



Examining the link between cocaine binging and individual, social and behavioral factors among street-based cocaine users



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HIGHLIGHTS

- Cocaine binging was assessed in a sample of out-of-treatment cocaine users.
- Prevalence of cocaine binging over the month prior to recruitment was 24.5%.
- Cocaine binging was associated with markers of vulnerability.
- Cocaine binging was also associated with both sexual and drug use risk behaviors.

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ABSTRACT

Aims: To estimate the prevalence of cocaine binging and examine associated factors, to characterize binge episodes and to study the relationship between cocaine binging and HIV and HCV risk behaviors among street-based cocaine users.

Methods: A prospective cohort study was conducted in Montréal, Canada. Interviewer-administered questionnaire were carried out at 3-month intervals. Cocaine binging was defined as using large quantities of cocaine, without stopping, over a limited period of time, until resources run out or until being physically incapable of consuming. Generalized Estimation Equations (GEE) analyses were used. Covariates considered included demographic, behavioral, mental health and social risk factors.

Findings: In total, 605 participants were recruited. Prevalence of cocaine binging over the month prior to recruitment was 24.5%. Correlates of cocaine binging were older age (AOR 1.46), homelessness (AOR 1.44), criminal/marginal income strategies (AOR 1.61), high psychological distress (AOR 1.31), high cocaine dependence (AOR 3.71), drug overdoses (AOR 1.56) and smoking as the main route of cocaine administration (AOR 1.38). Additional GEE analyses showed that cocaine binging was significantly associated with the sharing of drug paraphernalia (AOR 1.35) and sexual relations under the influence of cocaine (AOR 1.21).

Conclusion: Cocaine binging is frequent among street-based cocaine users and is associated with markers of vulnerability. It is also associated with increased odds of both sexual and drug use risk behaviors. Interventions need to be tailored in order to help cocaine bingers develop personal strategies that could prevent binging. Harm reduction programs should help cocaine bingers adequately assess their drug equipment needs.

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1. Introduction

While cocaine production has declined over the past years, its use still remains high in certain regions of the world (United Nations Office on Drugs and Crime (UNODC), 2015). For example, in Canada,

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the past-year prevalence of cocaine use was 1.3% for the general population, which is much higher than the 0.4% worldwide average (UNODC, 2015). National data identified cocaine as the second most used illicit drug among street-involved adults (Health Canada, 2014). Among people who inject drugs (PWID), cocaine was the most reported injected drug in the country (Public Health Agency of Canada (PHAC), 2014). Also, since the early 2000s, an increase in crack use has been observed mainly among street-involved populations (Roy et al., 2012a; Urban Health Research Initiative (URHI), 2013; Werb et al., 2010).

This situation is worrisome because cocaine injection and crack smoking have long been associated with a myriad of social and health consequences. For instance, cocaine injection is recognized as an important risk factor for HIV and hepatitis C virus (HCV) infections, mainly due to the higher frequency of drug injection paraphernalia sharing (Bruneau, Roy, Arruda, Zang, & Jutras-Aswad, 2012; Grebely et al., 2014; Roy et al., 2012b; Tavitian-Exley, Vickerman, Bastos, & Boily, 2015). Crack users are also at high risk of acquiring HIV through risky sexual behaviors (Booth, Kwiatkowski, & Chitwood, 2000; Duff et al., 2013; Ross, Hwang, Zack, Bull, & Williams, 2002; Roy & Arruda, 2015; Spittal et al., 2003). These heightened risks might be attributed to a specific use pattern. Indeed, mostly because of its short-lived and intense pharmacological effects, cocaine is often used in a characteristic high-intensity and compulsive manner (Bourgois & Bruneau, 2000; Hudgins, McCusker, & Stoddard, 1995; Tyndall et al., 2003). This pattern of use is generally referred to as cocaine binging, which implies using large quantities of cocaine over a period of time, until resources run out or until users are physically unable to use any more (Harzke & Williams, 2009).

Little public health research has been done on cocaine binging. Ethnographic accounts have depicted cocaine binging as episodes where users exhibit cravings, physical and psychological distress, and impaired judgment leading to frenetic injection behaviors and/or sex-for-crack exchanges (Bourgois, 2003; Bourgois & Bruneau, 2000; Inciardi, Lockwood, & Pottieger, 1993; Williams, 1992). As for quantitative studies, the majority have addressed either drug binging as a whole or solely methamphetamine binging. Study findings are worrisome since drug binging was associated with an increased risk of HIV infection (Craib et al., 2003; Miller et al., 2006a; Millson et al., 2003), non-fatal overdoses (Nolan, DeBeck, Nguyen, Kerr, & Wood, 2014), injection drug use initiation (Miller, Strathdee, Kerr, Li, & Wood, 2006b), sharing of injection paraphernalia (Wood et al., 2002), and public injection (Nolan et al., 2014). Frequent drug use and certain sexual risk behaviors were more common among methamphetamine users who binged compared to those who did not (Cheng et al., 2010). They were also more likely to report certain states or mental problems, such as symptoms of depression (Semple, Patterson, & Grant, 2003). To our knowledge, only one quantitative study focused exclusively on cocaine binging. Harzke and Williams (2009) examined binge use and sexual risk behaviors in HIV-positive African-American crack users. They showed that bingers were more likely to report homelessness and scored higher on the need for help regarding their drug problem. Sexual risk behaviors were also more frequent among bingers, including high number of sex partners, and trading sex for money or drugs.

Understanding cocaine use patterns among users is of paramount importance for improving intervention programs and achieving a better control over HIV and HCV transmission. The first objective of this study was to estimate the prevalence of recent cocaine binging in a sample of street-based cocaine users who smoked crack and/or injected cocaine. The second objective was to examine the correlates of cocaine binging episodes among them. Additionally, exploratory analyses were performed to characterize binge episodes and to study their relationship with some HIV/HCV risk behaviors.

2. Methods

This study was based on the COSMO project, a prospective cohort study on HIV and HCV risk behaviors and mental health among street-

based cocaine users that was conducted in Montréal, Canada, between 2010 and 2015. The methodology was described in detail elsewhere (Lévesque et al., 2014). Briefly, the study design included one baseline visit and 5 follow-up visits at 3-month intervals. To be eligible, participants had to have used cocaine in the last month, either by smoking crack or by injection. They also had to speak French or English, be able to consent, and be at least 14 years old. Recruitment took place mainly in community-based programs located downtown Montréal, including homeless day programs, shelters and needle-exchange programs. Interviews were conducted in a research office nearby these recruitment sites. After providing informed consent, participants underwent an interviewer-administered questionnaire lasting between 60 and 90 min. A shorter version of the same questionnaire (20 to 30 min) was administered at every follow-up visit. The “Life History Calendar” technique was used to help situate events in time and to minimize recall bias (Caspi et al., 1996).

Detailed contact information was updated at each interview, and thorough follow-up procedures were used, according to participants periodic consent renewal. These procedures included regular visits in participating community-based organizations, personal phone calls and letters as well as tracing in different organizations such as prisons and drug treatment centers. At the end of each interview, participants were offered a financial compensation of \$30 CAD for their time. This research was approved by the ethical boards of the Faculty of medicine and health sciences of the Université de Sherbrooke and the Centre Hospitalier de l'Université de Montréal.

2.1. Measurement

For this study, the main outcome of interest was cocaine binging in the month preceding the interview. Participants were asked: have you “used large quantities of cocaine (powder, crack or freebase), without stopping, over a limited period of time, until you had no more or until you were no longer physically capable of consuming any”. In the absence of an operational definition of cocaine binging in the literature, the wording of this question was developed based on a study on methamphetamine (Cheng et al., 2010), another stimulant drug. The preliminary wording was submitted for consultation with a group of cocaine users, inquiring about episodes of intense use and how they qualified and named these episodes. Since the word *binge* was a term that neither French nor English speaking users were familiar with, we tested the appropriateness and clarity of the above question with them at the end of the discussion.

The variables considered as potential cocaine binging correlates included age (older than 25 years old versus younger), gender, country of origin (born in Canada versus outside), homelessness in the past 3 months, and having had a marginal or criminal activity as the main source of income in the past 3 month (i.e. drug dealing, panhandling, theft, etc.). We also assessed the occurrence of drug overdose in the past 3 months, alcohol binging (five drinks or more in one occasion for men and four for women), injection drug use, main route of cocaine administration, heroin use, stimulants use (other than cocaine) and the non-medical use of prescription opioids or psychotropic medication (anxiolytics, hypnotics or barbiturates) in the previous month. The level of cocaine dependence in the previous month was also assessed using the severity of dependence scale (SDS) (Gossop et al., 1995). The SDS is a five items tool measuring the intensity of the dependence to a drug over a period of time. The score ranges between 0 and 15. Cocaine dependence was determined by a SDS score of 4 or higher (González-Sáiz et al., 2009). Finally, psychological distress was evaluated using the K10 scale developed by Kessler and colleagues (Kessler et al., 2002). The scale measures the level of anxiety and depressive symptoms a person has experienced in the previous four-week period. The total score ranges from 10 to 50 and a score of 30 or more represented “severe psychological distress”. This cutoff was determined based on validation studies and prior studies using this scale (Andrews & Slade,

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