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Drug assertiveness and sexual risk-taking behavior in a sample of HIV-positive, methamphetamine-using men who have sex with men

Shirley J. Semple, Ph.D.^a, Steffanie A. Strathdee, Ph.D.^b, Jim Zians, Ph.D.^a, John R. McQuaid, Ph.D.^{c,d}, and Thomas L. Patterson, Ph.D.^{a,*}

^a Department of Psychiatry, University of California, San Diego, La Jolla, California, U.S.A.

^b Division of Global Health, Department of Medicine, University of California, San Diego, La Jolla, California, U.S.A.

^c Department of Veterans Affairs Medical Center, San Francisco, California, U.S.A.

^d Department of Psychiatry, University of California, San Francisco, San Francisco, California, U.S.A.

Abstract

Drug assertiveness skills have been demonstrated effective in reducing substance use behaviors among patients with alcohol- or heroin-use disorders. This study examined the association between drug assertiveness and methamphetamine use, psychological factors, and sexual risk behaviors in a sample of 250 HIV-positive men who have sex with men (MSM) enrolled in a safer sex intervention in San Diego, CA. Less assertiveness in turning down drugs was associated with greater frequency and larger amounts of methamphetamine use, lower self-esteem, higher scores on a measure of sexual sensation-seeking, and greater attendance at risky sexual venues. These data suggest that drug assertiveness training should be incorporated into drug abuse treatment programs and other risk reduction interventions for methamphetamine users.

Keywords

drug assertiveness behavior; methamphetamine; sexual risk behavior; men who have sex with men; HIV-positive

1. Introduction

Assertiveness skills have been associated with substance use disorders (Ferrell & Galassi, 1981; Miller & Eisler, 1977). One theory is that persons with substance use disorders turn to alcohol or other substances to reduce tension and anxiety associated with stressful interpersonal situations (Miller & Eisler, 1977). Hence, assertiveness training programs have been developed for patients with substance use disorders who are anxiety-prone and exhibit

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*Correspondence: Thomas L. Patterson, Ph.D., Department of Psychiatry (0680), University of California, San Diego, 9500 Gilman Drive, La Jolla, CA 92093-0680 U.S.A. Tel. 858-534-3354; tpatterson@ucsd.edu.

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deficits in interpersonal skills (Ingram & Salzberg, 1990). Several studies have reported that the inclusion of assertiveness training in the treatment of alcohol and cocaine abuse disorders improves treatment outcomes (Carroll, Rounsaville, & Gawin, 1991; Chaney, O'Leary, & Marlatt, 1978; Freedberg & Johnston, 1981; Monti et al., 1990; Monti, Rohsenow, Michalec, Martin, & Abrams, 1997; Rawson et al., 1995). To date, no studies of the relationship between assertiveness and methamphetamine use have been published, despite widespread use of this drug throughout the U.S. (National Drug Intelligence Center, 2009; National Institute of Drug Abuse, 2010).

The present study sought to identify correlates of assertiveness in turning down drugs in a sample of HIV-positive, methamphetamine-using men who have sex with men (MSM). The prevalence of methamphetamine use among MSM tends to be high. In California, the prevalence of methamphetamine use among MSM has been reported as 17–22% in San Francisco and 11–53% in Los Angeles (Reback, Shoptaw, & Grella, 2008; Shrem & Halkitis, 2008). In the past decade, methamphetamine use has also increased significantly among MSM in the eastern U.S. (Forrest et al., 2010; Halkitis, Green, & Mourgues, 2005).

We hypothesize that methamphetamine users have specific characteristics that manifest themselves as less assertive interactions in the contexts of drug use and sexual encounters. For example, methamphetamine users have high rates of psychological symptoms (Salo et al., 2010), which may make interpersonal encounters that require assertive responses highly stressful, thereby triggering drug use. The highly addictive nature of methamphetamine may also increase the likelihood that users would be less assertive in their interactions with drug dealers and fellow drug users. Also, risky sexual behavior is likely to be associated with less assertiveness in encounters with sexual partners. This may be particularly relevant among methamphetamine -using MSM, given that this powerful stimulant has been associated with heightened sexual arousal and reduced safer-sex negotiations (Garfein, Metzner, Cuevas, Bousman, & Patterson, 2010; Mimiaga et al., 2008; Schilder, Lampinen, Miller, & Hogg, 2005; Shoptaw & Reback, 2007).

Severity of methamphetamine use is likely to be inversely related to assertiveness in turning down drugs. Methamphetamine users often describe themselves as feeling more powerful, less inhibited, and more confident when “high” on this drug (Reback, 1997; Semple, Patterson, & Grant, 2002). It is likely that users also perceive themselves as more assertive when “high.” Although one would expect higher-intensity methamphetamine users to have higher self-perceived social assertiveness, greater dependence on the drug would suggest an inverse relationship between the intensity of their use and their assertiveness in turning the drug down.

In addition to the severity of the use disorder, several psychological factors have been associated with lack of assertiveness among substance users. Research with patients dependent on alcohol and other drugs has yielded a positive association between level of substance use and social anxiety (Ferrell & Galassi, 1981; Lindquist, Lindsay, & White, 1979). Other researchers have reported that persons with alcohol-use disorders experience higher levels of anxiety when they behave assertively (Hamilton & Maisto, 1979). Since methamphetamine users in general report high levels of anxiety (Darke, Kaye, McKetin, & Dufrou, 2008; Salo et al., 2010; Zweben et al., 2004), it is likely that they too experience anxiety in social situations that call for assertiveness.

Self-esteem is another psychological factor that is likely to be associated with assertiveness in turning down drugs. It has been theorized that the enhancement of self-esteem functions to increase feelings of control and empowerment, resulting in less need for alcohol in stressful social situations (Russell & Mehrabian, 1975). Low self-esteem has been

implicated in the initiation of methamphetamine use among MSM (Nakamura, Semple, Strathdee, & Patterson, 2009), and at least one study has reported lower levels of self-esteem among methamphetamine-using MSM compared to their counterparts who used other illicit drugs (Garofalo, Mustanski, McKirnan, Herrick, & Donenberg, 2007). Thus, we reasoned that lower self-esteem would be associated with lack of assertiveness in turning down drugs. Sexual sensation-seeking may also be linked to assertiveness in turning down drugs. In several studies of MSM, sensation-seeking has been associated with high-risk sexual behaviors and substance use in the context of sexual situations (Dolezal, Carballo-Diequez, Nieves-Rosa, & Diaz, 2000; Kalichman, Heckman, & Kelly, 1996; Newcomb, Clerkin, & Mustanski, 2010). We anticipated that methamphetamine users who have a tendency toward sexual sensation-seeking would report lower assertiveness in turning down drugs, given that substance use is the assumed link between sensation-seeking and risk behavior (Hendershot, Stoner, George, & Norris, 2007).

Consistent with the theory of social skills deficits among substance users (Miller & Eisler, 1997), we reasoned that individuals who are uncomfortable asserting themselves in social interactions involving drug use would also have difficulty being assertive in negotiations about safer sex. Specifically, we expected that methamphetamine users who scored low on assertiveness in turning down drugs would report higher levels of sexual risk behaviors, including more unprotected sex acts, a greater number of sexual partners, and more frequent attendance at risky sexual venues.

In summary, several hypotheses were generated on the basis of our conceptual framework and review of the literature. We hypothesized that lower assertiveness in turning down drugs would be associated with: 1) greater intensity of methamphetamine use, 2) higher levels of anxiety, 3) lower self-esteem, 4) more sexual sensation-seeking, and 5) more high-risk sexual behaviors. Identifying correlates of assertiveness in turning down drugs may help to inform drug treatment and sexual risk reduction programs for the target population of methamphetamine-using MSM.

2. Methods

2.1. Sample selection

These analyses used baseline data from a sample of 250 HIV-positive MSM who were enrolled in a sexual risk reduction intervention at the University of California, San Diego (UCSD). The EDGE-II project was designed to test the long-term efficacy of a safer sex intervention that used motivational interviewing (Miller & Rollnick, 1991) and social cognitive strategies (Bandura, 1986) to promote behavior change, and used cognitive behavioral interventions (Beck, Rush, Shaw, & Emery, 1979; Marlatt & Donovan, 2005) to maintain treatment effects. Participants completed four individual counseling sessions and eight group-format maintenance sessions. The baseline data were collected using computer-assisted self-interviewing technology (audio-CASI; Turner et al., 1998). Eligible participants were at least 18 years of age, self-identified as MSM, reported having unprotected anal sex with at least one same-sex partner during the previous two months, and used methamphetamine at least twice during the past two months, and at least once during the past 30 days. Participants were recruited through community-based service providers, poster and media campaigns, street outreach, and referrals from enrolled participants. The research protocol was reviewed and approved by UCSD's Human Research Protections Program (Project #061331), and all subjects provided written informed consent.

Approximately one-third of MSM who were screened for the intervention study were ineligible. Reasons for ineligibility were (in rank order): no unprotected anal sex in the past 2 months (64.0%), monogamous sexual relationship (19.4%), HIV-negative serostatus

(8.0%), used methamphetamine less than two times in the past 2 months (4.6%), and other (4.0%). Eligible and ineligible men did not differ in age or ethnicity. Primary sources of recruitment for eligible participants were poster campaigns (32.9%) and agency referrals (33.2%). Additional sources of recruitment included friends (21.0%) and newspaper advertisements (12.9%). Among MSM who screened as eligible, 7.8 percent declined participation upon hearing detailed requirements of the intervention.

2.2 Measures

2.2.1. Drug Assertiveness—The Assertion Questionnaire in Drug Use was used to assess assertiveness in turning down drugs (Callner & Ross, 1976). The questionnaire consists of 40 items with six subscales. The present analyses used the Drug Item subscale. It has six items that are measured on a 4-point scale ranging from 1 (Strongly Disagree) to 4 (Strongly Agree). Sample items include: “I have no trouble telling friends not to bring drugs over to my house” and “If I were at a good party and a person that I just met offered me some free drugs, I would turn him down without any trouble.” The assertion scale has been reported to have good test-retest reliability and adequate convergent and discriminant validity (Callner & Ross, 1976). Cronbach’s alpha for the drug item subscale in the present sample was 0.67.

2.2.2. Methamphetamine use variables—Frequency of methamphetamine use was measured as the number of days the participant reported having used methamphetamine in the past 30 days. Amount of methamphetamine used was recorded as number of grams used in the past 30 days. Injection drug use was coded as a dichotomous variable such that 1 = injected drug in the past 2 months and 0 = no injection drug use in the past 2 months.

2.2.3. Sexual risk behaviors—Sexual risk behavior was defined as unprotected anal, oral, or vaginal sex with an opposite- or same-sex partner. Number of sexual partners was represented by a summary variable that counted the total number of persons with whom the participant had had anal, oral, or vaginal sex during the previous 2 months. Three categories of partner type were assessed: steady (e.g., spouse, boyfriend); casual (e.g., one-night stand); and anonymous (e.g., someone in the park). For each category of partner type, participants were asked how many times during the past 2 months they had engaged in anal, oral, and vaginal sex. For each type of sex, a follow-up question asked the number of times the participant or his sex partner had used a condom or dental dam. A summary variable was then created to represent total number of unprotected sex acts during the previous 2 months. Participants were also presented with a list of 7 types of risky sexual venues (e.g., public restroom, park) and asked to indicate which types they had visited in the past 2 months for the purpose of finding a sexual partner. A summary variable was created to represent the total number of types of risky sexual venues visited in the past 2 months.

2.2.4. Anxiety symptoms—Anxiety symptoms were assessed using the 6-item self-report anxiety subscale from the Brief Symptom Inventory (BSI; Derogatis & Melisaratos, 1983). Participants reviewed a list of problems (e.g., nervousness or shakiness inside, suddenly scared for no reason, feeling tense or keyed up) and rated the level of distress associated with each item on a 5-point scale ranging from 0 (not at all) to 5 (extremely). Cronbach’s alpha for the scale in this sample was 0.87.

2.2.5. Sexual sensation-seeking—We utilized the 11-item sexual sensation-seeking scale developed by Kalichman et al. (1994). The scale consists of items that reflect “the propensity to attain optimal levels of sexual excitement and to engage in novel sexual experiences” (p. 387). Sample items include “I like wild, uninhibited sexual encounters” and “I enjoy the sensation of intercourse without a condom.” Items are measured on a 4-point

Likert-type scale, ranging from 1 (not at all like me) to 4 (very much like me). Internal consistency reliability of the scale in the present sample was 0.88.

2.2.6. Self-esteem—Self-esteem is a component of self-concept and reflects the individual's positive or negative orientation toward him- or herself (Rosenberg, 1965). We used the 10-item self-esteem scale developed by Rosenberg (1965). Scale items are measured on a 4-point scale ranging from 1 (strongly disagree) to 4 (strongly agree). Sample items include: "I feel that I have a number of good qualities" and "I take a positive attitude toward myself." Higher scores indicate higher levels of self-esteem. Cronbach's alpha for the scale in the present sample was 0.83.

2.2.7. Demographic characteristics—Age was measured as a continuous variable. Education was coded as a dichotomous variable where 1 = Less than high school, and 2 = High school or more.

2.3. Statistical analysis

Prior to analyses, each variable's distribution was examined. The distributions for number of grams of methamphetamine used and total number of sex acts were positively skewed, and log 10 transformations were performed to correct for skewness. Participants who scored 15 or more on assertiveness (1 standard deviation or more above the mean) were compared with those who scored less than 15 (low assertiveness) in terms of socio-demographic variables. *T*-tests and contingency table analysis were used to examine group differences in continuous and categorical variables, respectively. Hierarchical multiple regression was used to examine methamphetamine use, psychological factors, and sexual risk behaviors in relation to drug assertiveness behaviors. Assertion in turning down drugs was regressed on four blocks of variables. In step 1, assertion (DV) was regressed on two demographic variables (age, education). In step 2, the DV was regressed on three methamphetamine use variables (injection, frequency, and amount used). In Step 3, the DV was regressed on three psychological variables (self-esteem, anxiety, and sexual sensation-seeking). In step 4, assertion was regressed on three sexual risk variables (total unprotected sex, number of partners, and number of types of risky sexual venues attended).

3. Results

3.1. Sample description

Our sample of HIV-positive MSM was predominantly Caucasian (58.6%), never married (83.1%), unemployed (81.9%), living with another adult in a non-sexual relationship or living alone (55.2%), with a two-year degree or some college (44.4%), and an income of less than \$19,999 per year (85.9%). The average age was 39.8 years ($SD = 7.7$, median 40.0, range 18–61). The mean number of days that participants used methamphetamine in the past 30 days was 11.4 ($SD = 9.2$, median = 9.0, range 1–30). Mean number of grams of methamphetamine used in the past 30 days was 11.6 ($SD = 27.7$, median = 3.5, range .05–160). Forty-seven percent reported injecting methamphetamine or another drug in the past 2 months. The mean number of sex acts in the past two months was 46.7 ($SD = 53.8$, median = 29.0, range 2–325). The mean number of sex partners in the past two months was 7.9 ($SD = 12.0$, median = 4, range 1–90). The mean score on the BSI anxiety subscale was 12.0 ($SD = 5.3$, median = 11.0, range 5–30). As seen in Table 1, participants who scored high versus low on our measure of assertiveness did not differ on socio-demographic variables; however, those with low assertiveness had higher BSI anxiety scores, lower self-esteem, used more grams of methamphetamine in the past 30 days, had higher scores on sexual sensation-seeking, attended a larger number of risky venues, and reported a greater number of unprotected sex acts in the past two months.

3.2. Drug assertiveness

The mean score on the 6-item drug assertiveness scale was 12.3 ($SD = 2.63$, median = 12.0, range 5–19). Assertiveness in turning down drugs was significantly correlated with frequency of methamphetamine use ($r = -0.23, p < .001$), amount of methamphetamine used ($r = -0.23, p < .001$), sexual sensation-seeking ($r = -0.24, p < .001$), self-esteem ($r = 0.29, p < .001$), anxiety ($r = -0.26, p < .001$), total unprotected sex ($r = -0.15, p < .05$), and number of risky venues attended ($r = -0.28, p < .001$). Drug assertiveness scores were not associated with injection drug use or number of sexual partners.

3.3. Multiple regression analysis

A hierarchical multiple regression was performed to identify factors associated with assertiveness in turning down drugs (Table 2). The correlation among independent variables ranged from -0.53 to 0.46 . In the first step, age and education were non-significant. In the second step, frequency and amount of methamphetamine used were inversely related to assertiveness. Injection drug use was non-significant. In step 3, sexual sensation-seeking was inversely related to drug assertiveness, whereas self-esteem was positively related. Anxiety was non-significant. In the final step, number of types of risky sexual venues attended was inversely related to drug assertiveness. Total number of partners and total number of sex acts were non-significant. Frequency and amount of methamphetamine use, sexual sensation-seeking, and self-esteem all remained significant in this final step.

4. Discussion

In this study of HIV-positive methamphetamine-using MSM, we found that assertiveness for refusing drugs was associated with multiple factors within three broad conceptual domains: substance use behaviors, psychological factors, and sexual risk behaviors.

Severity of methamphetamine use as measured by frequency and amount of methamphetamine used was inversely associated with drug assertiveness behavior. This finding suggests that assertiveness training in drug refusal skills should be a key component of substance use treatment programs for methamphetamine-using MSM who engage in high-risk sexual behaviors. Assertiveness training is designed to facilitate adaptive coping, increase the likelihood of social rewards, promote socially appropriate behaviors, and reduce reliance on substances for dealing with stressful situations (Freedberg & Johnston, 1981; Pfost, Steven, Parker, & McGowan, 1992). The major components in assertiveness training programs involve discussion, counseling, role modeling, behavioral rehearsal, peer coaching, and homework assignments focused on assertive responses to substance use (Marlatt & Donovan, 2005). In addition, substance users are taught effective ways to express emotions such as anger and warmth (Marlatt & Donovan, 2005). Future studies should use randomized controlled trials to determine the extent to which assertiveness training is effective in reducing or eliminating methamphetamine use in the target population.

Two psychological variables—self-esteem and sexual sensation-seeking—were associated with drug assertiveness in our study. Lower self-esteem was associated with less assertiveness in refusing drugs, suggesting that enhancement of self-esteem could be important in treating methamphetamine users who have assertiveness issues. Indeed, interventions conducted with alcohol-use disorder patients have consistently reported that self-efficacy for refusing alcohol is associated with better treatment outcomes (Adamson, Sellman, & Frampton, 2009; Holt, O'Malley, Rounsaville, & Ball, 2009; Maisto, Clifford, Stout, & Davis, 2008). Thus, self-esteem or the closely related construct of self-efficacy should be evaluated as a component of monitoring success in drug treatment for methamphetamine users, since it may help reduce relapse to drug use. Moreover, targeting

assertiveness behaviors in methamphetamine-using MSM who have a tendency toward sexual sensation-seeking might also have a beneficial effect on drug use and sexual risk behaviors.

The use of multiple measures of sexual risk behavior enabled us to make a more detailed determination of which aspects of this construct had an association with assertiveness in turning down drugs. Only one indicator of sexual risk behavior, attendance at risky sexual venues, was associated with assertiveness to refuse drugs. This level of specification enhances our understanding of drug assertiveness behavior and helps to guide clinicians in their selection of specific behaviors to target in the development of sexual risk reduction interventions and methamphetamine treatment programs for this population. Our findings suggest that improving assertive communication skills, particularly in relation to friends and others who encourage attendance at risky sexual venues, should also be a component of safer sex prevention programs. In recent years, assertive communication processes have been used as a sexual risk reduction strategy (Hiller, Rowan-Szal, Bartholomew, & Simpson, 1996; Saleh-Onoya et al., 2008). Assertive communication involves the use of direct statements that avoid such emotional responses as aggression, accusations, and sarcasm (Sterk, 2002). Sterk (2002) cogently argued that assertiveness skills training is an appropriate component of sexual risk reduction interventions because it takes into account the social contexts of risk behavior and teaches strategies for managing or avoiding high-risk situations (e.g., explain to a friend why one wants to avoid adult movie theaters or public restrooms). Future studies should test the efficacy of interventions that target assertiveness behavior in the intertwining contexts of drug use and sexual risk behaviors among HIV-positive methamphetamine-using MSM, for example, using role-plays that model high risk situations.

This research also points to the importance of treating assertiveness as a multidimensional construct. Other dimensions of assertiveness are likely to have different correlates and relate differentially to health outcomes. For example, Wills, Baker, & Botvin (1989) reported that social assertiveness was positively associated with substance use, whereas drug-specific assertiveness was inversely related to substance use. The specificity of assertiveness and its differential relationship to outcomes indicates that assertiveness training should be focused in a specific area (e.g., drug or sexual interactions), and involve contextually-relevant situations (Callner & Ross, 1976).

4.1. Limitations

Our study was limited by the use of a convenience sample of HIV-positive, methamphetamine-using MSM who were volunteers in an intervention study. Individuals who volunteered for this research may have differed from non-volunteers in their motivations for help-seeking, which could have involved greater concern about assertiveness, anxiety, and stressful interpersonal relationships. To partially address this concern, we presented data on reasons for ineligibility, differences between eligibles and ineligibles, study refusal rate, and the percentage of participants recruited through each recruitment source (see Section 2.1, above). However, there is no clear way to know if this sample is representative of the larger population of methamphetamine-using HIV-positive MSM who report unprotected anal sex. Accordingly, the findings from this study should not be generalized to the global population of methamphetamine users, to HIV-negative drug users, or methamphetamine-using men who engage in protected anal sex only.

Another limitation is that participants may have over-reported their assertiveness in turning down drugs. A stronger methodology would involve other strategies besides self-report for measuring assertiveness, such as behavioral assessment (e.g., role plays) and collateral reports (e.g., informants, peer ratings) (Ammerman, Van Hasselt, & Hersen, 1989).

Another measurement concern involves the separation of aggression from assertiveness (Hollandsworth, 1977; Lindquist et al., 1979). These constructs have been found to be highly correlated among heroin users and psychiatric patients but not among drug-using controls (Lindquist et al., 1979). Misclassification of these constructs may be particularly relevant in studies of methamphetamine users because use of this drug is associated with elevated levels of aggression (Kish et al., 2009; Maxwell, 2005). Future studies of assertiveness in methamphetamine users should include measures of aggression to determine if aggression and assertiveness are conceptually distinct.

This study also lacked a control group of non drug-users to assess whether the observed relationships are unique to methamphetamine users. Further, in the absence of longitudinal data, we are unable to make causal inferences regarding the relationship between methamphetamine use and drug assertiveness. Finally, future studies should examine variables not considered in this research (e.g., childhood abuse, familial interactions) that might explain the relationship between methamphetamine use and lower drug assertiveness in our sample. Despite these limitations, this study contributes to the substance use treatment and HIV/STI prevention research by being the first to document the association between assertiveness in turning down drugs, severity of drug use, psychological factors, and sexual risk behaviors in a sample of methamphetamine users. Research to determine the clinical significance of these findings is warranted.

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Table 1Sample characteristics of HIV-positive methamphetamine-using MSM ($N = 250$)

Variable	Low assertiveness ($N = 206$) ^a	High assertiveness ($N = 44$) ^b
Age (M, SD)	39.4 (7.3)	41.6 (9.6)
Employed	18.0%	20.5%
<i>Sexual orientation</i>		
Gay or homosexual	81.1%	75.0%
Bisexual	17.0	25.0
Not sure	1.9	0.0
<i>Ethnicity</i>		
Caucasian	59.9%	52.3%
African American	23.3	31.8
Latino	13.9	11.4
Other	3.0	4.5
<i>Education</i>		
Less than high school	12.6%	6.8%
High school or equivalent	25.7	29.5
Two-year degree or some college	45.6	38.6
Four-year college degree	10.2	11.4
Graduate or advanced degree	5.8	13.6
<i>Marital status</i>		
Never married	82.0%	88.6%
Married	1.0	2.3
Separated	5.3	2.3
Divorced	11.7	6.8
<i>Living arrangement</i>		
With same sex spouse/steady	11.2%	22.7%
With opposite sex spouse/steady	1.0	0.0
With other adults who are not sexual partners	28.6	22.7
Alone	27.7	27.3
Homeless	15.0	11.4
Other	16.5	15.9
<i>Income</i>		
Less than \$10,000	50.0%	40.9%
\$10,000-\$19,999	35.4	47.7
\$20,000-\$29,999	5.3	4.5
\$30,000-\$39,999	3.4	2.3
\$40,000-\$49,999	2.9	0.0
\$50,000 or more	2.9	4.5
<i>Psychological factors</i>		
BSI anxiety score (M, SD) ***	12.6 (5.4)	9.6 (4.2)
Self-esteem score (M, SD) ***	2.7 (.53)	3.1 (.57)

Variable	Low assertiveness (<i>N</i> = 206) ^a	High assertiveness (<i>N</i> = 44) ^b
Sexual sensation-seeking (<i>M</i> , <i>SD</i>) ***	2.9 (.57)	2.6 (.57)
<i>Sexual and drug use behaviors</i>		
Injection drug use in past 2 months	48.1%	40.9%
Binge use in past 2 months	42.2	45.5
Grams of methamphetamine used in past 30 days (<i>M</i> , <i>SD</i>) **	12.3 (27.9)	8.8 (26.7)
Days methamphetamine used in past 30 days (<i>M</i> , <i>SD</i>)	11.7 (9.1)	9.6 (9.4)
Number of sexual partners in past 2 months (<i>M</i> , <i>SD</i>)	8.6 (12.5)	5.3 (9.2)
Number of unprotected sex acts in past 2 months (<i>M</i> , <i>SD</i>) *	44.9 (53.4)	30.3 (35.7)
Number of risky venues types attended in past in past 2 months (<i>M</i> , <i>SD</i>) ***	2.1 (1.8)	0.98 (1.1)

*
 $p < 0.05$,

**
 $p < 0.01$,

 $p < 0.001$

All data shown are percents unless otherwise specified.

M = mean; *SD* = standard deviation

^aLow Assertiveness is ≤ 1 standard deviation (*SD*) above the mean

^bHigh Assertiveness is > 1 standard deviation (*SD*) above the mean

Assertiveness in turning down drugs regressed on demographics (Step 1), methamphetamine use variables (Step 2), psychological factors (Step 3), and sexual risk behaviors (Step 4) ($N = 248$)^a

Table 2

Variable	Step 1		Step 2		Step 3		Step 4	
	beta	sr ²	beta	sr ²	beta	sr ²	beta	sr ²
Age	.111	.012	.098	.009	.047	.002	.044	.002
Education	.048	.002	.077	.006	.042	.002	.055	.003
Frequency of methamphetamine use			-.158*	.021	-.140*	.017	-.130*	.013
Amount of methamphetamine used			-.164*	.023	-.146*	.018	-.141*	.016
Injection drug use			-.046	.002	-.046	.002	-.046	.002
Sexual sensation-seeking					-.167**	.026	-.132*	.014
Self-esteem					.192**	.026	.187**	.024
Anxiety					-.123	.010	-.092	.005
Number of sex partners							.065	.003
Total unprotected sex							-.055	.002
Number of risky venues							-.141*	.016
Constant	10.47***		11.70***		12.58***		12.66***	
R ²	.013		.091		.195		.214	
Multiple R	.114		.301		.442		.462	
Adjusted R	.005		.072		.168		.177	
F (df)	1.62 (2,245)		4.82*** (5,242)		7.25*** (8,239)		5.83*** (11,236)	

beta = standardized regression coefficient;

* $p < .05$;

** $p < .01$;

*** $p < .001$ (2-tailed tests)

^aTwo cases missing data.