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EDITORIAL: 
HIV AND AIDS AMONG AMERICAN INDIANS AND ALASKA NATIVES

In recent years, increasing emphasis has been placed on race, ethnicity, and culture as they relate to HIV infection, including HIV drug and sex risk behaviors and the development of effective HIV prevention strategies and AIDS care programs. While race, ethnicity, and culture are often used interchangeably, distinction between the terms clearly exist (Stevens, Estrada, Glider, & McGrath, 1998). Race has been defined as a group that is socially defined on the basis of physical criteria (Van den Bergh, 1967), while ethnicity is used to define groups of individuals who share some common culture or are descendants of people from the same involuntary group (Isajiw, 1974). Culture has more often been defined as the totality of society—transmitted behavior patterns, beliefs, institutions, art, and other constructions of various groups. Culture is an evolving, dynamic phenomenon shaped by social, psychological, and historical processes (Szapocznik, 1995).

Consideration of race and ethnicity as they relate to HIV/AIDS typically includes examination of public health data with regard to HIV and AIDS prevalence, specific HIV drug and sex behaviors (i.e., number of times injected drugs, percent of time condoms were used), as well as data on the number and type of services received by AIDS patients. Consideration of culture as it relates to HIV and AIDS more often includes methods and curriculum for HIV prevention programs and approaches to caring for those with AIDS that take into account socially transmitted constructions; thereby resulting in more acceptable, appropriate, and effective service delivery.

AIDS surveillance data by race/ethnicity indicates a disproportionately high percentage of people from minority groups who have AIDS. The estimated population in the United States (U.S.) in 1997 included 28% from minority ethnic groups. For the same year, the percent of AIDS cases attributed to minorities was 67% (Center for Disease Control [CDC], 1998a). Of the 641,086 cases of AIDS reported to the CDC through December, 1997, 1,783 (0.3%) occurred in American Indians and Alaska Natives (AI/ANs) (Center for Disease Control, 1998b). Almost all (98%) were 13 years of age or older. Compared to the total number of persons with reported AIDS cases in the U.S., a higher percentage of AI/ANs with AIDS cases were between 20 and 29 years of age (23% vs. 17%, respectively). Risk characteristics of AI/ANs with AIDS were similar to all persons with AIDS in the U.S. with almost half (49% of AI/ANs and 48% of all AIDS patients) reported exposures being men who have sex with men (MSM). However, a larger percentage of AI/AN AIDS cases were among MSM who were also injection drug users (IDUs) (14% vs. 6%) and a similar percentage of AI/ANs were among those who only injected drugs (20% vs. 25%).

V
While AIDS prevalence data is useful in looking at historical trends with regard to HIV infection, cases of HIV infection (without AIDS) assists researchers and service providers with understanding more recent trends that may help point to where the epidemic is headed. CDC (1998a) reported that among AI/ANs a higher percentage of HIV cases (compared to AIDS cases) occurred more often in women (33% vs. 21%), in adolescents (5% vs. 1%), and in AI/ANs between the ages of 20 and 29 years of age (40% vs. 21%). Additionally, a higher percent of HIV cases occurred in persons with heterosexual contact as a risk exposure (18% vs. 13%) compared to a lower percentage for MSM (30% HIV cases vs. 41% of AIDS cases).

With regard to geographic distribution, more than half of AIDS cases among AI/ANs resided in five U.S. states at the time of their diagnosis: California (25%), Oklahoma (11%), Washington (7%), Arizona (6%), and Alaska (4%). According to CDC (1998a), AIDS among AI/ANs in the U.S. is clustered in selected areas in the west and in smaller cities in rural areas. However, Rowell (1998) states that it is misleading to portray the AI/AN AIDS epidemic as a predominately western and rural phenomena. When comparing percent of AI/AN AIDS cases through 1997 with percent AI/AN 1995 census data, AIDS cases among AI/ANs are similar to the geographical distribution of AI/ANs. AIDS among AI/ANs is not a predominately rural phenomena as 68% of AI/AN AIDS cases were reported in cities with populations of over 500,000. Moreover, Rowell (1998) cautions readers that the CDC data may not be accurate given past misreporting of race/ethnicity of AI/ANs and gaps in reporting between Indian Health Service to state departments of health.

Given the concerns about the accuracy of data with regard to HIV and AIDS among AI/ANs, and the lack of information about HIV risk behaviors, AIDS care, and culturally appropriate intervention strategies, further research is needed. Data on HIV prevalence among AI/ANs is needed to help illuminate characteristics of those becoming infected so that at-risk groups of AI/ANs can be targeted for prevention efforts. Information about the types of risk that place AI/ANs at risk need to be identified so that appropriate intervention strategies can be developed. Additionally, barriers and facilitators to accessing AIDS care for AI/ANs who are infected with HIV need to be studied so that earlier treatment can be obtained. A better understanding of available AIDS services for AI/ANs, the helpfulness of these services, and how service providers might enhance AIDS care services is needed. Moreover, further research is needed on appropriate and effective HIV prevention strategies that take into consideration the culture of AI/AN people.

The collection of articles included in these special issues (Volume 9, Issue 1 and 2) attempt to fill the gaps in knowledge that exist with regard to AI/ANs who are either at risk for becoming infected with HIV or who are already infected. The first four articles in Volume 9, Issue 1, examine HIV risk behaviors of AI/AN drug users who are at risk for becoming infected
with HIV. Baldwin, Maxwell, Fenaughty, Trotter, and Stevens examined alcohol use among AI/AN drug users noting significant positive associations between injection drug use and alcohol use as well as crack cocaine use and alcohol use. AI/ANs who reported more episodes of alcohol use before or during sex also reported a higher occurrence of unprotected sex promoting the investigators to recommend that HIV prevention efforts focus on how alcohol consumption may increase risk behaviors. Reynolds, Fisher, Estrada, and Trotter looked at the relationship between unemployment, education, drug use, and needle sharing risk behaviors of AI/ANs. Results indicated that those who were unemployed both at baseline and at a 6-month follow-up reported more drug use and higher levels of needle sharing risks. Furthermore, those with a higher level of educational attainment were more likely to transition to employment, underscoring the need for drug treatment as well as enhanced vocational and educational opportunities for AI/ANs. Stevens, Estrada, and Estrada examined differences in HIV drug and sex risk behaviors between American Indians enrolled at two separate HIV prevention sites, and between male and female drug users. Not only were risk behavior differences between individuals enrolled at the two sites noted, but at both sites females reported higher HIV risk behaviors than their male counterparts on several HIV sex related behaviors. These findings prompted the investigators to not only recommend community-specific interventions but gender-specific interventions as well. Concurring with the need for more intensive, gender-specific interventions, Fisher, Fenaughty, Paschane, and Cagle found in their five-year study that Alaska Native women were at high risk for gonorrhea and were at high risk for HIV due to behaviors related to blood-borne disease transmission. These researchers also found that White men who had sex with both White and Alaska Native women were significantly less likely to use condoms with Alaska Native women.

Included in Volume 9, Issue 2 are four articles that address issues of urban American Indians at risk for HIV; the healthcare needs, social service needs, and culturally sensitive case management services for American Indians, Alaska Natives, and Native Hawaiians (AI/AN/NHs); and, an example of a culturally appropriate method for working with AI/AN/NH populations who are either at risk or who are already infected with HIV. Unlike the first four articles in Volume 9, Issue 1, these works focus on both drug using and non-drug using AI/AN/NH people. In the first article, Walters, Simoni, and Harris examine factors that place urban American Indians living in New York City at risk for becoming infected with HIV. Results support the impact that lifetime trauma and drug use have on individuals’ HIV sex risk behaviors, leading the authors to support the use of a postcolonial framework in American Indian HIV studies. Following this study, Duran, Bulterys, Iralu, Graham, Edwards, and Harrison investigate the health care and social service needs, barriers to care and satisfaction with services among urban and rural American Indians. Need for services as well as access to services were
reported by both groups. The researchers concluded that limited access to
essential services impedes American Indians with HIV/AIDS in being able to
maintain effective medical regimens. Also working with a population already
infected with HIV/AIDS, Bouey and Duran examine client satisfaction of the
Ahalaya case management model which was designed to provide culturally
sensitive services to HIV infected AI/AN/NHs. Benefits of the program were
noted, including positive changes (pre-post enrollment) in self-supported
quality of life. While the results are promising the investigators conclude
that these types of services need to be expanded. In the final manuscript of
this special issue Tafoya articulates how storytelling—a culturally driven
approach—can be used as a powerful tool in HIV prevention work with AI/
AN/NHs. For deeper understanding of how storytelling can be used, Tafoya
forgoes the more academic style of writing and engages the reader in the
experience of storytelling. Many of the important issues discussed in the
previous contributions are touched upon in Tafoya’s storytelling, challenging
the reader to look for culturally propelled strategies to enhance effectiveness
of HIV prevention and AIDS care programs serving AI/AN/NH populations.

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ALCOHOL AS A RISK FACTOR FOR HIV TRANSMISSION AMONG AMERICAN INDIAN AND ALASKA NATIVE DRUG USERS

Julie A. Baldwin, Ph.D., Carol J. C. Maxwell, Ph.D., Andrea M. Fenaughty, Ph.D., Robert T. Trotter, Ph.D., and Sally J. Stevens, Ph.D.

Abstract: Quantitative alcohol interviews conducted as part of the National Institute on Drug Abuse (NIDA) Native American Supplement revealed very high rates of alcohol use among American Indian and Alaska Native active crack and injection drug users (IDUs). Of 147 respondents who completed the alcohol questionnaire, 100% had drunk alcohol within the past month, almost 42% reported that they drank every day, and 50% drank until they were drunk one-half of the time or more. Injection drug users (IDUs) demonstrated the highest frequency and quantity of alcohol use in the past 30 days. A significant positive association was also found between crack and alcohol use in the past 48 hours ($\chi^2=5.30$, $p<.05$). Finally, those claiming more episodes of using alcohol before or during sex, reported significantly more events of unprotected sexual intercourse. Qualitative data from all four sites corroborated these quantitative findings. Many individuals also reported episodes of blacking out while drinking, and learned later that they had had unprotected sex with complete strangers or individuals they would not otherwise accept as partners. Implications of these findings for HIV/AIDS prevention efforts are addressed.

Very little research has focused on drug use among American Indians and Alaska Natives (AI/ANs) or the risk behaviors associated with the transmission of HIV/AIDS in AI/AN populations. The potential for a dramatic increase in the number of HIV cases, however, is thought to be great among these groups because of high rates of proxy measures of HIV transmission risk such as sexually transmitted diseases (STDs) and alcohol and drug abuse.
(Conway et al., 1992; Fisher, Cagle, & Wilson, 1993; Stevens & Estrada, 2000).

The age-adjusted alcoholism death rate for AI/ANs (45.5 per 100,000) is nearly 7 times the U.S. all-races rate of 6.7 for 1993 (Indian Health Service [IHS], 1997). Further, from data collected by IHS (May, 1994), it is apparent that alcoholism and substance abuse carry high risks for both morbidity and mortality—particularly due to accidents, suicides, and homicides. For example, American Indian males aged 25-34 die 2.8 times more frequently from motor vehicle crashes, 2.7 times more from other accidents, 2.0 times more from suicide, and 1.9 times more from other homicide as compared to other U.S. males (May, 1995). Thus, alcohol is involved in a very high percentage of AI/AN deaths (May, 1995).

Because of the evidence in support of a link between alcohol and high-risk sexual behavior (Hingson, Strunin, Berlin, & Heeren, 1990; Leigh & Stall, 1993; Stall, McKusick, Wiley, Coates, & Ostrow, 1986), there is great concern among tribal groups and health service professionals about the risks for AI/ANs contracting HIV/AIDS. Sexual promiscuity associated with alcohol abuse may also intersect with risks associated with needle sharing to place drinkers and injection drug users (IDUs) at added risk. In fact, recent studies have indicated associations between alcohol and risky sex among samples of IDUs and crack smokers (Calsyn, Saxon, Wells, & Greenberg, 1992; Falck, Wang, Carlson, & Siegal, 1997; Fenaughty & Fisher, 1998; Latkin, Mandell, Ozierkowska, Vlahov, & Celentano, 1994; Turner, Fenaughty, Theno, & Fisher, 1998).

Given the dearth of information regarding HIV risk-taking behavior among AI/AN drug users, a cross-site supplemental study was recently funded by the National Institute on Drug Abuse (NIDA) and the National Institutes of Health, Office of Research on Minority Health to explore a number of important issues applicable to developing HIV/AIDS prevention programs for AI/AN drug users. This study, the NIDA Native American Supplement, was funded from January through July, 1996 to examine HIV risk behaviors of AI/AN drug users in each of four cities: Flagstaff, Arizona (n=50), Tucson, Arizona (n=50), Anchorage, Alaska (n=31), and Denver, Colorado (n=22).

The NIDA Native American Supplement consisted of a series of interviews targeting the relevance of cultural and social contexts for risk-taking behaviors, and the degree to which cultural identity may affect views of health, illness, traditional medicine, and participation in HIV-protective behaviors. To elucidate some of these factors, instruments were developed to assess cultural models of drug use and HIV/AIDS, social network and social support characteristics and dynamics, alcohol and other drug use practices, sexual behaviors, the degree of mobility occurring between drug users off and on reservation, cultural identity, traditionalism versus modernism, and consensus models of HIV/AIDS knowledge.
A subsample of clients (67 of 153) from the NIDA Native American Supplement also participated in focus groups that were specifically designed to: (a) determine HIV/AIDS awareness levels; (b) assess sources of information regarding HIV/AIDS; (c) examine cultural competency of HIV/AIDS educational materials; (d) determine HIV risk behaviors among AI/AN drug users and members of AI/AN communities; and (e) explore sources, messages, and channels of HIV/AIDS prevention information that were perceived as most effective for AI/AN populations (Baldwin et al., 1999).

This paper highlights the results from both the structured interviews and focus groups specifically with regard to associations between alcohol and other drug use, and alcohol use and sexual practices that might put one at risk for HIV/AIDS. It also provides suggestions for the future direction of HIV/AIDS prevention programming for AI/AN communities.

Method

Sample

Local outreach workers at each site recruited AI/AN, out-of-treatment injection drug users and crack cocaine smokers. Compensation of social network referrals was often used to facilitate the recruitment process. Outreach workers determined initial eligibility of participants in the field through inquiry concerning AI/AN ancestry, recent drug use, drug treatment, and age. The recruitment strategy did not differ between the types of drug users. To be eligible for participation, subjects had to: (a) be at least 18 years of age; (b) self-report use of crack or any injectable drug including crystal methamphetamine, cocaine, or heroin within the last 48 hours; (c) not have been in drug or alcohol treatment in the last 30 days; and (d) be American Indian and/or Alaska Native\(^1\). Confirmation of drug use took place on-site through the use of ONTRAK urinalysis screening for cocaine, amphetamine, and morphine, as well as physical examination for “track” marks indicating recent injection. Upon establishment of eligibility, staff obtained informed consent and locator information to facilitate the task of future contact.

Measures and Variables

Data for this study were obtained from the Risk Behavior Assessment (RBA) and a supplemental alcohol questionnaire. The RBA is a structured interview developed by a team of principal investigators participating in the NIDA Cooperative Agreement and is used to assess sexual and drug-related risk behaviors, as well as demographic and other health-related information. The RBA has been demonstrated to have acceptable reliability and validity
(Dowling-Guyer et al., 1994; Needle et al., 1995). The alcohol questionnaire was developed by a team of researchers at the Anchorage site of the Supplement study, and assesses the frequency and amount of alcohol use, and alcohol use patterns, both in the last 30 days and over one’s lifetime.

Frequency and amount of alcohol consumed, and frequency of drinking to the point of inebriation were assessed with items from the alcohol questionnaire. The following drug and sexual risk items were extracted from the RBA: alcohol and drug use in the past 48 hours, alcohol and drug use during sexual intercourse, number of sexual partners in the past 30 days, number of sexual partners (past 30 days) who were drug injectors, STD history, and times used condoms with oral, vaginal, or anal intercourse during the past 30 days.

**Focus Group Methodology**

All subjects participating in the NIDA Native American Supplement were told about the focus groups at the time of their initial interview. Those interested in participating were asked to register on a sign-up sheet or to notify the outreach worker. Thus, subjects who participated in the gender-specific focus groups that were conducted at each study location represented a sizable subsample of all clients who participated in the NIDA Native American Supplement.

The focus group substudy employed a traditional focus group design, modified by utilizing cross-cultural training and sensitivity parameters for the selection of the focus group moderators and the conduct of the focus groups. Same gender (and where possible AI/AN) moderators facilitated the focus groups at each site. As with other interviews conducted as a part of this study, all subjects were informed of the voluntary nature of participating in the focus groups and assured of complete confidentiality. In an effort to provide consistency across the sites, all focus group moderators were trained by two of the Investigators at one of the sites; a complete Focus Group Guide (available upon request) was also developed and utilized at each site.

**Analyses**

Quantitative data from the structured interviews were analyzed using SPSS (Statistical Package for Social Scientists) for Windows (Version 8.0). The bivariate associations among variables were examined using chi-square and spearman rank correlations. With respect to the qualitative data, each focus group was audio recorded and transcribed verbatim. The transcripts were coded, using standardized ethnographic coding techniques. The data were analyzed for both within-site and cross-site thematic and content consistency, as well as for cross-site variability in knowledge, beliefs, and contextual factors.
Results

Table 1 illustrates the demographic characteristics of the sample. More subjects were recruited in Flagstaff and Tucson than in Denver and Anchorage, and more males than females were involved in the study. Most participants were between the ages of 25-44, with a mean age of 33.9; the majority of participants reported a high school education or less; and approximately 65% of the subjects were not currently married. Almost 60% resided in someone else’s home at the time of the interview and the majority of participants were unemployed. Eighteen percent of the subjects considered themselves homeless (not shown in Table 1). An approximately equal number of injection and non-injection drug users participated in the study. Although tribal affiliation is not depicted in this table (to protect confidentiality), a wide diversity of tribes was represented even within each site, and 76% of the sample indicated that they were at least ½ American Indian or Alaska Native by blood quantum. The demographic characteristics of focus group participants ($n=67$) were comparable to the overall sample of 153 individuals that participated in the NIDA Native American Supplement.

Table 2 shows the variables related to alcohol use by type of drug user. For the purpose of analyses in this paper, those respondents reporting “Both IDU and non-IDU use” were classified as IDUs. All respondents indicated having drunk alcohol within the past month. IDUs reported drinking more frequently than non-IDUs in the last month (51% of IDUs compared to 31% of non-IDUs said that they drank about once a day or more than once a day during the past month). IDUs also reported consuming a greater amount of alcohol at a given time, and were more likely than non-IDUs to have drunk to the point of inebriation and to have spent a great deal of time getting alcohol, drinking alcohol, or getting over its effects (marginally significant at $p<.10$).

When looking specifically at associations between alcohol use and other drug use within the past 48 hours (Table 3), alcohol use was seen to be positively associated with crack use, but marginally negatively associated with heroin use. No other associations were significant.

This study also examined sexual risks as related to alcohol use. Table 4 illustrates the spearman rank correlations between key sexual risk and alcohol use variables. Only those individuals who reported sexual intercourse in the past 30 days were selected for this analysis. The frequency with which one reported drinking until intoxicated was significantly correlated with the total number of STDs one believed he or she had ever had. The unprotected sex variable (times in the past month that one did not use a condom during vaginal, anal, or oral sex) was significantly correlated with the times one used alcohol before or during sex. Although not shown in Table 4, the times that an individual reported using alcohol before or during sex was also highly correlated with the times that he or she reported using
Table 1
Demographic Characteristics (N=153)

<table>
<thead>
<tr>
<th>Site</th>
<th></th>
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<tbody>
<tr>
<td>Anchorage</td>
<td>19.6%</td>
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<tr>
<td>Flagstaff</td>
<td>33.3%</td>
</tr>
<tr>
<td>Denver</td>
<td>14.4%</td>
</tr>
<tr>
<td>Tucson</td>
<td>32.7%</td>
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<table>
<thead>
<tr>
<th>Gender</th>
<th></th>
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<tbody>
<tr>
<td>Male</td>
<td>55.6%</td>
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<tr>
<td>Female</td>
<td>44.4%</td>
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<table>
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<tr>
<th>Age Range</th>
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<tbody>
<tr>
<td>18-24</td>
<td>14.4%</td>
</tr>
<tr>
<td>25-34</td>
<td>41.2%</td>
</tr>
<tr>
<td>35-44</td>
<td>35.9%</td>
</tr>
<tr>
<td>&gt;44</td>
<td>8.5%</td>
</tr>
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<table>
<thead>
<tr>
<th>Marital Status</th>
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<tbody>
<tr>
<td>Single (never married)</td>
<td>45.1%</td>
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<tr>
<td>Married/common-law/opposite sex partner</td>
<td>34.7%</td>
</tr>
<tr>
<td>Separated/divorced/widowed</td>
<td>20.2%</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th>Education</th>
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</thead>
<tbody>
<tr>
<td>Less than high school graduation</td>
<td>43.8%</td>
</tr>
<tr>
<td>High school graduation/GED</td>
<td>39.2%</td>
</tr>
<tr>
<td>Trade school/some college/college grad.</td>
<td>17.0%</td>
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<table>
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<tr>
<th>Living Arrangement</th>
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<tbody>
<tr>
<td>Own house or apartment</td>
<td>40.1%</td>
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<tr>
<td>Someone else’s house or apartment</td>
<td>59.9%</td>
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</table>

<table>
<thead>
<tr>
<th>Current Work Situation</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Unemployed</td>
<td>60.7%</td>
</tr>
<tr>
<td>Employed part-time</td>
<td>9.2%</td>
</tr>
<tr>
<td>Employed full-time</td>
<td>8.5%</td>
</tr>
<tr>
<td>Disabled</td>
<td>10.5%</td>
</tr>
<tr>
<td>Retired, homemaker, school, other</td>
<td>11.2%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of Drug User</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Injection Drug User</td>
<td>53.0%</td>
</tr>
<tr>
<td>Cocaine/Crack (non IDU)</td>
<td>47.0%</td>
</tr>
</tbody>
</table>
Table 2
Characteristics Related to Alcohol Use by Type of Drug User

<table>
<thead>
<tr>
<th></th>
<th>IDU (n=59)</th>
<th>non-IDU (n=59)</th>
<th>( \chi^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Frequency of drinking (past 30 days)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than once a week</td>
<td>8.5%</td>
<td>22.0%</td>
<td>9.80*</td>
</tr>
<tr>
<td>Once or twice a week</td>
<td>20.3%</td>
<td>32.2%</td>
<td></td>
</tr>
<tr>
<td>More than 3 times per week</td>
<td>20.3%</td>
<td>15.3%</td>
<td></td>
</tr>
<tr>
<td>About once a day</td>
<td>39.0%</td>
<td>18.6%</td>
<td></td>
</tr>
<tr>
<td>More than once a day</td>
<td>11.9%</td>
<td>11.9%</td>
<td></td>
</tr>
<tr>
<td><strong>Quantity of alcohol consumed (past 30 days)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 5 drinks at a time</td>
<td>27.1%</td>
<td>39.0%</td>
<td>3.43+</td>
</tr>
<tr>
<td>Between 5-10 drinks at a time</td>
<td>32.2%</td>
<td>35.6%</td>
<td></td>
</tr>
<tr>
<td>More than 10 drinks at a time</td>
<td>40.7%</td>
<td>25.4%</td>
<td></td>
</tr>
<tr>
<td>(drank until it was gone/I passed out)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Frequency of getting drunk (past 30 days)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>23.7%</td>
<td>10.2%</td>
<td>9.73+</td>
</tr>
<tr>
<td>Only once or twice</td>
<td>13.6%</td>
<td>23.7%</td>
<td></td>
</tr>
<tr>
<td>Occasionally</td>
<td>8.5%</td>
<td>20.3%</td>
<td></td>
</tr>
<tr>
<td>About half the time I drink</td>
<td>20.3%</td>
<td>22.0%</td>
<td></td>
</tr>
<tr>
<td>Most of the time I drink</td>
<td>18.6%</td>
<td>16.9%</td>
<td></td>
</tr>
<tr>
<td>Every time I drink</td>
<td>15.3%</td>
<td>6.8%</td>
<td></td>
</tr>
<tr>
<td><strong>Ever spent a great deal of time getting alcohol, drinking alcohol, or getting over its effect?</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>69.7%</td>
<td>56.9%</td>
<td>2.50+</td>
</tr>
<tr>
<td>No</td>
<td>30.3%</td>
<td>43.1%</td>
<td></td>
</tr>
</tbody>
</table>

*\( p < .05 \), +\( p < .10 \)

crack (\( r = .365, p < .001 \)), heroin (\( r = .374, p < .001 \)), and speedball (\( r = .209, p < .05 \)) before or during sexual intercourse and with the frequency of alcohol use and getting drunk (\( r = .352, p < .001 \), \( r = .250, p < .05 \), respectively). Lack of condom use was also marginally positively correlated at \( p < .10 \) with the quantity of alcohol consumed. All correlations involving sexual risk variables were tested for gender differences; none were found to be significant.
## Table 3

**Associations Between Alcohol and Other Drug Use in the Past 48 Hours (N=145)**

<table>
<thead>
<tr>
<th></th>
<th>No Alcohol Use</th>
<th>Alcohol Use</th>
<th>( \chi^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marijuana Use</td>
<td>41.7%</td>
<td>53.1%</td>
<td>1.67</td>
</tr>
<tr>
<td>Crack Use</td>
<td>33.3%</td>
<td>53.5%</td>
<td>5.30*</td>
</tr>
<tr>
<td>Cocaine Use</td>
<td>33.3%</td>
<td>32.0%</td>
<td>.028</td>
</tr>
<tr>
<td>Heroin Use</td>
<td>43.8%</td>
<td>28.6%</td>
<td>3.33+</td>
</tr>
<tr>
<td>Speed Ball Use</td>
<td>20.8%</td>
<td>13.3%</td>
<td>1.33</td>
</tr>
<tr>
<td>Amphetamine Use</td>
<td>8.3%</td>
<td>7.2%</td>
<td>.057</td>
</tr>
</tbody>
</table>

*\(p<.05, +p<.10\)

## Table 4

**Correlation of Risky Sexual Behaviors and Alcohol Use (past 30 days)**

<table>
<thead>
<tr>
<th></th>
<th>Frequency of alcohol consumed</th>
<th>Quantity of alcohol consumed</th>
<th>Frequency of drinking until drunk</th>
<th>Times used alcohol before or during sex</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of STD’s (ever)</td>
<td>(-.167) ((n=48))</td>
<td>(-.022) ((n=48))</td>
<td>(.296^*) ((n=48))</td>
<td>(.060) ((n=61))</td>
</tr>
<tr>
<td>Number of unprotected sex acts (past 30 days)</td>
<td>(-.092) ((n=49))</td>
<td>(.015) ((n=49))</td>
<td>(.062) ((n=49))</td>
<td>(.463^{**}) ((n=63))</td>
</tr>
<tr>
<td>Number of sex partners (past 30 days)</td>
<td>(.029) ((n=49))</td>
<td>(-.250^+) ((n=49))</td>
<td>(-.200) ((n=49))</td>
<td>(.136) ((n=49))</td>
</tr>
<tr>
<td>Number of IDU sex partners (past 30 days)</td>
<td>(.225) ((n=45))</td>
<td>(-.210) ((n=45))</td>
<td>(.012) ((n=45))</td>
<td>(-.057) ((n=59))</td>
</tr>
</tbody>
</table>

**\(^{**}p<.001, ^{*}p<.05, +p<.10\)**
Focus Group Findings

Interviewees overwhelmingly agreed that in their communities, alcohol presented at least as great a risk of HIV infection as did drug abuse, and most argued that, of the two, alcohol presented the greater risk. The early onset of alcohol abuse and its persistence contributed to interviewees’ assessment that alcohol put their communities at greater risk of HIV infection than did drugs. Interviewees often depicted alcoholism as beginning in pre-adolescence and continuing long after drug abuse ceased. Some interviewees indicated that they accepted their continued, unrestricted alcohol use as a solace or compensation for having abandoned drugs.

Interviewees emphasized the relative predominance of alcoholism over drug use. Typical of many interviewees, one man explained that, “The Native American community is into alcohol really bad, you know, more than drugs, I think.” Others named alcohol “the worst drug” for their communities. Some interviewees attributed the entrenched nature of alcoholism in their communities to their long histories of exposure to alcohol abuse; they felt behind “the rest of the world” in dealing with this problem.

Focus group participants also linked alcohol abuse and HIV risk through the sexual promiscuity they associated with drinking. Promiscuity in a small town presents the prospect of rapid and almost universal exposure. A Denver woman illustrated this danger by comparing HIV risk to a known “contagion,” explaining,

Ya know, everybody gets drunk and starts sleeping around, and then, it’s just a small town. And you know, think how fast, ya know—if rumors spread fast, how can you spread sex—and AIDS spreads fast, just like rumors.

Interviewees judged their communities to be at greater risk of HIV infection through sexual promiscuity than through needle sharing. They suggested that IV drug-using communities had already effectively educated their members to avoid needle-sharing hazards. An Alaskan man explained that,

Society today is not contracting HIV and stuff through needles now. I believe that they’ve pretty much educated the, uh, the heroin users, the cocaine IV injectors, and they pretty much know now how to clean, because if you let one know, they just, the word gets around fast. It’s like a small knit community that actually takes care of themselves.
One group explained that the sense of invulnerability and carelessness alcohol induces would incline you to have sex with a partner you knew was at high risk for HIV infection, such as an obvious, but unfamiliar IDU, or someone you already knew to be HIV positive. One interviewee alluded to the attractiveness an alcohol high projects on potential partners, commenting that, “When you get real drunk, you can see beauty queens all over the place.”

Focus group participants linked the relative risks alcohol and drugs posed to differences in each substance’s effects on the individual. Their discussion suggested that alcohol consistently led to “wild” promiscuity, while drugs might induce a variety of responses, including avoidance of sexual contact. Referring to “getting drunk and getting stupid,” one man explained that, “If I do alcohol, I’ll do anything. If I do drugs, I won’t do nothing.” Part of the danger associated with alcohol came from blacking out; that danger, too, was tied to sexual contact. One woman noted that, “I go out and drink, I lose it, I forget, you know. You could do anything you wanted; I’d never know.”

Interviewees agreed that alcohol use exacerbated drug abuse, so that HIV risk associated with drugs should not be separated from that associated with alcohol. One woman explained that,

I think alcohol has a lot to do with it, ‘cause when they drink, they want a drug. And that’s the same way I am. When you drink, I want a drug and I has to have it because I’ve, we’ve all done it. I mean, we crave it; it’s like a craving to us, you know. You’ve done it for so long, you do that first drink and after a while you start getting that buzz, and after a while, you say, “Well, let’s go get some stuff.”

Together, interviewees drew a picture of the factors that make alcohol an HIV risk factor in their communities. They cited “poor judgement,” carelessness, unpreparedness (not having a condom when needed), a sense of invulnerability, frequent sexual contact with multiple partners, loss of control, and vulnerability to rape. One group took turns building up the scene in which HIV risks typically occur: a spurious sexual relationship developing while judgement is impaired by alcohol, coupled with the misfortune of not being prepared when an opportunity for sex arises.

I think a lot of people think, ah, “I’m gonna go out and get drunk. I’m not gonna be fooling around.” But that alcohol’s pretty strong.
Yep. If you got the chance when you’re drunk, and you ain’t got no rubber, I imagine you’re gonna take your chance without it.

Yeah. If you was straight, you’d probably wait till later.

Wait a minute, I gotta get up and run down to the store.

By the time you get back, she’s gone. [LAUGHTER]

Discussion

Among this sample of AI/AN drug users, alcohol use was consistently reported to be frequent and judged as problematic by respondents. Contrary to prior findings, injection drug users reported more frequent and heavier consumption of alcohol than non-IDUs within the past 30 days. Prior research suggests that heroin addicts increase their alcohol consumption as heroin use decreases and vice versa (Almog, Anglin, & Fisher, 1989). It has also been shown that alcohol is often used as a mediating substance to ease the anxiety effect of crack cocaine (Turner, Fenaughty, Theno, & Fisher, 1998), and cocaine users often use alcohol (and marijuana) while maintaining cocaine dependence (Miller, Gold, & Klahr, 1990). In our sample, many of the IDUs reported polydrug use (both injecting drugs and smoking crack). The high alcohol use reported by our IDUs and their polydrug use may relate to the erratic availability of drugs, owing either to the non-metropolitan contexts within which our IDUs lived or their integration in ethnic enclaves within metropolitan contexts. Our qualitative research suggested that although some individuals would prefer heroin or a speedball, heroin often was not available. Such individuals often settled for purchasing crack when they could not find heroin. The tendency for heroin addicts to increase alcohol use when not using heroin and the endemic use of alcohol in conjunction with crack cocaine may well explain the high rate of alcohol use reported by our IDUs.

The results from this study are consistent with previous research showing an association between alcohol use and sexual risk behavior among drug users (Fenaughty & Fisher, 1998; Turner, Fenaughty, Theno, & Fisher, 1998; Turner, Paschane, Johnson, Fisher, & Fenaughty, 1998). Together, the qualitative and quantitative findings suggest that multiple sex partners and failure to use condoms, two factors that relate to increased risk for HIV infection, were associated with the consumption of alcohol.

The limitations of this study should be noted. The results should not be generalized to non-drug using populations or to drug users who are
currently in treatment. Also, the self-reported nature of the data must be considered. Although the reliability of these measures has been reported elsewhere (Dowling-Guyer et al., 1994; Needle et al., 1995), the validity of such self-reported data should be considered with regard to possible under-reporting due to concerns around confidentiality and sensitivity of questions. However, corroboration between the quantitative data and the qualitative data lends support to the findings. Also, because we did not compare AI/AN’s alcohol use to non-Native’s use, caution is needed in interpreting results. Finally, due to the cross-sectional nature of these data, these findings cannot address the question of causality between alcohol consumption and risk for HIV infection, but do provide further evidence for the association between the two.

Even noting the limitations of this study, these results have implications for HIV prevention education and substance abuse treatment. The cross-site nature of the study has provided important information about AI/AN drug users living in different regions of the country in both urban and rural areas. Drug users in our study consistently voiced their concern that alcohol use was a greater problem for American Indian communities than was drug use, and that until this problem was confronted, little progress would be made in combating the AIDS epidemic. Focus group members across all sites strongly recommended directly involving key members of the AI/AN community in conducting outreach and intervention activities (i.e., training and utilizing indigenous outreach workers and interventionists), involving AI/AN people as the sources of information through both interpersonal channels and the media, and utilizing locally and tribally relevant forms to deliver the message (i.e., through Chapter Houses, Bingo Halls, Powwows, etc.).

More in-depth analyses could be conducted to further examine regional (including urban/rural), tribal, and gender differences in HIV/AIDS prevention needs, and to examine whether these patterns differ from other ethnic/racial groups. AI/ANs are a highly diverse group of people with individual and family differences, as well as tribal and cultural differences that vary greatly from location to location. Some AI/AN people are very traditional in their beliefs, maintaining tribal languages, ceremonies, and customs; others hold to some AI/AN traditions while maintaining a successful orientation to non-Native society, as well. Thus, future HIV/AIDS prevention programming must take into account subgroup differences among AI/AN drug users in a non-reductionist manner. These differences may include factors such as gender, age, tribal affiliation, family and community ties, social networks, as well as stage and mix of substances being abused.

Qualitative data from this study suggest that alcohol use has a real impact on drug use. Not only do individuals begin abusing alcohol earlier in their lives, but respondents also stated that alcohol was a prelude to drug use in a given instance. We observed acceptance of alcohol abuse once drug abuse had been terminated. Although our data reflect established
patterns of concurrent alcohol and drug abuse, another important area of study would be to examine how alcohol and drug use may correlate at the onset of drug use. These types of data would also have implications for drug treatment. Specifically, given the high rates of polydrug use among AI/ANs in our sample, treatment programs must address both alcohol and drug use. Furthermore, HIV prevention efforts should focus on how alcohol consumption may affect high-risk behaviors, such as failing to use condoms. In order to be effective, HIV/AIDS prevention programs designed for AI/AN drug users must take into account an understanding of the diversity, strengths, and complexities among members of this population.

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References


Authors’ Note

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Footnotes

1. The focus group study was based on data collected during a supplemental study of the national HIV/AIDS monitoring and intervention Cooperative Agreement funded by the National Institute on Drug Abuse. The NIDA Coop involved 23 sites across the country and was designed to systematically examine the conditions that created the reduction of HIV-related risks for active drug users.

2. Different sites operationalized this differently. At the Anchorage site, participants were required to show either a Bureau of Indian Affairs card, documentation showing membership in an Alaska Native corporation, or similar identification. At the Denver, Flagstaff, and Tucson sites, outreach workers used their knowledge of the culture and characteristics of American Indians to determine eligibility and, if in doubt, required documentation of tribal affiliation (e.g., a Bureau of Indian Affairs card or tribal enrollment card).

3. While other studies (e.g., Wechsberg, Dennis, & Stevens, 1998), have found HIV risk profiles between IDU-only and IDU + Crack users to differ both in injection and sexual related risks, in this sample of AI/AN drug users, there were very few “pure” IDUs; most respondents reported polydrug use.
There also did not appear to be significant differences between the IDU-only and the IDU + Crack using groups in terms of risk behaviors. This was the rationale for combining these two groups in this analysis.
UNEMPLOYMENT, DRUG USE, AND HIV RISK AMONG AMERICAN INDIAN AND ALASKA NATIVE DRUG USERS

Grace L. Reynolds, M.P.A., Dennis G. Fisher, Ph.D., Antonio L. Estrada, Ph.D., and Robert Trotter, Ph.D.

Abstract: American Indians and Alaska Natives have had low employment in recent history. Drug users also have low employment due to cycles of drug use and relapse, and the impact of the type of drug abused on levels of functioning. Drug use is associated with increased HIV risk through injection drug use, frequency of injection, and needle sharing. Data from three sites of the NIDA Cooperative Agreement for Community Based-Outreach/Intervention Research were analyzed to determine the relationship among race/ethnicity, age, and level of educational attainment on employment and unemployment at intake interview and six-month follow-up. HIV risk for those employed and unemployed was then assessed. American Indian and Alaska Native drug users were younger, less educated, and less likely to have a paid job at both intake and follow-up than non-Native drug users. Those participants who were unemployed at baseline interview who were American Indian/Alaska Native were less likely to “transition to employment” at six-month follow-up than other race/ethnicity groups in the cohort. However, all participants showed low levels of employment at follow-up. Individuals who were employed at baseline and those who transitioned to employment had lower levels of injection drug use and needle sharing than those who were unemployed at both baseline and follow-up. American Indian and Alaska Native drug users may be at risk for acquisition of HIV due to drug risk behaviors that appear to be associated with unemployment.
Background

The relationship between employment and drug use is a complicated one, and adding race and ethnicity to the equation further complicates it. Historically, American Indian and Alaska Native men and women have not participated in the labor force in large numbers (Jacobson, 1984). It was not until data were available from the 1970 census that researchers began to look closely at labor force participation rates and patterns among American Indians/Alaska Natives (AI/ANs) (Snipp & Aytac, 1990; Snipp & Sandefur, 1988). It was with the 1980 census data that it was discovered that more AI/ANs lived in urban locations than in rural areas, reversing a trend that had been in existence for most of the 20th century. This underscored the importance of an earlier study showing migration from rural to urban areas as a source of improved economic opportunities for AI/ANs (Sorkin, 1971).

Drug users have also not participated in the labor force in large numbers, but their participation is harder to quantify as drug users are considered a ‘hidden population.’ Further, employment of drug users can be complicated by the type of drug used, and cycles of drug use and relapse, all of which may affect the individual’s ability to hold a job (Anglin & Fisher, 1987). Platt (1995), in a review of 20 years of literature on addiction, drug treatment outcomes, and employment, found that employment was an important factor in both successful treatment outcomes and relapse prevention.

As researchers have acquired greater access to drug users, due to more sophisticated methods of sampling hidden populations (Broadhead, et al., 1998; Watters & Biernacki, 1989) and the need to understand the dynamics of the HIV/AIDS epidemic, it has become clear that drug use, in conjunction with the poverty that comes with long term unemployment, increases the risk of acquiring AIDS. For example, in a study of crack cocaine users in the Midwest, the risk of contracting HIV/AIDS was directly linked to unemployment, with the strength of the relationship increasing as the length of time unemployment increased (Braun, Murray, Hannan, Sidney, & Le, 1996). Other factors besides unemployment have been identified as associated with HIV infection among injection drug users in general and AI/ANs in particular.

Injection drug use has been identified as a risk factor for the acquisition of HIV/AIDS, with injection frequency being associated with increased risk of seroconversion (Parent, Hankin, & Claessens, 1998). Needle sharing has also been identified as a high-risk activity among injection drug users (Chitwood et al., 1995; Des Jarlais & Friedman, 1987). Crack (smokable) cocaine use has been associated with risky sexual behaviors and the heterosexual transmission of HIV (Chaisson, Stoneburner, Hildebrandt, Ewing, Telzak, & Jaffe, 1991).

In Alaska, Native women have been identified to be at high risk of infection through injection drug use as well as sexual risk behaviors (Fisher,
Cagle, & Wilson, 1993; Fisher, Fenaughty, & Paschane, 1995). In a multi-site study of AI/ANs, sexual risk behaviors were again identified (Fenaughty, Fisher, Cagle, Stevens, Baldwin, & Booth, 1998).

**Determinants of Employment Success**

Employment success depends on many variables. Education level is one of the most important factors influencing an individual’s ability to obtain and hold employment. The greater the number of years of schooling, the greater the chance of both being employed and earning a higher wage. Age is also an important factor in employment success, and is usually a proxy for experience. The older one is, the more experience one is likely to have at one’s trade or profession, and the higher the wage one is likely to be paid for that experience, up until middle-age, at which point most individuals experience a plateau in wages, followed by retirement (Mare, Winship, & Kubitschek, 1984).

Ethnicity plays an important part in employment success and accounts for differences not captured by education and age alone. For example, in studies of employment rates that have compared Whites, African Americans, and AI/ANs, Whites generally have a higher level of education, have higher rates of employment, and higher wage levels (Sandelfor & Scott, 1983). African Americans, while generally less educated than Whites, are also generally older than AI/ANs. Therefore, they have employment rates and wages higher than AI/ANs, but lower than Whites. AI/ANs carry the twin burdens of less education and younger age, hence less experience, when compared to these other two groups. In a study of educational outcomes and poverty on AI/AN reservations, Vinje (1996) found that educational attainment was the single most important variable in explaining poverty rates on 23 reservations. The same author found that educational attainment was a good explanatory variable for per capita income level variation among tribes (Vinje, 1977).

Other factors found to determine success in employment include marital status and the number of dependents (Sandelfor & Sakamoto, 1988), health status (Luft, 1974), mental health status (Ruhm, 1992), regional location and factors related to regional employment cycles (Reynolds, Fisher, Cagle, & Johnson, 2000; Snipp & Sandefur, 1988), job characteristics (Mensch & Kandel, 1988), age (Kaestner, 1991; Mare, Winship, & Kubitschek, 1984), and gender (Cagle, Fenaughty, Paschane, & Fisher, 1996; Snipp & Aytac, 1990). Among drug users, age of first use of drugs may act as a proxy for education. That is, the younger an individual is at the time s/he begins using drugs, the greater the chance that s/he will stop his/her education if involved heavily in drugs (Kandel & Yamaguchi, 1987). Time in drug treatment, regardless of the type of treatment, has been shown to have a positive effect on the wages of drug users (French, Zarkin, Hubbard, & Rachal, 1991).
The purpose of this study was to determine if a relationship existed between race/ethnicity and employment in a multi-site sample of out-of-treatment drug users and its impact and influence on HIV risk behaviors.

**Methods**

Data from three sites of the National Institute on Drug Abuse (NIDA) Cooperative Agreement for Community Based Outreach/Intervention were analyzed. These sites (Tucson, Arizona; Flagstaff, Arizona; and Anchorage, Alaska) were selected as contributing significant numbers of AI/AN drug-using participants. To be eligible for the study, participants had to be at least 18 years of age, test positive on urinalysis for cocaine metabolites, morphine or amphetamine, and not have been in any drug treatment in the 30 days prior to the interview, and they had to give informed consent. Participants were recruited into the study through a variety of means, including word of mouth, flyers and advertisements in public places, and through street outreach workers familiar with local drug-using networks.

Participants completed two face-to-face interviews, one at intake, which was the Risk Behavior Assessment (RBA), and one at 6-month follow-up, which was the Risk Behavior Follow-up Assessment (RBFA). The interview was administered to participants the same day on which eligibility was determined. The RBA has been shown to have good reliability on the sex and drug risk behavior variables (Dowling-Guyer, et al., 1994; Needle, et al., 1995; Weatherby et al., 1994). In separate analysis, the employment and income variables were also found to have good reliability (Johnson, Reynolds, & Fisher, 1999). Additional preliminary research on the reliability and validity of the RBFA variables and follow-up data indicates good reliability (Johnson & Fisher, in press).

In the univariate analyses, relationships between age, race/ethnicity, sources of income and educational level attained were all explored to determine if the findings reported in the literature were replicated using a population of out-of-treatment drug users. The variables considered to confer significant risk for acquisition of HIV and seroconversion included those drug use variables identified in the literature, including any injection drug use, sharing of needles and syringes, and frequency of injection of cocaine, heroin, and speedball (Chitwood et al., 1995; Fisher, Fenaughty, & Trubatch, 1998). Use of crack (smokable) cocaine was also included as it is considered a risk factor for HIV infection independent of injection drug use (Chaissen, et al., 1991). For the univariate analyses, t-tests and non parametric statistics such as the Wilcoxon Rank Sum test were used.

Multivariate logistic regression was used to determine factors predicting successful “transition to employment” using both baseline and follow-up data on employment status. For purposes of this study, unemployment was defined as no employment at all in the 30 days prior to interview. Employment was defined as any paid job (either full or part-
time), or receipt of income from salary or business, at any time in the 30 days before interview. Additional candidate independent variables included age, level of education attained, and race/ethnicity and were selected based on the results of the univariate analyses.

Results

A total of 3,622 participants completed the initial baseline interview from the three sites selected from the NIDA Cooperative Agreement. Of the total, 1,724 (48%) came from Tucson, 1,327 (37%) came from Anchorage, and the remainder (15%) came from Flagstaff (Table 1). Of the total, 550 (15%) were AI/ANs. Table 2 shows the breakdown by race/ethnicity for the combined participants from all three sites. The sample included 991 (27%) women and 2,631 (73%) men.

For the univariate comparisons, AI/ANs were combined into one group and all other race/ethnic groups were combined into another group called “non-Natives.” For education, AI/ANs had a lower level of education than did non-Natives ($z=6.55$, $p=.0001$). AI/ANs ($M=33.2$, $SD=8.12$) were also found to be significantly younger than non-Natives ($M=34.8$, $SD=8.3$), $t(3,621)=4.24$, $p=.0001$.

<table>
<thead>
<tr>
<th>Site</th>
<th>Total Participants ($N=3622$)</th>
<th>Total of All Participants at Site Who Were AI/AN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchorage, Alaska</td>
<td>1327</td>
<td>270</td>
</tr>
<tr>
<td>Flagstaff, Arizona</td>
<td>571</td>
<td>76</td>
</tr>
<tr>
<td>Tucson, Arizona</td>
<td>1724</td>
<td>204</td>
</tr>
</tbody>
</table>

Table 1
Study Participants by Site

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Total</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>White, non-Hispanic</td>
<td>1323</td>
<td>37%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>869</td>
<td>24%</td>
</tr>
<tr>
<td>Black, non-Hispanic</td>
<td>820</td>
<td>22%</td>
</tr>
<tr>
<td>AI/AN</td>
<td>550</td>
<td>15%</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>18</td>
<td>1%</td>
</tr>
<tr>
<td>Other</td>
<td>42</td>
<td>1%</td>
</tr>
</tbody>
</table>

Table 2
Distribution of Racial Groups, All Sites Combined ($N=3622$)
In examining differences between sources of income reported at baseline for AI/ANs versus non-Natives, some differences were noted. Significant differences were noted for paid job or salary ($\chi^2(1, N=3,617)=6.74, p=.009$) (see Figure 1) and on selling, bartering or trading goods ($\chi^2(1, N=3,618)=14.37, p=.001$) (see Figure 2). AI/ANs were less likely to have income from a job and they were more likely to report engaging in bartering or trading goods in the 30 days prior to interview. There were no significant differences between AI/ANs and non-Natives on the other sources of income for which information was elicited on the RBA, including welfare, Aid to Families with Dependent Children (AFDC) and food stamps; social security and disability; unemployment compensation; receiving money from family or friends; alimony or child support; illegal activities, excluding prostitution; and prostitution. At six-month follow-up, sources of income were again examined for differences between AI/ANs and non-Natives. The significant difference noted at baseline for having a paid job or salary was found again at follow-up. AI/ANs were again less likely to report this type of income ($\chi^2(1, N=1,325)=4.52, p=.03$). There was also a significant difference between AI/ANs and non-Natives at follow-up on having social security or disability as a source of income ($\chi^2(1, N=1,325)=5.73, p=.017$). See Figure 3. There was no difference at baseline on this type of income between the two groups.

The difference noted at baseline on selling, trading, or bartering goods, as a source of income was not found at follow-up. The other remaining sources of income not significant at follow-up were receipt of welfare, AFDC and food stamps; unemployment compensation; income from spouse, family, or friend; selling, trading or bartering goods; alimony or child support; illegal activities; and prostitution.

**HIV Risk Factors**

At baseline, individuals who were employed had lower mean values on all of the risk factors associated with injection drug use (see Table 3). Those who were employed reported a lower mean number of times injecting any drug in the last 30 days, lower mean times sharing previously used needles and syringes, and lower mean days in the last month injecting cocaine, heroin, or speedball. They also reported fewer days using crack (smokable) cocaine compared to those who were unemployed.

At follow-up, those individuals who transitioned from unemployment to employment had significantly lower mean 30 day times of injecting any drug and lower mean times injecting speedball compared to those who remained unemployed (see Table 4). Those who transitioned also had less crack (smokable) cocaine use in the 30 days prior to follow-up interview compared to those who did not transition to employment.
Figure 1
Paid Job at Baseline by Race

\[ \chi^2(1, N=1325) = 4.53, \ p=.03 \]

- Non-Natives: 30% Employed, 70% Not Employed
- AI/ANs: 22% Employed, 78% Not Employed

Figure 2
Income From Selling or Bartering at Baseline

\[ \chi^2(1, N=3617) = 6.74, \ p=.009 \]

- Non-Natives: 36% Employed, 64% Not Employed
- AI/ANs: 30% Employed, 70% Not Employed
Figure 3
Income From Social Security or Disability at Follow-Up

![Pie charts showing income from Social Security or disability at follow-up for Non-Natives and AI/ANs.](chart)

$\chi^2(1, N=1325) = 6.74, \ p=.02$

Table 3
HIV Infection Risk of Unemployed Compared to Employed Drug Users at Baseline

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Unemployed $M (SD)$ $n$</th>
<th>Employed $M (SD)$ $n$</th>
<th>$t$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Times Injected</td>
<td>85.2 (102.9) 1500</td>
<td>64.9 (79.3) 497</td>
<td>4.0***</td>
</tr>
<tr>
<td>Days Used Crack</td>
<td>12.4 (10.1) 1860</td>
<td>10.9 (9.6) 692</td>
<td>3.3***</td>
</tr>
<tr>
<td>Times Shared Needles</td>
<td>32.5 (61.6) 887</td>
<td>23.3 (51.0) 279</td>
<td>2.3*</td>
</tr>
<tr>
<td>Times Injected Cocaine</td>
<td>45.8 (74.2) 1097</td>
<td>35.5 (54.2) 348</td>
<td>2.4**</td>
</tr>
<tr>
<td>Times Injected Heroin</td>
<td>55.6 (55.8) 1020</td>
<td>44.6 (40.7) 322</td>
<td>3.3**</td>
</tr>
<tr>
<td>Times Injected Speedball</td>
<td>29.4 (43.7) 638</td>
<td>21.9 (36.6) 197</td>
<td>2.2*</td>
</tr>
</tbody>
</table>

*Time referent last 30 days for all risk factors.

$p<.05. \ **p<.01. \ ***p<.001.$
Transition to Employment

Individuals who “transitioned to employment” were found to be significantly younger (M=34.3, SD=7.6) than those who did not (M=36.3, SD=9.1), t(1,323)=3.73, p=.0002. Those who “transitioned to employment” were also found to have achieved a higher level of education as compared to those who did not (χ²(7, N=1,324)=15.53, p=.03).

Logistic regression was also used to predict “transition to employment” from baseline to follow-up. Only those individuals who were unemployed at baseline were included in the analysis (n=1,325). If participants reported unemployment at six-month follow-up, “transition” was coded as 0; if employment was reported at follow-up, “transition” was coded as 1. Figure 4 indicates how many individuals transitioned to employment for each of the groups. Thirty percent of non-Natives and 22.5% of AI/ANs who reported being unemployed at baseline had transitioned to work at follow-up. Table 5 presents a breakdown of the total number of individuals “transitioning to employment” at each of the three sites. A smaller percentage of unemployed participants at the Tucson site “transitioned to employment” (25%) than at the Flagstaff (40%) or Anchorage (30%) sites (χ²(2, N=1,396)=15.87, p<.001).

Table 6 presents the results of the logistic regression. One variable was significantly positively associated with transition to employment. This was the level of education completed. Two variables were protective factors against transition to employment. Age in ten-year increments was protective against transition to employment. That is, the older the participant, the less likely he/she was to transition from unemployment to employment. The strength of this protective factor increased with each decade of life. Being AI/AN was also a protective factor against transitioning to employment.

Discussion and Limitations

This study found that those out-of-treatment drug users who were employed at intake had lower drug-taking risk behaviors than those who reported being unemployed. In addition, those who were unemployed at baseline, but who had transitioned to employment by the time of their six-month follow-up interview, also had lower drug-taking behaviors than those who did not transition to employment. The study also found that AI/ANs were less likely to be employed at intake than other race/ethnic groups and were less likely to transition to employment if they were unemployed at baseline.

The difference between AI/ANs and non-Natives in transitioning to work, while statistically significant, did not indicate a large difference between the two groups (22% and 30%, respectively). This indicates that all drug users, not just the AI/ANs, have difficulty transitioning from unemployment
Table 4
HIV Risk Behavior of Unemployed Drug Users at Baseline Who Transitioned to Employment at Follow-Up Compared to Those Who Did Not

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>No Transition</th>
<th>Transition</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M (SD) n</td>
<td>M (SD) n</td>
<td></td>
</tr>
<tr>
<td>Times Injected</td>
<td>74.2 (95.8) 417</td>
<td>52.1 (76.4) 126</td>
<td>2.4*</td>
</tr>
<tr>
<td>Days Used Crack</td>
<td>11.2 (10.3) 476</td>
<td>8.9 (8.4) 196</td>
<td>2.8**</td>
</tr>
<tr>
<td>Times Shared Needles</td>
<td>27.4 (54.5) 168</td>
<td>16.7 (28.3) 45</td>
<td>1.8</td>
</tr>
<tr>
<td>Times Injected Cocaine</td>
<td>37.2 (66.4) 289</td>
<td>25.8 (40.3) 79</td>
<td>1.9</td>
</tr>
<tr>
<td>Times Injected Heroin</td>
<td>51.8 (50.7) 291</td>
<td>40.8 (49.4) 89</td>
<td>1.8</td>
</tr>
<tr>
<td>Times Injected Speedball</td>
<td>29.3 (43.6) 174</td>
<td>16.9 (30.4) 42</td>
<td>2.1*</td>
</tr>
</tbody>
</table>

*aTime referent last 30 days for all risk factors.
* p<.05, **p<.01.

Figure 4
Transition to Employment by AI/AN versus Non-Native

$\chi^2(1, N=3618) = 14.37, p=.001$
Table 5
Transition to Employment by Site

<table>
<thead>
<tr>
<th>Transition to Employment</th>
<th>Anchorage</th>
<th>Flagstaff</th>
<th>Tucson</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>164 (30%)</td>
<td>62 (40%)</td>
<td>173 (25%)</td>
</tr>
<tr>
<td>No</td>
<td>380 (70%)</td>
<td>92 (60%)</td>
<td>525 (75%)</td>
</tr>
</tbody>
</table>

\( \chi^2(2, N=1396) = 15.87, \ p<.001. \)

Table 6
Results of Logistic Regression Analysis Predicting Transition to Work

<table>
<thead>
<tr>
<th>Variable</th>
<th>Parameter Estimate</th>
<th>Standard Error</th>
<th>Odds Ratio</th>
<th>CI 95%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-.17</td>
<td>.29</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>.13</td>
<td>.04</td>
<td>1.14</td>
<td>1.06, 1.23</td>
</tr>
</tbody>
</table>

...to employment. The fact that AI/AN drug users had lower educational levels than non-Natives has been reported elsewhere (Fisher, Cagle, & Wilson, 1993). Our results are consistent with these earlier findings.

Differences in drug risk and level of drug use between those reporting employment at baseline and those who did not, and between those who transitioned to employment during the course of the study and those who remained unemployed, show a clear pattern of less frequent injection drug use among those employed at either point in time. There is also a clear pattern of less crack (smokable) cocaine use among those reporting employment at either intake or follow-up. With respect to those variables not significant at follow-up (frequency of sharing, injecting cocaine and injecting heroin), there is nevertheless a clear pattern of reduced risk behavior among those reporting transition to employment (see Table 6).
It has been noted in the literature on unemployment and job-seeking behavior that there is a lack of research on individuals who have low educational attainment, including those with little or no training beyond high school and those with less than a high school education (Schmidt, Amel, & Ryan, 1993). The few studies that have used a minimally educated sample have found that these individuals differ from educated job seekers in respect to both attitudes and strategies (Schwab, Ryne, & Aldag, 1987). Further research is necessary, especially with the current climate of welfare reform, to determine the type of activities engaged in by the minimally educated to find employment.

One limitation of this study is our definition of employment. Those who were employed part-time were grouped with those employed full-time and data on these individuals were not analyzed to determine the extent to which those who were employed part-time at baseline achieved full-time employment at follow-up. We also limited unemployment to those who had no job. We did not distinguish between those who were unemployed and looking for work and those who were unemployed and not looking for work, though these may be separate groups. Further, individuals who were unemployed at both intake and follow-up, but who worked at some point during the six-month period between baseline interview and follow-up, would not be identified by our method.

The finding that those who have attained a higher level of education were most likely to transition to employment is consistent with other studies that have found that education leads to higher levels of employment. The finding that those who failed to “transition to employment” were older rather than younger is also consistent with other studies of substance abusers. It is likely that time spent involved in drug use limits opportunities for regular employment. This, in turn, limits an individual’s work experience. In drug users therefore, the relationship between age and experience found in the general population is reversed.

It is not within the scope of this paper to address employment rates as they differ across sites; however, there was a significant difference in the proportion of participants who successfully transitioned to employment, with fewer than expected transitioning at the Tucson site. Local investigators may wish to address this difference by surveying such things as the local unemployment rate and services available to drug users to assist them to find a job.

In conclusion, AI/ANs may be at increased risk of HIV infection due to a combination of drug taking behaviors and unemployment. However, the relationship between drug use, race/ethnicity, educational level, and employment status is complex, and more research needs to be directed toward untangling the association between these factors. It has not been within the scope of this paper to consider the issue of gender within the context of HIV risk and unemployment, though there are differences in employment rates and patterns between male and female drug users (Cagle,
Fenaughty, Paschane, & Fisher, 1998). For further discussion of gender issues and HIV risk as they relate specifically to AI/ANs, the authors refer the reader to previously published work which has addressed these issues (Fenaughty, Fisher, Cagle, Stevens, Baldwin, & Booth, 1998; Fisher, Cagle, & Wilson, 1993).

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HIV DRUG AND SEX RISK BEHAVIORS AMONG AMERICAN INDIAN AND ALASKA NATIVE DRUG USERS: GENDER AND SITE DIFFERENCES

Sally J. Stevens, Ph.D., Antonio L. Estrada, Ph.D., and Barbara D. Estrada, M.S.

Abstract: Little research has been conducted on HIV drug and sex risk behaviors of American Indians and Alaska Natives who use illicit drugs. Data from studies conducted with other ethnic groups indicate differences in HIV drug and sex risk behaviors of men and women and between drug users from different regions, cities, communities, and intervention sites. This study examines whether these differences in HIV drug and sex risk behaviors also exist for American Indians and Alaska Natives. Results indicate that risk behaviors of American Indians and Alaska Natives do differ like that of other ethnic groups. In particular American Indian and Alaska Native women reported engaging in significantly greater levels of some drug and many sex risk behaviors than men. Significant differences between intervention sites were also found for intensity of use of various drugs and for some HIV drug risk behaviors.

Little research has been conducted on HIV drug and sex risk behaviors of American Indians and Alaska Natives (AI/ANs) who use illicit drugs. Past data indicates that when compared to other groups mortality attributable to AIDS has been relatively low for AI/ANs. However, more recent data indicates an increase in the number of new cases of HIV infection among AI/ANs (Stevens & Estrada, 2000) as well as high rates of proxy measures of HIV transmission such as alcohol use, drug use, and the occurrence of sexually transmitted diseases (STDs) (Fisher, Cagle, & Wilson, 1993). Given the potential for dramatic increases in HIV infection within this population, culturally sensitive prevention strategies that take into account mediating variables such as gender and community characteristics are urgently needed (Stevens, Estrada, & Estrada, 1998).
Gender Differences in HIV and Sex Risk Behaviors

Past research indicates differences in HIV drug and sex risk behaviors of men and women drug users. With regard to drug related risks, many studies suggest that women who inject drugs may be at higher risk than their male counterparts due to higher injection rates (Stevens & Bogart, 1999; Stevens & Murphy, 1999; Weeks, Grier, Romero-Daza, Puglisi-Vasquez, & Singer, 1998), and greater frequency of injecting drugs with the same needle after their male sex partner has injected (Freeman, Rodriguez, & French, 1994; Su et al., 1996). However, in some studies men's injection rates are higher than women for some ethnic groups (Stevens & Murphy, 1999), while other studies have shown that men more often share injection equipment such as cookers (a spoon or bottle cap to heat drugs) and cottons (to filter drugs) (Weeks et al., 1998). Studies on drug use have also identified gender differences in type of drug used. Wechsberg, Craddock, and Hubbard (1998) noted that men entering treatment reported more alcohol use while women reported more daily use of cocaine. HIV prevention studies have reported similar findings. Weeks, et al., (1998) found that men reported higher levels of alcohol use in the previous 30 days while women were significantly more likely to report having used crack cocaine.

Gender differences in HIV sex risk behaviors of drug users have also been identified in past research. Studies indicate that drug-using women are at higher risk for HIV than are men, as women reported having more sex partners (Stevens, Estrada, & Estrada, 1998; Stevens & Murphy, 1999), more sex partners who are injection drug users (Dwyer et al., 1994; Stevens & Bogart, 1999), and more frequent occurrences of trading sex for money or drugs (Stevens, Estrada, & Estrada, 1997). Sex risk behavior studies of crack cocaine using men and women show that women are at increased risk due to higher levels of many sex risk behaviors (Cohen, Navaline, & Metzger, 1994; McCoy & Inciardi, 1993; Siegal et al., 1992; Weatherby et al., 1992). Some researchers suggest that the higher levels of sexual risk reported by crack cocaine using women—as compared to men and women who use other drugs—may be due to the heightened sexuality that is associated with crack cocaine use as well as the relatively short duration of high resulting in an obsessive tendency to obtain the next dose (Semaan et al., 1998).

Site Specific Differences in HIV Drug and Sex Risk Behaviors

Past research that has examined HIV drug and sex risk differences between regions, cities, urban and rural communities, and between intervention program sites within the same geographical area have found significant differences in drug use and HIV drug and sex risk behaviors. Regional differences in risk behaviors reported by injection drug users and crack cocaine users in North Carolina compared to those in Arizona (both
with low HIV prevalence rates) showed that a higher proportion of women in North Carolina used crack cocaine than those in Arizona. While sex risk behaviors were similar for both regions, risks related to drug injection were higher for women in Arizona (Wechsberg, Dennis, & Stevens, 1996). Results of a study which compared injection drug and crack cocaine using women living in New York City and Miami, Florida (both with high HIV prevalence rates) indicated that while women from both cities reported extensive crack cocaine use, the women in New York more frequently reported injecting drugs. However, higher proportions of women in Miami reported exchanging sex for money or drugs as well as significantly higher rates of STDs (Tortu, McCoy, Beardsley, Deren, & McCoy, 1998). When comparing condom use among women who live in cities with disparate HIV prevalence rates, researchers found differences in the likelihood of using condoms with main sex partners. Wood, Tortu, Rhodes, and Deren (1998) found that injection drug and crack cocaine using women in New York City (a high prevalence city) were twice as likely to have used condoms with their main sex partner in the previous 30 days than injection drug and crack cocaine using women in Long Beach, California (a low prevalence city).

Studies that have examined differences in self-reported HIV risk behaviors of drug users in urban versus rural communities and between drug users who live in different size cities found numerous differences in alcohol use, drug use, initiation into drug use, patterns of drug use, and treatment availability, as well as differences in HIV drug and sex risk behavior (Cattarello, Leukefeld, Woolley, & Parker, 1998; Forney, Inciardi, & Lockwood, 1992; Tortu, McCoy, Beardsley, Deren, & McCoy, 1998). Furthermore, Stevens, Estrada, and Estrada (1998) found several differences in drug use and HIV drug and sex risk behaviors between participants enrolled at two research sites, located approximately 20 miles apart.

A Targeted Approach to HIV Prevention

As noted above, drug use and HIV drug and sex risk behaviors vary depending on a number of factors including the gender of the drug user and the characteristics of the community in which the drug user lives. Research on these variables as well as research that has demonstrated that culture, social norms, access to treatment, local policies, and paraphernalia laws have a significant impact on individuals' HIV risk behavior have led many investigators and service providers to argue that HIV prevention efforts need to move from a generic HIV prevention approach to one that takes into account the numerous socio-contextual factors that impact HIV risk, including gender and community specific characteristics. However, while these past research findings may have implications for AI/AN drug users (i.e., their potential risk for becoming infected with HIV; the development of prevention strategies), the vast majority of research has not examined these factors...
specifically as they relate to AI/ANs. In an attempt to fill this knowledge gap, the study reported in this paper examines how HIV drug and sex risk behaviors of AI/ANs living in and near a medium sized city in the southwestern United States differ, depending on the gender of participant and the community in which the participant lives.

Method

This study was funded by the National Institute on Drug Abuse and by the Office of Research on Minority Health. The study took place in the southwestern United States between 1992 and 1997. Participants were recruited through targeted (i.e., street outreach) and snowball (word of mouth) sampling strategies. Potential participants were encouraged to enroll in an HIV research and prevention program which was located at two sites; an urban site located in a medium sized city (1992-1997) and a rural site approximately 10 miles from the outskirts of the same city (1996-1997). Once at the site, the potential participants were asked a few questions about their age, drug use, and drug treatment involvement to ensure that they met the study criteria. Entrance criteria for the study included: (a) being 18 years of age or older; (b) not enrolled in substance abuse treatment within the previous 30 days, and (c) either having injected drugs or having used crack cocaine within the previous 30 days. Those who met entrance criteria were asked to sign the subject consent form and then were given a baseline questionnaire; the Risk Behavior Assessment (RBA) which addressed both HIV drug and sex risk behavior (see Coyle, 1998 for detailed description). After the baseline assessment was administered, participants engaged in an HIV prevention education intervention which included, at minimum, HIV counseling and testing, HIV education, and referrals to social, health, and drug treatment services.

Four focus groups with AI/AN participants were held during 1996-1997. Participants in the groups were divided by gender and site (e.g., male-rural, male-urban, female-rural, female-urban). The purpose of the focus groups was to obtain: a) confirmation of the quantitative data, b) information about the effectiveness of current HIV prevention programs, and c) recommendations for developing culturally competent HIV prevention programs for AI/ANs.

Sample

The sample included AI/AN men and women who were either injection drug users and/or crack cocaine users. Recent drug use was verified by observation of recent needle track marks (for injectors) and/or positive urinalysis results for either heroin, cocaine, or methamphetamine. Of the 257 AI/ANs enrolled in the study, 207 participated at the research site located
in a central part of the city. The remaining 50 participants were enrolled at a rural location approximately 10 miles from the outskirts of the same city.

Results

The first question that this study addressed concerns the characteristics of the AI/ANs who participated in the research study. Specifically, did the AI/ANs who enrolled at the rural site differ from those who enrolled at the urban site with regard to type of drug used, age, gender, education, living arrangements, marital status, employment, criminal justice involvement, or AIDS testing? Results indicated numerous differences in participant characteristics when comparing enrollees from the two sites. Participants from the rural site were significantly more likely to have used both injection drugs and crack cocaine (92%) compared to those at the urban site (32.9%). Participants at the rural site were slightly older (36.6 years versus 35.1 years), more often female (30.0% versus 24.2%), significantly less likely to have a GED or further education (26.0% versus 38.4%), more likely to be married or common law married (40.0% versus 25.1%), and more likely to live in their own house or apartment (36.7% versus 33.3%). Only 6.1% of the participants from the rural sites considered themselves homeless which was significantly different from the urban site at which 29.8% considered themselves homeless.

With regard to employment only 6.0% of the participants at the rural site were employed part or fulltime compared to 16.7% at the urban site. The majority of both groups reported earning less than $500.00 per month (78.0% rural versus 79.2% urban). Data collected on criminal justice involvement indicated a significant difference for lifetime arrests with rural participants arrested less frequently (3.2 times versus 8.1 times). Participants at the rural site were also less likely to have ever been arrested (60.0% versus 85.0%), but also reported having spent more months in jail (58.2 months versus 44.2 months). The majority had been tested for AIDS (82.0% of the rural participants versus 59.4% of the urban participants). HIV prevalence was low (2.0% were HIV positive at the rural site versus 0.0% at the urban site). Forty percent of the participants at the rural site thought they had “no chance” of getting AIDS compared to 28.3% at the urban site (see Table 1).

The second question addressed in this study concerns the differences in HIV drug and sex risk behaviors of participants. In particular, differences between men and women and between rural and urban sites were examined. Statistical significance was noted if probability was less than .05. The sample size for this analysis was slightly less. It included 49 participants from the rural site and 198 participants from the urban site. Data from one participant from the rural site and nine participants from the urban site were not included due to missing data on some of the sex and drug risk behavior variables.
Table 1
Sample Characteristics ($n=257$)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Rural ($n=50$)</th>
<th>Urban ($n=207$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target Population*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crack (%)</td>
<td>2.0</td>
<td>2.4</td>
</tr>
<tr>
<td>IDU (%)</td>
<td>6.0</td>
<td>64.7</td>
</tr>
<tr>
<td>Crack and IDU (%)</td>
<td>92.0</td>
<td>32.9</td>
</tr>
<tr>
<td>Mean age (years)</td>
<td>36.6</td>
<td>35.1</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male (%)</td>
<td>70.0</td>
<td>75.8</td>
</tr>
<tr>
<td>Female (%)</td>
<td>30.0</td>
<td>24.2</td>
</tr>
<tr>
<td>GED or further education (%)*</td>
<td>26.0</td>
<td>38.4</td>
</tr>
<tr>
<td>Married or common law married (%)*</td>
<td>40.0</td>
<td>25.1</td>
</tr>
<tr>
<td>Live in own house or apartment (%)</td>
<td>36.7</td>
<td>33.3</td>
</tr>
<tr>
<td>Consider self homeless (%)*</td>
<td>6.1</td>
<td>29.8</td>
</tr>
<tr>
<td>Employment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Part time or full time employed (%)</td>
<td>6.0</td>
<td>16.7</td>
</tr>
<tr>
<td>Earned &lt; 500$ per month (%)</td>
<td>78.0</td>
<td>79.2</td>
</tr>
<tr>
<td>Criminal justice</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lifetime arrests (mean)*</td>
<td>3.2</td>
<td>8.1</td>
</tr>
<tr>
<td>Ever been arrested (%)</td>
<td>60.0</td>
<td>85.0</td>
</tr>
<tr>
<td>Months in jail (mean)</td>
<td>58.2</td>
<td>44.2</td>
</tr>
<tr>
<td>AIDS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Previous blood test AIDS (%)</td>
<td>82.0</td>
<td>59.4</td>
</tr>
<tr>
<td>Previously told HIV infected (%)</td>
<td>2.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Thought they had &quot;no chance&quot; of getting AIDS (%)</td>
<td>40.0</td>
<td>28.3</td>
</tr>
</tbody>
</table>

*Indicates significant differences ($p<.05$) between the Native American Supplement Study group and the Native American Cooperative Agreement group
With regard to gender differences in drug and sex risk behaviors at the rural site, women were significantly more at risk due to: (a) the number of times they used previously used supplies, (b) the number of times they traded sex for money or drugs, and (c) the number of times they used drugs with sex. Gender differences in reported risk behaviors at the urban site included women being at significantly greater risk due to: (a) the number of times they used previously used supplies, (b) the intensity of their crack cocaine use, (c) the number of times they had sex, (d) the number of sex partners, (e) the number of sex partners who injected drugs, (f) the number of times they had unprotected sex, (g) the proportion of unprotected sex, and (h) the number of times sex was traded for money or drugs (see Table 2).

A second analysis was conducted to look for differences between drug and sex risk behaviors of participants enrolled at the rural site compared to risk behaviors of those enrolled at the urban site. Several significant differences were found. Participants at the rural site were at significantly higher risk due to: (a) the proportion of times they used previously used supplies, (b) the proportion of times they used bleach, (c) intensity of their cocaine use, and (d) intensity of their heroin use. Participants at the urban site were at significantly greater risk due to the intensity of their crack use (see Table 2).

A summary of the HIV drug and sex risk behavior by gender and site is detailed in Table 3. In this table gender differences in risk behaviors were specified for rural and urban sites combined as well as separately for the two sites (i.e., rural versus urban). With the two sites combined, women were significantly more at risk compared to men for two drug related risk behaviors and seven sex related risk behaviors. When looking at only the rural sites, women were at higher risk for one drug and one sex related risk, while men were higher than woman on one sex risk behavior. Data from the urban site shows that women were higher on two drug risks and six sex related risk behaviors. HIV drug risk differences between the two sites as detailed in the summary table (Table 3), show that the participants from the rural site reported higher levels on four drug related risks while those from the urban site were higher on one drug related risk behavior.

Discussion

Several limitations of the study should be noted. First, while drug use was verified by urinalysis and by evidence of needle track marks, other drug and sex risk behaviors were obtained through self-report. Second, the sample size differed for the two sites with the sample size for the urban site almost four times as large as that of the rural site. Non-significant findings in HIV risk behaviors between males and females at the rural site compared
Table 2
HIV Drug and Sex Risk Behavior by Gender and Site

<table>
<thead>
<tr>
<th>Variable (Past 30 days)</th>
<th>Rural (n=49)</th>
<th>Urban (n=198)</th>
<th>Site Difference (n=247)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male Female</td>
<td>Male Female</td>
<td>Rural Urban Sig.</td>
</tr>
<tr>
<td><strong>Drug Related Risks</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># of injections</td>
<td>130.8 118.4</td>
<td>95.4 113.2</td>
<td>127.3 99.7 ns</td>
</tr>
<tr>
<td>Times used used supplies</td>
<td>16.3 83.6</td>
<td>.003 25.2 42.2</td>
<td>.01 35.5 29.3 ns</td>
</tr>
<tr>
<td>Times used used works</td>
<td>9.2 14.7</td>
<td>ns 18.9 20.5</td>
<td>ns 24.0 19.3 ns</td>
</tr>
<tr>
<td>Proportion of times used worked</td>
<td>.22 .35</td>
<td>.20 .19 ns</td>
<td>.25 .19 .018</td>
</tr>
<tr>
<td>Proportion of time used bleach</td>
<td>.22 .40</td>
<td>ns .46 .43 ns</td>
<td>.27 .45 .037</td>
</tr>
<tr>
<td>Intensity of crack use</td>
<td>.20 .17 ns</td>
<td>.42 1.6 .000</td>
<td>.19 .70 .011</td>
</tr>
<tr>
<td>Intensity of cocaine use</td>
<td>4.4 2.1 ns</td>
<td>2.3 2.7 ns</td>
<td>3.6 2.4 .012</td>
</tr>
<tr>
<td>Intensity of heroin use</td>
<td>3.1 2.8 ns</td>
<td>2.6 2.4 ns</td>
<td>3.0 2.6 .011</td>
</tr>
<tr>
<td>Intensity of speedball use</td>
<td>1.3 1.5 ns</td>
<td>1.0 1.3 ns</td>
<td>1.4 1.1 ns</td>
</tr>
<tr>
<td><strong>Sex Related Risks</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># times had sex</td>
<td>11.3 11.6 ns</td>
<td>12.8 29.1 .000</td>
<td>11.4 16.7 ns</td>
</tr>
<tr>
<td># of sex partners</td>
<td>.89 1.1 ns</td>
<td>1.0 5.3 .001</td>
<td>.94 2.0 ns</td>
</tr>
<tr>
<td># of IDU sex partners</td>
<td>.29 .71 ns</td>
<td>.39 2.5 .003</td>
<td>.42 .90 ns</td>
</tr>
<tr>
<td># of times had unprotected sex</td>
<td>9.9 11.7 ns</td>
<td>12.1 25.5 .000</td>
<td>10.4 15.4 ns</td>
</tr>
<tr>
<td>Proportion of sex unprotected</td>
<td>.65 .64 ns</td>
<td>.65 .77 .000</td>
<td>.65 .68 ns</td>
</tr>
<tr>
<td>Traded sex for money or drugs</td>
<td>.02 2.4</td>
<td>.001 .40 11.0 .000</td>
<td>.71 2.9 ns</td>
</tr>
<tr>
<td>Times used drugs with sex</td>
<td>17.97 6.7</td>
<td>.006 12.3 16.6</td>
<td>ns 20.7 24.1 ns</td>
</tr>
</tbody>
</table>

ns indicates p>.05
Table 3
Summary of HIV Drug and Sex Risk Behaviors by Gender and Site

<table>
<thead>
<tr>
<th>Variable (past 30 days)</th>
<th>Gender Differences</th>
<th>Differences</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rural &amp; Urban (n=247)</td>
<td>Rural (n=49)</td>
</tr>
<tr>
<td><strong>Drug Related Risks</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td># of injections</td>
<td>F&gt;M</td>
<td>F&gt;M</td>
</tr>
<tr>
<td>Times used drugs used</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Times used used supplies</td>
<td>F&gt;M</td>
<td>F&gt;M</td>
</tr>
<tr>
<td>Intensity of crack use</td>
<td></td>
<td>F&gt;M</td>
</tr>
<tr>
<td>Intensity of cocaine use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intensity of heroin use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intensity of speedball use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proportion of time used bleach</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proportion of time using used drugs</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sex Related Risks</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td># times had sex</td>
<td>F&gt;M</td>
<td>F&gt;M</td>
</tr>
<tr>
<td># of times had unprotected sex</td>
<td>F&gt;M</td>
<td>F&gt;M</td>
</tr>
<tr>
<td>Proportion of sex unprotected</td>
<td>F&gt;M</td>
<td>F&gt;M</td>
</tr>
<tr>
<td># of sex partners</td>
<td>F&gt;M</td>
<td>F&gt;M</td>
</tr>
<tr>
<td># of IDU sex partners</td>
<td>F&gt;M</td>
<td>F&gt;M</td>
</tr>
<tr>
<td>Traded sex for money or drugs</td>
<td>F&gt;M</td>
<td>F&gt;M</td>
</tr>
<tr>
<td>Times used drugs with sex</td>
<td>F&gt;M</td>
<td>M&gt;F</td>
</tr>
</tbody>
</table>

To the urban site may in part be due to the rural site’s smaller sample size. Third, data collected for the urban site was collected over a five-year period while data for the rural area was collected over a one-year period. While drug use prevalence data indicates little change during these years, differences in self-reported drug use and related behaviors might, in part, be due to the year in which the data was collected. Finally, data was collected regarding the previous 30 days. While unlikely, it may be that some participants were enrolled at the urban site who had been living in the rural area within the previous 30 days (or vice versa) blurring a rigid distinction between the groups.

When looking at the characteristics of the participants who were enrolled at the rural and urban research sites several similarities and differences can be observed. Participants from both sites were relatively old with both groups being in their mid-30s. Economic stability was lacking with less than 20% reporting being employed full or part-time, less than 25% reporting monthly incomes over $500.00, the majority reporting not having an education beyond high school, and only one-third reporting living in their
own house or apartment. Almost 30% of the urban participants considered themselves homeless. It is interesting to note that while age and economic stability were similar for both communities only 6% of the rural participants considered themselves homeless. The vast majority of the rural participants lived with and depended on other people, perhaps because of more traditional values of kinship and the perceived lack of other resources on which people can depend upon in a rural community. Regardless, both groups are economically disadvantaged and would benefit from employment and education opportunities.

Reported drug use differed between rural and urban sites with rural participants more likely to have used both injection drugs and crack cocaine. Focus group data indicated that rural participants were more likely to use whatever drugs were available; noting that their drug of choice was not always available in the rural community. Urban participants reported little trouble in obtaining their drug of choice.

Criminal justice measures also varied between the rural and urban participants. Lifetime arrests and percent-ever-arrested were lower for the rural participants, but the average number of months in jail was higher. These differences could be due to differences in federal and state laws. The rural site is located on a reservation where federal laws have jurisdiction. The urban site is located in the central part of a medium sized city where state and local laws have primary jurisdiction. The differences in criminal justice measures may also be due to the higher level of police officer presence in the urban area leading to more arrests of perhaps lesser offenses. Additionally, the overcrowding of jails and prisons in the county and state system may increase the number of reduced sentences and consequently reduced length of time of incarceration.

Surprisingly, a high percentage of participants at both sites had been previously tested for the AIDS virus. Participants reported availability of testing both at the rural location and at three urban locations. In spite of risk behaviors, both groups evidenced low HIV prevalence rates; lower than other ethnic groups in the same city. Additionally, while risk behaviors were high, many participants felt they had no chance of getting AIDS. From this data, questions arise as to whether HIV testing might increase the participants’ perception that they are not at risk for becoming infected with HIV. Data from a previous study (Estrada & Quintero, 1999) suggests that HIV testing may sometimes be viewed inappropriately as a “prevention strategy.”

Gender differences in HIV risk behavior of the AI/ANs participating in this study replicate findings from studies on other ethnic groups. Women typically report higher levels of numerous sex-related risks as well as some drug related risks. Given the small sample size at the rural site, power to detect significant differences was small. Effect sizes indicate that given a larger sample, drug and sexual HIV risk of women from the rural community would be significantly higher than their male counterparts. Clearly, women-
centered interventions that help women reduce their risk for HIV infection are needed for women at both sites; including culturally sensitive women-centered interventions for AI/AN women.

Interestingly, differences in HIV drug- and sex-related risks between the rural and urban sites were also found. Intensity of cocaine use and intensity of heroine use were higher for the rural participants while intensity of crack use was higher for the urban participants. This finding, coupled with the focus group data, indicates that participants from the rural area were more willing to use whatever drugs were available. Their drug of choice included cocaine and heroin, but if those drugs were not available participants would use crack cocaine as a means to get high. Conversely, urban participants who reported crack use did so because it was their drug of choice and consequently reported high levels of use. Moreover, rural participants reported significantly higher levels of risk in terms of the proportion of times they used bleach to clean their needles and the proportion of times they used previously used works. This is not surprising given that bleach kits for cleaning injection equipment are available at several outreach sites within the urban community and clean needles are available at a centrally located needle exchange program. Conversely, rural participants had to travel many miles, often by foot, to obtain bleach kits. New needles were unavailable, and there was not a needle exchange program in the rural community. Prevention strategies that focus on reducing drug related HIV risks need to consider the choice and types of drugs used by drug involved members of specific communities as well as drug availability and access. Additionally, the availability of bleach kits, needles, and condoms within the community impacts the individual’s level of HIV risk behavior. Knowing drug use trends and the sex and drug risk behaviors of drug involved community members as well as knowing the types of prevention services already available will help service providers develop more effective HIV prevention strategies.

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ALASKA NATIVE DRUG USERS AND SEXUALLY TRANSMITTED DISEASE: RESULTS OF A FIVE-YEAR STUDY

Dennis G. Fisher, Ph.D., Andrea M. Fenaughty, Ph.D.,
David M. Paschane, M.S., and Henry H. Cagle, B.S.

Abstract: Although Alaska has one of the highest rates of alcohol consumption in the U.S., there are very few reports of other drug use in Alaska. This five-year NIDA-funded study sampled out-of-treatment injection drug users (IDUs) and crack cocaine smokers in Anchorage, Alaska. This paper is a summary of results comparing risk behavior for HIV and sexually transmitted disease infection among Alaska Natives (n=216) to non-Natives (primarily Blacks [n=394] and Whites [n=479]) from this study. IDUs and crack cocaine smokers were recruited using a targeted sampling plan. All subjects tested positive to cocaine metabolites, or morphine, using urinalysis, or had visible track marks. Several analyses of this database have indicated that Alaska Native women are at high risk for gonorrhea infection. They are also at risk for HIV infection due to high rates of behavior related to blood-borne disease transmission. We have also found that White men who have sex with both White and Alaska Native women are significantly less likely to use condoms with the Alaska Native women. HIV preventive education efforts aimed at Alaska Native women need to be implemented on a major scale.

There had been very little published about injection drug use (IDU), crack cocaine smoking, and risk for Human Immunodeficiency Virus (HIV) in Alaska until the first report specifically devoted to this topic in 1991 (Fisher, Wilson, & Brause, 1991). On July 1 of that same year the National Institute on Drug Abuse (NIDA) funded a grant proposal titled “IVDU’s Not in Treatment in Alaska” that was written in response to the Request for Applications titled “A Cooperative Agreement for AIDS Community-Based Outreach/Intervention
Research” (CA). This was the first NIDA grant in Alaskan history. The methods and studies reported in this paper were all developed from this grant.

National Data

There are national data available from the Centers for Disease Control and Prevention (1996) that compare different ethnic groups within a category that they label as “Female Adult/Adolescent.” They compare both HIV infection and AIDS cases for the risk factor reported as the percentage of sex with an IDU. The cumulative totals through 1995 show Hispanic women to be the highest percentage for AIDS cases, with American Indians and Alaska Natives (AI/ANs) being second highest. For HIV infection AI/ANs are the highest. For the most recent year available, which is calendar year 1995, the AI/AN females are the highest for both AIDS cases and HIV infection from the risk factor of sex with an IDU.

The category of cumulative AIDS cases actually represents females who were infected with HIV some time in the past who have finally reached the stage of having case definition AIDS. It is the data representing these older infections in which the Hispanic women are the highest. The HIV infection cumulative, and the current year, both HIV infection and AIDS cases, represent the newer infections. It is these newer infections in which the AI/AN females are the highest, having surpassed the Hispanic females. Because of these national HIV/AIDS findings for AI/AN women, we decided to do the analyses presented in this paper that examine both the sexual and drug use risk behaviors, and the potential vectors created by the relationships of Alaska Native women.

Method

Data collection began in November 1991 at the Drug Abuse Research Field Station (DARFS). Subjects were recruited within the Municipality of Anchorage (MOA) using a targeted sampling plan strategy (Fisher, 1991; Watters & Biernacki, 1989). In this strategy, three indicators thought to be geographically related to drug use were geocoded to census tracts within the MOA. The indicators were: (a) gonorrhea cases at the MOA Department of Health and Human Services, Sexually Transmitted Disease [STD] clinic; (b) Safer Techniques of Prevention [STOP AIDS] outreach worker contacts; and (c) Community Service Patrol pick-ups, a wagon that travels around the MOA and transports intoxicated individuals to a sleep-off center so that they do not freeze to death in the winter. As a result of this geographic analysis, six census tracts were targeted for sampling by outreach workers and other means of communications with this subculture.
In order to be eligible for the study a subject had to: (a) be eighteen years of age or older; (b) test positive for morphine or cocaine metabolites on a urine test [Roche Diagnostics ONTRAK™], or present visible signs of injection and report recent injection drug use [IDU]; and (c) not have been in treatment in the 30 days prior to intake.

The major data collection instrument was the Risk Behavior Assessment (RBA). This structured interview focuses on high-risk behavior for HIV infection. It has been demonstrated to have very good test-retest reliability (Fisher et al., 1993; Needle et al., 1995) and good concurrent validity of the drug use items (Dowling-Guyer et al., 1994; Weatherby et al., 1994). All subjects were offered confidential testing and counseling for HIV. There were also a variety of supplemental questionnaires and instruments that were used for special studies on subgroups within the main study.

There were two main purposes for the CA. The first was to discover and describe the behavior and other characteristics of drug users within the targeted sampling area. The second was to determine efficacy of either a standard or an enhanced counseling condition and subjects were randomly assigned to one of these. The purpose was to test whether the enhanced counseling was superior to the standard counseling in reducing HIV risk behavior. Subjects were followed-up six months after initial enrollment into the study. At follow-up, subjects were administered the Risk Behavior Follow-Up Assessment (RBFA), tested for presence of drugs in the urine, and offered phlebotomy and HIV testing.

Figure 1 shows the ethnic distribution of the sample compared with the ethnic distribution of the MOA. It is apparent that DARFS oversampled Blacks and Alaska Natives, and undersampled Whites. This allows us to have sufficient statistical power to be able to draw conclusions about Blacks and Alaska Natives. Figure 2 shows educational attainment of the sample compared with the educational attainment of the overall population of the MOA. The DARFS sample has a higher proportion of less than high school and high school graduates, and a lower proportion of some college or college graduates. This may reflect the socioeconomic status of residents of the targeted sampling area. These data are reported more extensively in Fisher et al. (1997).

Results

Chlamydia Study

*Chlamydia trachomatis* infection is the most common sexually transmitted disease in the United States. Prevention of its spread depends on identification of risk factors in high-risk groups. Orr, Fennaught, and Fisher (1995) did an analysis in which they identified predictors of self-reported
Chlamydia trachomatis infection in the Alaskan drug users. They developed separate logistic regression models for male as compared to female drug users.

The risk factors for women were: having an income over $500 per month, bartering goods in the past month, trading sex for money in the past month, ever having been in drug treatment, and being Alaska Native. Age was a protective factor for women. What is noteworthy is that Alaska Native women were 1.78 times as likely to report ever having had Chlamydia as non-Native women. The risk factors for men were: cocaine use, living on the streets, and recent income from illegal activity. The male model did not include ethnicity.

Gonorrhea Studies

Gonorrhea (GC) is historically the most frequently reported communicable disease in the United States. The absence of GC treatment can lead to serious sequelae among women, including tubal infertility or ectopic pregnancy (Zenilman, 1993). The potential for reinfection makes GC fundamentally different from most reportable disease, in which reinfection is either uncommon or impossible (Beller, Middaugh, Gellin, & Ingle, 1992). Beller and colleagues found that persons who had multiple infections accounted for nearly 17% of GC infections during a five-year period. GC rates in Alaska have declined since their peak in the 1970s consistent with changes in the population.

Our group did several analyses of GC data collected with the RBA (Paschane, Cagle, Fenaught, & Fisher, 1998; Paschane, Fenaughty, Cagle, & Fisher, 1995). GC was the most frequently reported STD than any other disease asked about in the RBA. Separate models for male and female drug users were constructed. The female model showed risk factors of trading sex for money, being Alaska Native, and reporting homelessness. Alaska Native female drug users were 2.58 times more likely to report GC infection than non-Native women in the sample. Alaska Natives were not more likely to be HIV seropositive.

Sex Partner Patterns and Preferences

Earlier work (Fisher, Cagle, & Wilson, 1993) suggested that obtaining information about the sex partners of subjects, especially from Alaska Native female drug users, might help in establishing high risk routes and networks of disease transmission. A special study was conducted in which a subgroup of drug using participants from our larger cohort were asked questions about their most recent sex partners, including their gender and ethnicity (Fisher et al., 1997). The data were analyzed using multi-dimensional unfolding analysis (Coombs, 1964). The data showed a strong preference among male White respondents for female White sex partners (as used here, the
term “preference” means self-reported experience and does not imply preference in the more general sense). Similarly, female White respondents showed a preference for White males. The data representations for male Black respondents showed a preference for female Black sex partners, but also a strong preference for female White sex partners. Similarly, female Black respondents show a preference for male Black partners. Thus, among Blacks and Whites there was a tendency toward having sex with racially similar partners.

In contrast, this pattern did not hold for the Alaska Natives. First, male Native respondents did not show a strong preference for any specific type of sex partner. This is a reflection of their generally low self-report of having sex partners at all. Second, female Native respondents show a strong preference for male White partners. Thus, they are unique in showing a preference across ethnic groups. Even though this fact, by itself, does not seem to be a problem for the Alaska Native women, in this group it may be an indicator of a vector of disease transmission as will be suggested in the remainder of this paper.

**Condom Use Studies**

Earlier work had shown infrequent use of condoms across ethnic groups in the Anchorage sample, with Blacks showing higher use of condoms than either Whites or Alaska Natives (Fenaughty, Fisher, MacKinnon, Wilson, & Cagle, 1994). Either of the STDs mentioned earlier (Chlamydia or GC), as well as HIV infection could be prevented through condom use during sexual intercourse.

Using data from a special study of sex partners among our Anchorage drug user cohort, we decided to investigate whether there was differential condom use depending upon the ethnicity of sex partner. Because we have already demonstrated that White men were especially prone to be preferred as sex partners by both White and Alaska Native women, we did an analysis to test whether White men who had sex with both White women and Alaska Native women were more likely to use condoms with one as compared to the other. Our findings indicate that White men are significantly less likely to use condoms when they have sex with Alaska Native women, than when they have sex with White women (Fenaughty, Fisher, & Cagle, 1998). Speculation for why this may occur has ranged from White men having more power and control over Alaska Native women than they do over White women, to White men believing Alaska Natives are “cleaner” or less likely to be promiscuous compared to White women. However, it is not even clear that this differential behavior should be attributed solely to the men in these pairs; Alaska Native women likely also have a role in the decision not to use condoms with their White male sex partners. Qualitative data are currently being collected to answer these questions.
Further analysis of the data from the RBA to describe the percentage of times condom use occurred when having vaginal sex during the 30 days before interview compared Alaska Native women to the other five sex-race groups. We found that Alaska Native women had a significantly lower percentage using condoms than the other five groups (see Figure 3). None of the groups had a very high percentage with Black men being the highest of approximately 30%. Alaska Native women used condoms approximately 13% of the time.

Other Factors

One of the issues that is of concern with White men being preferred as sex partners by both White and Alaska Native women, is the potential danger of White men as vectors of disease transmission from both drug and sexual risk factors. When we examine the percentage of each sex-race group in the Anchorage CA cohort who are current injectors, we find that White men are more likely to be drug injectors (as compared to cocaine smokers) than any other sex-race group (see Figure 4) followed by White women, Alaska Native women, Alaska Native men, Black men, and finally Black women.

One may argue that just because some White men inject drugs and some Alaska Native women have unprotected sex with some White men, it does not necessarily mean that the particular White men the Alaska Native women are having sex with are the same White men who inject drugs. To test the hypothesis that Alaska Native women are at risk, we collected the information about which of our respondents’ sex partners were drug injectors. When the percentage of sex partners who are also drug injectors is presented for each of the six sex-race groups, Alaska Native women have the highest percentage of sex partners who are also drug injectors.

Discussion

The major conclusion to be drawn from the evidence presented is that Alaska Native women are at high risk for disease acquisition and transmission. One cause of this risk is their high percentage of injection drug using sex partners. This seems to be true not only for Alaska Native, but also, American Indian women. The second cause of the risk of disease acquisition is the low percentage of condom use.

Taken together, the findings presented here have important implications for prevention. Clearly, there is an urgent need for prevention programs to increase condom use among Alaska Native drug users, particularly among those with White male partners. Future research—in particular qualitative research—needs to be carried out to determine the reasons behind this pattern of low condom use. Such information will be
Figure 3
Condom Use During Vaginal Sex in Last 30 Days by Sex-Race Subgroups

Contrast Native Women vs. Other Groups

\[ F(1, 1033) = 6.21, \ p = .0129 \]

Figure 4
Percent of Sex-Race Subgroups Who Are Injectors

\[ x^2(4, \ N=1350) = 180.9, \ p = .000 \]
critical in the development of preventive interventions aimed at increasing rates of condom use among Alaska Native women in particular, and all drug users more generally.

In addition, we might consider the value of broadening our focus when trying to understand why Alaska Native women are at increased risk. As condom use requires the man’s cooperation, it makes sense that we should examine White male partners’ insights regarding their differential use of condoms. Such information would be useful, in combination with data obtained from Alaska Native women, in developing interventions that target high-risk couples, rather than a single member of the couple. Previous studies have outlined the problem of women who have gained new assertiveness skills suffering increased rates of physical and sexual abuse from their partner (El-Bassel, Gilbert, Rajah, Frye, Folenos, & Schilling, 1998). Although programs designed around couples will be challenging to develop and implement, they may be necessary to avoid such harmful and unintended repercussions, and may ultimately be more effective than individual-level interventions.

In summary, the findings reported herein suggest several implications for public health activities. First, further research is necessary to understand why condom use is lower among Alaska Native women. Second, experiences that may affect risk taking drug and sex behaviors among Alaska Native women need further investigation. Third, agencies evaluating resource allocations and intervention planning should look for possible barriers that would restrict drug using Alaska Native women from accessing services. Finally, there is an urgent need for the development of culturally appropriate prevention programs to increase condom use and awareness of personal health risk, and to reduce HIV sexual risk behavior among Alaska Native women.

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