

# REGIONAL PATTERNS OF SUBSTANCE USE AMONG THE HOMELESS IN BRITISH COLUMBIA

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**H**OMELESSNESS IS A GROWING national problem (Frankish, Hwang, and Quantz 2005). Homeless individuals experience numerous health issues, including higher rates of mortality, acute health issues, and mental illness. In particular, rates of substance use, substance use dependence/disorder, and concurrent disorders are significantly higher among the homeless than among the general population (Strehlau et al. 2012; North et al. 2010; Hwang 2001). Substance use is both associated with and perpetuated by homelessness (Johnson and Chamberlain 2008). Understanding how substance use relates to homelessness is important in determining public policy – as in deciding, for example, whether or not a harm reduction or an abstinence-based program receives funding. However, the typical public policy debate assumes that homeless populations are homogeneous and fails to account for regional and demographic differences in substance use. Fazel and colleagues (2008) outline the substantial heterogeneity among homeless populations and the need for local surveys. In this study we compare the prevalence rates of substance use among three discrete homeless populations in order to facilitate better regional implementation of public policy.

The heterogeneity of homeless populations and patterns of substance use have been documented for over a decade, and differences across populations are relevant to policy discussions and funding decisions. North and Smith (1993) report that homeless males outnumber females and that men are more likely to have higher rates of substance abuse, a history of incarceration, and longer periods of homelessness. Homeless in rural areas are more likely to be younger, to include more single women, and to be more highly educated than homeless in urban areas (First, Rife, and Tommey 1994). In Canada, people of Aboriginal descent are often overrepresented

in homeless populations (Patterson, Somers, and Moniruzzaman 2011; Hwang 2001); understanding differences between Aboriginal and non-Aboriginal homeless persons may lead to a better understanding of this overrepresentation. One-third of a sample of homeless individuals living in Vancouver identified as Aboriginal, and 78 percent were male; in Prince George the number of Aboriginals was 66 percent, and 65 percent were male; and in Victoria, 25 percent were found to be Aboriginal, and 64 percent male (Kraus et al. 2010; Kutzner and Ameyaw 2010; Victoria Cool Aid Society and Community Council 2007).

In Canada, major regional differences in substance use have been observed in the general population. Reports of cannabis use are significantly higher in British Columbia than in other provinces (Adlaf, Begin, and Sawa 2005). Compared to other large cities such as Montreal, Quebec City, Toronto, and Edmonton, Vancouver has the highest rates of injection drug, heroin, and crack cocaine use in the country (Fischer et al. 2005; Fischer et al. 2006; Martens et al. 2008).

In this article we use data from the BC Health of the Homeless (HOH) survey to compare three cities: Vancouver, a high-density metropolitan centre; Victoria, the medium-sized capital; and Prince George, a small centre eight hundred kilometres north of Vancouver. The geographic variety, population size, and demographic differences among these cities make for interesting comparisons in relation to homelessness, substance use, and social policy.

The city of Vancouver has a population of 603,502 and is at the centre of a larger metropolitan district containing almost 2.5 million people (Statistics Canada 2011). The city conducts an annual count of the homeless found on the streets, in shelters, or living in substandard housing (e.g., “single-room occupancy hotels” – rental apartments with shared washroom accommodations and no cooking facilities). The 2012 count identified 1,602 homeless and under-housed individuals (City of Vancouver 2012a). A large proportion of the homeless are situated in Vancouver’s Downtown Eastside (DTES) neighbourhood, a community of marginalized people marked by disproportionately high rates of poverty, homelessness, mental illness, substance dependence, and trauma. This marginalization has led to the acceptance of criminal activities and an open drug culture in the area, which further complicates issues surrounding homelessness (Roe 2009). In the second decade of the twenty-first century, reinvestment is changing the DTES as city policy encourages the construction of mixed-income housing throughout the city (City of Vancouver 2012b) and incentivizes private developers to

redevelop dilapidated buildings into rental housing and low-income housing aimed at reducing homelessness.

The population of Victoria is 344,615 (Statistics Canada 2011). The last homeless count in 2007 estimated that there were 1,242 homeless individuals (Victoria Cool Aid Society 2007). In response, Victoria has established a number of homeless prevention strategies, including a homelessness prevention fund, emergency shelters, and subsidized housing (Pauly et al. 2012). However, mental health and substance use support programs are more limited than they are in Vancouver.

Prince George, British Columbia's de facto northern capital, has a population of 71,974 (Statistics Canada 2011). Prince George has lower than average education levels and higher than average crime rates compared to the rest of the province (BC Stats, Data Services, 2011). Over 10 percent of Prince George's population is Aboriginal, significantly higher than the provincial average. Prince George has a comparatively low immigrant population. The 2010 Prince George homeless count identified 361 homeless individuals, of whom two-thirds self-identified as Aboriginal (Kutzner and Ameyaw 2010). Homelessness in Prince George is exacerbated by a lack of affordable or supportive housing, low incomes, and problems surrounding co-occurring mental health and substance use disorders (*ibid.*).

## METHODS

The BC HOH survey was a cross-sectional survey of five hundred homeless individuals living in Vancouver, Victoria, and Prince George conducted from May to September 2009. Sample sizes appropriately represented each city's homeless population: 250 participants in Vancouver, 150 in Victoria, and 100 in Prince George. Participants needed to be at least nineteen years of age or older, willing and able to give informed consent, able to communicate and be understood in English, and each had to self-identify as being homeless during the month preceding the study. For the purposes of the HOH study, we defined homelessness as living on the streets or living in a shelter. Half of our sample was recruited from the street and the other half from shelters. The group from the street was deemed "absolutely homeless" and was recruited via street outreach, at drop-in centres, at food banks, and through service staff. The second group was recruited from shelters. Outreach staffs were consulted in order to determine the housing status of potential participants recruited from services and outreach centres.

Trained interviewers conducted single, face-to-face interviews, most of them in a research office, although some took place at the site of recruitment, in coffee shops, or wherever the participant felt most comfortable. Potential participants were given a detailed description of the study and were interviewed only after they had provided informed consent. All participants received thirty dollars, whether the interview was completed or not. The interview was designed to last an hour, but individuals were permitted to take breaks during the interview if they wished to do so. The University of British Columbia and the Providence Health Care Research Institute Behavioural Research Ethics Board granted ethical approval for this study.

The BC HOH study used a battery of assessments, but here we focus on socio-demographics and substance use. Socio-demographic information included age, gender, ethnicity (white, First Nations/Aboriginal, black/African Canadian, East Asian, South Asian, Southeast Asian, West Asian, Hispanic/Latin American, other); education (less than a high school diploma or more than or equal to a high school diploma); current housing situation (public housing, subsidized house, no housing, rent/own, don't know); study site (Vancouver, Victoria, or Prince George); and income source (governmental support or no governmental support).

Substance use was assessed using the Maudsley Addiction Profile (MAP) (Marsden et al. 1998). Participants were asked to indicate the frequency and amount of alcohol, cocaine (powder or crack cocaine), cannabis, opioids (heroin, non-prescribed methadone, or non-prescribed opioids), amphetamines (amphetamines or crystal methamphetamines), and non-prescribed benzodiazepines that they used in the month prior to the interview. Participants were categorized as using a particular substance when they self-reported having used the respective substance at least one day during the previous thirty days. The MAP has been shown to be reliable and valid in previous studies (Marsden et al. 1998; Marsden et al. 2000).

All analyses were conducted using SPSS version 20. Contingency tables were created through cross tabulation, and chi-squared tests evaluated the level of significance for each category across the three cities.

## RESULTS

The mean age of participants in the entire study sample was thirty-eight years, with a range of eighteen to sixty-six years; this mean was not significantly different between cities. Thirty-nine percent of the par-

ticipants in the full sample were female, but the Prince George sample was almost evenly split by gender and the proportion of women in Vancouver and Victoria was lower than the overall mean. Forty percent of all participants identified as Aboriginal, but this proportion differed significantly by city. Aboriginals accounted for 75 percent of participants from Prince George, 35 percent in Vancouver, and 32 percent in Victoria. In Vancouver, 8 percent identified as other (includes black/African, Asian, Hispanic/Latin American, and other); only 5 percent in Victoria and 3 percent in Prince George did likewise. Sixty-three percent of the total study sample had less than high-school education. Eighty percent of participants lived on government income support at the time of the study, and there was no significant difference in this figure across cities. Demographic details collected in our study are consistent with numbers reported in the homeless counts for these cities (City of Vancouver 2012a; Victoria Cool Aid Society 2007; Kutzner and Ameyaw 2010).

Table 1 presents the rates of substance use across the three cities and in the total sample. Overall, alcohol, cannabis, and crack cocaine were the most frequently used substances. There was a significant difference in alcohol use across cities, with the most frequent use being in Prince George. In contrast, amphetamine and heroin use was significantly more common in Vancouver and Victoria. Non-prescribed opioid use also differed significantly, with the least frequent use being in Vancouver.

Table 2 indicates the number of participants who used multiple substances (including alcohol) in the month preceding the HOH study. There were no significant differences across cities, but the overall rates are informative. Almost 44 percent of all participants used three or more substances, and a further 31 percent used two substances.

Figure 1 charts the severity and frequency of drug use. *Sporadic* use is defined as use on one to four of the preceding thirty days; *regular* use signifies consumption on five to twenty-five days; and *daily* use denotes consumption on twenty-six to thirty days. In general terms, sporadic use averages out to using less than one day a week, and daily use averages out to missing less than one day a week. Differences in alcohol, heroin, non-prescribed opioid, and non-prescribed methadone use were statistically significant between each of the three cities. The most notable difference was in daily alcohol use, where Prince George had the highest rate. Daily heroin use was greatest in Vancouver. In contrast, significantly higher daily use of non-prescribed opioids was observed in Victoria and Prince George. Non-prescribed methadone use also differed significantly across cities, but the small overall number of users suggests the differences are of no practical significance.

TABLE 1  
*Type of substance used by participants, by city (past 30 days)*

	VANCOUVER N = 250 (%)	VICTORIA N = 150 (%)	PRINCE GEORGE N = 100 (%)	TOTAL N = 500 (%)	P ( $\chi^2$ )
Alcohol	135 (54.0)	84 (56.0)	77 (77.0)	296 (59.2)	<0.001 <sup>‡</sup>
Cocaine (powder)	49 (19.6)	29 (19.3)	21 (21.0)	99 (19.8)	0.943
Crack cocaine	124 (49.6)	73 (48.7)	59 (59.0)	256 (51.2)	0.215
Amphetamine*	47 (18.8)	24 (16.0)	6 (6.0)	77 (15.4)	0.011 <sup>‡</sup>
Cannabis	141 (56.4)	94 (62.7)	54 (54.0)	289 (57.8)	0.325
Benzodiazepine	10 (4.0)	13 (8.7)	8 (8.0)	31 (6.2)	0.122
Heroin	73 (29.2)	39 (26.0)	14 (14.0)	126 (25.2)	0.012 <sup>‡</sup>
NP opioids <sup>†</sup>	17 (6.8)	25 (16.7)	22 (22.0)	64 (12.8)	<0.001 <sup>‡</sup>
NP methadone	9 (3.6)	13 (8.7)	5 (5.0)	27 (5.4)	0.093

\* Amphetamine = crystal methamphetamines and amphetamines

<sup>†</sup> NP = non-prescribed

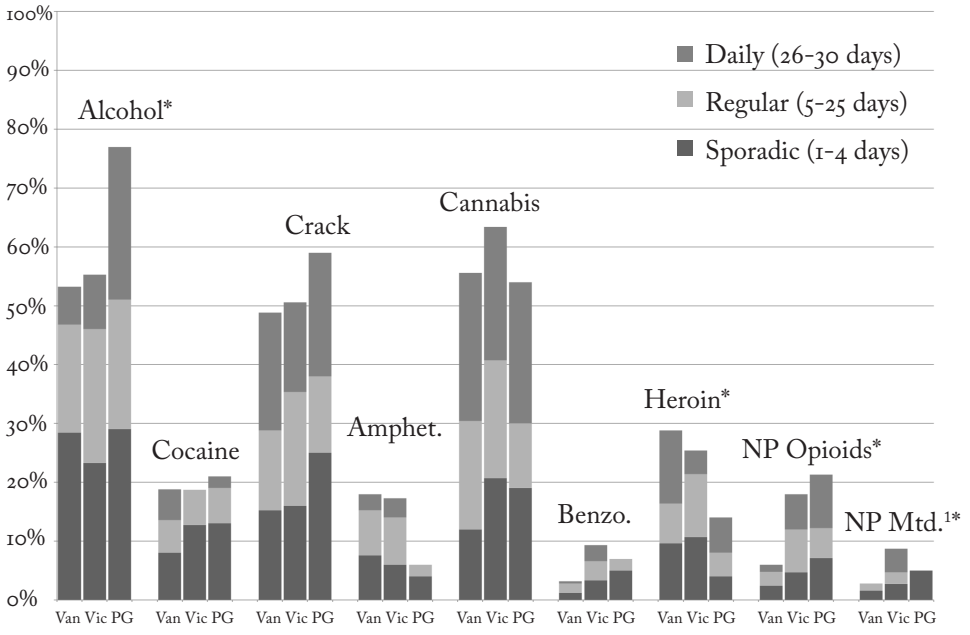
<sup>‡</sup> P-value  $\leq 0.05$

TABLE 2  
*Multiple substance use by participants, by city*

	VANCOUVER N = 250 (%)	VICTORIA N = 150 (%)	PRINCE GEORGE N = 100 (%)	TOTAL N = 500 (%)	P ( $\chi^2$ )
No SU*	34(13.6)	9(6.0)	8(8.0)	51(10.2)	
Single SU	34(13.6)	23(15.3)	18(18.0)	75(15.0)	0.123
2 SU	82(32.8)	48(32.0)	25(25.0)	155(31.0)	
3 or more	100(40.0)	70(46.7)	49(49.0)	219(43.8)	

\* SU = substance use

FIGURE 1  
Severity/frequency of reported substance use by participants, by city



\*P-value  $\leq 0.05$

<sup>1</sup> = Methadone

## DISCUSSION

The literature on substance use among homeless populations in Canada compares rates of use across the country's large metropolitan areas. In this study, we found that substance use among the homeless in three quite different cities in a single province varied considerably. Patterns of substance abuse in Vancouver were similar to those in other large urban areas in Canada. In the small urban centre of Prince George the situation was markedly different, with much higher levels of alcohol use and a lower incidence of amphetamine and heroin use. In broad terms patterns of substance use in Victoria shared characteristics with those in both Vancouver and Prince George (Hutchinson and Blakely 2003; Gfroerer, Larson, and Colliver 2007).

Alcohol, cannabis, and crack cocaine were the most commonly used substances across the population sampled in this study. Homeless people in all three cities used alcohol more frequently than any other substance, particularly in Prince George, and made cannabis their

second most frequent choice. Alcohol and cannabis are also the licit and illicit substances of choice among Canadians in general (Hatsukami and Fischman 1996; Adlaf, Begin, and Sawa 2005). The regional availability of a substance appears to play a role in the frequency of its use. Research has found that cocaine and crack cocaine are less readily available and thus less commonly used in rural areas than in cities, but our analysis detected no discernible difference in the use of these substances across the three cities despite their significant differences in size and location (Galea, Rudenstine, and Vlahov 2005). Cannabis, one of the largest cash crops in British Columbia, is readily available (Werb et al. 2012), which helps explain the high rates of use and the similar frequency of use in all three cities. By contrast, heroin and amphetamine use were significantly lower in Prince George than in Vancouver and Victoria. Patterns of heroin and non-prescribed opioid use bore an inverse relation to each other across the three cities; non-prescribed opioid use was least frequent in the port city of Vancouver, where heroin is readily available. Similar results for non-prescribed opioid use were found in a US sample of substance abuse treatment admissions, with heroin linked to urban admissions and other opioids associated with rural admissions (Substance Abuse and Mental Health Services Administration 2012). Yet, if geographic determinants of supply are of consequence, the lower incidence of amphetamine use in Prince George is perhaps surprising as amphetamines are typically produced locally (Shukla and Bartgis 2009).

This study suggests that substance use among the homeless varies based on the specific region and context. This variation may be linked to differences of substance availability, demographics, and other factors. In order to effectively deliver substance use resources to homeless populations, local needs assessments should first be conducted in order to tailor treatment and prevention programs to the specific context of that particular homeless population. The public policy implications of these findings are as follows. First, public policy on homelessness (e.g., BC Government's Homeless Initiative) must be flexible enough to meet the unique needs of each location's homeless population. In addition to acknowledging differences in patterns of substance use or demographic factors, policy should address the ability and means of a local government to meet these needs. These results should be taken into consideration when designing future substance use programs so as to tailor them to a specific community. Second, information on substance use patterns can help us to understand the interaction between availability and use.



Third, good metrics are required to quantify and measure needs and impacts. Regular counts of homeless populations as well as background data indexing substance use, reasons for homelessness, and health care utilization are important to understanding the nature of homelessness and to measuring the impact of local programs. At the most basic level, consistent and regular surveying of a homeless population provides information for governments to enable them to determine priorities, for example with regard to the provision of services such as housing and harm reduction (Pauly et al. 2013).

There are several limitations to this study. It is difficult to be certain that any sample of the homeless population is truly representative. The demographic characteristics of the present sample are similar to those reported by citywide homeless counts, but even these are limited in enumerating the true population. In addition, the different definitions of homelessness and sampling techniques used to measure homeless populations make it difficult to generalize findings. Recall and self-report biases are also limitations of this study, and the large number of women and Aboriginals in our sample may limit the applicability of these results beyond British Columbia.

Homelessness and substance use are public health challenges that are not limited to major metropolitan centres in Canada. Overall, the results from this study support the notion that alcohol and prescription drug abuse are more common in remote and rural settings, whereas, due to availability, illicit substance use is more common in large urban centres. The results support the need to adapt addiction services to the specific needs and patterns of substance use associated with these unique homeless populations.

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