Sexual Marathons and Methamphetamine Use Among HIV-Positive Men Who Have Sex with Men

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Abstract

A sexual marathon is defined as prolonged sexual activity over hours and even days. This exploratory study examined the phenomenon of sexual marathons in a sample of 341 HIV-positive methamphetamine-using men who have sex with men (MSM) in San Diego, CA. Eighty-four percent of the sample reported engaging in marathon sex while high on methamphetamine. MSM who engaged in sexual marathons and those who did not were compared in terms of background characteristics, methamphetamine use variables, alcohol and illicit drug use, sexual risk behaviors, and psychosocial factors. Men who engaged in marathon sex used significantly more illicit drugs, were more likely to use sildenafil (Viagra®) and amyl nitrates, and scored higher on a sexual compulsivity scale compared to men who did not engage in marathon sex. In multivariate analyses, use of sildenafil in the past two months was significantly correlated with participation in sexual marathons. Findings are discussed in terms of their implications for HIV/STI prevention and intervention.

Keywords

methamphetamine; sexual risk taking; male homosexuality; HIV

INTRODUCTION

In a study of methamphetamine use among gay and bisexual men, Reback (1997) reported an association between prolonged sexual performance and the use of crystal methamphetamine. Specifically, participants reported the ability to maintain prolonged sexual arousal without orgasm, resulting in continuous sexual encounters and multiple sex partners. This phenomenon, when it extends over hours or even days, has been termed a "sexual marathon" (Reback, 1997). From the perspective of HIV prevention, a sexual marathon, particularly if it involves prolonged anal sex, is considered high risk because of the increased likelihood of condom breakage and the tearing of delicate rectal tissue—events that can facilitate transmission of HIV and sexually transmitted infections (STIs). Oral sex, although lower in HIV transmission

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potential, can result in HIV infection through lesions in the mouth, which are more likely to occur during prolonged sexual activity (AMFAR, 2001; Centers for Disease Control and Prevention [CDC], 2003).

In a study of motivations associated with methamphetamine use among 25 HIV-positive men who have sex with men (MSM), Semple, Patterson, and Grant (2002) reported that 80% of participants engaged in marathon sex while high on methamphetamine. Rates of unprotected receptive and insertive anal intercourse during marathon sex were reported as 93% and 72%, respectively. Of MSM who had engaged in marathon sex, receptive oral sex without a condom and unprotected insertive (giving) oral sex were reported by 90% and 97%, respectively. These findings point to sexual marathons as a possible contributor to rising HIV/STI rates in the gay and bisexual community (CDC, 2007; Morin et al., 2003).

The development of effective HIV prevention and intervention programs for methamphetamine-using MSM requires insight into the types of sexual risk behaviors that are practiced by members of this population. To date, there are few empirical data that establish the prevalence and role of sexual marathons in the sexual lives of HIV-positive, methamphetamine-using MSM.

The present study was exploratory. Its overall goal was to enhance our understanding of sexual marathons and the characteristics of the methamphetamine-using MSM who participate in them. The aims of this study were to: (1) report the prevalence of sexual marathons in a sample of HIV-positive methamphetamine-using MSM; (2) describe the activities associated with sexual marathons; and (3) identify psychosocial and behavioral factors associated with participation in sexual marathons by members of the target population.

METHODS

The analyses used baseline data from a sample of 341 HIV-positive MSM who were enrolled from October 2000 to November 2004 in a sexual risk reduction intervention (i.e., the EDGE project) at the University of California, San Diego (Mausbach, Semple, Strathdee, Zians, & Patterson, 2007). To be eligible, participants had to self-identify as MSM and report having unprotected anal or oral sex with at least one HIV-negative or serostatus-unknown male partner in the past two months. Participants also had to report using methamphetamine at least twice during the preceding two months and at least once during the preceding 30 days. The primary focus of the intervention was the prevention of HIV transmission from HIV-positive men to their HIV-negative and serostatus-unknown partners; thus, the following exclusion criteria were adopted: (1) HIV-positive partners only during the past two months; (2) always used condoms with all HIV-negative and serostatus-unknown partners during the past two months; and (3) HIV-positive for less than two months. Individuals who presented with active psychotic or suicidal symptoms were also excluded because of the difficulties associated with their clinical management. The percentage of participants excluded from study participation varied according to specific criteria (e.g., 2% HIV+ for less than 2 months; 4% not sexually active; 4% psychiatric exclusions). Participants were recruited from throughout San Diego County. Recruitment strategies included community outreach, poster campaigns, advertisements in print media, referrals from health and social service providers, and referrals from family, friends, and enrolled participants. The majority of participants were Caucasian (57%), never married (82%), had a two-year college degree or less (77%), were unemployed (74%), and lived alone or with other adults in a non-sexual relationship (63%). The average age was 37.1 years. The most frequent methods of methamphetamine consumption were smoking (80%) and snorting (78%). The average amount of methamphetamine used in the past 30 days was 5.8 grams (SD = 11.9).

Procedure

The study protocol consisted of the following: a baseline assessment; five weekly, 90-minute, one-on-one counseling sessions; three 90-minute booster sessions at monthly intervals; and three follow-up assessments at 4, 8, and 12 months post-baseline. Counseling and booster sessions focused on: the contexts of methamphetamine use and unsafe sex; condom use; negotiation of safer sex; disclosure of HIV seropositivity to sex partners; and enhancement of social supports. Interviewer-administered surveys were used to gather data on background characteristics, sexual and drug use behaviors, and psychosocial factors. Each participant was paid a total of $40 for completing his baseline assessment and first counseling session.

Measures

Marathon Sex: Participants were asked the following: "When you're high on methamphetamine, how often do you engage in marathon sex? By marathon sex, we mean prolonged sexual activity where there is genital contact for hours and hours." Responses were coded on a 5-point scale ranging from 1 (never) to 5 (always). Response categories were collapsed to create two groups: (1) those who engaged in marathon sex; and (2) those who did not engage in marathon sex. We reasoned that it would be important to HIV prevention and intervention efforts to identify differences between individuals who use methamphetamine and engage in marathon sex and those who use methamphetamine but do not engage in sexual marathons.

The two groups were then compared in terms of the following variables, which were selected on the basis of previous research that has identified them as HIV transmission risk factors in samples of methamphetamine-using MSM (e.g., Molitor et al., 1999; Reback, 1997; Semple et al., 2002; Semple, Zians, Grant, & Patterson, 2006; Shoptaw, Reback, & Freese, 2002).

Background characteristics: Age was coded as a continuous variable. Ethnicity, education, marital status, and living arrangement were coded as categorical variables (see Table 1 for categories). Employment status and income were dummy-coded (Employed = 1, Not Employed = 0); and (less than or equal to $19,999 = 0, > $19,999 = 1). Psychiatric diagnosis was determined through self-report ("Have you ever received a psychiatric diagnosis?"). Responses were coded Yes = 1 and No = 0. Mean number of months HIV-positive was coded as a continuous variable.

Methamphetamine use variables: Amount of methamphetamine used was measured as number of grams consumed in the past 30 days. Frequency of methamphetamine use was measured by two items: "During the past 30 days, on how many days did you do methamphetamine?" and "On a typical day, how many times did you do methamphetamine?" Binge use was assessed using the following question: "Are you a binge user of methamphetamine? By binge user, I mean you keep using large quantities of methamphetamine for a period of time—until you run out or just can't physically do it anymore." A dichotomous response category was used (Yes = 1, No = 0). To determine route(s) of administration, participants were presented with a list of five ways of consuming methamphetamine (smoke, snort, inject, inject with other drug, ingest) and asked to indicate which methods were used during the past two months. The Semi-Structured Assessment for the Genetics of Alcoholism (SSAGA-II/Section G) was used to determine the severity of participants' use of methamphetamine (Bucholz et al., 1994, 1995). Participants were also presented with a list of 19 reasons for current methamphetamine use (e.g., to get high, to stay awake, to replace another drug). Reasons for current use were endorsed or denied by a "Yes" (1) or "No" (0) response.

Drug and alcohol variables: Illicit drug use was measured with a 12-item scale developed by Temoshok and Nannis (1992). Participants were asked how often during the past two months

they had used the following illicit drugs: marijuana or hashish, powder cocaine, crack cocaine, amyl or butylnitrates (poppers), ecstasy, hallucinogens, heroin, Special K, GHB, steroids (obtained illegally), inhalants, and other. Response categories ranged from 0 (Never) to 3 (Very Often). Each drug use item was recoded into a binary variable (1 = used in the past 2 months; 0 = not used in the past 2 months). Total number of illicit drugs used during the past two months was also calculated. Alcohol use was assessed using two items. "How often during the past two months have you: (1) consumed alcohol? and (2) become intoxicated from drinking alcohol?" Response categories ranged from 0 (Never) to 3 (Very Often). A summary variable ranging from 0 to 6 was calculated.

Sexual risk behavior: Multiple indicators of sexual risk behavior were examined. Total number of sexual partners was measured by counting all persons with whom the participant had had vaginal, anal, or oral sex during the previous two months. Within that total, five categories of partner type were distinguished: steady (e.g., spouse, steady); other regular partners (e.g., boyfriend, girlfriend); casual (e.g., one-night stand); anonymous (e.g., someone in the park); and paid partners (e.g., hustler). The total number of each type of partner was computed. Additionally, for each partner type, participants were asked how many times during the past two months they had engaged in receptive anal sex, insertive anal sex, receptive oral sex, insertive (give) oral sex, and insertive vaginal sex. A follow-up question was used to determine the number of times a condom or dental dam had been used for each type of sex during the past two months. Four variables were created to represent the total number of sex acts and the total number of anal, oral, and vaginal sex acts during the previous two months. Four additional variables were created to represent the total number of unprotected sex acts and the total number of unprotected anal, oral, and vaginal sex acts during the same two-month time frame.

Psychosocial variables: Four psychosocial characteristics were measured: self-esteem, stigma, depressive symptoms, and sexual compulsivity. *Self-esteem* was measured using the Self Esteem Rating Scale (SERS), a 40-item measure that assesses multiple areas of self-evaluation, including self-worth, social competence, intellectual ability, physical attractiveness, self-competence, and worth to others (Nugent & Thomas, 1993). Half of the items are worded negatively (e.g., "I wish I were someone else") and half are worded positively ("My friends value me a lot"). Response categories range from 1 (Never) to 7 (Always). Cronbach's alpha for the SERS was .92. *Social stigma* was measured using five items (alpha = .87). Participants reported actual experiences of rejection associated with their methamphetamine use (e.g., "I have lost friends because they found out about my methamphetamine use"). Response categories ranged from 1 (Strongly Disagree) to 4 (Strongly Agree). *Depressive symptoms* were assessed using the Beck Depression Inventory (BDI) (Beck, 1967, 1976). The BDI consists of 21 items, each having four graded statements that are ordered (0 to 3) to show increasing depressive symptoms. Cronbach's alpha for the BDI was .89. *Sexual compulsivity* was assessed with the 10-item sexual compulsivity scale (SCS) developed by Kalichman and Rompa (1995). Sample items include "My sexual appetite has gotten in the way of my relationships" and "I feel that sexual thoughts and feelings are stronger than I am." Items were measured on a 4-point Likert-type scale, ranging from 1 (Not at all) to 4 (Very much like me). Internal consistency reliability of the scale using the present sample was .92.

Data Analysis

Statistical analyses were performed using SPSS 12.0 (Norusis, 2005). All variables were first examined for normality. To approximate normality, all sexual risk variables (e.g., number of unprotected anal and oral sex acts) and amount of methamphetamine used in the past 30 days were log (10) transformed. Univariate associations were examined using a *t*-test for continuous

variables and CROSSTABS procedure for categorical variables. To correct for multiple comparisons in univariate analyses, alpha was set to $p < .01$. Logistic regression analysis was used to examine multivariate relationships. Logistic regression permits an assessment of the direct effects of independent variables on the dependent variable while controlling for variables such as age. Odds ratios indicate the strength of the association between the dependent variable and independent variables. Regression coefficients were tested for statistical significance. For more detail on the use of logistic regression in the social and behavioral sciences, see Tabachnick and Fidell (1996).

RESULTS

Frequency of Sexual Marathon Activities

Eighty-four percent of the overall sample reported engaging in marathon sex while high on methamphetamine during the past two months (Never = 6.4%; Rarely = 15.8%; Some of the time = 31.1%; Most of the time = 24.3%; Always = 12.3%). Sixty-seven percent reported that they engaged in receptive anal sex without a condom some of the time, most of the time, or always. Using the same response categories, 58% reported engaging in insertive anal sex without a condom, 88% reported receptive oral sex without a condom, and 87% reported insertive oral sex without a condom. Other high-frequency activities associated with marathon sex included masturbation (23.0%), viewing pornographic movies (16.7%), use of toys or dildos (13.3%), and fisting (10.0%).

Univariate Comparison of MSM Who Engaged in Marathon Sex with Those Who Did Not

MSM who engaged in marathon sex (N = 285) were compared with their counterparts who did not (N = 56). The two groups did not differ significantly in background characteristics, amount of methamphetamine used in the past 30 days, frequency of methamphetamine use, binge use of methamphetamine, mode of methamphetamine consumption, or severity of methamphetamine use. However, the two groups differed with respect to current reasons for using methamphetamine. Those who participated in sexual marathons were significantly more likely to report using methamphetamine to "get pumped up" for sex, to meet sex partners, and to enhance sexual pleasure as compared to those who did not. The sexual marathon group also used a significantly larger number of illicit drugs in the past two months and were more likely to have used amyl nitrates and sildenafil (Viagra®). Men who participated in sexual marathons also scored significantly higher on a measure of sexual compulsivity (see Table 2). The two groups did not differ significantly in terms of sexual risk behaviors.

Logistic Regression

In a multivariate approach, variables that were significant in univariate analyses at $p < .01$ were entered into a logistic regression. The dependent variable was sexual marathon participation (Did not engage in sexual marathon = 0, Engaged in sexual marathon = 1). Predictor variables included: used methamphetamine to get pumped up for sex; used methamphetamine to meet sex partners; used methamphetamine to enhance sexual pleasure; number of illicit drugs used in the past two months; used poppers in the past two months; used sildenafil in the past two months; and sexual compulsivity score. Zero-order correlations among variables in the logistic equation ranged from −.52 to .14. A test of the full model with seven predictors against a constant-only model was statistically significant (−2 log likelihood: 135.5, $\chi^2 = 30.3$, 7 df, $p < .001$). Table 3 displays the regression coefficients, standard error, Wald statistics, odds ratio, and 95% confidence intervals for each independent variable. Use of sildenafil in the past two months was the only significant variable. MSM who participated in sexual marathons had over six times the odds of having used sildenafil in the past two months as compared to men who did not participate in sexual marathons (odds ratio [OR] = 6.3).

DISCUSSION

Consistent with previous studies of methamphetamine-using MSM (Reback, 1997), we found that sexual marathons were prevalent in our sample and that risk behaviors, including unprotected anal and oral sex, were common among sexual marathon participants. The high prevalence of sexual marathons among HIV-positive methamphetamine users suggests the need to address this activity in safer-sex counseling programs. Because of the potentially life-threatening consequences of HIV transmission, it is imperative that HIV-positive individuals who engage in sexual marathons use condoms properly and consistently with their HIV-negative and serostatus-unknown partners. HIV-positive individuals who engage in sexual marathons also need to be educated regarding the risks associated with prolonged sexual activity, including the increased likelihood of tearing delicate oral and rectal tissue and the increased risk of "condom failure" due to prolonged friction (AMFAR, 2001; CDC, 2003).

In univariate analyses, we identified three categories of psychosocial and behavioral factors that distinguished between men who engaged and those who did not engage in sexual marathons: reasons for methamphetamine use; use of other drugs in addition to methamphetamine, including sexually enhancing drugs; and sexual compulsivity. The identification of these factors helps us to understand why some methamphetamine-using MSM do not engage in marathon sex. Below, we discuss how each factor could be used to inform or improve HIV/STI prevention and intervention efforts.

Current motivations for methamphetamine use, primarily sexually-oriented motivations, differentiated individuals who engaged in marathon sex from their counterparts who did not. This finding suggests that clinicians should explore with their clients the possible connections between motivations for methamphetamine use and risky marathon sex. Motivational Interviewing (MI) is one clinical approach that can help individuals gain insight into the psychological and physiological processes that motivate risk behaviors (Miller & Rollnick, 1991). Establishing a link between motivations for methamphetamine use and risky sex in the context of sexual marathons is a first step toward positive behavior change (e.g., condom use) and safer sex behavior goals.

MSM who participated in sexual marathons also used a significantly larger number of illicit drugs and were more likely to report using sildenafil and amyl nitrates in the past two months as compared to men who did not participate in sexual marathons. Similar to methamphetamine, sildenafil and amyl nitrates ("poppers") have been associated with enhanced sexual experience, prolonged sexual performance, and unprotected insertive and receptive anal sex (Drumright, Patterson, & Strathdee, 2006; Mansergh et al., 2006). Counselors working in prevention and intervention programs should clarify with their clients the extent to which sexually enhancing drugs promote or facilitate high risk sexual behaviors during sexual marathons. Counselors should also ascertain whether clients who engage in sexual marathons are polydrug users and, if they are, seek to increase clients' insight into the ways in which sexually-enhancing drugs might be promoting or facilitating the clients' choices of specific sexual behavior roles.

Sexual compulsivity was another characteristic associated with participation in marathon sex. Although some research suggests that pharmacological treatment of impulsivity might help to reduce or abate drug use and sexually compulsive behaviors (Richards, Sabol, & de Wit, 1999), the current standard of treatment for impulsive behavior is psychological counseling. Cognitive behavioral therapy (CBT) strategies are often used to help individuals identify and correct cognitions that contribute to impulsive behavior. CBT also teaches coping strategies that help individuals to manage or self-regulate impulsive risk-taking behaviors (Beck, 2005).

In multivariate analyses, use of sildenafil in the past two months was the only factor associated with participation in sexual marathons. This finding may not be surprising given that erectile dysfunction is common among HIV-positive males (Rosen et al., 2006) and sildenafil is commonly prescribed for treatment of this condition. Enhanced ability to maintain an erection while taking sildenafil, in combination with increased sexual desire associated with methamphetamine use, may explain why users of sildenafil were six times more likely to have participated in marathon sex. More research is needed to ascertain the relationship between use of sildenafil and sexual risk behavior, including participation in sexual marathons. Indeed, findings from the Seropositive Urban Men's Intervention Trial (Purcell, Moss, Remien, Woods, & Parsons, 2005; Purcell et al., 2005) showed that men who took sildenafil had more sex partners and engaged in more risky sex with casual partners compared to men who did not take this sexually-enhancing drug.

The present analysis was limited by several features that are common in psychosocial and behavioral research, including a convenience sample, specific eligibility criteria, self-report measures of sexual risk and drug use behaviors, and cross-sectional data. These factors should be considered when evaluating the extent to which the findings can be generalized. Our definition of sexual marathon also has limitations. First, the definition used was subjective and open to interpretation. A better definition would delineate parameters related to the duration and constancy of genital contact. For example, does genital contact have to be uninterrupted? What is the minimum time frame for defining a sexual marathon? Must a sexual marathon involve penetration? Second, the frequency ratings used in this research were subjective and difficult to interpret (e.g., rarely, some of the time). Future studies should more precisely measure the frequency of marathons (e.g., once a day; once a week). Third, the phrasing of our sexual marathon question did not address the frequency of sexual marathons in the absence of methamphetamine use. Future studies should assess separately the frequency of sexual marathons and that of methamphetamine use so that the effects of the two behaviors can be disentangled. Finally, future studies of sexual marathons in the target population of methamphetamine users would benefit from use of a control group of MSM who engage in sexual marathons but do not use methamphetamine. A control group design would permit researchers to assess the extent to which methamphetamine and other factors, including psychosocial and behavioral factors, account for participation in sexual marathon.

This research was exploratory, and our data were limited by the number and type of questions asked. Future studies should gather more detailed data on motivations and triggers of sexual marathons, their social contexts (where and with whom), the range of activities performed, and the personal and social meaning of sexual marathons.

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Table 1

Background Characteristics of MSM Presented by "Marathon Sex" Group

Variable		Did Not Engage in Marathon Sex (N = 56)	Engaged in Marathon Sex (N = 285)	Test Statistic	p
Age in years	M	37.4	35.3	t = 1.9	ns
	SD	7.4	7.1		
Ethnicity				$\chi^2 = 3.1$	ns
Caucasian		55.4%	57.5%		
African American		25.0	20.4		
Latino		16.1	12.3		
Other		3.6	9.8		
Education				$\chi^2 = 3.6$	ns
Less than high school		16.1%	12.6%		
High school or equivalent		32.1	25.6		
Some college		33.9	37.5		
College degree		8.9	17.2		
Advanced degree		8.9	7.0		
Marital Status				$\chi^2 = 1.8$	ns
Never Married		87.5%	80.4%		
Married		1.8	2.1		
Divorced/Separated		10.7	16.8		
Widowed		0.0	0.7		
Living Arrangement				$\chi^2 = 5.9$	ns
With spouse/steady		14.3%	17.9%		
With other adults		41.1	29.5		
Alone		19.6	33.3		
Other		25.0	19.3		
Income				$\chi^2 = 1.1$	ns
<= $19,999		83.9%	77.5%		
> $19,999		16.1	22.5		
SSAGA Classification				$\chi^2 = .01$	ns
Abuse		2.4%	2.5%		
Dependent		92.7	92.8		

Variable	Did Not Engage in Marathon Sex (N = 56)	Engaged in Marathon Sex (N = 285)	Test Statistic	p
Not Dependent	4.9	4.6		
Percent Employed	2.3%	27.0%	$\chi^2 = .35$	ns
Percent with Psychiatric Diagnosis	57.1%	51.8%	$\chi^2 = .60$	ns

Table 2

Univariate Analyses to Compare HIV-Positive, Methamphetamine-Using MSM Who Participated in Sexual Marathons with Those Who Did Not

Variable	Did Not Engage in Marathon Sex (N = 56)	Engaged in Marathon Sex (N = 285)	Test Statistic	p
Use methamphetamine to "get pumped up" for sex	48.2%	78.9%	$\chi^2 = 22.9$	< .001
Use methamphetamine to meet sex partners	30.4%	54.4%	$\chi^2 = 10.8$	< .001
Use methamphetamine to enhance sexual pleasure	55.4%	82.1%	$\chi^2 = 19.3$	< .001
Number of illicit drugs used in the past 2 months	2.5	3.5	t = 3.0	< .01
Used amyl nitrates (i.e., poppers) in the past 2 months	42.9%	62.4%	$\chi^2 = 7.4$	< .01
Used sildenafil (Viagra®) in the past 2 months	34.7%	14.3%	$\chi^2 = 9.1$	< .001
Sexual compulsivity	1.9	2.5	$t = 3.1$	< .01

Table 3

Logistic Regression to Examine Factors Associated with Participation in Sexual Marathons in a Sample of HIV-Positive, Methamphetamine-Using MSM (N = 341)

Variable	B[a]	SE[b]	Wald	p	OR[c]	95% C.I.[d]	
						Lower	Upper
Use methamphetamine to "get pumped up" for sex	.76	.65	1.4	ns	2.1	.60	7.7
Use methamphetamine to meet sex partners	.16	.62	.07	ns	1.2	.35	3.9
Use methamphetamine to enhance sexual pleasure	.84	.61	1.9	ns	2.3	.70	7.6
Number of illicit drugs used in the past 2 months	−.11	.14	.60	ns	.90	.68	1.2
Used amyl nitrates (i.e., poppers) in the past 2 months	.34	.57	.42	ns	1.4	.50	3.9
Used sildenafil (Viagra®) in the past 2 months	1.8	.79	5.5	.01	6.3	1.3	29.3
Sexual compulsivity	.54	.34	2.6	ns	1.7	.89	3.3
Constant	*−0.66*	*.73*	*.81*	*ns*	*.52*	—	—

[a]Unstandardized regression coefficient.

[b]Standard Error.

[c]Odds Ratio.

[d]Confidence Interval.