Female Methamphetamine Users: Social Characteristics and Sexual Risk Behavior

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ABSTRACT. The primary objective of this research was to expand our knowledge regarding the personal and social characteristics of female methamphetamine (meth) users, their motivations for using meth, patterns of meth use, medical and social problems associated with meth use, and the relationship between meth use and sexual risk behaviors. The sample consisted of 98 HIV-negative, heterosexually-identified, meth-using females residing in San Diego, California. Female meth users were characterized by personal and social disadvantage, high rates of psychiatric symptomatology, and high levels of sexual risk behavior, including multiple partners, risky partner types (e.g., anonymous sex partners), and high rates of unprotected vaginal and oral sex. Meth use was also associated with the subjective positive experience of sex. These finding suggest that behavioral interventions should be tailored to the social

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characteristics of female meth users, and program content should reflect the intertwining of women's sexual experience and meth use.

KEYWORDS. Women, methamphetamine use, sexual risk behavior, social network, psychiatric symptoms

INTRODUCTION

Widespread use of methamphetamine (meth) has been documented in San Diego County. In the year 2000, the number of people seeking admission to drug treatment programs for meth use in San Diego County was 4,475–an increase of 5 percent from 1999 (Department of Health and Human Services, County of San Diego 2001). In that same year, there were 140 meth-related deaths and 747 meth-related emergency room mentions (Department of Health and Human Services, County of San Diego 2001; Department of Health and Human Services, Drug Abuse Warning Network 2002)–"a mention occurs each time an emergency room patient mentions using a drug" (County of San Diego Methamphetamine Strike Force 2000, p. 5). Data from the Arrestee Drug Abuse Monitoring Program (ADAM) revealed that in 2001, 37 percent of female and 32 percent of male adult arrestees tested positive for meth (San Diego Association of Governments 2002).

Since the mid-1990s, there has been a discernable increase in the use of meth among women in San Diego County and other regions of the Southwest (San Diego Association of Governments 2002); however, research on female meth users has not kept pace with the increased number of women who use this drug. To date, the majority of meth studies have focused on gay and bisexual men; within this population, meth is reputed to be a party drug that enhances sexual pleasure (e.g., Reback 1997). A handful of studies provide limited information on the characteristics of female meth users, and the social and behavioral consequences of meth use among women. In a three-site study, Morgan (1994) identified women as a major group of meth users. In San Diego county, a sizable percentage of meth users were welfare mothers who lived in subsidized housing. The majority of women had started using

meth during their teenage years and had become long-term, chronic users. In another study, Morgan and Beck (1997) reported that women's motivations for using meth centered on weight loss, enhanced self-confidence, increased energy for dealing with the demands of childrearing and household activities, and enhanced sexual pleasure. Other studies have also reported that women, like men, experience increased sexual desire and sex drive, heightened sexual pleasure, and prolonged sexual activity associated with meth use (e.g., Klee 1992; Rawson et al. 2002).

The purpose of this study was to provide a comprehensive description of a sample of community-residing, female meth users. These descriptive data should help to inform the development of drug treatment programs and HIV prevention interventions that are designed specifically for meth-using women. To this end, it is imperative that we expand our knowledge base regarding the personal and social characteristics of female meth users, their motivations for using meth, meth use patterns, medical and social problems associated with meth use, and the relationship between meth use and HIV risk behaviors, particularly sexual risk. Understanding the context of meth use among female users will help clinicians to identify and address the issues that will facilitate successful treatment.

METHODS

Sample Selection

This study used baseline data from the FASTLANE research project at the University of California, San Diego. The FASTLANE project is an 8-session, theory-based, one-on-one counseling program designed to reduce the sexual risk practices of HIV-negative, heterosexually-identified, meth-using men and women (> 18 years). The primary eligibility criteria for this study were: (1) self-identify as heterosexual; (2) report having unprotected vaginal, anal or oral sex with at least one opposite sex partner during the past two months; (3) report using meth at least twice in the past two months, and (4) test HIV-negative at baseline assessment. HIV-negative serostatus was verified through use of the OraSure HIV-1 Oral Collection Specimen Device, which has a reported reliability of 99.9% (George et al. 1997). This subsample of 98 women derived from the parent sample of 335 HIV-negative, meth-using, heterosexually-identified, men and women.

Recruitment

The FASTLANE research project utilized multiple recruitment strategies, including face-to-face contact with community outreach workers, poster campaigns, advertisements in local newspapers and magazines, referrals from community service providers, and word-of-mouth. Seventy-three percent of the sample were recruited through advertisements in local newspapers and magazines. Advertisements were placed in free publications, which were available in local business establishments and in street dispensers. The remaining 27 percent of the sample were recruited through social network members, primarily friends, family members, and enrolled participants.

Procedures

The FASTLANE project was advertised as a university-affiliated program designed to teach safer sex practices to HIV-negative, meth-using, heterosexually-identified, men and women. The project required multiple contacts, including baseline assessment, four 90-minute weekly counseling sessions, four 90-minute booster sessions, and follow-up assessments at 6, 12, and 18 months. The counseling modules addressed the context of meth use and unsafe sex, condom use, negotiation of safer sex, and enhancement of social supports. All data were gathered through computer assisted interview technology (audio-CASI) (Turner, Forsyth, O'Reilly et al. 1998). Participants were paid $30 for their baseline assessment and first counseling session. Data for the present analyses were gathered between June 2001 and March 2004.

Measures

Substance Use Classification System. The Semi-Structured Assessment for the Genetics of Alcoholism (SSAGA) was used to determine the severity of participants' use of substances (Bucholz et al. 1994). The SSAGA-II/Section G was used to determine dependence and abuse in relation to participants' use of meth.

Substance Use. Amount of meth used was measured by self-report and recorded as number of grams consumed in the past 30 days. Alcohol use was measured by two items that assessed the frequency of alcohol consumption in the past two months. Response categories ranged from 0 (Never) to 3 (Very Often). A third item quantified number of drinks in a typical day and was scored 0 (0 drinks) to 4 (12 or more drinks). Re-

spondents were also asked how often during the past two months they had taken other illicit drugs: marijuana or hashish; cocaine, crack cocaine, amyl or butylnitrates (poppers), ecstasy, hallucinogens, heroin, GHB, inhalants, and other (Temoshok and Nannis 1992). Response categories ranged from 0 (Never) to 3 (Very Often).

The Beck Depression Inventory (BDI). The BDI was used to assess depressive symptoms (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. Summary scores ranged from 0 to 63. Cronbach's alpha for the BDI in the present sample was 0.89.

Partner Type. Participants were asked about four types of sex partners. The first category of partner type encompassed spouses and cohabiting partners. Another category included persons whom the participant did not live with but had sex with on a regular basis, such as a boyfriend. Casual partners were defined as person(s) with whom the participant was acquainted, and had a one-night stand or had sex with only once or twice. Anonymous partners were defined as person(s) whom the participant did not know (e.g., someone in the park).

Sexual Risk Behavior. For each partner type, participants were asked how many times during the past two months they engaged in: (a) receptive vaginal sex (i.e., "your partner inserted his penis into your vagina"); (b) receptive anal sex (i.e., "your partner inserted his penis into your anus"); (c) receiving oral sex (i.e., "your partner licked or sucked your genitals"); and (d) giving oral sex (i.e., "you licked or sucked your partner's genitals"). Summary variables were created to represent total number of protected and unprotected vaginal, anal, and oral sex acts.

Perceived Consequences of Meth Use. Participants were asked to what extent they agreed or disagreed with 29 statements that described how some people are affected by meth. Response categories ranged from 1 (Strongly Disagree) to 4 (Strongly Agree). The *subjective experience of meth sex* subscale consisted of 14 statements (alpha of 0.93) (e.g., "When I'm high on meth, I am a better lover"). The *behavioral consequences of meth use* subscale consisted of 15 statements (alpha = 0.90) (e.g., "When I'm high on meth, I am less likely to use a condom for vaginal sex").

RESULTS

Background Characteristics. Women ranged in age from 18 to 56 years (M = 35.1, SD = 10.4). The ethnic composition of the sample was

diverse, and included 44% Caucasian, 33% African American, 16% Latina, 2% Native American, and 5% Other. Ninety-six percent of the sample had less than a college education. Only 4 percent had a four-year college degree. Fifty-four percent of the sample had never been married. The remainder of the sample was divorced (26%), separated (10%), or married (8%). Approximately 42 percent of the sample lived with other adults in non-sexual relationships. Other living arrangements included: living alone (19%), homeless (13%), living with a steady sexual partner (14%), living with spouse in same household (6%), and other (5%). Seventy-seven percent of the sample were unemployed, and 74 percent reported an income of less than $20,000 per year.

Psychiatric Health Status of Female Meth Users. Thirty-eight percent of the sample reported having a psychiatric diagnosis. Among those women, the most frequently occurring diagnoses were (in rank order): depression (53%); bipolar disorder (17%); and schizophrenia (14%). Only 15 percent of the sample reported that they were currently taking psychiatric medications. Resperol and Depacote were the most common psychiatric medications used. Participants' scores on the Beck Depression Inventory ranged from 0 to 44, with a mean score of 19.2 (SD = 10.2). Thirty-nine percent of the sample met criteria for moderate depression, and another 17 percent were severely depressed (Beck 1967; 1976).

Patterns of Meth Use. The women in this sample reported multiple forms of meth consumption over the past two months. Eighty-three percent indicated that they had smoked meth, 66 percent reported snorting meth, and 25 percent reported injecting meth at least once in the past two months. Other forms of meth consumption included eating or drinking meth (27%) and "booty bump" (i.e., insertion of meth into the rectum) (9%). Although multiple methods of consumption were reported, 63 percent of the sample indicated that smoking meth was their most frequent form of consumption. Twenty-four percent reported snorting and 13 percent reported injecting as their main method of consumption. Among injectors (N = 24), the average number of times meth was injected over a two-month period was 45 (SD = 38, Range 2 to 120). Seven percent of the sample indicated that they had injected a drug other than meth in the past two months. Among meth injectors, heroin and cocaine were the most common other drugs injected. On average, participants used meth on 16 days, over a 30-day period (SD = 9.0, Range 0 to 30). The average number of times meth was used in a typical day was 6.5 (SD = 7.6, Range 0 to 50). Participants reported consuming an average of 2.2 grams of meth over a 30-day period (SD = 4.7,

Range 0.5 to 28 grams). On average, women had used meth for 12.7 years (SD = 8.5). Using the SSAGA, 94 and 6 percent of the sample, respectively, met criteria for meth dependence and abuse.

The Context of Meth Use. Participants were asked about the social context of their meth use. Meth was used primarily with either a friend (95%) or a sexual partner (84%). Other persons with whom participants used meth included: dealer (61%), stranger (33%), co-worker (18%), and family member (16%). Meth consumption occurred in two primary locations, either at the participant's home (45%) or at a friend's home (33%). Women's use of meth in public locations, such as a public park, was infrequent. Participants' current reasons for using meth were wide-ranging; however, the most common reasons were: to get high (56%), to get more energy (37%), to cope with mood (34%), to lose weight/feel more attractive (29%), to party (28%), and to escape (27%). Only 18 percent of the sample indicated that they currently used meth to "enhance sexual pleasure." Consistent with this finding, less than half of the sample (41%) indicated that they had gone to a specific location to find a sex partner when high on meth. Among those women, the most likely location where they would go to find a sex partner was a party at a friend's house (N = 16). Other locations included a bar (N = 10) and a street corner (N = 7). In terms of locations where women had sex while on meth, 65 percent indicated that sex was most likely to occur in their own home. Other locations included: sex partner's home (51%), park (12%), friend's house (7%), and adult bookstore (5%).

Use of Alcohol and Drugs Other than Meth. The majority of women in the sample drank alcohol on a regular basis; however, drinking to the point of intoxication was relatively infrequent. Specifically, 86 percent of the sample drank alcohol during the past two months; only 16 percent indicated that they became drunk "fairly often" or "very often." With the exception of marijuana use, women's use of drugs other than meth was limited. Marijuana was used by 69 percent of the sample during the past two months, primarily as a way "to take the edge off" or "to extend the high" as they were coming down from the meth high. Other drugs used included: downers (25%), powder cocaine (22%), and crack cocaine (15%).

Social and Legal Problems. Thirty-six percent of the women in this sample reported having a felony conviction. Among those individuals, 66 percent reported a felony conviction for drug possession. Other felony convictions included: fraud, primarily in the form of bad check writing (20%), assault (9%), driving under the influence (3%), breaking/entering and robbery (3%), and drug dealing (3%). There was a

wide range noted in terms of time served for felony convictions (Range 3 days to two years; M = 6.5 months; SD = 5.6 months). Interpersonal relationships were also affected by meth use. Forty-two percent of the sample indicated having problems in their family relationships. Other negative social consequences associated with meth use included the loss of an important personal relationship (39%) and relationship strain (39%).

Sexual Partners of Meth-Using Women. Participants were asked about the nature of their relationship with sexual partners. On average, women had 7.8 sexual partners in a two-month period (SD = 10.7, Range 1 to 74). Twenty-eight percent of the sample reported that they had a spouse or live-in partner with whom they were sexually active. Fifty-seven percent of those with a spouse or live-in partner indicated that their spouse or live-in was also a meth user. Ninety-two percent of the sample indicated that they had a steady partner (other than spouse or live-in) during the past two months. On average, the women in our sample had 2.9 steady partners during the assessment interval (SD = 3.5, Range 0 to 28). Eighty-seven percent of all steady partners were also meth users. Eighty-four percent of the women in this sample also had casual partners during the past two months. Ninety percent of all casual partners were reported to be meth users. Moreover, 31 percent of women had an anonymous partner in the past two months. The number of anonymous partners ranged from 0 to 20. On average, participants reported 1.0 anonymous partners (SD = 2.4). Among those who had anonymous sex partners, 76 percent were meth users. Twenty-two percent of the sample indicated that they had partners with whom they exchanged money for sex. On average, women had 1.1 paid partners in a two-month period (SD = 4.2, Range 0 to 35). The HIV serostatus of sexual partners was also ascertained. No spouses or live-in partners were reported to be HIV-positive; however, five steady partners, and two casual partners were reported to be HIV-positive. No anonymous or paid partners were known to be HIVpositive.

Sexual Risk Behaviors. The women in our sample reported high levels of sexual activity. Participants engaged in an average of 79.2 sex acts over a two-month period (SD = 58.6, Range 2 to 238). Most sexual activity was unprotected; the average number of unprotected and protected sex acts over the two-month period was 70.3 and 8.8, respectively. Vaginal and oral sex were the most frequently occurring forms of sexual activity. In terms of vaginal sex, all but one participant engaged in this type of sexual activity during the past two months. The average number of vaginal sex acts during this time period was 34.6 (SD = 28.7, Range 0 to 130). Vaginal sex was primarily unprotected. On

average, participants reported 27.1 acts of unprotected vaginal sex (SD = 28.4, Range 0 to 100) and 6.6 acts of protected vaginal sex (SD = 13.3, Range 0 to 80).

With respect to oral sex, all but one participant engaged in this activity. The average number of oral sex acts over a two-month period was 41.9 (SD = 33.1, Range 0 to 131). The average number of unprotected oral sex acts was 40.3 (SD = 32.0, Range 1 to 130), and the average number of protected oral sex acts was 2.1 (SD = 7.5, Range 0 to 59). Data on receiving and giving oral sex were analyzed separately because of the differential risk associated with these sexual acts. The average number of unprotected receptive oral sex acts was 20.8 (SD = 17.8, Range 1 to 79). The average number of times women gave unprotected oral sex was 21.9 (SD = 20.5, Range 0 to 105).

Forty women in the sample reported having anal sex during the past two months. Among those who had anal sex, the average number of anal sex acts was 7.5 (SD = 8.1, Range 1 to 34). The average number of unprotected and protected anal sex acts were 6.7 (SD = 7.6, Range 1 to 34) and 0.6 (SD = 1.8, Range 0 to 10), respectively. Expressed in terms of percentages, 56% of all vaginal sex acts were unprotected, 83% of all anal sex acts were unprotected, and 98% of all oral sex acts were unprotected.

Perceived Consequences of Meth Use. Two subscales were used to measure the perceived consequences of meth use among women. The mean score among female participants on the subjective experience of sex subscale was 2.8 (SD = 0.72, Range 1 to 4). Higher scores on this scale reflect a more positive subjective sexual experience while high on meth (e.g., enhanced physical pleasure, sexual confidence, and sexual performance). The correlation between intensity of meth use and subjective positive experience of sex was in a positive direction and statistically significant ($r = 0.21$, $p < 0.05$). The mean score among women on the behavioral consequences subscale was 2.1(SD = 0.67, Range = 1 to 4). The correlation between intensity of meth use and behavioral consequences was positive and statistically significant ($r = 0.21$, $p < 0.05$).

Meth-Using Heterosexuals: A Comparison of Men and Women. Although the focus of this research was on female meth users, we believed that the richness of our descriptive data would be enhanced by conducting a preliminary examination of gender differences among heterosexual meth users. Data from 237 heterosexual male users who were also enrolled in the FASTLANE project were compared with data from our sample of 98 female meth users. T-tests and Chi-square analyses were used to examine group differences. To correct for multiple compari-

sons, alpha was set at $p < 0.01$. Male and female meth users did not differ in terms of background characteristics, patterns of meth use, use of alcohol and other drugs, type and number of sexual partners, or sexual risk behaviors. However, the two groups differed in terms of select variables in the domains of psychiatric health, context of meth use, social and legal problems, and perceived consequences of meth use. Specifically, female meth users had significantly higher depression scores as compared to their male counterparts (19.2 versus 13.2, $t = 5.2$, $p < 0.001$). Men and women also differed in terms of their current reasons for using meth. Women as compared to men were significantly more likely to endorse the following reasons for current use: to lose weight/feel more attractive (28.9% versus 5.1%, $\chi^2 = 36.6$, $p < 0.001$) and to cope with mood (34.0% versus, 11.5%, $\chi^2 = 23.5$, $p < 0.001$). Among participants who had a felony conviction, men were significantly more likely to have served a longer sentence as compared to women (14.2 versus 6.2 months, $t = 4.7$, $p < 0.001$). Finally, men scored significantly higher than women in terms of the perceived behavioral consequences of meth use (2.5 versus 2.1, $t = 4.6$, $p < 0.001$).

DISCUSSION

These descriptive data contribute to our understanding of the relationship between meth use and the sexual risk behaviors of female meth users. Although the past decade has seen a burgeoning literature on the sexual risk behaviors of meth-using gay and bisexual men, women have remained an understudied population. In the present study, female users of meth reported high levels of sexual risk behavior that place them at risk for contracting HIV and other STDs. Vaginal and oral sex occurred frequently and were mostly unprotected. Approximately 40 percent of the sample engaged in anal sex in the past two months. This rate is much higher than the national average, which suggests that 6-8 percent of heterosexuals engage in anal sex on a regular basis (Erickson et al. 1995). Anal sex among the meth-using women in this sample was primarily unprotected. The high risk of HIV/STD transmission associated with unprotected anal and vaginal intercourse suggests the need for intervention programs that educate meth-using women about the risks associated with these sexual activities, and provide them with the skills needed to convince their sexual partners to use condoms for these high risk activities.

These data also revealed that women's subjective sexual pleasure was tied to their use of meth. Although sexual pleasure was not the primary stated motivation behind women's meth use, intensity of meth use was positively correlated with women's subjective positive experience of sex (e.g., increased sexual desire and pleasure, enhanced sexual self-confidence). Because the positive sexual consequences associated with meth use are likely to be highly reinforcing, the sexual risk behaviors of meth-using women are not likely to be changed easily. Thus, the effectiveness of treatment programs for female meth users may be enhanced if programs are designed specifically for women and if the importance of meth use in relation to women's sexual identity and sexual pleasure is recognized and addressed.

This research also gathered descriptive data on the meth use patterns of study participants. The majority of women were moderate to heavy users of meth. Most were daily users, and all met criteria for meth dependence or abuse. The average number of times that women used meth in a typical day was 6.5. Although this drug has a longer lasting effect than other drugs such as cocaine or heroin, the initial high (known as the meth "rush") diminishes after 4-6 hours, and users often feel the need to engage in "boosters" (small amounts of the drug) throughout the day in order to maintain the perceived quality of the original high. Women's current reasons for using meth may also help to explain this pattern of meth consumption. The most frequently occurring reasons for current meth use were to get more energy, to cope with mood, and to lose weight. Using small amounts of meth throughout the day may help female users to maintain a high energy level, manage mood, and suppress appetite. Our current data do not permit us to examine detailed patterns of meth use or reasons associated with these patterns; however, future research should address this issue.

The association between negative affect and women's long-term use of meth is consistent with the high rates of psychiatric diagnoses reported in this sample. Forty percent of the sample has a psychiatric diagnosis, primarily depression. Unfortunately, this study did not gather comprehensive data on lifetime history of psychiatric disorders, so we are unable to evaluate whether depressive symptoms were consistent with a primary psychiatric disorder or whether symptoms were induced by heavy meth use (i.e., chronic intoxication) or manifestations of meth withdrawal (Weiss et al. 1989). An understanding of the relationship between meth use and depressive symptomatology would require data on lifetime psychiatric history and longitudinal assessment of the relationship between meth use and psychiatric symptomatology. Despite

the limitations of our data, the present findings provide suggestive evidence that psychiatric comorbidity may be common among female meth users, and that some women may be choosing meth over prescription medications in an attempt to manage their symptoms (only 15 percent were currently taking psychiatric medications). If women are using meth to self-medicate psychological symptoms, why, one might ask, might this drug be perceived as more appealing than prescription medications? A likely explanation focuses on the positive sexual consequences and confidence-enhancing qualities associated with this drug. Low cost and wide availability of meth may also contribute to its popularity among female users. Overall, women's use of meth to escape negative psychological states is an understudied area in drug research; however, studies of crack-cocaine using women have reported a relationship between higher levels of depressive symptoms and sexual risktaking behaviors (e.g., Nyamathi, Bennett and Leake 1995; Roberts, Wechsberg, Zule and Burroughs 2003). More research is needed to assess whether sexually active women who have high levels of depressive symptoms or other psychiatric disorders attempt to escape their symptoms by using meth and engaging in unprotected sex with multiple partners. The present data are only suggestive of a pathway; more research is needed.

The women in this study were also characterized by high levels of personal and social disadvantage. Overall, they had modest levels of education, unstable living arrangements, low income, low rates of employment, and high rates of psychiatric diagnoses. As demonstrated in previous research, women who experience these forms of disadvantage may be more likely to engage in both drug use and HIV risk behaviors (e.g., He, McCoy, Stevens and Stark 1998). Social disadvantage among drug-dependent adults may also be related to adverse childhood experiences. For example, studies have shown a relationship between drug dependence in adulthood and early parental absence, childhood exposure to parental substance abuse, childhood neglect, as well as physical, sexual, and emotional abuse (Dube et al. 2003; Turner and Lloyd 2003; Wilsnack et al. 1997). Interventions for changing the high risk behaviors of meth-using women may need to address issues of social disadvantage. As indicated, these issues are varied and may require long-term counseling that delves into complex psychological issues arising from adverse childhood experiences. Other approaches to addressing issues of social disadvantage include personal empowerment and the enhancement of social functioning through life skills training and effective coping skills (e.g., Harris et al. 1998). For example, programs

could be designed to help women enhance their education, improve their job skills, and find suitable and stable housing for themselves and their children.

The influence of social network on the meth use of women represents another understudied area of research. In these data, sexual partners and friends were the predominant sources of influence with respect to women's use of meth. For the most part, women's sexual partners were also meth users. Not surprisingly, the sexual enhancement properties of meth make it a drug that is used most often with a sexual partner. Unfortunately, we did not ask women in what ways their male sexual partners' meth use influenced their personal use of meth and/or HIV risk behaviors. In some cases, women and their sexual partners, particularly if they are a "couple," may use meth to enhance sexual intimacy or meth use may simply be a way of life for couples who have both become dependent on this drug. Also, there is some research on drug-using women that has shown an association between partners' use of drugs and women's experience of physical abuse and sexual coercion (El-Bassel, Gilbert, and Rajah 2003; He, McCoy, Stevens, and Stark 1998). Thus, it is plausible that the drug use behaviors and sexual risk practices of some meth-using women are influenced by perceived threats from drug-using male partners. More research on the role of male partners in relation to women's use of meth and their HIV risk behaviors is warranted.

Despite the utilization of multiple recruitment strategies in this study, all female participants were recruited through advertisements in local magazines and newspapers, and through friends. It appears that many conventional recruitment strategies such as poster campaigns and face-to-face contact with outreach workers were not effective methods of recruitment for female meth users. We believe that the media ads were successful because they provided the greatest degree of confidentiality and anonymity. Our data also suggest that women limit their meth use to private locations, and use primarily with sexual partners and friends. Thus, unless women's meth use is exposed through an event, such as an encounter with law enforcement, they are likely to remain hidden for long periods of time. This is a concern because meth use among women is likely to be initiated during the teenage years. These findings suggest the importance of targeting young women who use this drug and educating them in terms of the negative social and health consequences of meth use.

Study Limitations

The present findings should be evaluated in the context of methodological limitations. This study was conducted with a relatively small sample of women who had volunteered to participate in a sexual risk reduction intervention for sexually-active meth users. The volunteer nature of the study brings into focus women's motivations for study participation. It is possible that the intervention study attracted women who were in need of money and/or concerned about their high levels of sexual risk behavior and meth use. Moreover, participants were recruited into the study on the basis of their sexual risk behavior; thus, the rates of unprotected sex in this sample may be higher than those in the broader population of female meth users.

The paucity of research on female meth users makes it difficult to determine how women in the present sample resemble or differ from meth users in other regions of the United States. In general, meth users tend to be young (20-29 years), Caucasian, male, and working-class. In large urban areas, there are growing numbers of gay and bisexual men, and ethnic minority users. Compared to published reports, the women in our sample were older than the average meth user in California and elsewhere in the U.S. (e.g., Morgan and Beck 1997). Accordingly, the women in this study should not be considered representative of all female meth users, and the reader should not generalize these findings to the broader population of female users. Despite this limitation, the present study does provide valuable preliminary insights into a population of women who are at high risk for contracting HIV and other STDs. These data also offered only a limited comparison of male and female meth users. In preliminary analyses, gender differences were identified in the domains of psychiatric health, context of meth use, social and legal problems, and perceived consequences of meth use. More research on gender differences is needed in order to establish if findings regarding the social and sexual context of meth use are applicable to both men and women or if some issues are gender-related.

Another limitation stems from the use of self-report data. Specifically, there is always the possibility of problems associated with inaccurate recall (e.g., faulty memory) and response bias as a result of the highly sensitive nature of the sex and drug questions. To guard against these problems, the FASTLANE project utilized a relatively short recall period (i.e., two months), and data were gathered using audio-CASI technology, which offers maximum privacy and confidentiality (Turner, Forsyth, O'Reilly et al. 1998).

The cross-sectional nature of these data also places limitations on the present research findings. For example, we were unable to disentangle the relationship between meth use and depression. Do the high levels of depression reported by participants precede their meth use or does meth use lead to increased depressive symptoms? Similarly, does meth use lead to high risk sexual behavior or does sexual behavior motivate the use of meth? Longitudinal data are necessary to disentangle these reciprocal relationships.

In summary, this research has shed light on the social characteristics, drug use patterns, and HIV risk behaviors of heterosexual women who use meth. These findings suggest that HIV prevention programs should target female meth users, and the content of such programs should reflect the intertwining of women's sexual experience and meth use.

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