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CRYSTAL METHAMPHETAMINE USE AMONG HIV-POSITIVE GAY AND BISEXUAL MEN

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ABSTRACT

This study describes factors associated with methamphetamine initiation in a racially diverse sample of 340 methamphetamine-using, HIV-positive gay and bisexual men. A factor analysis was conducted on reasons for initiation, and four factors were identified: to party, to cope, for energy, and to improve self-esteem. Methamphetamine to party accounted for more than one-third of the variance in the factor analysis. Methamphetamine to cope captured almost 9% of the variance, methamphetamine for energy accounted for approximately 8% of the variance, and methamphetamine for self esteem accounted for approximately 7% of the variance. Regression analyses revealed differential associations between methamphetamine initiation factors and HIV risk behaviours. Methamphetamine for self esteem predicted binge methamphetamine use, while methamphetamine to cope was associated with injecting methamphetamine. Using methamphetamine for energy was associated with number of illicit drugs used and using methamphetamine to party was associated with having a greater number of STIs. These findings suggest that methamphetamine initiation among gay and bisexual men is multifaceted, which could have implications for intervention development

KEYWORDS: *methamphetamine, initiation, sexual risk, men who have sex with men*

INTRODUCTION

Methamphetamine use and risky sexual behaviour have been linked in several studies of gay and bisexual men (Colfax et al., 2005; Drumright et al., 2006; Fernández et al., 2007; Plankey et al., 2007; Purcell et al., 2005; Vaudry et al., 2007). Methamphetamine use is associated with numerous sexual risk factors including behavioural disinhibition, enhanced sexual desire, low rates of condom use, high rates of sexually transmitted infections (STIs), increased desire for high risk activities, prolonged sexual activity, multiple partners, and casual or anonymous sexual partners (Colfax et al., 2005; Molitor, Truax, Ruiz, & Sun, 1998; Shoptaw, 2006). In a recent review article, Drumright, Patterson, and Strathdee (2006) posited that a causal relationship between methamphetamine use and HIV-positive serostatus is likely to exist,

which implicates methamphetamine use as a major public health concern. Plankey and colleagues (2007) conducted longitudinal analysis of over 4000 seronegative MSM to examine the effects of drugs on seroconversion. The relevant hazard associated with methamphetamine use when controlling for other covariates was 1.46. In addition to contributing to HIV transmission, for HIV-positive users methamphetamine use can also increase neuropsychological deficits and decrease medication adherence (Colfax & Shoptaw, 2005; Hinkin et al., 2007; Rippeth et al., 2004, Shoptaw, 2006). Vaudrey and colleagues (2007) compared methamphetamine use in 2003 to methamphetamine use in 2006 in San Francisco and found a decrease among HIV-negative, but not HIV-positive MSM, which highlights the importance of increasing our

understanding about methamphetamine use in this population.

Research suggests that people use methamphetamine for numerous reasons relating to sexual behaviours, social interactions, and emotions (Halkitis, Fischgrund, & Parsons, 2005; Halkitis, Mukherjee, & Palamar, 2007; Semple, Patterson, & Grant, 2002; Shoptaw, 2006, Cebo, 2016). Semple and colleagues (2002) thematically analysed qualitative data from 25 HIV-positive men who have sex with men (MSM) and identified two primary motivators for methamphetamine use: sexual enhancement and self-medication of negative affect associated with HIV-positive serostatus. Kurtz (2005) conducted a qualitative analysis of gay men in Miami and reported that the reasons that they gave for initiating methamphetamine use were to avoid loneliness and isolation, deal with aging and illness, and for sexual disinhibition. Halkitis, Parsons, and Wilton (2003) reported that HIV-positive gay and bisexual men used methamphetamine as a way to facilitate having a pleasant time with others, while men of color in the sample used methamphetamine due to social pressures. Halkitis and colleagues (2005) also examined reasons for methamphetamine use among gay and bisexual men and found that reasons for use differed based on demographics and HIV status, suggesting a complex interaction. In another study, Halkitis and Shrem (2006) found that gay and bisexual men who used methamphetamine beyond just weekend binges were more likely to report using methamphetamine to avoid dealing with unpleasant emotions, to avoid physical pain, and to engage in pleasant times with others. Brecht and colleagues (2007), in a study of 352 methamphetamine-using men and women, found that younger age of initiation of any substance use, not being African American, earlier criminal behavior, and starting methamphetamine to “have fun” or “get high” predicted earlier age of methamphetamine initiation. Parsons, Kelly and Weiser (2007) qualitatively examined the effects on methamphetamine initiation of social context, location, and how methamphetamine was obtained among 54 young gay and bisexual men; they found that a majority of participants had started using methamphetamine in a social, non-sexual situation.

Methamphetamine users can differ from one another in terms of whether they engage in binge use, inject methamphetamine intravenously, or use other drugs as well (Patterson, Semple, Zians, & Strathdee, 2005; Semple, Patterson, & Grant, 2004; Semple, Patterson, & Grant, 2003). Some use patterns are associated with specific demographic characteristics; for example, binge users tend to be younger and less educated than non-binge users (Semple et al., 2003). One area that has not yet been explored is whether reasons for methamphetamine initiation differ according to use patterns. Another understudied area is the link between

methamphetamine initiation factors and current sexual risk outcomes.

The present study builds upon a previous, qualitative investigation into motivations associated with methamphetamine use (Semple, Patterson, & Grant, 2002). Using quantitative data from a much larger sample, we aimed to identify a core set of factors associated with methamphetamine initiation. A secondary goal was to examine methamphetamine initiation factors in relation to HIV risk behaviors, including current drug use patterns and sexual risk outcomes. We hypothesized that reasons for methamphetamine initiation would be differentially related to binge use, injection drug use, number of illicit drugs, unprotected sex, and number of STIs.

METHOD

Participants

Data were collected between November 2016 and October 2018 from baseline assessments of 340 men who enrolled in the EDGE behavioral intervention study, an eight-session, individual counseling program tailored specifically to HIV-positive, methamphetamine-using MSM. Eligible participants were HIV-positive, at least 18 years old, used methamphetamine at least twice in the past two months and at least once in the past 30 days, and had unprotected anal or oral sex with at least one HIV-negative or serostatus-unknown male partner during the same period. Participants were recruited through a variety of community outreach strategies, including large-scale poster and media campaigns and street outreach in social environments that were known to have high concentrations of methamphetamine users and MSM. Results regarding the intervention’s efficacy have been reported (Mausbach et al, 2007).

Data Collection Participants attended a 60-minute interview that covered a range of topics, including background characteristics, substance use, sexual risk practices, and reasons for initiating use of methamphetamine. Participants were paid \$30 for completing their baseline assessment and first counseling session.

- **Background characteristics**—Participants specified their age, ethnicity, educational level, sexual orientation, employment status, income, and the year they received their HIV diagnosis.
- **Drug use**—Injection of methamphetamine (yes/no), and total years of methamphetamine use were assessed. Participants were also asked if they are binge users of methamphetamine (yes/no). “Binge use” was defined as “using large quantities of meth for a period of time – until you run out or just can’t physically do it anymore.” Participants were asked about use of other drugs as well, and a summary variable was created to represent total number of different drugs used in the past 2 months.

- **Sexual risk**—Participants received a list of STIs and were asked to endorse those that they had had in the past two months. Endorsed items were summed to create the total number of STIs in the past two months. Participants were also asked how many times they had had anal, oral, or vaginal sex in the past two months with and without condoms. A summary variable was created to represent total number of unprotected sex acts in the past two months.
- **Reasons for initiation of methamphetamine use**—Participants received a list of 19 reasons why they may have started to use methamphetamine, based on pilot data from Semple et al. (2002). Participants were free to select as many reasons as applied and were asked to report any “other” reasons that were not listed.

DATA ANALYSIS

An exploratory factor analysis using principal components with varimax rotation was conducted on reasons for initiating methamphetamine use in order to group the items into a smaller number of meaningful categories. First, an eigenvalue above 1 was set as the minimum for retention, and variables with loadings of .5 and above, which is considered practically significant, were retained (Hair, Anderson, Tatham & Black, 1998). Factors were then examined for thematic content and then a second factor analysis was conducted which limited the number of extracted factors to four. We then examined initiation in relation to three drug outcomes (methamphetamine injection, binge use of methamphetamine, and number of illicit drugs) and two sexual risk outcomes (unprotected sex and STIs). Separate logistic regressions were used to test the dichotomous dependent variables (binge methamphetamine use and IV methamphetamine use) using the following predictor variables: education, age, number of years of methamphetamine use, race (0 = White, 1= non-White), and factors for initiating methamphetamine use. Logarithmic transformations were used on the methamphetamine-initiation factors to correct for skewness and kurtosis. Hierarchical linear regressions were then run to predict number of illicit drugs, number of unprotected sex acts, and number of STIs using the same predictor variables that were used for the logistic regressions. Missing data for number of STIs (n=11), unprotected sex (n=3), and years of methamphetamine use (n=6) resulted in regressions with 324 and 334 participants.

RESULTS

The majority of study participants self-identified as gay (77%) and had a mean age of 37 years (Table 1). The sample was 57% Caucasian, 21% African American, 13% Latino, and 9% Native American, Asian American, or “other.” Sixty percent had some college education or above, yet 52% earned less than \$10,000 per year. The mean number

of years of methamphetamine use was 11.6 (S.D. = 8.3; median = 11). The mean grams of methamphetamine used in the past 30 days was 5.2 (S.D. = 11.3; median = 1.8).

Reasons for initiating methamphetamine use

Participants were asked to indicate all reasons why they had started to use methamphetamine. The most frequent reason was to experiment (73%; n=248), followed by to party (67%; n=229), to get high (59%; n=199), enhance sexual pleasure (49%; n=168), get pumped for sex (48%; n=164), get more energy (45%; n=152), stay awake (42%; n=144), escape (38%; n=129), relieve boredom (38%; n=128), have friends (34%; n=116), cope with mood (32%; n=110), meet sex partners (31%; n=107), feel more self confident (27%; n=93), replace another drug (24%; n=81), deal with grief (21%; n=70), feel more attractive (19%; n=66), do one’s job (19%; n=65), cope with HIV-related symptoms (15%; n=52), and lose weight (13%; n=44).

Factor Analysis In the exploratory factor analysis, one methamphetamine-initiation reason, “to replace another drug,” was excluded because it had a low factor loading. The remaining 18 reasons were grouped into five factors, which captured 58% of the variance of the 18 reasons for starting methamphetamine. The factors were examined for thematic content and two factors that we labeled “for sex” and “to party” overlapped thematically. A second factor analysis, which limited the number of extracted factors to four, was conducted. Two items that with low loadings, “to lose weight” and “to experiment” were removed. The remaining 16 items captured 63% of the variance. The items that had previously loaded on two separate factors, now loaded together on the first factor that we labeled “to party” (i.e., get ‘pumped’ for sex; meet sex partners; enhance sexual pleasure; get high; party). This factor accounted for 37.5% of the variance. The second factor contained five items (i.e., escape; cope with mood; cope with HIV related symptoms; relieve boredom; deal with grief) and was labeled “to cope” capturing 9.4% of the variance. The third factor was labeled “for energy” (i.e., get more energy; stay awake; do my job) and captured approximately 8.5% of the variance. The fourth factor was “for self esteem” (i.e., have friends/peer pressure; feel more attractive; feel more confident) and captured approximately 7.4% of the variance (Table 2).

Factors associated with methamphetamine initiation

Drug Behavior Outcomes—Logistic regression analysis was used to assess whether any of our methamphetamine-initiation factors was associated with binge methamphetamine use (Table 3). The “for self-esteem” factor was associated with a 4-fold increase in the odds of binge methamphetamine use. Number of years of methamphetamine use was associated with a 1-fold increase in the odds of binge methamphetamine use. Younger age was associated

with being in the binge group (OR, .912; 95% CI: .874–.952), as was being Caucasian (OR, .613; 95% CI: .376–1.001). Logistic regression analysis was also used to examine whether any of our methamphetamine-initiation factors were associated with methamphetamine injection (Table 3). The “to cope” factor was associated with almost a 4-fold increase in the odds of methamphetamine injection. The “for energy” factor was negatively associated with injecting methamphetamine (OR, .758; 95% CI: .587–.978). Number of years of methamphetamine use was associated with a 1-fold increase in the odds of binge methamphetamine use. Less education was also associated with injecting methamphetamine (OR, .724; 95% CI: .575–.911). In a separate multiple regression equation, number of illicit drugs used was entered as the dependent variable. Men who reported using a higher number of illicit drugs scored higher on the “for energy” initiation factor, were younger, and had fewer years of methamphetamine use.

Sexual Risk Outcomes—In a separate multiple regression equation, number of unprotected sex acts was entered as the dependent variable with the same independent variables as in the previous regression models. The model was not significant ($p=.125$). When number of STIs was the dependent variable, men who had more years of methamphetamine use and scored higher on the “to party” initiation factor reported a higher number of STIs.

DISCUSSION

The present study’s relatively large sample enabled us to analyze reasons for initial methamphetamine use into four factors, which then allowed us to quantify reasons for methamphetamine initiation among HIV-positive, methamphetamine-using gay and bisexual men. These regressions related methamphetamine-initiation factors with other risk behaviors. For example, number of illicit drugs was associated with initiating methamphetamine “for energy.” This may reflect a strategy by methamphetamine users to enhance methamphetamine’s effects. For example, participants in a study by Patterson and colleagues (2005) who were heavy polydrug users most frequently reported that they mixed other drugs with methamphetamine “to get a better high.” Those who initiated methamphetamine use for energy prior to seroconversion may be attempting to self-medicate and to combat HIV-related fatigue, whereas those who began using methamphetamine prior to seroconversion may be doing so to increase work productivity. Future research on HIV-positive methamphetamine users should ascertain participants’ serostatus at the time they initiated methamphetamine in order to see if there is a connection between serostatus and reason for initiation. Those who began using methamphetamine for energy after being diagnosed with HIV may benefit from interventions targeting HIV-related fatigue. Initiation of methamphetamine “to party”

was associated with higher rates of STIs. Semple and colleagues (2002) reported that some participants used methamphetamine to facilitate sexual experimentation, to engage in more aggressive sexual behavior, to have multiple partners over prolonged periods, and to experience “a lot of exchange of body fluids,” all behaviors that increase the risk of contracting or transmitting STIs. Motivational interviewing and cognitive behavioral therapy, which have been successfully used to promote safer sex behaviors among methamphetamine users, could help them see connections between impulsivity, methamphetamine use, and their high-risk sexual behavior (Mausbach et al., 2007). MSM who participate in high-risk sexual behavior often also engage in attempts at harm reduction, such as strategic positioning (Groves et al., 2007), which indicates some ambivalence about their high-risk behavior, which could be further explored with motivational interviewing. McViney (2006) recommends pointing out discrepancies between perceived benefits of methamphetamine use and negative side effects to methamphetamine using clients. For example, if someone is using methamphetamine to enhance sexual pleasure, a clinician may want to discuss the negative sexual side effects associated with methamphetamine use, such as erectile dysfunction. Use of other drugs to combat sexual dysfunction should also be addressed with clients who are using methamphetamine to party. Binge methamphetamine use is associated with the “for self esteem” initiation factor. In a study of HIV-positive MSM, Semple and colleagues (2003) found that binge users and nonbinge users differed in their reasons for starting methamphetamine use. Binge users said that they started using for reasons associated with self-esteem, such as wanting self-confidence or to feel more attractive. Kurtz (2005) suggested that gay men have to deal with being debased for their sexual orientation by mainstream society and that within gay culture, they face pressure to maintain sexual prowess and attractiveness. According to Kurtz’s findings, some gay men turn to methamphetamine to deal with these threats to their self esteem. Addressing the response expectancy of methamphetamine increasing self-confidence may help binge users to understand the function that methamphetamine performs in their lives. In turn, understanding this connection may help binge users consider other ways to meet these needs besides using methamphetamine. Injection of methamphetamine was associated with the “to cope” methamphetamine initiation factor. Earlier findings may help to explain this. Ibanez, Purcell, Stall, Parsons, & Gomez (2005) found that HIV-positive gay and bisexual injectors reported more anxiety, hostility, and childhood sexual abuse than non-injectors. Semple and colleagues (2004) reported that methamphetamine injectors had more experiences of rejection and scored higher on financial, familial, and

legal problems. Methamphetamine injectors also reported less social support than non-injectors. Since methamphetamine injectors often feel particularly stigmatized (Semple, Patterson, & Grant, 2004), it may be therapeutically beneficial to focus on the possible connection between their methamphetamine use and coping. Working to increase healthier methods of coping and increased social support could be an important element in addressing reduction or cessation of methamphetamine. To address the lack of social support that methamphetamine injectors often report, group-based interventions may be especially beneficial to this subgroup of methamphetamine users. While the connection between methamphetamine use and high-risk sexual behavior has been demonstrated in many studies (Colfax et al., 2005; Fernández et al., 2007; Purcell et al., 2005), the present findings examined why gay and bisexual men are drawn to methamphetamine in the first place. The popular media portray gay and bisexual men as using methamphetamine as “fuel for all-night parties and...sexual marathons” (Specter, 2005). This view of the methamphetamine epidemic is sensational, but it does not paint a full picture of possible motivations. One often-overlooked possibility is that some gay and bisexual men may resort to higher-risk behaviors, either sexual or drug-related or both, in response to social and emotional stressors. For example, some studies have found that having experiences of anti-gay discrimination predicted frequency of unprotected anal sex,

(Díaz, Ayala, & Bein, 2004; Jarama, Kennamer, Poppen, Hendricks, & Bradford, 2005). Other research has demonstrated an association between substance use and coping with stigma and discrimination related to sexual orientation (McKirnan & Peterson, 1988; Rosario, Hunter, & Gwadz, 1997). Kurtz (2005) reported that gay men in focus groups on methamphetamine initiation unanimously attributed drug use by gay men to difficulties that they face in our homophobic culture. Williams (2003) suggested that substance use can act as an externalizing coping response used to numb the pain of negative social conditions, such as racism and negative economic conditions. In the same vein, methamphetamine may provide a temporary escape from the stigma and discrimination that gay and bisexual men often face. It may also help gay and bisexual men cope with HIV-positivity or the fear of contracting HIV. McKirnan, Vanable, Ostrow, & Hope (2001) suggest that substance use can act as a “cognitive escape” and provide a culturally sanctioned time out from stringent social norms that condemn unprotected sex. In addition to focusing on the individual’s role in substance abuse, educators and outreach workers should address the harmful publichealth impacts of stigma and discrimination. The present findings support the conclusion that methamphetamine use among gay and bisexual men is a complex phenomenon (Halkitis, Parsons, and

Stirratt, 2001). Reasons for initiating methamphetamine use are associated with different risk outcomes. Our methamphetamine-initiation factors may help us to understand methamphetamine’s role in the lives of HIV-positive gay and bisexual men and what underlying issues need to be addressed. Our findings support previous conclusions that HIV-positive MSM could benefit from treatment approaches that are tailored to specific motivations for methamphetamine use and to the links between methamphetamine and sexual risk behavior (Semple, Patterson, & Grant, 2002). Our current investigation has several limitations. Findings may not generalize to all HIV-positive MSM, since our sample consists of self-identified gay and bisexual methamphetamine-using men who were volunteers in a sexual risk reduction intervention. It is possible that MSM who identify as neither gay nor bisexual would have different motivations for initiating methamphetamine use, and findings from the present study should not be extended to this group. Another limitation is that we did not ask participants to rank order their reasons for methamphetamine use and instead had participants choose as many reasons for initiation as they wanted. Examining the main reason for methamphetamine initiation, as well as reasons ranked as less important may help to better understand the relationship between methamphetamine initiation and HIV-risk related outcomes. Participants were asked to provide reasons for initiation, but in many cases initial methamphetamine use occurred years ago. It is possible that memories about initial reasons for methamphetamine use have been skewed. Finally, we did not examine possible differences that HIV status may have on reasons for methamphetamine initiation. Future studies should examine possible differences between methamphetamine users who began using before their HIV diagnosis and those who began methamphetamine use after their HIV diagnosis.

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APPENDIX

Table 1

Selected sociodemographic characteristics (n=340)

Characteristic	n	%
<i>Race or Ethnicity</i>		
White	195	57%
African American	71	21%
Latino	44	13%
Native American	14	4%
Other	14	4%
Asian	2	.6%
<i>Sexual Orientation</i>		
Homosexual	263	77%
Bisexual	71	21%
Not sure	5	2%
Heterosexual	1	.3%
<i>Ages</i>		
20–29	53	16%
30–39	167	49%
40–49	103	30%
50+	17	5%
<i>Education</i>		
Less than high school	45	13%
High school degree	91	27%
2-year college degree	125	37%
4-year college degree	54	16%
Advanced degree	25	7%
<i>Income</i>		
< \$10,000	175	52%
\$10,000–\$19,999	92	27%
\$20,000–\$29,999	27	8%
\$30,000–\$39,999	15	4%
\$40,000–\$49,999	13	4%
\$50,000+	18	5%

Table 2

Factor loadings for reasons for initiating methamphetamine use

Meth-initiation reason	Factor 1 Meth to party	Factor 2 Meth for sex	Factor 3 Meth for energy	Factor 4 Meth for self-esteem
1. To get high	.521	.216	.444	-.054
2. To get more energy	.255	.041	.793	.089
3. To feel more attractive	.331	.210	.123	.655
4. To escape	.275	.625	.259	.138
5. To stay awake	.241	.181	.800	.014
6. To have friends/peer pressure	-.088	.024	-.044	.815
7. To party	.560	.207	.337	.065
8. To get pumped for sex	.869	.148	.112	.048
9. To meet sex partner	.704	.292	.080	.294
10. To enhance sexual pleasure	.857	.197	.093	.039
11. To cope with mood	.180	.795	.228	.123
12. To cope with HIV-related symptoms	.151	.699	.084	-.014
13. To relieve boredom	.235	.580	.291	.227
14. To deal with grief	.143	.783	.038	.124
15. To do my job	-.048	.260	.660	.106
16. To feel more confident	.186	.282	.414	.557

Factor loadings of 0.5 or above are bolded to indicate practically significant (see Hair, Anderson, Tatham, & Black, 1998).

Table 3

Summary of Binomial Stepwise Logistic Regression Analysis Predicting Binge Methamphetamine Use (N=334) (Equation 1) and Predicting IV Methamphetamine Use (N=334) (Equation 2)

Final Model	Equation 1		Equation 2	
	Odds Ratio	95% Confidence Interval	Odds Ratio	95% Confidence Interval
Intercept	9.661		.795	
<i>Set 1:</i>				
Education	.870	.691-1.095	.724**	.575-.911
Age	.912***	.874-.952	.996	.959-1.035
Race	.613*	.376-1.001	1.431	.883-2.320
Years of Methamphetamine Use	1.074***	1.037-1.113	1.040*	1.006-1.075
<i>Set 2:</i>				
To Party Factor	1.132	.954-1.343	1.090	.923-1.287
To Cope Factor	1.946	.676-5.602	3.658*	1.276-10.491
For Self Esteem Factor	4.253*	1.272-14.225	.395	.117-1.336
For Energy Factor	.894	.693-1.154	.758*	.587-.978

* p < 0.05;
 ** p < 0.01;
 *** p < 0.001