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Methamphetamine-using felons: Psychosocial and behavioral characteristics

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Abstract

Methamphetamine (meth) users with felony convictions may be important vectors in the HIV/AIDS pandemic because of their drug and sexual risk histories. This study gathered personal, psychosocial, and behavioral data from 450 HIV-negative, heterosexually-identified, meth-using men and women. Significant differences were found between felons and non-felons in meth use patterns, contexts and reasons for use, involvement of social networks in meth use, and certain psychosocial and sexual risk variables. Our findings suggest that targeting meth use patterns and motivations, social networks, and sexual risk behaviors of meth-using felons may help to reduce HIV/AIDS transmission in and outside the prison system.

Keywords

Methamphetamine; felons; sexual risk; HIV/AIDS transmission

1. INTRODUCTION

The U.S. Department of Justice has documented a higher incidence of HIV/AIDS among prison inmates as compared to the general population (1). HIV transmission in the prison system is a major concern because inmates frequently have strong personal risk histories, which may include intravenous drug use, needle sharing, multiple sex partners, unprotected sex with risky partners, HIV infection, and other sexually transmitted infections (STIs) (2). Although all prisons prohibit sexual activity and most prohibit the distribution of condoms to inmates, high-risk sexual activities still occur (2). Clandestine intravenous drug use and needle sharing are also reported to occur in prisons (3). The placement of individuals with risk histories into an environment where opportunities exist to engage in high-risk sexual activities makes the prison system a potential high-risk area for HIV/AIDS transmission.

The use of methamphetamine, a powerful illegal stimulant, is associated with high-risk sexual practices, intravenous drug use, and criminal activity (4–6). The incarceration of meth users may play a significant role in the transmission of HIV/AIDS in the prison system and in society at large once inmates are released. Meth use, long common in the Western United States, has now spread to the Midwest and the East Coast (7–10). Meth's growing popularity has placed

a strain on a variety of social institutions and agencies, including law enforcement, drug treatment facilities, hospital emergency rooms, and prison and jail systems. In 2005, law enforcement officials named meth the number one drug problem in the U.S.— more problematic than cocaine, marijuana, and heroin (11). In a national survey of law enforcement officials in 500 counties covering 44 states, approximately half of responding sheriffs reported that at least 20 percent of arrests during the previous year were for meth-related crimes (12). Moreover, numerous regional differences were recorded. In New York State, 83% of sheriffs reported that at least 10 percent of crimes were associated with meth use. In Oklahoma, 67% of sheriffs reported that 50 to 75 percent of arrests were meth-related. Law enforcement officials also detailed the type of crimes most often associated with meth use. Fifty-five percent of counties reported an increase in meth-related robberies and burglaries during the preceding year. In addition, increases in domestic violence, simple assaults, and identity theft were attributed to meth use (12).

Rates of incarceration associated with meth-related crimes have also been on the rise. Approximately half of the counties surveyed reported that up to 20 percent of inmates are incarcerated for meth-related crimes. In the Pacific Northwest, 44 percent of counties reported that 50 percent of inmates have meth-related convictions. Another 21 percent of counties reported that a staggering 75 percent of inmates are incarcerated for meth-related criminal activity (12).

San Diego's proximity to the Mexican border makes it a key distribution point for meth traffic into the U.S. Rates of methamphetamine use in San Diego County are among the highest in the nation (13). In 2005, the County recorded 8,447 arrests for meth sales or possession, 206 deaths, 669 emergency room visits, and 7,208 drug treatment admissions (14). Not surprisingly in view of meth's growing popularity, meth-related crimes have been increasing in San Diego County. In 2004, 43% of male and 42% of female arrestees in San Diego County tested positive for meth, a significant increase over five years earlier, when 28% of male and 29% of female arrestees tested positive. Moreover, almost two out of every three arrestees in San Diego County reported having used meth at some point in their lives (15).

In 2004, approximately 50 percent of adults and juveniles arrested in San Diego County reported having sold or aided in the sale or distribution of meth at least once in the past year (16). By contrast, arrests in San Diego County for meth *production* have decreased since California banned the sale and distribution of chemicals used to cook meth. In 2004, only 10 percent of arrestees reported involvement in the production of meth (16). Other criminal activities associated with meth use in San Diego County include identity theft, auto theft, domestic violence, robberies, burglaries, and homicide (16,17).

This paper examines the personal, psychosocial, and behavioral characteristics of meth users who have been convicted of a felony. In law, felonies are the most serious crimes and are typically punishable by one year to life in prison or by death (18). In comparison, the standard punishment for a misdemeanor is a fine or incarceration in county jail for less than one year. Because of the serious nature of a felony and the resulting longer-term exposure to prison life upon conviction, we reasoned that meth-using felons would be distinguishable from their counterparts who have no criminal record or have misdemeanor convictions only. By identifying unique characteristics of meth-using felons, it may be possible to intervene with individuals on specific traits or behaviors so as to: 1) reduce the risk of HIV/AIDS transmission among prison inmates; and 2) decrease the likelihood of future meth-related criminal behavior.

2. MATERIALS AND METHODS

2.1. Sample Selection

The analyses used baseline data from a sample of 450 HIV-negative, heterosexually-identified, meth-using men and women (> 18 years) who were enrolled in a sexual risk reduction intervention at the University of California, San Diego (UCSD). Eligible participants self-identified as heterosexual and reported having had unprotected vaginal, anal, or oral sex with at least one opposite-sex partner during the past two months. Participants also reported having used meth at least twice in this time frame. Exclusion criteria for the intervention included: not sexually active in the past 2 months or always used condoms; no unprotected sex with anyone other than a spouse or steady partner in the past 2 months (i.e., monogamous sexual behavior); a current major psychiatric diagnosis accompanied by psychotic symptoms or suicidal ideation within the past 2 weeks; and trying to get pregnant or trying to get a partner pregnant. The OraSure HIV-1 Oral Collection Specimen Device was used to determine HIV-negative serostatus at baseline (19).

2.2. Procedures

All participants completed a baseline assessment followed by four weekly, 90-minute, one-on-one counseling sessions, four 90-minute booster sessions at monthly intervals, and three follow-up assessments at 6, 12, and 18 months post-baseline. The counseling and booster sessions focused on: the contexts of meth use and unsafe sex; condom use; negotiation of safer sex; and enhancement of social supports. The baseline and followup assessments lasted 90 minutes and covered a range of topics including sociodemographic characteristics, patterns of meth use, use of alcohol and other illicit drugs, sexual risk behavior, social cognitive factors, attitudes, intentions, social norms, and social network factors. Data were collected between June 2001 and March 2005.

2.3 Recruitment

The primary recruitment strategy involved a large-scale poster campaign. Outreach workers placed posters in areas known to have high concentrations of young people and meth users. The project also implemented a smaller-scale media campaign of weekly advertisements in local magazines and newspapers. Another recruitment strategy was to obtain referrals from case managers and program staff at social and health care agencies. Participants were also referred to the project through family, friends, and enrolled participants. In the present sample, 59% of participants were recruited through the poster and media campaign, 40% were referred by agencies, enrolled participants, family members, and friends, and 1% were recruited through direct contact with outreach workers. There were no differences between felons and nonfelons in terms of recruitment sources ($\chi^2 = 3.5$, $p > .05$).

2.4. Measures

2.4.1. Background Characteristics—Age was coded as a continuous variable. Marital status, living arrangement, ethnicity, and education were treated as categorical variables. Categories of marital status included: never married, married, divorced or separated, and widowed. Living arrangement included four categories: living with spouse or steady, living with other adults, living alone, or other. Ethnicity was coded as non-Hispanic White, African American, Latino/Hispanic, or other. Education was measured by five categories: less than high school, high school or equivalent, some college, college degree, or advanced degree. Gender, income, and employment status were scored dichotomously: male = 1, female = 2; \$19,999 or less per year = 0, more than \$19,999 per year = 1; not employed = 0, employed = 1. Psychiatric health status was measured by self-report; participants were asked if they had ever received a psychiatric diagnosis, and follow-up questions focused on the type and date of

diagnosis. Participants also received a list of 17 sexually transmitted infections (e.g., gonorrhea, syphilis, chlamydia) and were asked if they had had any of these STIs within the past two months. A dichotomous variable was created to represent the presence or absence of an STI in the past two months.

2.4.2. Meth Use Variables—The amount of meth used was measured as the number of grams consumed in the past 30 days. Number of years of meth use was calculated by subtracting “age at which participant first used meth” from “current age.” Participants also were asked to indicate which methods of meth consumption were used in the past two months (e.g., smoke, snort, inject). Participants also received a list of 22 reasons for starting to use meth, and they indicated (with a yes/no response) which reasons applied to them. A similar list of 19 reasons was used to assess participants' current reasons for using meth. The Semi-Structured Assessment for the Genetics of Alcoholism (SSAGA-II), Section G, was used to determine dependence and abuse in relation to meth use (20). Seeking treatment for meth use was assessed using a single question with a yes/no response (“Have you ever tried to get treatment for your meth use?”).

2.4.3. Use of Alcohol and Other Drugs—Three items measured alcohol use. The first two asked how often during the past two months the participant had consumed alcohol and become intoxicated from doing so. Response categories ranged from 0 (never) to 3 (very often). A third item quantified the number of drinks consumed on a typical day and ranged from 0 (0 drinks) to 4 (12 or more drinks). A summary variable was created to measure the extent to which the participant used alcohol during the previous two months. Illicit drug use was measured with a 14-item scale developed by the Henry M. Jackson Foundation (21). Participants were asked how often during the past two months they had taken the following illicit drugs: marijuana or hashish, powder cocaine, crack cocaine, amyl or butyl nitrates (poppers), ecstasy, hallucinogens, heroin, Special K, gamma hydroxybutyrate (GHB), steroids (obtained illegally), inhalants, and other. Response categories ranged from 0 (never) to 3 (very often). All items were recoded (1 = yes, 0 = no). A summary variable was created to represent the total number of illicit drugs used during the past two months.

2.4.4. Perceived Behavior of Social Network Members—We assessed the extent to which participants perceived members of their social network to be engaging in meth use. Participants received a list of 15 types of social network member (e.g., mate, friends, family members, etc.) and were asked to rate the extent to which members of each category engaged in meth use. Ratings were on a 4-point scale ranging from 1 (not at all) to 4 (very often). Higher scores reflected more perceived use of meth by social network members.

2.4.5. Sexual Risk Behavior—Sexual risk behavior was defined as the number of unprotected vaginal, oral, or anal sex acts in the past two months. Three categories of partner were assessed: steady (e.g., spouse, boyfriend); casual (e.g., one-night stand); and anonymous (e.g., someone in the park). For each partner type, participants were asked how many times during the past two months they engaged in: (a) insertive vaginal sex (men only); (b) receptive vaginal sex (women only); (c) receptive oral sex; (d) insertive (give) oral sex; (e) receptive anal sex; and (f) insertive anal sex (men only). For each type of sex, participants were also asked the number of times a condom or dental dam was used during the past two months. Four summary variables were created to represent the total number of unprotected sex acts and the total number of unprotected anal, oral, and vaginal sex acts, respectively. “Number of sexual partners” was a summary variable that counted the total number of persons with whom the participant had had sexual relations of any kind during the previous two months.

2.4.6. Psychosocial Factors—The factors examined were self-esteem, social stigma, depressive symptoms, and impulsivity. For self-esteem, we used the 40-item Self Esteem Rating Scale (SERS) by Nugent & Thomas (22). Sample items: “I feel good about myself”; “I feel inferior to other people.” Response categories range from 1 (Never) to 7 (Always). Summary scores range from -120 to +120, with higher scores reflecting higher levels of self-esteem. The alpha for the SERS in the present sample was .96. For social stigma, we used a 14-item scale that assesses two dimensions—culturally-induced expectations of rejection and actual experiences of rejection (23). Sample items: “Most people hold negative stereotypes about people who use meth;” “I have lost friends because they found out about my meth use.” Alpha for the stigma scale was .77. Depressive symptoms were measured using the Beck Depression Inventory (BDI) (24). Each of the BDI's 21 items has four graded statements concerning the participant's emotional state during the past week. The statements are ordered (0 to 3) to reflect increasing depressive symptoms. Summary scores range from 0 to 63. Cronbach's alpha for the BDI in this sample was .90. Impulsivity was measured using the 12-item self-report scale developed by Dickman (25). Sample items: “I often make up my mind without taking the time to consider the situation from all angles”; “Often, I don't spend enough time thinking over a situation before I act.” Participants responded using true or false categories. The alpha for this scale in the present sample was .87.

2.5. Statistical Analyses

T-tests compared group means for all continuous variables. Group differences in categorical variables were examined using the CROSSTABS procedure. In a first set of univariate analyses, to maximize power we combined data from male and female participants. In a second set of univariate analyses, all variables were re-examined with gender as a covariate. Gender difference analyses were considered exploratory because of the small number of women in the sample. Lastly, logistic regression was conducted to examine multivariate associations among predictor variables. To control for Type II error associated with multiple comparisons, we included in the logistic regression only those variables that were significant at $p < .01$ in the univariate analyses. Also, there were too few women in the study to run separate logistic regressions for men and women. However, gender was included as an independent variable in the logistic equation.

3. RESULTS

3.1. Univariate Analyses

3.1.1. Personal Characteristics—Four hundred fifty participants responded to the question “Have you ever been convicted of a felony?” Forty percent of the sample ($N = 182$) responded affirmatively; the remainder reported that they did not have a felony conviction ($N = 268$). Gender was not associated with felony status; almost equal percentages of male and female participants reported having a felony conviction (40.7% and 40.0%, respectively). The most frequent felony convictions were (in rank order): drug possession (49.5%); fraud (18.7%); break, enter and robbery (15.9%); attempted theft (14.9%); and assault (14.9%). Male felons were significantly more likely than females to be convicted of break, enter, and robbery (21.8% vs. 3.4%, respectively, $p < .001$). The average time served in prison was 371 days ($SD = 348$, Median = 273, Range 0–1908). Felons ranged in age from 20 to 61 years ($M = 38.0$, $SD = 9.7$). Sixty-eight percent were male; 32% were female. Ethnic composition included: Caucasians (51.6%), African Americans (26.4%), Latinos (11.5%), and other ethnicities (10.4%). Sixty-three percent of felons had a high school diploma or less. Fifty-one percent had never been married. Twenty percent lived alone; another 38% lived with other adults in non-sexual relationships. Seventy-four percent were unemployed, and 64% reported an income of less than \$19,999 per year. Thirty-five percent of felons reported having received a psychiatric diagnosis at some point in their lives. Felons and non-felons differed significantly in two

personal characteristics—age and psychiatric diagnosis. Felons as a group were significantly older than non-felons and significantly more likely to have had a psychiatric diagnosis (see Table 1). Additional analyses revealed gender differences in these variables: whereas female felons were significantly older and more likely to have a psychiatric diagnosis than female non-felons (38.9 vs 32.9, $p < .001$; 51.8% vs. 27.7%, $p < .01$, respectively), male felons and non-felons did not differ significantly in these variables.

3.1.2. Patterns of Meth Use—Felons used significantly more grams of meth in the past 30 days than did non-felons. There was no difference in the percent of felons and non-felons who snorted or smoked meth in the past two months; however, felons were significantly more likely to inject meth than were non-felons. Felons also reported having used meth for significantly more years than had non-felons. Using SSAGA criteria, the two groups did not differ in the percentage of participants classified as “abusing,” “dependent,” and “non-dependent” (20). Finally, felons were significantly more likely to have ever been in treatment for meth use than non-felons (see Table 1). No gender differences were noted for the meth use variables.

3.1.3. Personal and Social Context of Meth Use—Participants were asked about the personal and social contexts of their meth use, including reasons for use, social network members' use of meth, and meth use venues. Several differences were noted. Felons were significantly more likely to use meth alone as compared to non-felons. In terms of reasons for meth use, felons were significantly more likely to report using meth to relieve boredom or isolation and to boost self-confidence. Participants also rated the extent to which they perceived their social network members to be using meth. Felons rated their networks as using more meth than did non-felons (see Table 1). Finally, three gender differences were identified. First, male felons were more likely than male non-felons to use meth alone (65.3% vs. 49.7%, $p < .01$), whereas female felons and non-felons did not differ on this variable. Second and third, female felons were more likely than female non-felons to report using meth to relieve boredom or isolation and to feel more self-confident (37.9% vs. 18.6%, $p < .01$; 20.7% vs. 5.8%, $p < .01$, respectively), whereas male felons and non-felons did not differ on these two variables.

3.1.4. Use of Illicit Drugs Other Than Meth and Alcohol—Felons had significantly lower scores on alcohol use as compared to non-felons (see Table 1). However, the two groups did not differ in their use of illicit drugs other than meth during the past two months. When gender was included as a covariate, one difference in illicit drug use was noted. Specifically, female felons were significantly more likely than female non-felons to have used heroin in the past two months (17.2% vs. 3.5%, $p < .01$). No differences in heroin use were noted for male felons and non-felons.

3.1.5. Psychosocial Factors—Social stigma, self-esteem, depression, and impulsivity were hypothesized as potential moderators of the efficacy of the sexual risk reduction intervention. Group differences in these factors were examined, with the result that felons were found to have significantly higher scores than non-felons on measures of social stigma and impulsivity (see Table 1). One gender difference was also noted: female felons had significantly lower scores on self-esteem than did female non-felons (27.4 vs. 46.7, $p < .01$), whereas male felons and non-felons did not differ on this variable.

3.1.6. Sexual Risk Behaviors—Group differences in the following sexual risk behaviors were examined: number of unprotected vaginal, oral, and anal sex acts, number of sex partners, sex with a casual or anonymous sex partner in the past two months, and having had an STI in the past two months. Two group differences were identified. Felons were significantly more likely than non-felons to have had an STI and to have had an anonymous sex partner in the past two months (see Table 1). Gender analyses revealed that male felons and non-felons did

not differ on these two variables. However, female felons were significantly more likely to report having an STI in the past two months than were female non-felons (61.4% vs. 36.8%, $p < .01$), and female felons were significantly more likely to have had an anonymous sex partner than were their non-felon counterparts (48.3% vs. 28.7%, $p < .01$).

3.2. Multivariate Analysis

Logistic regression was used to identify factors that distinguished between felons and non-felons. Participants who had ever been convicted of a felony were coded 1, and those without a felony were coded 0. The logistic equation included the following predictor variables that were significant at $p < .01$ in the univariate analyses: age, use meth alone, rating of social network's use of meth, injected meth in the past 2 months, number of years of meth use, number of grams of meth, ever sought treatment for meth, use of alcohol, social stigma, and had an STI in the past two months. Gender was also included in the regression equation. All independent variables were entered using the direct method (26). Zero-order correlations among variables in the logistic equation ranged from 0.00 to 0.48. A test of the full model with eleven predictors against a constant-only model was statistically significant (chi-square = 62.4, $p < .001$). Sixty-eight percent of cases were correctly classified. Table 2 displays the regression coefficients, standard error, Wald statistics, odds ratio, and 95% confidence intervals for each independent variable. Injection use of meth, number of grams of meth used in the past 30 days, rating of network members' use of meth, and social stigma were significantly associated with being a felon. Felons had over twice the odds of having injected meth in the past two months as compared to non-felons (odds ratio [OR] = 2.19). For every unit increase in social stigma scores, the odds of being in the felons group increased by 60% (OR=1.6). Similarly, for every unit increase in ratings of social network members' use of meth, the odds of being a felon increased by a factor of 1.4, or 40%. Number of grams of meth used in the past 30 days was also positively associated with being a felon (OR = 1.02; i.e. 2% increase in odds for every gram increase in meth use). Taken together, these findings suggest that injection use of meth, amount of meth used, ratings of social network members' use of meth, and greater social stigma were associated with felony status.

4. DISCUSSION

This study sought to identify distinguishing characteristics of heterosexually-identified methamphetamine users who reported having a felony conviction. Meth-using felons and non-felons were compared in terms of personal, psychosocial, and behavioral characteristics. Univariate analyses revealed that meth-using felons and non-felons were more alike than different in their personal characteristics. Overall, meth-using heterosexuals had high levels of social disadvantage as indicated by low levels of education, low incomes, and high rates of unemployment. In terms of personal characteristics, felons were significantly older and more likely to report having had a psychiatric diagnosis than were non-felons. The latter findings may reflect a greater likelihood of receiving a felony conviction with increasing time as a drug user, as well as a greater likelihood of being evaluated and subsequently diagnosed with a psychiatric disorder once enmeshed in the criminal justice system.

Patterns of meth use provided better criteria for distinguishing felons from non-felons than did personal characteristics. Differences between the two groups reflected a general pattern of longer-term, heavier, and more advanced meth use among felons, as well as a greater number of unsuccessful attempts at rehabilitation. The finding that felons reported more meth use, more injection use of meth, and more meth use among network members compared to non-felons may not be surprising since almost 50 percent of felons were convicted of drug possession. Thus, it is not unreasonable to question if felony status is a proxy variable for more severe addiction. To address this issue, we compared felons who had a non-drug possession conviction

with non-felons in terms of drug use variables and the substantive findings did not change. This provides suggestive evidence that felony status does not serve simply as a proxy for addiction severity. Future studies should use longitudinal data and mediational analyses to assess whether prolonged and advanced meth use is a mechanism through which users transition from non-criminal to criminal activity. Indeed, reports by law enforcement agencies indicate that meth-related crime is often perpetrated to support meth addiction (12).

Regarding the contexts of meth use, our data revealed that felons were more likely than non-felons to use meth for emotional reasons (i.e., to feel more self-confident, to relieve boredom) and in non-social situations (i.e., use alone). Felons also perceived their social networks to engage in more meth use as compared to non-felons. These contextual factors may represent points of intervention in the social rehabilitation of meth users with felony convictions. In particular, it may be effective to assist meth-using felons to build new social networks or to teach strategies for resisting the negative influences of important others (27,28).

Felons and non-felons were also found to differ in terms of two psychosocial factors—social stigma and impulsivity. The higher levels of social stigma reported by felons may be associated with society's propensity to reject those who are labeled as drug users or criminals. The social basis of stigma means that psychosocial and behavioral interventions might succeed in teaching felons to cope in positive ways with the stigmas of being a drug addict and of having a criminal history. Impulsivity differs from social stigma in that it may be at least partly neurological; what is more, it may be caused or exacerbated by methamphetamine's neurotoxicity. Richards, Sabol, and de Wit reported that long-term doses of meth in rats were linked to increased impulsivity and impairment in tasks involving learning and attention (29). If impulsivity in humans is indeed associated with methamphetamine neurotoxicity, then pharmacological treatments might be effective in reducing it. This in turn may help reduce drug and sexual risk behaviors and promote social rehabilitation.

Univariate analyses also revealed that meth-using felons and non-felons differed with respect to two sexual risk-taking variables. Felons were significantly more likely to have had a sexually transmitted infection in the past two months, and they were more likely to report having had an anonymous sex partner during this time frame. Anonymous sex is one of the most risky forms of sexual behavior. Because of the association between anonymous sex and unprotected sex with multiple partners, there is a greater likelihood that an anonymous encounter will result in HIV/STI infection. Thus, meth-using felons who engage in anonymous sex may represent a major AIDS transmission vector within the heterosexual community. Behavioral interventions that target meth-using felons should explore possible triggers and motivations for anonymous sex with the goal of enhancing personal insights and developing strategies for positive behavior change (30).

In multivariate analyses, significant correlates of felony status included being an injection drug user, using more grams of meth in the past 30 days, rating social network members as heavier users of meth, and scoring higher on a measure of social stigma. As previously discussed, each one of these variables is potentially modifiable in a clinical setting. To build upon this finding, future studies should use prospective data to assess if these factors are antecedents of felony behavior. This type of information could be used to inform drug treatment and social rehabilitation programs for methamphetamine-using felons and to identify methamphetamine users who are at risk for committing a felony or for re-offending.

These analyses also provided a preliminary assessment of gender differences in the characteristics of felons and non-felons. Because we had so few female felons in our sample, we cannot draw any general conclusions regarding gender differences. However, the findings are interesting and warrant further exploration with larger samples. Overall, we identified more

differences between female felons and non-felons as compared to their male counterparts. If this finding persists with larger samples, it will suggest the importance of targeting female felons in social and behavioral interventions. Many of the variables that distinguished female felons and non-felons, such as low self-esteem and anonymous sexual encounters, are amenable to change. The fact that we found fewer differences between male felons and non-felons suggests that these two groups may be less distinguishable in terms of psychosocial and behavioral factors, which could present a greater challenge for the development of interventions that target meth-using male felons.

Throughout this discussion, we have advocated for developing social and behavioral interventions that seek to modify factors associated with felony behavior among heterosexual methamphetamine users. A key question arising from this research is, "Should interventions for felons be conducted in prisons?" Although the frequency of HIV/STI transmission in prisons is unknown, the reported risk behaviors of inmates before and after incarceration suggest that inmates are in need of drug abuse treatment, HIV prevention information, motivational training, and skill acquisition (2,31). In the present sample of felons, the average sentence was approximately one year in prison. During this time, when inmates are assumed to be "clean and sober," they may be more receptive to HIV prevention and drug abstinence messages as well as lifestyle changes. This may be particularly true for female inmates, whose pre-incarceration lifestyles have often included violence, substance abuse, needle sharing, multiple partners, and prostitution (2).

4.1. Study Limitations

This research demonstrates a link between felony behavior and the personal, psychosocial, and behavioral characteristics of heterosexual methamphetamine users. The findings provide preliminary guidelines for the development of interventions to reduce HIV/STI risk among methamphetamine-using felons. Despite the potential clinical and social significance of these findings, they must be considered in light of the three main limitations of this study. First, participants in the intervention were volunteers and thus may not be representative of the more global population of heterosexual methamphetamine users. Also, our intervention focused on sexual risk reduction in the context of active methamphetamine use; thus, it is unclear whether our participants reflect the characteristics of treatment-seeking methamphetamine users who are most likely to present in clinical settings. The representativeness of our sample can also be challenged on the grounds that felons with more severe sociopathy or addiction may be more likely to remain incarcerated and thus not included in this research. Overall, the findings from this study should not be generalized to broader populations of methamphetamine-using felons.

The study protocol also relied upon self-report of drug use and sexual risk behaviors. Because of the socially sensitive nature of these behaviors, it is possible that participants underreported their risk behaviors. It is also possible that some participants chose not to report a felony conviction because of the associated social stigma.

This research is also limited by the use of cross-sectional data, such that causality cannot be determined. Longitudinal data would be necessary to assess bidirectionality and causation among the factors examined in this research. In addition, many other questions cannot be addressed with cross-sectional data. For example, did felony behavior precede meth use or vice versa? Clinical assessment tools, which obtain a detailed history of substance use and its consequences (e.g., PRISM) (32) can help to establish temporal ordering of drug use and behavioral consequences. However, clinical histories are limited by reliance upon retrospective self-report. Future studies should seek to disentangle the temporal relationship between meth use and felony behavior through the use of prospective cohort data and longitudinal analyses.

Lastly, some of the variables examined in this research were characterized by interdependence. For example, number of grams of meth used, number of years used, and injection use of meth were moderately correlated and may be indicators of a single construct (e.g., severity of addiction). Further research using longitudinal models is needed to explore the additive and multiplicative of effects of these variables upon felony behavior.

In summary, as methamphetamine use spreads throughout the United States, the number of individuals incarcerated for felony convictions is likely to increase. More research is needed to understand the unique characteristics of this target population with the goal of developing effective treatment programs that will: 1) reduce the risk of HIV/STI infection among incarcerated methamphetamine users; and 2) assist with the social rehabilitation of meth-using felons.

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Table 1

Characteristics of Meth-Using Felons

Characteristic	Felons	Non-Felons	N	Test Statistic	p-value
Age	38.0 (9.7)	35.6 (9.9)	450	t = 2.5	p < .01
Ever receive psychiatric diagnosis	35.0%	25.1%	436	$\chi^2 = 5.0$	p < .05
Alcohol use in past 2 months (summary variable)	4.3 (4.6)	5.9 (7.2)	449	t = 2.9	p < .01
Injected meth in past 2 months	39.8%	17.7%	447	$\chi^2 = 26.9$	p < .001
Number of years used meth	15.2 (8.9)	12.5 (8.7)	449	t = 3.2	p < .001
No. grams used in past 2 mos.	12.5 (22.5)	7.3 (12.5)	449	t = 2.8	p < .01
Ever sought treatment for meth use	42.9%	29.2%	449	$\chi^2 = 8.9$	p < .01
Use meth alone	62.6%	50.4%	447	$\chi^2 = 6.6$	p < .01
Rating of social network members' perceived use of meth	2.1 (.77)	1.9 (.65)	433	t = 3.5	p < .001
Use meth to relieve boredom or isolation	24.2%	16.6%	447	$\chi^2 = 3.9$	p < .05
Use meth to feel more self-confident	12.1%	7.2%	447	$\chi^2 = 3.1$	p < .05
Impulsivity score	5.7 (3.5)	5.0 (3.4)	423	t = 2.2	p < .05
Stigma score	1.7 (.54)	1.5 (.53)	450	t = 2.7	p < .01
Had an STI in past 2 mos.	31.3%	20.8%	444	$\chi^2 = 6.3$	p < .01
Had anonymous sex partner in past 2 mos.	48.4%	39.6%	450	$\chi^2 = 3.4$	p < .05

Table 2
Logistic regression to examine predictors of felon status among meth users (N = 407)^a

Full Model with all Predictors (11-factor model); -2 log likelihood: 487.2; Model chi-square: 62.4, 11df, p < .001

Variable	B ^b	SE ^c	Wald	p-value	OR ^d	95% C.I. ^e	
						Lower	Upper
Gender	.37	.26	2.0	.15	.69	.42	1.15
Age	.02	.01	1.7	.19	1.01	.99	1.04
Use meth alone	.32	.22	2.1	.15	1.38	.89	2.14
Rating of network members' use of meth	.34	.16	4.2	.04	1.40	1.02	1.92
Alcohol use	-.03	.02	2.7	.10	.97	.94	1.00
Injection use of meth	.78	.27	8.4	.004	2.19	1.29	3.71
Number of years of meth use	-.01	.02	.35	.55	.99	.96	1.02
Number of grams of meth used	.02	.01	6.2	.013	1.02	1.01	1.04
Ever sought treatment for meth	.25	.24	1.1	.30	1.28	.81	2.03
Social stigma	.48	.20	5.7	.017	1.61	1.09	2.40
Had an STI in past 2 mos.	.53	.28	3.5	.06	1.70	.97	2.97
Constant	-2.49	.80	9.7	.002	—	—	—

^aForty-three cases with missing data.

^bUnstandardized regression coefficient.

^cStandard Error.

^dOdds Ratio.

^eConfidence Interval.