

# Methamphetamine Use Among Marginalized Youth in British Columbia

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## ABSTRACT

**Background:** Crystal methamphetamine (MA) is a powerful, highly addictive central nervous stimulant that can cause serious health consequences including neurotoxicity, paranoia, psychosis, depression, violence, and death. The objective of this study is to assess the prevalence and characteristics of MA use among two marginalized populations of youth (less than 30 years of age) in British Columbia.

**Methods:** A self-administered questionnaire was administered to a convenience sample of Vancouver street-involved youth (SY) and Lesbian/Gay/Bisexual/ Transgender/Questioning (LGBTQ) centre youth in Vancouver and Victoria. Items measured include: participants' demographic characteristics; illicit substance use, including details of MA use; attempts at recovery and treatment; and potential consequences of MA use.

**Results:** One hundred and eighty of the 200 questionnaires distributed were completed. Sixty-seven percent of the SY and 24% of the LGBTQ youth reported ever having used MA. Of these: 43% had used within the last week; 46-57% used multiple times per day in their lifetime; they spent a maximum of 7-9 consecutive days awake; they began use in their middle to late teens; and half had sought help for a substance use disorder. SY who used MA within the last week were more likely to also use marijuana, cigarettes, heroin, ecstasy, and ketamine. Previous use of MA was associated with reports of auditory hallucinations.

**Conclusion:** The current study demonstrates a high prevalence of MA use in two marginalized populations of youth. Use in sexual minorities, resulting psychopathology, and concurrent substance use all have important implications in delivery of service, prevention, and subsequent research.

**MeSH terms:** Methamphetamine; amphetamine-related disorders; psychosis, amphetamine-induced; homosexuality; questionnaires

*La traduction du résumé se trouve à la fin de l'article.*

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Crystal methamphetamine (MA), or "crystal meth", is a powerful central nervous stimulant that is typically snorted, smoked, or injected. Heavy MA use carries with it serious health consequences including neurotoxicity, paranoia, psychosis, depression, violence, and potential death.<sup>1</sup> When experimenting with MA, many youth are naïve to its dangers. For those in whom consumption escalates, its strong addictive nature coupled with progressive cognitive decline may leave youth incapable of acknowledging the problem, much less seeking help for it. If help is sought, a relative lack of knowledge surrounding MA use<sup>2,3</sup> contributes to the devastation across a broad spectrum of youth.

Amphetamine and methamphetamine are the most widely used illicit drugs in the world after cannabis. According to the World Health Organization, there are 40.4 million users annually, which is more than for heroin (9.2 million) and cocaine (13.4 million) combined.<sup>2,4</sup> Some American and Canadian school surveys report relatively low rates of amphetamine use.<sup>5,6</sup> The Ontario Student Drug Use Survey (OSDUS) reports that MA use peaked in 1995 (4.7%) and subsequently decreased (to 3.6% in 2003).<sup>7</sup> Other indicators and anecdotal reports suggest a larger problem.

The number of MA-related deaths in British Columbia more than doubled from 15 in 2003 to 33 in 2004.<sup>8</sup> In 2001, among Vancouver's homeless youth aged 19-24, the McCreary Centre Society reported that 43% had used amphetamines (including MA) 10 or more times in their lives and 19% had used amphetamines 10 or more times in the last month. Use of the term "amphetamines", which encompasses drugs such as ecstasy and MA, may be misleading. These are different drugs with different toxicities associated with them.<sup>9,10</sup> Anecdotally, MA use appears to be on the rise in some rural and urban communities and among a wide variety of populations. Our experience in working with lesbian, gay, bisexual, transgender, queer (LGBTQ) and street-involved (i.e., those who live wholly or partially on the streets) youth (SY) suggests the prevalence of MA dependency is relatively high in these specific subpopulations. More common than MA-related death, morbidity associated with its use creates an untoward burden on the user, loved ones, and society. These latter effects are important but poorly

measured.<sup>4</sup> We hope that by understanding more about this drug of abuse, we will be in a better position to assist those in need. We therefore conducted a pilot cross-sectional survey to measure the prevalence and correlates of MA use among these two groups of marginalized youth in Vancouver and Victoria, BC.

## METHODS

We recruited a convenience sample of Vancouver and Victoria youth between March and June 2003 to participate in the Methamphetamine Study of Youth (MASY). Eligible respondents were under 30 years of age; capable of providing informed consent; literate or otherwise able to complete the survey with the assistance of staff; and able to provide confidential answers without the influence of others. Candy was offered as incentive.

A variety of different sites such as drop-in centres and shelters were used to recruit SY in Vancouver. During the same months, LGBTQ participants were recruited in two drop-in clinics in downtown Vancouver and Victoria. These youth are referred to as LGBTQ youth because they attend a LGBTQ Centre, but this is not necessarily indicative of their self-reported sexual orientation. In comparison to SY, fewer LGBTQ participants were solicited for reasons of accessibility.

The self-administered, two-page questionnaire was developed in cooperation with other caregivers and through a small pilot administration. Key aspects of the instrument included simplicity and use of local vernacular to ensure face validity and to collect as much information as possible about the MA experience in a short period of time. The self-administered questionnaire measured participants' demographics; illicit substance use; attempts at recovery; and problems potentially related to MA use.

Reliability of our survey instrument was assessed by test-retests performed 3-4 days apart on 15 street-involved youth. The kappa value for lifetime use of crystal methamphetamine was 1.00. The intraclass correlation coefficients for methamphetamine-related age of first use and maximum number of days spent awake were 0.99 and 0.89, respectively. Weighted kappa values for all drugs of importance in our report were very high (greater than 0.82 with most between

**TABLE I**  
Characteristics of Survey Respondents

		SY (n=126)		LGBTQ Youth (n=54)	
		N	(%)	N	(%)
Age, mean years (STD)		22.2	(3.1)	19	(3.2)
Gender					
	Male	80	(64.5)	28	(52.8)
	Female	35	(28.2)	23	(43.4)
	Transgender	9	(7.3)	2	(3.8)
Ethnicity					
	Caucasian	67	(53.6)	44	(81.5)
	Aboriginal	30	(24)	2	(3.7)
	Black	5	(4)	0	-
	Other	23	(18.4)	8	(14.9)
Sexual Identity					
	Heterosexual	85	(68.5)	12	(22.2)
	Bisexual	13	(10.5)	13	(24.1)
	Homosexual	11	(8.9)	22	(40.7)
	Questioning or Unsure	7	(5.6)	2	(3.7)
	Other	8	(6.5)	5	(9.3)
Crystal MA Use		85	(67)	13	(24)

**TABLE II**  
Characteristics of MA Use

	SY (n=85)		LGBTQ Youth (n=13)	
	Mean	Std Dev	Mean	Std Dev
Maximum Number of Consecutive Days Spent Awake on MA (# missing)	9.3 (5)	9.7	7.2 (1)	5.5
Age at First Use by Age Group (# missing)	(11)		(2)	
14-17 (years old)	14.9	1.81	15.0	1.00
18-20	16.5	1.57	15.8	2.40
21-23	18.0	2.43	21.0	-
24-26	20.5	3.54	16.5	3.54
27-29	20.3	5.00	-	-
	N	%	N	%
Last Use (# missing)	(1)	(2)		
Within last week	37	43.5	6	42.9
Within last month	22	25.9	2	14.3
Within last year	16	18.8	3	21.4
More than one year ago	10	11.8	3	21.4
Maximum Frequency of Use (# missing)	(1)		(0)	
Multiple times per day	37	45.7	8	57.1
Once per day	3	3.7	0	0.0
Multiple times per week	18	22.2	2	14.3
Once per week	2	2.5	0	0.0
Multiple times per month	5	6.2	0	0.0
Once per month	2	2.5	0	0.0
Multiple times per year	10	12.3	4	28.6
Once per year	4	4.9	0	0.0
Ever Sought Help for Substance Use				
Yes	40	47.1	7	50.0
No	45	52.9	7	50.0

**TABLE III**  
Self-reported Problems Among SY, by MA Use in the Previous Week

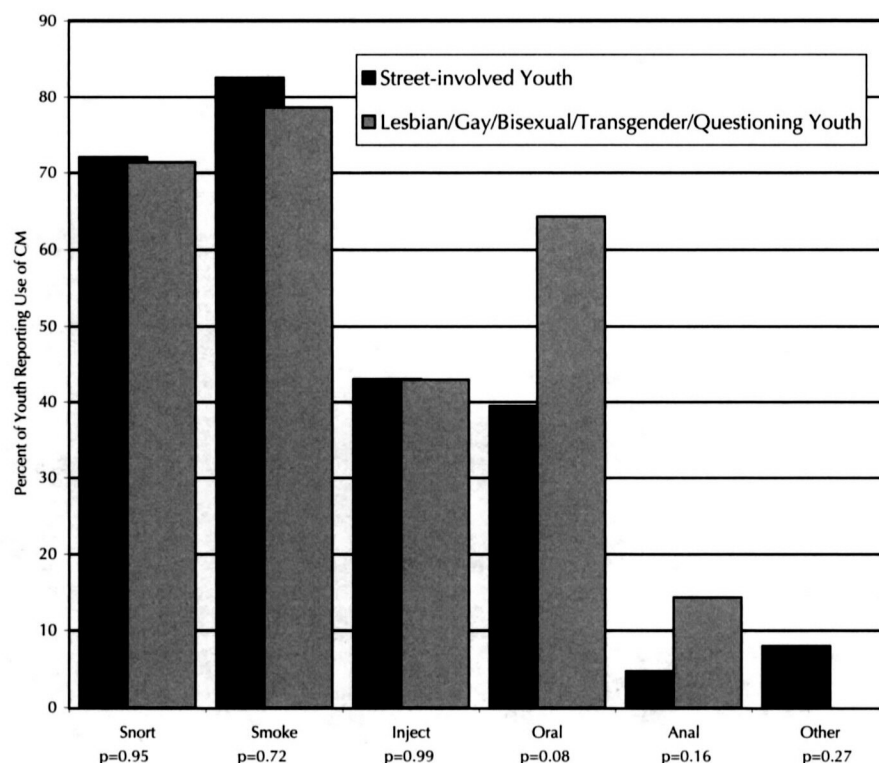
	Percent of Active* MA Users (n=37)	Percent of Other SY† (n=86)	p-value
Heard voices when no one was there	56.8	34.9	0.024
Traded sex for anything of value	35.1	20.9	0.096
Been depressed for longer than 1 month	54.1	46.5	0.443
Attempted suicide	37.8	27.9	0.274
Experienced violence/fighting	78.4	60.5	0.055
Been suspended from school	54.1	46.5	0.443
Been fired from a job	37.8	43	0.592
Spent a night in jail/prison/juvenile detention	75.7	44.7	0.002
Spent more than one night on the street	89.2	59.3	0.001
Had unsafe or unprotected sex	59.5	55.8	0.708
Tested positive for HIV	16.2	11.6	0.488
Tested positive for hepatitis C	29.7	11.6	0.014

\* Reported use of MA within the last week

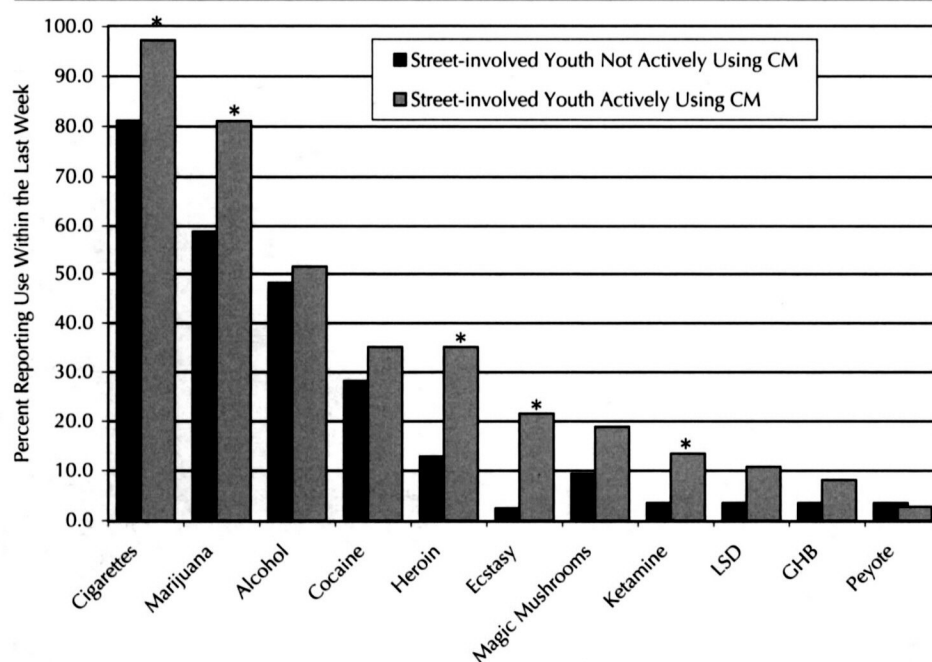
† All those who report no use within the last week

0.91 and 1.00), including those for cigarettes, alcohol, cocaine, heroin, ecstasy, Gamma hydroxybutyrate (GHB), and crystal methamphetamine.

Chi-square tests were used for group comparisons involving route of drug delivery, polysubstance use, and problems potentially associated with MA use.



**Figure 1.** Route of crystal methamphetamine delivery (allowing for multiple responses), by category of youth



**Figure 2.** Active (within the last week) use of other drugs among those SY who are active crystal methamphetamine (CM) users

\* Statistically significant ( $p < 0.05$ )

## RESULTS

Among 142 SY asked to complete the questionnaire, 7 were aged 30 or over; 7 provided incomplete or illegible answers; and 2 refused participation. Thus, 126

(88.7%) questionnaires were available for analysis. In addition, 58 LGBTQ youth were asked to complete the questionnaire, of whom 1 failed to complete the survey and 3 refused participation. Thus, 54 (93.1%) LGBTQ questionnaires were ana-

lyzed. Table I describes the characteristics of the SY and LGBTQ respondents. Collectively, responses to six of the questions on gender, ethnicity, or sexual identity were missing.

## MA prevalence

Eighty-five (67%) of the SY and 13 (24%) of the LGBTQ youth reported ever having used MA. The estimated relative risk (RR) of MA use among non-Caucasian compared to Caucasian respondents was not significant for either street-involved (RR 1.09, 95% CI 0.72-1.64) or LGBTQ youth (RR 0.79, 95% CI 0.19-3.26). The estimated RR of MA use among those identifying themselves as something other than heterosexual was 1.59 (95% CI 0.84-3.02) for SY and 0.74 (95% CI 0.47-1.17) for LGBTQ youth.

## Characteristics of MA use

Table II describes the characteristics of MA use. Most of these youth first used MA before their 20<sup>th</sup> birthday and this differed little between the two groups of youth. The majority had used MA during the previous month, suggesting regular use. Approximately half in each group of users (45.7% of SY and 57.1% of LGBTQ youth) had used multiple times per day. Nearly one third (28.6%) of the LGBTQ users reported a maximum frequency of multiple times per year, suggesting relatively occasional use. Users reported an average maximum of 7 to 9 consecutive days awake while using MA.

Figure 1 shows the route of delivery of the drug by youth group. Smoking is the most common route in both groups, followed by snorting. LGBTQ youth had a higher (non-significant) prevalence of oral and rectal use of the drug.

Figure 2 shows the use of other drugs by SY who are *active MA users* (i.e., use within the last week) versus that of the remaining SY. In comparison to non-active users, those reporting active use were more likely to have also used any of the following within the last 2 weeks: cigarettes, marijuana, heroin, ecstasy, and ketamine ( $p < 0.05$ ).

The frequencies of problems that may be related to drug use are presented in Table III for SY who are active MA users in comparison to other SY. Among the drug-use consequences measured in the survey, MA use within the last week was positively

associated with: auditory hallucinations; being imprisoned; spending more than one night on the street; and testing positive for hepatitis C ( $p < 0.05$ ). Analysis for such associations was not made in the LGBTQ group because of its small sample size.

## DISCUSSION

We found a very high prevalence of self-reported past or current use of MA among both the SY (67%) and LGBTQ (24%) groups. Among the SY reporting MA use, 69.4% reported use within the last 30 days, much higher than the 35% reported by Clements.<sup>11</sup> Thus, most of the SY reporting use in our study were regular users of MA. This high frequency of use coupled with rapid delivery of the drug may be indicative of substance dependence<sup>12</sup> and will have a significant impact on their health. Additionally, the characteristics of those using the drug, the methods employed in their use, and concomitant substance use can have important implications for the degree to which users are accessing services and the nature in which care is delivered.

Most MA users reported smoking the drug. Anecdotally, this is perceived as a safe alternative to injection drug use. However, due to its fast route of delivery to the central nervous system, smoking any drug carries with it a strong reinforcing effect.

Auditory hallucination, a form of psychosis, was positively associated with MA use by SY. Paranoid psychosis, anxiety states, and distractibility is a significant source of morbidity for heavy MA users<sup>1,13</sup> representing approximately five to seven consultations per week to a local inner-city acute care psychiatry service.<sup>14</sup> Management of these symptoms is an essential component of care for this population.

Among SY, self-identification as a sexual minority was a significant predictor of use. There was also a trend towards greater oral or rectal use of the drug by LGBTQ youth. This latter route of delivery can potentially damage the mucosa of the rectum which may contribute to the increase in HIV seroconversion in this population.<sup>15</sup> Inquiry into sexual identity of SY is warranted to identify those at high risk of MA use and subsequent HIV seroconversion.

Further research into the patterns of use among sexual minorities is warranted and more specifically, the significance of what appears to be occasional use.

SY reporting MA use within the last week tended to also use marijuana, cigarettes, heroin, ecstasy, and ketamine within this time frame. Concomitant use of MA with a suppressant like marijuana, heroin, or ketamine is in keeping with our anecdotal experience, although to our knowledge, such a finding has never been reported in the literature. Use of ecstasy in conjunction with MA may occur because use of both may be a social phenomenon but also because two thirds of the ecstasy tablets from the Vancouver area contain MA.<sup>16</sup>

There are several limitations of this study. The brevity of our survey instrument (due to the inattention of the population of interest) limits its comprehensiveness. Although our definition of youth is relatively broad, many of the services where youth were recruited have age limits on admission. As a result, older youth have been excluded and the generalizability of the results is unknown. There are also a relatively small number of LGBTQ youth with whom to make comparisons to the SY. Because our study is cross-sectional, neither trends in drug use nor the temporal sequence of MA use in relation to problems can be discerned.

Our study relied upon self-reports of substance use. However, such reports have been established elsewhere as being sufficiently reliable and valid in other research settings.<sup>17</sup> Further, our prevalence estimates of MA use in SY are consistent with both the McCreary<sup>6</sup> and Clements<sup>11</sup> studies reporting prevalences of 71% and 70%, respectively. Although we did not specifically look at men who have sex with men (MSM), our estimates for LGBTQ youth are consistent with studies of MSM in Vancouver demonstrating that 25% report using MA at some point in their life.<sup>18,19</sup> The use of depressant substances in combination with MA is in keeping with our clinical observations and other published reports.

In summary, despite some limitations, this study provides important insight into MA use in marginalized populations. Specifically, we demonstrate that many of the SY we are caring for are affected by MA and its associated psychopathology,

although the exact impact of this on our health care system has yet to be quantified. We also demonstrate that sexual minority identification itself may be a predictor of MA use. This reinforces the importance of this aspect of the patient history; the important implications for the health of this population; and also provides an impetus for subsequent research. Finally, this study demonstrates the use of depressant street drugs concurrently with MA, which may have implications in the management of acute toxicity or addiction treatment.

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## RÉSUMÉ

**Contexte :** La méthamphétamine en cristaux (MA) est un stimulant très puissant du système nerveux central. Elle provoque une forte dépendance et cause des problèmes de santé graves tels que neurotoxicité, paranoïa, psychose, dépression, violence et décès. L'objectif de cette étude est d'évaluer la prévalence et les caractéristiques de la consommation de MA chez les jeunes (moins de 30 ans) de deux populations marginalisées de la Colombie-Britannique.

**Méthode :** Un questionnaire auto-administré a été distribué à un échantillon de jeunes de la rue de Vancouver et du centre jeunesse Questionnement/Lesbiennes/Gais/Bisexuels/ Transsexuels (QLGBT) de Vancouver et Victoria. Les questions portaient sur les caractéristiques démographiques des participants; la consommation de substances illicites, et particulièrement celle de MA; les tentatives de sevrage et de traitement; et les conséquences potentielles de la consommation de MA.

**Résultats :** Cent quatre-vingts des 200 questionnaires distribués ont été remplis. Soixante-sept pour cent des jeunes de la rue de Vancouver et 24 % des jeunes du QLGBT ont indiqué avoir déjà consommé de la MA. Parmi ceux-ci, 43 % en avait fait usage dans la semaine précédente et 46 à 57 % en avaient consommé plus d'une fois par jour; ils pouvaient rester éveillés pendant 7 à 9 jours consécutifs. Ils avaient commencé à consommer au milieu ou vers la fin de l'adolescence, et près de la moitié d'entre eux avaient cherché de l'aide en toxicomanie. Les jeunes de la rue qui avaient consommé de la MA au cours de la semaine précédente consommaient également de la marijuana, du tabac, de l'héroïne, de l'ecstasy et de la kétamine. La consommation de MA était associée à des hallucinations auditives.

**Conclusion :** Cette étude met en évidence une prévalence élevée de consommation de MA dans deux populations de jeunes marginalisés de la Colombie-Britannique. La consommation de MA par les minorités sexuelles, les psychopathologies secondaires à la consommation de MA et la co-consommation de substances ont d'importantes implications pour la prestation de services, la prévention et la recherche.

## Coming Events / Activités à venir

To be assured of publication in the next issue, announcements should be received by **July 31, 2006** and valid as of **August 31, 2006**. Announcements received after **July 31, 2006** will be inserted as time and space permit.

Pour être publiés dans le prochain numéro, les avis doivent parvenir à la rédaction avant le **31 juillet 2006** et être valables à compter du **31 août 2006**. Les avis reçus après le **31 juillet 2006** seront insérés si le temps et l'espace le permettent.

11<sup>th</sup> World Congress on Public Health /  
8<sup>th</sup> Brazilian Congress on Collective Health  
*Public Health in a Globalized World: Breaking  
Down Social, Economic and Political Barriers*  
Hosted by the World Federation of Public  
Health Associations (WFPHA) and the  
Brazilian Association of Collective Health  
(ABRASCO)  
21-25 August 2006      Rio de Janeiro, Brazil  
Contact:  
<http://www.saudecoletiva2006.com.br/>

The 6<sup>th</sup> International Conference on Priorities  
in Health Care  
Presented by the International Society on  
Priorities in Health Care  
20-22 September 2006      Toronto, Ontario  
Contact: Carolyn Farrell  
Tel: (416) 946-0088      Fax: (416) 978-1911  
E-mail: [carolyn.farrell@utoronto.ca](mailto:carolyn.farrell@utoronto.ca)

Tackling the Determinants of Health: From the  
Bush to Bondi  
37<sup>th</sup> Public Health Association of Australia  
Annual Conference  
25-27 September 2006      Sydney, Australia

Contact:  
PHAA Secretariat  
Tel: + 61 2 6285 2373  
E-mail: [conference@phaa.net.au](mailto:conference@phaa.net.au)  
[www.phaa.net.au](http://www.phaa.net.au)

APHA 134<sup>th</sup> Annual Meeting and Exposition  
*Public Health and Human Rights*  
American Public Health Association  
4-8 November 2006      Boston, MA  
Contact:  
[www.apha.org](http://www.apha.org)

*Integrated Chronic Disease Prevention: Building  
It Together*  
Presented by CDPAC – Reducing Chronic  
Disease in Canada  
5-8 November 2006      Ottawa, ON  
Contact:  
Integrated Chronic Disease Prevention:  
Building It Together  
c/o Golden Planners Inc.  
Tel: 613-241-9333      Fax: 613-565-2173  
E-mail: [cdpac@goldenplanners.ca](mailto:cdpac@goldenplanners.ca)  
[www.cdpac.ca](http://www.cdpac.ca)