

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, Oziemkowska, 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 Abuse¹ (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 Native². 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 1/2 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.³ 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)

Site	
Anchorage	19.6%
Flagstaff	33.3%
Denver	14.4%
Tucson	32.7%
Gender	
Male	55.6%
Female	44.4%
Age Range	
18-24	14.4%
25-34	41.2%
35-44	35.9%
>44	8.5%
Marital Status	
Single (never married)	45.1%
Married/common-law/opposite sex partner	34.7%
Separated/divorced/widowed	20.2%
Education	
Less than high school graduation	43.8%
High school graduation/GED	39.2%
Trade school/some college/college grad.	17.0%
Living Arrangement	
Own house or apartment	40.1%
Someone else's house or apartment	59.9%
Current Work Situation	
Unemployed	60.7%
Employed part-time	9.2%
Employed full-time	8.5%
Disabled	10.5%
Retired, homemaker, school, other	11.2%
Type of Drug User	
Injection Drug User	53.0%
Cocaine/Crack (non IDU)	47.0%

Table 2
 Characteristics Related to Alcohol Use by Type of Drug User

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

* $p < .05$, + $p < .10$

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 ($N=145$)

	No Alcohol Use	Alcohol Use	χ^2
Marijuana Use	41.7%	53.1%	1.67
Crack Use	33.3%	53.5%	5.30*
Cocaine Use	33.3%	32.0%	.028
Heroin Use	43.8%	28.6%	3.33+
Speed Ball Use	20.8%	13.3%	1.33
Amphetamine Use	8.3%	7.2%	.057

* $p < .05$, + $p < .10$

Table 4
Correlation of Risky Sexual Behaviors and Alcohol Use
(past 30 days)

	Frequency of alcohol consumed	Quantity of alcohol consumed	Frequency of drinking until drunk	Times used alcohol before or during sex
Number of STD's (ever)	-.167 ($n=48$)	-.022 ($n=48$)	.296* ($n=48$)	.060 ($n=61$)
Number of unprotected sex acts (past 30 days)	-.092 ($n=49$)	.015 ($n=49$)	.062 ($n=49$)	.463** ($n=63$)
Number of sex partners (past 30 days)	.029 ($n=49$)	-.250+ ($n=49$)	-.200 ($n=49$)	.136 ($n=49$)
Number of IDU sex partners (past 30 days)	.225 ($n=45$)	-.210 ($n=45$)	.012 ($n=45$)	-.057 ($n=59$)

** $p < .001$, * $p < .05$, + $p < .10$

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.

Julie A. Baldwin, Ph.D.
Associate Professor
Department of Health, Physical Education
Exercise Science and Nutrition
NAU P.O. Box 15095
Flagstaff, AZ 86011
E-Mail: Julie.Baldwin@nau.edu

References

- Almog, Y. J., Anglin, M. D., & Fisher, D. G. (1989). Alcohol use by heroin addicts: Evidence for an inverse relationship. A study of methadone maintenance and drug-free treatment samples. *American Journal of Drug and Alcohol Abuse, 15*, 191-207.
- Baldwin, J. A., Trotter, R. T., Martinez, M. A., Stevens, S. J., Johns, D., & Brems, C. (1999). HIV/AIDS risks among Native American drug users: Key findings from focus group interviews and implications for intervention strategies. *AIDS Education and Prevention, 11*(4), 279-292.
- Calsyn, D. A., Saxon, A. J., Wells, E. A., & Greenberg, D. M. (1992). Longitudinal sexual behavior changes in injecting drug users. *AIDS, 6*, 1207-1211.
- Conway, G. A., Ambrose, T. J., Chase, E., Hooper, E. Y., Helgerson, S. D., Johannes, P., Epstien, M. R., McRae, B. A., Munn, V. P., Keevama, L., Raymond, S. A., Schable, C. A., Satten, G. A., Petersen, L. R., & Dondero, T. J. (1992). HIV infection in American Indians and Alaska Natives: Surveys in the Indian Health Services. *Journal of Acquired Immune Deficiency Syndromes, 5*, 803-809.
- Dowling-Guyer, S., Johnson, M. E., Fisher, D. G., Needle, R., Watters, J., Andersen, M., Williams, M., Kotranski, L., Booth, R., Rhodes, F., Weatherby, N., Estrada, A. L., Fleming, P., Deren, S., & Tortu, S. (1994). Reliability of drug users' self-reported HIV risk behaviors and validity of self-reported recent drug use. *Assessment, 1*, 383-392.

- Falck, R. S., Wang, J., Carlson, R. G., & Siegal, H. A. (1997). Factors influencing condom use among heterosexual users of injection drugs and crack cocaine. *Sexually Transmitted Diseases, 24*, 204-210.
- Fenaughty, A. M., & Fisher, D. G. (1998). High-risk sexual behavior among drug users: The utility of a typology of alcohol variables. *Sexually Transmitted Diseases, 25*(1), 38-43.
- Fisher, D. G., Cagle, H. H., & Wilson, P. J. (1993). Drug use and HIV risk in Alaska Natives. *Drugs and Society, 7*(3/4), 107-117.
- Hingson, R. W., Strunin, L., Berlin, B. M., & Heeren, T. (1990). Beliefs about AIDS, use of alcohol and drugs, and unprotected sex among Massachusetts adolescents. *American Journal of Public Health, 80*, 295-299.
- Indian Health Service. (1997). Trends in Indian Health. U.S. Department of Health and Human Services. Division of Community and Environmental Health.
- Latkin, C., Mandell, W., Oziemkowska, M., Vlahov, D., & Celentano, D. (1994). The relationships between sexual behavior, alcohol use, and personal network characteristics among injecting drug users in Baltimore, Maryland. *Sexually Transmitted Diseases, 21*, 161-167.
- Leigh, B. C., & Stall, R. (1993). Substance use and risky sexual behavior for exposure to HIV: Issues in methodology, interpretation, and prevention. *American Psychologist, 48*, 1035-1045.
- May, P. A. (1994). The epidemiology of alcohol abuse among American Indians: The mythical and real properties. *American Indian Culture and Research Journal, 18*(2), 121-143.
- May, P. A. (1995). The prevention of alcohol and other drug abuse among American Indians: A review and analysis of the literature. *The Challenge of Participatory Research: Preventing Alcohol-related Problems in Ethnic Communities* (pp. 183-244). Special Collaborative NIAAA/CSAP Monograph Based on a NIAAA Conference. U.S. Department of Health and Human Services.
- Miller, N. S., Gold, M. S., & Klahr, B. M. (1990). The diagnosis of alcohol and cannabis dependence (addiction) in cocaine dependence (addiction). *The International Journal of Addictions, 25*, 735-744.
- Needle, R., Fisher, D. G., Weatherby, N., Chitwood, D., Brown, B., Cesari, H., Booth, R., Williams, M. L., Watters, J., Andersen, M., & Braunstein, M. (1995). The reliability of self-reported HIV risk behaviors of drug users. *Psychol Addictive Behavior, 9*, 242-250.
- Stall, R., McKusick, L., Wiley, J., Coates, T. J., & Ostrow, D. G. (1986). Alcohol and drug use during sexual activity and compliance with safe guidelines for AIDS. The AIDS Behavioral Research Project. *Health Education Quarterly, 13*, 359-371.

- Stevens, S. & Estrada, A. L. (2000). Editorial: HIV and AIDS Among American Indians and Alaska Natives. *American Indian and Alaska Native Mental Health Research: A Journal of the National Center*, 9(1), v-ix. Available at: www.uchsc.edu/sm/ncaianmhr/jover1.htm.
- Turner, S., Fenaughty, A., Theno, S., & Fisher, D. (1998). Alcohol use among injection drug users in Anchorage, Alaska. Abstracts APHA 126th Annual Meeting and Exposition, (3089,347), Washington, DC.
- Turner, S., Paschane, D., Johnson, M., Fisher, G., & Fenaughty, A. (1998). Alcohol consumption among Alaskan drug users. *Proceedings of the Tenth International Congress on Circumpolar Health, Anchorage, Alaska*, 447-453.
- Wechsberg, W. M., Dennis, M. L., & Stevens, S. J. (1998). Cluster analysis of HIV intervention outcomes among substance-abusing women. *American Journal of Drug and Alcohol Abuse*, 24(2), 239-257.

Authors' Note

This study was funded in part by Grant #U01-DA07295 from the National Institute on Drug Abuse and by a supplement from the Office of Research on Minority Health. We greatly appreciate this support. We would also like to acknowledge the American Indian and Alaska Native clients who volunteered to be a part of this study and our dedicated staff at each of the four sites—without whom this study would not have been possible.

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.