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Ethnic differences in substance use, sexual risk behaviors, and psychosocial factors in a sample of heterosexual methamphetamine users

Shirley J. Semple, Ph.D.^a, Hortensia Amaro, Ph.D.^b, Steffanie A. Strathdee, Ph.D.^c, Jim Zians, Ph.D.^a, and Thomas L. Patterson, Ph.D.^{a,d}

^aDepartment of Psychiatry, University of California, San Diego

^bBouv College of Health Sciences, Northeastern University, Boston, Massachusetts

^cDepartment of Family and Preventive Medicine, University of California, San Diego

^dDepartment of Veterans Affairs Medical Center, San Diego

Abstract

Ethnic differences in measures of substance use, sexual risk behaviors, and psychosocial factors (depression, stigma, self-esteem) were examined in a sample of 402 heterosexual methamphetamine users (55.0% Caucasian, 29.9% African American, 15.1% Latino/a) who participated in a sexual risk reduction intervention between June 2001 and March 2005 in San Diego, California. Participants were primarily male (67%), non-college graduates (72%), and low income (66%). African Americans were older when they first used methamphetamine and had used fewer grams in the past 30 days; Caucasians were more likely to inject. A larger percentage of African Americans reported anonymous sex partners in the past two months. African Americans reported lower levels of social stigma, and Caucasians reported lower self-esteem. Limitations and potential applications of these findings to prevention and treatment programs for ethnic minority populations are discussed.

Keywords

Ethnic differences; methamphetamine; heterosexual; sexual risk behavior; psychosocial

1. INTRODUCTION

According to a national survey, rates of drug and alcohol use differ across ethnic and racial groups. Data from U.S. household populations aged 12 and older indicate that the prevalence of illicit drug use is highest among persons reporting two or more races (13.3%) and among American Indians or Alaska Natives (12.3%) (SAMHSA, 2005). The consequences of illicit drug use are also typically more severe among ethnic minority populations. For example, African Americans and Hispanics are disproportionately incarcerated for drug offenses, have higher rates of HIV/AIDS, and have higher rates of fatal accidental drug overdose (Amaro, Raj, Vega, Mangione, and Perez, 2001; Galea et al., 2003). These findings suggest that substance abuse is an important issue within ethnic minority communities, and that prevention and treatment efforts that target minority populations should be a public health priority.

Methamphetamine is a powerful stimulant and “club drug” that has been popular for decades in the Southwest (Morgan, 1994). In recent years, methamphetamine use has spread to small towns and large cities in the Midwest and eastern United States (Caulkins, 2003). Methamphetamine use has also increased in a variety of racial and ethnic groups, including Hispanics, African Americans and Asian Americans (Nemoto, Operario, and Soma, 2002; Ompad, Galea, Fuller, Phelan, and Vlahov, 2004). The health risks associated with methamphetamine use have been well documented and include high-risk sexual behaviors, high rates of sexually transmitted infections (STIs), polydrug use, and high rates of psychiatric comorbidity (Farabee, Prendergast, and Cartier, 2002; Molitor, Truax, Ruiz, and Sun, 1998; Semple, Patterson, and Grant, 2004). In San Diego California, half of all drug treatment admissions and drug-related emergency department admissions in 2005 were attributed to methamphetamine abuse (Strathdee, 2005), and these indicators differed significantly by ethnic group.

1.1. Ethnic Differences in Drug and Alcohol Use

Relatively few studies to date have compared the use of illicit drugs across ethnic groups. In what follows, we restrict our review to recent studies that have compared the drug use patterns specifically of African Americans, Hispanics, and Caucasians.

In a study of “club drug” use among minority substance users in New York City (NYC), Ompad, Galea, Fuller, Phelan, and Vlahov (2004) found that a significantly larger percentage of Whites reported lifetime use of methamphetamine as compared to Hispanics and Blacks. Overall, Whites were significantly more likely to report having used at least one club drug in their lifetime as compared to Blacks and Hispanics, although use of club drugs among Blacks and Hispanics was common (45.4% and 56.4%, respectively). Ompad, Galea, Fuller, Edwards, and Vlahov (2005) also reported ethnic differences in lifetime use of heroin, cocaine, and crack cocaine in the same sample of Hispanic, Black and White drug users in NYC. Whites and Hispanics were significantly more likely to have used heroin as compared to Blacks. Whites were also more likely than Hispanics and Blacks to have used ecstasy and to have injected drugs. The three groups did not differ in terms of the percent that used powder cocaine or crack cocaine.

In another study, Irwin and Morgenstern (2005) examined ethnic group differences in substance use in a sample of men who have sex with men (MSM) in NYC. Severity of alcohol use did not differ by ethnicity; however, the researchers did identify ethnic group differences in other types of drugs used. Non-Hispanic White and Hispanic MSM were significantly more likely to report having used amphetamine or methamphetamine in the past six months as compared to other ethnic groups. Marijuana use was more frequent among men of color as compared to non-Hispanic Whites.

The above studies have limitations that may affect the generalizability of their findings. All three studies used specific eligibility criteria and recruited volunteer samples in limited geographic areas. Also, the sample sizes were small, and the authors did not report differences between participants and non-participants.

1.2. Ethnic Differences in Sexual Risk Behavior

Since the emergence of HIV/AIDS in the United States, a substantial literature has accumulated on the sexual risk behaviors of individuals within various racial and ethnic groups (Abel and Chambers, 2004; Adimora et al., 2006). Few studies, however, have compared sexual risk behaviors across these groups. The review that follows focuses on HIV/AIDS-era studies that have compared the sexual risk behaviors of African Americans, Hispanics, and Caucasians.

In a recent study, Essien, Ross, Fernandez-Esquer, and Williams (2005) investigated the association between condom use and partner type in a sample that included African American, Hispanic, and Caucasian men in Houston, Texas. Condom use was lowest among Hispanic and African American men. Hispanic men reported the highest rate of perceived difficulty using condoms, regardless of partner gender. African American men who had sex with men reported the most problems with partner disagreement over condom use. Within each ethnic group, rates of respondents' condom use with male as compared with female partners were not significantly different.

Studies of women have also reported ethnic differences in sexual risk variables, including frequency and type of sexual acts and number and type of partners. Laumann, Gagnon, Michael, and Michaels (1994) reported that African American women were less likely than Hispanics and Caucasians to engage in sexual acts other than vaginal sex. Moreover, Caucasian women were significantly more likely to engage in oral sex as compared to their African American and Hispanic counterparts. Van Oss, Marin, and Gomez (1994) found that heterosexual Hispanic women were significantly more likely to engage in anal sex as compared to African American and Caucasian women. Other researchers have reported that African American women had the largest number and Hispanic women had the smallest number of sexual partners (T. Diaz, Buehler, Castro, and Ward, 1993; Dolcini et al., 1993). In another study of ethnic differences in sexual behavior, Quadagno, Sly, Harrison, Eberstein, and Soler (1998) found no differences among Hispanic, African American and Caucasian women in terms of type and frequency of sexual acts.

Consistent with the research on ethnic differences in illicit drug use discussed above, these studies of ethnicity and sexual risk behavior are limited by several factors, including small sample sizes, volunteer participants, specific eligibility criteria, and high attrition rates. These factors must be taken into account when attempting to generalize the findings.

1.3. Ethnic Differences in Psychosocial Factors

A small number of studies have examined psychosocial variables that affect drug use and sexual risk behaviors of methamphetamine users. In one study, Nemoto, Operario and Soma (2002) reported that Filipinos who were heavy methamphetamine users had low levels of perceived personal control in their lives and low levels of shame about their drug use. Brook, Whiteman, Balka, Win, and Gursen (1998) also examined psychosocial risk factors for drug use in a sample of Puerto Rican youth. Characteristics of peer networks (e.g., peer tolerance of drugs) and family variables (e.g., parents' use of drugs) were associated with drug use behaviors. These researchers concluded that the identification of psychosocial factors associated with risk behaviors is key to the development of drug treatment and HIV prevention program for ethnic minority populations.

1.4. Risk versus Protective Factors

HIV prevention researchers have identified a number of risk factors that are linked to sexual risk behavior, including substance use, history of child abuse and neglect, trauma, and mental health disorders (Ellickson, Collins, Bogart, Klein, and Taylor, 2005; Meade, Graff, Griffin, and Weiss, 2008; Semple, Grant, and Patterson, 2004; Van Dorn et al., 2005). Less attention has been paid to protective factors that promote resilience in the presence of risk factors. To date, several studies of sexual behavior have identified various protective factors that help to reduce risk, particularly among adolescents and young adults. Protective factors operate at multiple levels, including individual (e.g., high self-esteem), family (e.g., family support), and community (e.g., access to drug treatment programs) (Munoz-Laboy, 2008; Shoptaw et al., 2008; Tevendale, Lightfoot, and Slocum, 2008). Consideration of protective factors along with risk factors is an important part of developing effective interventions for HIV prevention.

Taken together, the literature suggests that substance use, sexual risk behaviors, and psychosocial factors vary by race and ethnicity. Although many studies have examined the interplay of these factors within specific ethnic groups (R. M. Diaz, Heckert, and Sanchez, 2005; Nemoto et al., 2002; Wohl et al., 2002), studies that compare across ethnic groups are limited. Moreover, to our knowledge, no published study has examined ethnic differences specifically among methamphetamine users in substance use, sexual risk behavior, and psychosocial factors. As methamphetamine use continues to spread into ethnic minority communities across the United States (Nemoto et al., 2002), the need is urgent to understand how it may be differentially associated with sexual risk behavior and psychosocial factors within different ethnic groups.

This paper describes ethnic differences in substance use, sexual risk behaviors, and psychosocial factors in a sample of heterosexual methamphetamine users in San Diego, California. Three groups were examined: African Americans, Latinos, and Caucasians. The identification of ethnic differences in risk behaviors could lead to the development of more effective prevention and treatment programs through incorporation of ethnic and cultural components (Zickler, 1999).

2. METHODS

2.1. Sample Selection

Our analyses used baseline data from a sample of 402 HIV-negative, heterosexually-identified, methamphetamine-using men and women (18 years or older) who were enrolled in the FASTLANE research project at the University of California, San Diego (UCSD). The FASTLANE is a theory-based, eight-session, one-on-one counseling program designed to reduce the sexual risk practices of heterosexual methamphetamine users. Primary results for the FASTLANE project have been published (Mausbach, Semple, Strathdee, Zians, and Patterson, 2007). Eligible participants self-identified as heterosexual and reported having unprotected vaginal, anal, or oral sex with at least one opposite-sex partner during the past two months. Participants also reported using methamphetamine at least twice during this time frame. Exclusion criteria for the project included: (1) not sexually active in the past two months or always used condoms; (2) unprotected sex only with a spouse or a steady partner in the past two months (i.e., monogamous sexual behavior); (3) a current major psychiatric diagnosis accompanied by psychotic symptoms or suicidal ideation within the past two weeks; (4) trying to get pregnant or trying to get a partner pregnant; and (5) did not speak English. The selection criteria for this study were empirically derived. HIV-negative, heterosexual methamphetamine users were identified as being “at risk” for contracting HIV and other sexually transmitted infections based on published reports that linked methamphetamine use with high rates of unprotected vaginal and anal sex in this population. Exclusion criteria were associated primarily with practical issues (e.g., intervention materials not available in languages other than English) and clinical management of the sample (e.g., psychiatric exclusions). HIV-negative serostatus was determined at baseline using the OraSure HIV-1 Oral Collection Specimen Device, which has a reported reliability of 99.9% (Gallo, George, Fitchen, Goldstein, and Hindahl, 1997).

2.2. Procedures

Potential participants were instructed to contact our project office for a confidential screening. Project recruiters provided individuals with a description of the study, including information on the content of the questionnaire (e.g., questions on sexual behaviors, drug use, past trauma), the intervention protocol (e.g., counseling topics, randomization), expected time commitment, payment schedule, HIV testing, and followup assessments. Screenings were conducted by male and female staff possessing at least a Bachelor's degree. Intervention counselors were male or

female with Master's degrees in clinical psychology or social work and had previous experience with HIV-prevention or substance-abuse counseling. Recruiters and counselors came from a variety of ethnic backgrounds, including Caucasian, African American, Hispanic and Asian. Counselors and participants were not matched on gender or ethnicity.

All participants completed a baseline assessment; four 90-minute, one-on-one counseling sessions at weekly intervals; four 90-minute booster sessions at monthly intervals; and three follow-up assessments at 6, 12, and 18 months post-baseline. Assessments and counseling sessions were conducted in English only. The counseling and booster sessions focused on the contexts of methamphetamine use and unsafe sex, condom use, negotiation of safer sex, and enhancement of social supports. The intervention protocol was developed by an iterative process. Materials were compiled by the research team, which has over 20 years of experience in HIV prevention and treatment of drug and alcohol dependence. Materials were pilot-tested with a group of six eligible men and women. Modifications were made on the basis of feedback from pilot participants and their counselors. Additional pilot testing was conducted with two more groups, and further modifications to intervention materials were made. Baseline data for the main study were gathered through computer-assisted interview technology (audio-CASI). The audio-CASI interview took about 90 minutes and covered such topics as sociodemographic characteristics, patterns of methamphetamine use, use of alcohol and other illicit drugs, sexual risk behavior, social cognitive factors, attitudes, intentions, social norms, and social network factors. The FASTLANE study protocol was reviewed and approved by the Institutional Review Board (IRB) of the University of California, San Diego (Project #010568, approved 05/17/2001). Data for the present analyses were collected between June 2001 and March 2005.

2.3. Recruitment

A primary recruitment strategy involved poster campaigns. The FASTLANE was advertised as a confidential, individual counseling program for HIV-negative, heterosexual methamphetamine users who wanted to learn more about safer sex practices. Posters were developed to appeal to different racial and ethnic groups. The project also implemented a smaller-scale media campaign that used weekly advertisements in local magazines and newspapers. Another major recruitment strategy used outreach workers, an Hispanic male and an African American female, who had previously recruited drug users into other research programs. A third recruitment strategy was to obtain referrals from case managers and program staff at local social and health care agencies. Participants were also referred to the project through family, friends, and enrolled participants. In the present sample, 49% of participants were recruited through the poster and media campaign, 44% were referrals from local agencies, enrolled participants, family members, and friends, and 7% were recruited through direct contact with outreach workers. The three ethnic groups did not differ by recruitment source.

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, other). Ethnicity was measured using a single question (“What is your racial or ethnic background?”) with six response categories (non-Hispanic White, African American, Latino/Hispanic, Asian or Pacific Islander, Native American/Indian, Other). Education was measured by five categories (less than high school, high school or equivalent, some college, college degree, advanced degree). Gender, income, and employment status were represented by dichotomous variables: (male = 1, female = 2); (\$19,999 or less per year = 0, more than \$19,999 per year = 1); and (not employed = 0, employed = 1). Psychiatric

health status was measured by self-report, i.e., by whether the participant reported having ever received a psychiatric diagnosis. Follow-up questions focused on the type and date of diagnosis.

2.4.2. Methamphetamine Use Variables—Amount of methamphetamine used was self-reported and was recorded as number of grams consumed in the past 30 days. Intensity of methamphetamine use was measured by two questions: “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?” Item scores were multiplied to create a summary variable. To determine methods of methamphetamine use, participants were presented with a list of five ways of consuming methamphetamine and were asked to indicate which methods they used during the past two months. Participants were also presented with a list of 19 reasons for their current methamphetamine use, each of which they either endorsed or denied. The Semi-Structured Assessment for the Genetics of Alcoholism (SSAGA-II, Section G) was used to assess the severity of participants' use of methamphetamine (Bucholz et al., 1994; Bucholz et al., 1995).

2.4.3. Context of Methamphetamine Use—Participants were presented with a list of seven relationships, for each of which they were asked whether they had used methamphetamine with that type of person during the past two months. The relationships included friend, sexual partner, family member, methamphetamine dealer, co-worker, stranger, and “other.” Participants were also asked if they had used methamphetamine alone during this time frame. A dichotomous response category was utilized (Yes = 1, No = 0) for each category. To measure a further aspect of social context, participants were also asked to identify where, from a pre-coded list of 18 locations (e.g., home, bar, park, friend's house), they were most likely to have consumed methamphetamine during the past two months.

2.4.4. Use of Alcohol and Other Drugs—Three items measured use of alcohol. Participants were asked how often during the past two months they had (1) consumed alcohol and (2) become intoxicated from drinking alcohol. 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). Illicit drug use was measured with a scale developed by Temoshok and Nannis (1992). Participants were presented with a list of 14 illicit drugs and were asked how often during the past two months they had taken each drug (e.g., marijuana, powder cocaine, crack cocaine, amyl or butyl nitrates [poppers], ecstasy, hallucinogens, heroin, gamma hydroxybutyrate). Response categories ranged from 0 (never) to 3 (very often). Response categories were recoded (1 = yes, 0 = no), and a summary variable was created to represent the total number of illicit drugs used during the past two months.

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

2.4.6. Psychosocial Factors—Depressive symptoms, social stigma, and self-esteem were examined as psychosocial factors. Depressive symptoms were measured by the 21-item Beck

Depression Inventory (BDI) (Beck, 1967, 1976). Each BDI item consists of four graded statements pertaining to how the participant has been feeling during the past week. Statements are ordered (0 to 3) to show increasing depressive symptoms. Summary scores range from 0 to 63. Cronbach's alpha for the BDI in this sample was .90. Self-esteem was measured using the 40-item Self Esteem Rating Scale (SERS) (Nugent and Thomas, 1993). Sample items include: "I feel that I am ugly"; "I feel good about myself." Response categories range from 1 (Never) to 7 (Always). In the SERS, negatively-worded items are scored negatively by placing a minus sign in front of the scored items. Scale items are then summed to create a summary score ranging in value from -120 to +120. Higher scores reflect higher levels of self-esteem. The alpha for the SERS in the present sample was .96. The 14-item social stigma scale assessed two dimensions—culturally-induced expectations of rejection and experiences of rejection (e.g., "Most people hold negative stereotypes about people who use methamphetamine"; "I have lost friends because they found out about my methamphetamine use") (Link, Struening, Rahav, Phelan, and Nuttbrock, 1997). Alpha for the social stigma scale was .77.

2.5. Statistical Analyses

One-way ANOVA was used to compare group means for all continuous variables. Post hoc range tests and pairwise multiple comparisons with an alpha of level 0.05 were used to determine significantly different group means. Gender differences in all continuous variables were evaluated by including gender as a covariate in one-way ANOVA analyses. Cross-tabulations were conducted to determine group differences for all categorical variables. Pearson chi-square and the likelihood ratio chi-square were used to determine statistically significant differences in rows and columns. Gender differences in all categorical variables were examined by inclusion of gender as a covariate in the crosstabs procedure.

3. RESULTS

3.1. Background Characteristics

The sample consisted of 55.0% Caucasian (N = 221), 29.9% African American (N = 120), and 15.1% Latino participants (N = 61). Ninety-five percent of the Latino sample were Mexican American or Mexican origin Latinos. Overall, participants ranged in age from 18 to 63 years (M = 36.9, SD = 9.9). Sixty-seven percent were male; 33 percent were female. Twenty-one percent of the sample had not completed high school, 38% had a high school diploma or GED, and 34% had a two-year degree or some college. Only 8.1% had a 4-year college degree or an advanced degree. Fifty-six percent of the sample had never been married. Approximately 37% lived with other adults in non-sexual relationships; another 21% lived alone. Seventy percent were unemployed, and 66% reported an income of less than or equal to \$19,999 per year. The three ethnic groups differed in terms of current age and age at which they first used methamphetamine. In terms of current age, Latinos in the sample were significantly younger than the Caucasian and African American participants. African American participants were on average significantly older when they first used methamphetamine. The ethnic groups also differed in terms of the percentage of participants who reported ever having received a psychiatric diagnosis. Latinos were significantly less likely to have had a psychiatric diagnosis as compared to the other two groups (see Table 1).

3.2. Contexts and Motivations for Methamphetamine Use

The three ethnic groups showed both similarities and differences in the social contexts of their methamphetamine use. Among all three groups, participants were most likely to report using methamphetamine with a friend or sexual partner. As for the differences, Latinos were significantly more likely to report using methamphetamine with a family member as compared to African Americans and Caucasians. In addition, Latinos and Caucasians were significantly more likely to use methamphetamine alone or with a drug dealer as compared to African

Americans. There were no group differences in terms of where methamphetamine was used. All three groups were most likely to use methamphetamine in their own homes, at a friend's house, or at a sex partner's house. Across groups, the most frequently reported reasons for using methamphetamine were "to get high," "to party," and to "enhance sexual pleasure." Two ethnic group differences in motivations were also noted. As compared to African Americans, Latinos and Caucasians were significantly more likely to report using methamphetamine "to get energy," and Caucasians were significantly more likely than the other two groups to report using methamphetamine because "I can't function without it" (see Table 2).

3.3. Patterns of Methamphetamine Use

There were no ethnic differences in the percent of participants who snorted methamphetamine in the past two months; however, Caucasians were significantly more likely to inject and less likely to smoke methamphetamine in the past two months as compared to the other two groups. African Americans used significantly fewer grams of methamphetamine in the past 30 days as compared to Latinos and Caucasians. Caucasians also reported having used methamphetamine for significantly more years than African Americans and Latinos. Using SSAGA criteria (Bucholz et al., 1994; Bucholz et al., 1995), the three groups did not differ in the percentages classified as abusing, dependent, and not dependent on methamphetamine (see Table 3).

3.4. Use of Alcohol and Illicit Drugs Other Than Methamphetamine

The three groups did not differ in terms of alcohol use variables or number of illicit drugs used in the past two months.

3.5. Psychosocial Factors

Among the three psychosocial variables that were measured at baseline (i.e., social stigma, self-esteem, depression), we identified two ethnic group differences: African Americans reported significantly lower levels of social stigma as compared to Latinos and Caucasians; and Caucasians reported significantly lower levels of self-esteem as compared to the other two groups (see Table 4). The three groups did not differ in terms of baseline Beck Depression scores.

3.6. Sexual Risk Behaviors

Indicators of sexual risk behavior included: total number of unprotected vaginal, oral, and anal sex acts, total number of sex partners, and sex with a casual or anonymous sex partner in the past two months. Overall, participants reported an average of 35.2 unprotected vaginal sex acts (SD = 45.5, Median = 20.0), 58.9 unprotected oral sex acts (SD = 71.9, Median = 32.0), 16.3 unprotected anal sex acts (SD = 35.5, Median = 5.5), and 11.4 sex partners (SD = 17.0, Median = 6.0) in the past two months. Ninety percent of the sample reported sex with a spouse or steady partner, 86% reported sex with at least one casual partner, and 43% reported sex with an anonymous partner in the past two months. Only one ethnic group difference was identified. A significantly larger percentage of African Americans reported having had an anonymous sex partner in the past two months as compared to the other two groups (see Table 4).

3.7. Ethnicity-B- Gender Analyses

To maximize statistical power, the analyses described above combined data from male and female participants. We subsequently conducted analyses to determine if the observed ethnic differences varied according to gender. Because of the limited number of females in the sample, we view these analyses as exploratory. All variables in the original analyses were re-examined with gender as a covariate. Three variables that were significant for the overall sample yielded no statistically significant differences for women. These variables included psychiatric diagnosis, social stigma, and having an anonymous partner.

4. DISCUSSION

The younger age of Latino participants and their earlier age of initiation into methamphetamine use may reflect the widespread availability of methamphetamine in San Diego County (Strathdee, 2005). The younger age of Latino participants points to an urgent need to offer substance use prevention interventions to Latino youth. However, because Hispanic youth have a significantly higher high school drop-out rate as compared to African Americans and Caucasians (27.8%, 13.1%, and 6.9%, respectively), and two in five Hispanics aged 25 and older do not have a high school diploma (Ramirez and de la Cruz, 2003), sufficiently early intervention in school settings is critical, because ethnic minority methamphetamine users may be more difficult to reach once they have exited the education system.

Contrary to our findings, at least one study has reported higher rates of psychiatric disorders among Hispanics as compared to non-Hispanic Whites (Kessler et al., 1994). The lower likelihood of psychiatric diagnosis among Latino males in our sample may reflect limited access to mental health services or unfavorable views toward those services (Cooper et al., 2003; Ruiz, 1985; Vega, Kolody, and Aguilar-Gaxiola, 2001; Weinick, Jacobs, Stone, Ortega, and Burstin, 2004). Consistent with our findings, a study of ethnic differences in treatment for alcoholism, drug abuse, and mental health problems found that Hispanics had more delays in receiving care, lower satisfaction with care, and lower rates of treatment as compared to non-Hispanic Whites (Wells, Klap, Koike, and Sherbourne, 2001). Lack of financial resources may also represent a barrier to utilization of mental health services. In 2001, an estimated 21.4% of Hispanics in the U.S. were living in poverty as compared to 7.8% of non-Hispanic Whites (Ramirez and de la Cruz, 2003). Taken together, the extant research suggests the need to improve affordability, access to care, and the quality of care for ethnic minority drug users, particularly Hispanics.

With regard to social network variables (i.e., drug use by family members and other social network members), our findings cast some light on the role of family members in Latino participants' use of methamphetamine. Previous research has documented the comparatively high importance of family in Latino culture (Marin, 1989). In a national survey, 89% of Latinos as compared to 67% of Whites and 68% of African Americans agreed that relatives were more important than friends (Pew Hispanic Center and The Kaiser Family Foundation, 2002). Although familism and familial support function protectively in Hispanic culture (Pew Hispanic Center and The Kaiser Family Foundation, 2002), our research indicates that methamphetamine use among Latino participants often occurred with family members. Thirty-three percent of Latino participants reported using methamphetamine with a family member in the past two months as compared to approximately 12% each of African Americans and Caucasians. A more detailed examination of our data revealed that methamphetamine use by a Latino participant with a family member was most likely to occur with a brother or cousin. This finding suggests that drug use by family members should be taken into account when assessing social influences and the social environment of Latino methamphetamine users in particular. Family members may be exposed to the same or similar risky environments and use drugs together in the context of close family relationships.

Our data also point to potential ethnic group differences in drug use networks. For example, we found that African American participants were significantly less likely than Latinos and Caucasians to use methamphetamine alone or with a drug dealer. This finding may be a marker for the lighter use of methamphetamine that was noted among African Americans; using alone and using with a dealer may reflect heavier use, more frequent purchases of the drug, or closer personal relationships with dealers. In terms of prevention and treatment, these findings suggest the need to investigate the drug use networks of methamphetamine users to identify those who may be socially isolated and vulnerable to such mental health problems as depression.

Current reasons for using methamphetamine were similar across all three groups. Caucasians were more likely than Latinos and African Americans to report using methamphetamine because they “cannot function without it.” This finding is likely reflective of the more chronic and heavier methamphetamine use pattern documented among the Caucasian participants in our sample. Caucasians reported having used methamphetamine for a longer period and were also more likely to be injectors as compared to the other two groups. Our clinical experience suggests that newer users tend to smoke or snort methamphetamine and subsequently transition to injection as their intensity of use escalates. Early intervention to prevent transition to injection use should be a primary goal of methamphetamine-focused prevention programs. At least one behavioral intervention has proved efficacious in preventing transitions from non-injection to injection use among heroin users (Des Jarlais, Casriel, Friedman, and Rosenblum, 1992).

We also found that African Americans were less likely to report using methamphetamine “to get energy.” This suggests the need to explore further the motivations for methamphetamine use among African Americans. It is possible that African American methamphetamine users, like their counterparts who use crack cocaine, may be using the drug to cope with untreated psychological distress (e.g., depression, anxiety), current and past experiences of abuse, longstanding social isolation, or withdrawal from other substances such as heroin or cocaine (Freeman, Collier, and Parillo, 2002; Office of National Drug Control Policy, 1997; Word and Bowser, 1997).

This study identified only one ethnic difference in sexual risk behavior. A significantly larger percentage of African Americans reported having sex with an anonymous partner in the previous two months as compared to Caucasians and Latinos. Ethnicity-by-gender analyses revealed that this finding held true for African American men only. Approximately 35% of the African American men who had had an anonymous partner in the past two months reported having had unprotected anal sex with a man during the same time frame. Unprotected anal sex among heterosexually-identified African American men may be explained, in part, by the high rate of incarceration in this population. In California, in 1998, African American men constituted 31% of the prison population but only 8% of the state's total population of males (Wohl et al., 2000). Studies of incarcerated African American men have shown that, for them, anal sex with other men is common. Wohl et al. (2000) reported that 16% of a sample of incarcerated African American men in Los Angeles had anal sex with men while incarcerated and 45% had anal sex with men after release. Anecdotally, several African American male participants in our study who self-identified as heterosexual revealed that they had been initiated into same-sex activity in prison and, after their release, engaged in anonymous sex with male partners in the community.

In terms of psychosocial factors, as we noted above, African American methamphetamine users had significantly lower scores than the other two groups on a measure of social stigma. Since African Americans reported using the smallest amounts of methamphetamine in a 30-day period, it is not unreasonable that “lighter” usage may have made it easier for them to hide their drug use, which in turn could result in fewer experiences of rejection or stigma. We also found that male Caucasian methamphetamine users had significantly lower scores on a measure of self-esteem as compared to their African American and Latino counterparts. This may be related to the Caucasian participants' heavier use and tendency for injection, since the negative social and health consequences of these practices could erode self-esteem. Further investigation could examine the validity of this hypothesis. An alternate explanation of this ethnic difference is that the self-esteem scale used in the research (Nugent and Thomas, 1993) is not culturally appropriate for Latino and African American participants. Future research should ensure that measures of this construct are culturally appropriate and ethnically validated.

4.1. Study Limitations

The spread of methamphetamine across the nation and into ethnic minority populations makes the topic of this study an important one for health behavior research. However, as with the studies discussed at the beginning of this paper, this research suffers from methodological limitations that affect the generalizability of our findings. For example, because participants were volunteers in a sexual risk reduction intervention, they may have been motivated by atypically high levels of concern about their drug use or sexual risk behaviors. Also, eligibility criteria included specific drug-use and sexual-risk behaviors. Accordingly, the sample cannot be considered representative of the general population of community-residing, heterosexual methamphetamine users. The volunteer nature of our study also raises the issue of the ethicality of collecting data from individuals who may not benefit directly from the protocol (Kleinig and Einstein, 2006). Our project addressed this by consulting with an ethicist, who helped to develop guidelines to assure an acceptable risk-benefit ratio for participants as determined by a Community Advisory Board (CAB). We also referred participants to community programs, including substance use, trauma, psychiatric and HIV/STI treatment. To further enhance the participants' experience of the protocol, we hired counselors who were non-judgmental, respectful, and accepting of personal values and emotions associated with risk behaviors.

Another limitation of this study stems from our focus on only three ethnic groups. Methamphetamine use is common in many other ethnic groups, including Native Americans, Asians, and Pacific Islanders. Although each of these groups was represented in our study, their numbers were too small to permit their inclusion as distinct groups in the analyses. Moreover, since the intervention was not offered in Spanish, our sample of Latino participants was limited to English speakers. Monolingual Spanish-speaking Latinos were thus not represented. Finally, this study did not have sufficient numbers of women in any of the three ethnic groups to conduct the analyses separately for men and women. To address this limitation, we conducted exploratory gender-by-ethnicity analyses, which revealed a few differences. Future studies should aim to recruit adequate numbers of females so that ethnic differences can be evaluated separately for males and females.

4.2. Research Directions

This study suggests directions for future research. Within broader ethnic categories, several studies have identified differences in risk behaviors based on country of origin and cultural factors. For example, Nemoto et al. (2000) found differences in drug use patterns among Chinese, Vietnamese, and Filipino youth, which suggests the possibility of examining the effects of narrower cultural differences (e.g., Chinese versus Vietnamese) upon risk behaviors within broader groups (e.g., Asian). Future studies of ethnic differences in risk behaviors should aim for larger samples and greater refinement of classifications within racial and ethnic groups.

Among methamphetamine users, future studies of ethnic differences should also assess the effects of culturally-specific stressors upon risk behaviors. For example, one research team has proposed that ethnic differences in illicit drug use might be explained by the effects of socioeconomic disadvantage, discrimination, urbanism, lack of health insurance, low education, or deviant peer groups (Brook, Balka, Brook, Win, and Gursen, 1998). Conversely, factors that protect against risk behavior may include ethnic identity, cultural values, and traditions. For example, in a study of substance abuse among African Americans, Brook, Balka et al. (1998) found that components of ethnic identity (e.g., participation in African American cultural activities such as Kwanzaa) interacted with other factors to reduce risk and enhance protection. Also, across cultures, lower levels of acculturation have been associated with lower levels of drug use (Nemoto et al., 2002; Vega et al., 1998). Future studies should seek to identify social, economic, and cultural factors that may place ethnic minority populations at risk, as well as factors that mitigate risk or enhance protection. In the context of behavior change, it is

also important to tap into participants' internal and external resources with the goal of building motivation for change (Miller and Rollnick, 1991). For example, participants in our study rated their health, family, freedom, love and intimacy, and honesty as “very important” personal values, and also reported an average of ten social network members, approximately three of whom were family. Future studies should examine these internal and external resources as underlying mechanisms that can be used to promote positive behavior change. Lastly, future research should move beyond description to examine the effects of race and ethnicity on drug use, sexual risk behaviors, and psychosocial factors.

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Table 1

Ethnic Differences in Background Characteristics (N = 402)

Characteristic	Latino	African American	Caucasian	Test Statistic	p-value
Age, mean (SD)	30.6 (9.0)	39.4 (9.2)	37.3 (9.9)	F = 16.8	p < .001
Age at which first used methamphetamine, mean (SD)	20.9 (8.8)	27.4 (9.5)	21.9 (8.7)	F = 17.2	p < .001
Ever received psychiatric diagnosis	13.8%	32.8%	31.8%	$\chi^2 = 8.1$	p < .05

Table 2

Ethnic Differences in the Context of Methamphetamine Use (N = 402)

Context or Motivation	Latino	African American	Caucasian	Test Statistic	p-value
Use methamphetamine alone	53.4%	37.2%	63.7%	$\chi^2 = 22.2$	$p < .001$
Use methamphetamine with a family member	32.8%	12.4%	12.6%	$\chi^2 = 15.6$	$p < .001$
Use methamphetamine with a dealer	60.3%	37.2%	67.6%	$\chi^2 = 29.8$	$p < .001$
Use methamphetamine to "get more energy"	34.5%	18.2%	32.7%	$\chi^2 = 9.3$	$p < .01$
Can't function without methamphetamine	3.4%	1.7%	10.0%	$\chi^2 = 10.0$	$p < .01$

Table 3

Ethnic Differences in Patterns of Methamphetamine Use (N = 402)

Use Pattern	Latino	African American	Caucasian	Test Statistic	p-value
Smoked methamphetamine in past 2 months	89.7%	88.4%	75.3%	$\chi^2 = 11.9$	$p < .01$
Injected methamphetamine in past 2 months	10.3%	13.6%	39.5%	$\chi^2 = 36.0$	$p < .001$
Number of years used methamphetamine, mean (SD)	9.6 (6.7)	11.9 (7.8)	15.4 (9.6)	$F = 13.2$	$p < .001$
Number of grams used in past 30 days, mean (SD)	9.4 (12.2)	5.8 (13.9)	10.9 (18.3)	$F = 3.7$	$p < .05$

Table 4

Ethnic Differences in Psychosocial Factors and Sexual Risk Behaviors (N = 402)

Factor or Risk Behavior	Latino	African American	Caucasian	Test Statistic	p-value
Stigma score, mean (SD)	3.1 (.52)	2.9 (.57)	3.1 (.49)	F = 6.5	p < .01
Self-esteem score, mean (SD)	58.0 (42.3)	55.3 (41.9)	44.8 (37.8)	F = 3.7	p < .05
Anonymous sex partner in past 2 months	36.2%	52.9%	38.6%	$\chi^2 = 7.7$	p < .05