was used to identify factors independently associated with time to first drug dealing.

Results—Among street-involved youth who had never dealt drugs at baseline, 56 (29%) individuals initiated drug dealing during the study period for an incidence density of 13.0 per 100 person-years (95% Confidence Interval [CI]: 9.9-17.2). In multivariable Cox regression analysis, male gender (Adjusted Hazard Ratio [AHR] = 1.90, 95% CI: 1.06-3.42), homelessness (AHR = 1.88, 95% CI: 1.05-3.35), crystal methamphetamine use (AHR = 2.48, 95% CI: 1.47-4.20), and crack cocaine use (AHR = 2.35, 95% CI: 1.38-4.00) were positively and independently associated with initiating drug dealing.

Conclusion—Homelessness and stimulant drug use were key risk factors for drug dealing initiation among street-involved youth. Findings indicate that evidence-based and innovative interventions, including youth-centric supportive housing, low threshold employment programs,

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and stimulant addiction treatment should be implemented and evaluated as strategies to help prevent this vulnerable population from engaging in risky illegal income generation practices.

Keywords

street youth; drug dealing; homelessness; amphetamine addiction; cocaine addiction

INTRODUCTION

Street-involved youth are a vulnerable population that faces immense challenges, including a lack of economic security. They often face exclusion from the mainstream job market and may have limited options for generating income (1,2). The formal employment they do secure typically lies at the margins of the employment spectrum, lasts only for short periods of time, and provides insufficient remuneration (3). Among homeless youth stigma and discrimination, problematic substance use, mental health issues, histories of incarceration, and lower education levels pose formidable barriers to involvement in licit income-generation (1). As a result, many vulnerable youth are known to turn to the drug trade to earn income (4), despite the significant health and safety risks associated with such activity.

Among adults who use injection drugs, involvement in drug dealing is associated with increased vulnerability to physical and sexual violence (5). On a societal level, drug dealing is thought to contribute to increased drug consumption by making illegal substances readily available (6), and confrontations with the drug market account for the majority of violent interactions involving people who inject drugs (7–9). These risks appear to apply to youth, as well. Drug dealing among street-involved youth has been found to be associated with an elevated risk for physically violent confrontations with police and high intensity drug use (4,10,11). Street-involved youth who deal drugs are also more likely to be involved with the criminal justice system (12), and those who are incarcerated experience elevated risk for mental health problems, a loss of social support, and an overall loss of wellbeing into adulthood (13).

Previous qualitative and cross sectional studies suggest that numerous social and structural factors appear to be associated with illegal income generation among vulnerable youth. Specifically, an influential peer network, entrenchment in street-based activities, and the economic vulnerability of homelessness have been identified as factors that may push vulnerable youth towards drug dealing (1,14). However, despite the known risks and high prevalence of drug dealing among street-involved youth, few longitudinal studies have examined factors associated with initiating drug dealing among this vulnerable population. This longitudinal study aims to fill this gap by identifying factors independently associated with drug dealing initiation among a cohort of street-involved youth in Vancouver, Canada as a means to informing interventions to prevent the individual and societal harms associated with drug dealing.

METHODS

Data for this study were obtained from the At-Risk Youth Study (ARYS) between September 2005 and November 2014, which is an open prospective cohort study of street-

involved youth in Vancouver, Canada and has been described in detail previously (15). In brief, participants at recruitment were between 14-26 years of age; used illicit drugs other than marijuana in the past 30 days, such as heroin, crack, cocaine, crystal methamphetamine; were “street involved,” defined as having been homeless in the past 6 months or recently having used a service for street-involved youth (e.g., housing or nutrition support); and provided written informed consent. At enrollment and on a biannual basis, participants completed a standardized interviewer-administered questionnaire that includes questions related to demographic information, substance use patterns, health and social service use, and involvement in income generation activities. At each study visit, participants were provided with a stipend (\$30 CDN) for their time, and the Providence Health Care/ University of British Columbia’s research ethics board approved the study.

Our outcome of interest was initiation of drug dealing; therefore, data from all participants who had no history of dealing drugs at enrollment and had completed at least one follow-up visit during the study period to assess for drug dealing initiation were eligible for inclusion in the present analyses. The date on which a participant initiated drug dealing was estimated as the midpoint between the last study visit with no reported drug dealing and the follow-up visit where the participant reported engaging in drug dealing. Participants who did not initiate drug dealing were censored at the date of their last follow-up visit.

To identify factors associated with drug dealing initiation, we *a priori* selected a range of explanatory variables that were known or hypothesized to be associated with drug dealing initiation (1,8,16,17). Further, as previous research has demonstrated that people who use drugs often engage in drug dealing to support personal consumption behaviors (5,18,19), and that the specific type of drug use may have a differential impact on drug selling behaviors (20), we included individual drug use practices as covariates. These included high intensity alcohol use, defined as ≥ 5 drinks on average daily (yes vs. no); any injection or non-injection crystal methamphetamine use (yes vs. no); any injection or non-injection cocaine use (yes vs. no); and injection or non-injection heroin use (yes vs. no); and any crack cocaine smoking (yes vs. no). Other variables included age (per year older); gender (male vs. female); ethnicity (Caucasian vs. other); and homelessness, defined as having no fixed address, sleeping on the street, couch surfing, or staying in a shelter or hostel (yes vs. no). All drug use and behavioral variables refer to circumstances over the previous 6 months and were therefore treated as time-dependent. Only ethnicity and gender were treated as fixed variables.

As a first step, we provided a list of sociodemographic characteristics, drug use patterns and other related risk behaviors for the study sample. We then used univariate Cox models to estimate the unadjusted hazard ratio and 95% confidence intervals for factors associated with drug dealing initiation in the sample. We then constructed a multivariable model based on the Akaike Information Criterion (AIC) with the best subset selection procedure. This provided a computationally efficient method to screen possible combinations of candidate variables and identify the model with the best overall fit as indicated by the lowest AIC value (21). All statistical analyses were performed using SAS software version 9.4 (SAS, Cary, NC). All tests of significance were two sided, and a *p*-value of $<.05$ was selected for defining statistical significance.

RESULTS

Between September 2005 and November 2014, 1172 youth were recruited into the ARYS study. At enrollment, 272 (23%) were drug dealing naïve. 78 (27%) participants were excluded as a result of lacking a follow-up visit. The average yearly lost to follow-up rate during the study period among these participants was 2.96%. By the time this study was conducted, a total of 194 (71%) youth completed at least one study follow-up and were therefore eligible for the current analysis. There were no significant differences with respect to gender ($p = 0.205$) or age ($p = 0.457$) between the 194 youth who were eligible for the analysis vs. the 78 drug dealing naïve youth who were excluded because they either did not have a follow-up visit at the time this analysis was conducted or were not enrolled in the cohort long enough to be due for a study follow-up visit. Among the 194 eligible study participants, 103 (53%) were male, the median age was 21 (Interquartile Range [IQR]: 19-23), the median number of study visits was 3 (IQR= 2-5), and the median follow up time per participant was 19.7 (IQR= 10.8-34.2) months. Over the course of the study, 56 (29%) drug dealing initiation events were observed for an incidence density of 13.0 per 100 person-years (95% Confidence Interval [CI]: 9.9-17.2). Table 1 presents the sociodemographic information, drug use patterns and other risk behaviors of our study sample.

In multivariable Cox regression analysis, presented in Table 2, male gender (Adjusted Hazard Ratio [AHR] = 1.90, 95% CI: 1.06-3.42), homelessness (AHR = 1.88, 95% CI: 1.05-3.35), crystal methamphetamine use (AHR = 2.48, 95% CI: 1.47-4.20), and crack cocaine smoking (AHR = 2.35, 95% CI: 1.38-4.00) were positively and independently associated with initiating drug dealing.

DISCUSSION

In the current study, among street-involved youth with no history of dealing drugs, drug dealing initiation incidence was found to be significantly elevated among males and associated with specific risk factors, including crystal methamphetamine use, crack cocaine smoking, and homelessness.

The association between stimulant use and drug dealing initiation builds on previous research suggesting that specific features of stimulant drugs may perpetuate behaviors that place individuals at greater risk of street-entrenchment and related harms such as drug dealing. In our study, street-involved youth who use crystal methamphetamine were found to be more likely to initiate drug dealing; previous research has suggested that this substance's stimulant effect and the associated need for repeated use may create a financial need to deal drugs (5,22–24). This interpretation may be especially applicable to our sample of street-involved youth, as 38% of those who use crystal methamphetamine did so on a daily basis, a level of use that may create a significant financial burden. Though drug dealers do report supporting their own drug use as a motive for dealing, this does not explain why some drugs were more likely than others to prompt a user to begin dealing. Crystal methamphetamine users may have unique social circumstances, addiction experiences, or psychological traits that prompt drug dealing. Further research into this strong association is merited. Stimulant use overall has long been associated with engagement in risky sex (including sex work),

nonfatal overdose, and other markers of vulnerability, including syringe sharing, homelessness, and incarceration (25–29). Although the risk profiles of people who use stimulants might partially account for their increased odds of engaging in drug dealing, involvement in the drug trade has been linked to delayed stimulant-use cessation among adult injection drug users (30), suggesting that income from drug dealing may also encourage and perpetuate drug use (5,31).

Regardless of the direction of the relationship between stimulant use and drug dealing, a clear implication of these findings is that an urgent need exists for easy access to evidence-based, youth-centric treatments for stimulant addiction. This includes the need for the development, implementation, and evaluation of effective psycho-social and pharmacological therapies, which have not emerged thus far (32). Improving addiction treatment access and options for youth who use stimulants can be expected to reduce engagement in drug dealing along with other risky income generating activities (33,34).

The present analysis also supports the previously-identified link between dealing drugs and homelessness (1,4,35). Previous research has found that street-involved youth who engage in drug dealing are at an elevated risk for homelessness and are less likely to transition out of homelessness (36), suggesting that homelessness and drug dealing are interconnected among this population. Although one interpretation of this connection could be that homelessness and drug dealing are both markers of a larger problem of economic insecurity, homelessness has been linked with engagement in risky sex and problematic drug use patterns, including initiation into injection drug use among youth (28,37,38). This suggests that addressing the housing needs of vulnerable youth may positively influence their drug use patterns and reduce their economic vulnerability, thereby reducing their risk of initiating drug dealing; even in cases where one becomes homeless as a result of initiating drug dealing, being housed may yet aid in transitioning to the licit economy. A ‘Housing First’ approach is an example of an evidence-based housing intervention that provides immediate, low threshold housing often coupled with intensive delivery of community and psychological care. This strategy is associated with a number of positive outcomes, including decreased substance use and improved mental health (39,40), and may be particularly well suited to addressing the housing needs of street-involved youth. Given that youth have different requirements than adults, a Housing First approach with this population may require additional supports, including education resources, expanded opportunities for youth to make their own choices about their housing, and family reconnection support (41).

In addition to addressing the factors associated with drug dealing initiation, as outlined above, interventions to address street-involved youths’ overall economic vulnerability is another potential approach that can be expected to reduce initiation into drug dealing among youth. Prior studies have documented a high degree of willingness among people who use drugs to cease engaging in drug dealing if they did not need money to pay for drugs or had other opportunities to legitimately earn income (8,42). Promoting the economic security of youth through the provision of low-threshold employment opportunities may reduce one of street-involved youths’ major incentives for entering the drug trade, and it may address housing instability and drug use itself as well (5,30,43,44).

The finding that males were more likely to initiate drug dealing aligns with previous research on gender-based differences in drug dealing (10,45). There are several potential explanations for this observation. It has been argued that “the streets” are defined as primarily male spaces in the culture of street-involved youth, and that young women involved in street-based illicit economic activities (i.e., drug dealing and acquisitive crime) typically must adopt subordinate roles when they do so (2); perhaps this makes females less likely to be attracted to or financially successful in the drug trade. In addition, some females in the drug trade report substantial – and possibly disproportionate (versus males) – vulnerability, and have cited the potential for violence as a deterrent to selling drugs (46). Although the current study findings support prior investigations that drug dealing is more prevalent among males, the importance of preventing female youth from entering the drug trade should not be overlooked given that street-involved females have been found to be at greater risk of experiencing violence and vulnerability while engaging with the street economy (46,47).

There are several limitations to our study. First, as with all community-recruited cohorts, the ARYS cohort is not a random sample and therefore may not generalize to other populations of street-involved youth. Second, data were collected using self-reported information and is thus vulnerable to recall bias and socially desirable responding. It may be that respondents underreported their drug use and/or involvement with drug dealing, however, we know of no reason why underreporting between exposure groups would be different, and so the impact of non-differential misclassification would be expected to bias our estimates towards the null. However, self-reported risk behavior has been shown to be largely accurate among adult substance-using populations (48) and also among various youth populations (49).

In summary, this study found that drug dealing initiation was significantly more likely among male street-involved youth and associated with crystal methamphetamine use, crack-cocaine smoking, and homelessness. Given the well-documented harms associated with drug dealing, including heightened risks of violence and involvement with the criminal justice system, interventions to prevent drug dealing initiation are urgently needed. In particular, increasing youth-centric stimulant addiction treatment and supportive housing, as well as efforts to increase the economic security of vulnerable youth, such as low threshold employment, are likely to have promise in preventing drug dealing initiation.

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Table 1

Characteristics of street-involved youth in Vancouver, Canada with no history of drug dealing at baseline (n=194).

Characteristic	n, (%)
Age at baseline (median, IQR ^a)	22 (20 – 23)
Age at first hard drug use (median, IQR)	16 (15 – 18)
Hard drug use duration ^b (median, IQR)	7 (5 – 10)
Female Gender	91 (46.9)
Caucasian Ethnicity	127 (65.5)
High School Incompletion	111 (57.2)
Homelessness ^c	166 (85.6)
Incarceration ^c	55 (28.4)
Heavy alcohol use ^c	41 (21.1)
Crystal methamphetamine use ^c	
Any use	125 (64.4)
Daily use (injection and/or non-injection)	48 (24.7)
Injection	55 (28.4)
Cocaine use ^c	
Any use	118 (60.8)
Daily use (injection and/or non-injection)	12 (6.2)
Injection	27 (13.9)
Heroin use ^c	
Any use	(41.8)
Daily use (injection and/or non-injection)	30 (15.5)
Injection	56 (28.9)
Crack use ^c	
Any use	121 (62.4)
Daily use (injection and/or non-injection)	35 (18.0)
Injection	11 (5.7)
Marijuana use ^c	
Any use	177 (91.2)
Daily use	116 (59.8)

Note:

^aIQR = Interquartile range;

^bCalculated as years since first hard drug use at last study visit;

^cRefers to having engaged in behavior or experienced characteristic at baseline or some point over the study period

Table 2

Multivariable Cox regression analyses of factors associated with initiating drug dealing among street-involved youth in Vancouver (n=194).

	<u>Unadjusted Hazard Ratio</u>		<u>Adjusted Hazard Ratio</u>	
	HR (95% CI)	<i>p-value</i>	AHR (95% CI)	<i>p-value</i>
Age (Per year older)	0.95 (0.86-1.04)	0.252		
Gender (Male vs. Female)	1.89 (1.08-3.29)	0.025	1.90 (1.06-3.42)	0.031
Ethnicity (Caucasian vs. other)	0.95 (0.56-1.62)	0.857		
Homeless^a (Yes vs. No)	2.35 (1.33-4.16)	0.003	1.88 (1.05-3.35)	0.033
Heavy alcohol use^a (Yes vs. No)	0.83 (0.26-2.65)	0.751		
Crystal meth use^a (Yes vs. No)	2.78 (1.63-4.76)	<0.001	2.48 (1.47-4.20)	<0.001
Cocaine use^a (Yes vs. No)	2.06 (1.18-3.58)	0.011		
Heroin use^a (Yes vs. No)	2.19 (1.26-3.79)	0.006	1.55 (0.89-2.71)	0.125
Crack smoking^a (Yes vs. No)	2.87 (1.67-4.93)	<0.001	2.35 (1.38-4.00)	0.002

Note:

^aDenotes activities in the previous six months