PATTERNS AND PREDICTORS OF HIV RISK AMONG URBAN AMERICAN INDIANS

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Abstract: A preliminary survey of HIV risk and service preferences among American Indians residing in the New York metropolitan area included 68 women and 32 men (M age=35.8 years). Overall, the sample was knowledgeable about the mechanisms of HIV transmission, and 58% reported having taken an HIV test. However, of the 63% who reported sexual activity in the last six months, 73% reported engaging in vaginal or anal sex without a condom with at least 1 partner, and 52% used condoms none of the time during vaginal and anal sex. Almost half (43%) reported alcohol or other drug (AOD) use for nonceremonial purposes in the last six months. Alarmingly, 44% reported lifetime trauma, including domestic violence (20%) and physical (29%) or sexual (26%) assault by a family member or stranger. Bivariate and multivariate analyses indicated trauma and drug use were factors that may place respondents at risk for sexual transmission of HIV. Trauma variables were better predictors of HIV risk behaviors than social cognitive variables providing preliminary support for the use of a postcolonial framework in American Indian HIV studies.

The Relocation Act (Public Law 959) of the early 1950s instigated a mass migration of American Indians (AIs) from reservation and rural settings to large cities across the United States (U.S.). The Act constituted a modern day attempt by the federal government to deculturate and assimilate AIs. As a result, today more than 60% of AIs from federally recognized tribes live in cities (Bureau of the Census, 1991), with urban communities constituting microcosms of national tribal representation. Migration of AIs from rural to

urban settings has led to increases in health problems among this population, including susceptibility to the HIV epidemic.

Only a handful of studies provide any relevant data on urban AI health-related concerns. One from Washington (Grossman, Krieger, Sugarman, & Forquera, 1994) indicated urban AIs were much less healthy than European Americans. For example, risk factors for poor birth outcomes were significantly higher for AIs than for European Americans and resembled the rates among African Americans. All communicable diseases studied were significantly more common among urban AIs than European Americans. Urban AIs also suffer a poverty rate three times that of any other ethnic group, and, as in reservation settings, low socio-economic status correlates with poor health outcomes. These data on the economic vulnerability and ill health of AIs suggest they may be disproportionately at risk of HIV infection (Metler, Conway, & Stehr-Green, 1991).

Despite the risk, only a few published studies in refereed journals offer empirical research regarding AI HIV/AIDS knowledge, attitudes, and behaviors (Brassard, Smeja, & Valverde, 1996; Hall, Wilder, Bodenroeder, & Hess, 1990). The available research indicates AIs are as knowledgeable regarding HIV as the general population (Hall et al., 1990; Meyers, Calzavara, Cockerill, Marshall, & Bullock, 1993), tending to know less about HIV transmission and more regarding specific clinical properties of the disease. One study indicated no overall knowledge difference between AI men and women; however, younger respondents were more informed than older respondents about HIV transmission through blood, casual contact, kissing, and indirect contact (Meyers et al., 1993). In one unpublished study of HIV sexual risk behaviors among AIs living off reserve in Canada, 83% of the 376 sexually active AIs reported at least one incident of condomless sex in the previous 12 months (Bullock et al., 1996). Unprotected sex was significantly more likely for AI men (vs. women) and individuals with a steady (vs. a casual) partner. Consistent condom use was more likely among those familiar with AI traditions and among those reporting a history of physical abuse, whereas inconsistent condom use was positively associated with age and a history of sexual abuse.

Alcohol use and abuse have been well documented as critical co-factors for HIV risk behaviors (O'Hara, Parris, Fichtner, & Oster, 1998; Paul, Stall, & Davis, 1993). Studies have indicated high rates of alcohol abuse among AIs, although there is tremendous variation over time, by tribe, and by reservation (May, 1996). Some studies of reservation-based samples indicate a pattern of lower problem drinking and higher rates of abstinence compared to the U.S. general population, although some urban samples have demonstrated higher rates of drinking (Beltrane & McQueen, 1979; May, 1996). The comorbid relationship between AOD use and precocious sexual activity and potential HIV sexual-risk behavior among AI youth has been well documented (Beauvais, 1992; Conner & Conner, 1992; Walker et al., 1996). However, the specific mechanisms by which alcohol may act as a

cofactor for HIV infection are still unclear, and no studies exist that specifically identify the relationship between alcohol use and HIV sexual risk behaviors among adult urban AIs.

Anecdotal and empirical evidence suggests that sexual and drug-related risk behaviors are associated with the legacy of trauma and persistent destructiveness of colonization that AIs have endured (Tafoya & Delvecchio, 1996; Weaver, 1998; Yellow Horse Braveheart, 1998). Alcohol-related problems have been associated with delayed trauma related to child sexual abuse (Flanigan, 1990) as well as other forms of violent crime and trauma (Stewart, 1996). Exposure to traumatic and abusive childhoods (Bartholow, Doll, Joy, & Douglas, 1994; Singer, 1995); sexual abuse (Miller & Paone, 1998); lifetime physical or sexual abuse by a spouse or boyfriend (Fischbach & Herbert, 1997); and rape (Cunningham, Stiffman, Dore, & Earls, 1994) have been associated as well with HIV sexual risk behavior (Wingood & DiClemente, 1998). Research among other groups has indicated that HIV disproportionately affects families already confronted with multiple stressors, including AOD use, abusive childhoods, and other histories of victimization (Havens, Mellins, & Pilowski, 1996; Singer 1995). The cumulative effect of these traumas among AIs has been characterized as a "soul wound," (Duran, Duran, Yellow Horse Braveheart, & Yellow Horse-Davis, 1998) which must, according to the AI postcolonial framework (Duran & Duran, 1995), be incorporated into any conceptualization of contemporary AI health problems.

Given the potential vulnerabilities and dearth of data on urban AI needs, the current authors undertook a survey of HIV risk behaviors and service preferences among AIs. The focus was on New York City (NYC), the epicenter of the AIDS epidemic and the third largest urban AI community in the U.S. (46,191 in the Metropolitan Statistical Area for NYC according to the 1990 U.S. Census). Although AIs account for fewer than 1% of all AIDS cases reported in NYC, the 1997 cumulative AIDS case rate of 238/100,000 reflects the sizable impact the epidemic has had on this group (NYC Department of Health, 1997). Of the reported AI AIDS cases documented in the AIDS surveillance data in New York City ($N = 34$), 91% are male. Injection drug use (IDU; 39%) and sex with other men (35%) were nearly equal transmission risks among men, while heterosexual transmission (66%) predominated among AI women. HIV seroprevalence studies conducted in NYC have not collected data on AI ethnicity (see Stevens & Estrada, 2000, for an overview of national HIV seroprevalence studies among AIs). The one exception is a linked serostudy from 1991 to 1994 of voluntary testing among drug treatment clients in NYC. Although there were much lower numbers of AIs tested each year than other groups, the percentages of AIs testing positive in each of the four years (20%, 13%, 4%, and 13%, respectively) were comparable to those of African Americans (19%, 17%, 13%, and 11%, respectively).

In this article, we report findings from a focus group and a pilot survey. In addition to descriptive as well as program planning information, preliminary data on predictors (including AOD use and trauma variables) of lifetime HIV risk behaviors and condom use are provided. We aimed to identify, in a preliminary manner, individual or contextual factors that relate to risk behaviors, which is a standard approach utilized for HIV needs assessment studies and community planning groups (Kelly, 1995; Valdiserri, Aultman, & Curran, 1995). Because the majority of HIV studies utilize conceptual frameworks based on social cognitive theory (Bandura, 1986) and the theory of reasoned action (Fishbein & Ajzen, 1975), we assessed HIV knowledge, self-efficacy for safer behavior, and perceived personal risk (Jemmott & Jemmott, 1991; Somlai, Kelly, Wagstaff, & Whitson, 1998) as potential predictors of HIV risk behaviors. We utilized AI postcolonial theory (Duran & Duran, 1995) as the fundamental framework for the mulitvariate exploration of the relationships among trauma, substance use, and HIV risk behaviors.

Method

Participants

The sample consisted of 100 AIs—68 women and 32 men. They ranged in age from 18 to 75 years (*M*=35.8; *SD*=12.6) and were fairly well educated, with 88% having earned a high school diploma/GED and 32% at least a bachelor's degree. Monthly income surpassed $2,400 for 47% of the sample. Over the previous 12 months, 55% were employed full-time, 25% part-time, and 20% were unemployed. The sample was predominately heterosexual (91%). Although 55% reported a steady intimate partner, only 16% were legally married (note that "valid" percentages are reported throughout the paper—i.e., participants with missing data on the particular item were excluded).

Self-reported individual blood quantum across all tribes varied as follows: 1-25% (20%), 26-50% (43%), 51-75% (18%), 76-99% (9%), and full-blooded (10%); 53% of participants were enrolled in an AI tribe. Two percent had attended an AI boarding school. Only 9% had lived on an AI reservation or tribal lands within the last year. One-third of the sample had been adopted (4% by AI families and 28% by non-Indian families). Most (86%) had learned English as their first language.

Measures

Questionnaire items assessed HIV sexual and drug risk behaviors, attitudinal items, trauma, barriers to condom use, female condom attitudes,

and program planning issues. Items validated in other studies of HIV risk (e.g., Kelly, 1995; Somlai et al., 1998) were used when possible.

Lifetime HIV Risk Behaviors

From a checklist of 15 HIV risk behaviors (see Table 1 for the actual items), respondents indicated those in which they had engaged at any time in their life. As indicated in Table 1, the risk factors were collapsed into three risk categories. Three items referring to IDU either by itself or in association with sexual behavior were used to calculate an IDU-sex risk variable. The two items referring to sexual behavior while drunk or high were used to calculate the high-sex variable. Seven sexual risk behavior items were combined to form an indicator of sex risk (omitting condomless vaginal, anal, and forced sex because of their conceptual overlap with trauma and steady partner). As the sum scores for these three variables were not normally distributed, dichotomous indices were created such that respondents having engaged in any of the relevant items were assigned a "1" and others a "0".

Sexual Behaviors

Respondents indicated whether they had sex with any man or woman in the past 6 months (we defined "sex" for the respondents as physical contact that goes beyond hugging and kissing but does not necessarily include intercourse). Those who answered affirmatively indicated the number of their male and female sexual partners during that period as well as the number of partners with whom they had engaged in vaginal, anal, and oral sex with and without a condom (e.g., "your penis in her vagina—without a condom"). Consistency of condom use during oral sex and vaginal/anal sex was assessed with two additional items scored from *none of the time* (1) to *every time* (5).

Substance Use

Respondents reporting AOD use outside of ceremonial or religious settings in the last 6 months described how frequently they had used alcohol to the point of being drunk, cocaine powder, crack cocaine, marijuana, inhalants, amphetamines, heroin, ecstasy, hallucinogens, sedatives, and IDs as *not at all*, *a few times*, or *fairly often*. The IDUs indicated if they had used only clean needles. Additionally, respondents indicated with two yes/no items whether their condom use had been affected by their own (or their partner's) AOD use in the past 6 months.

Attitudinal Factors

Three measures were used to assess cognitive and attitudinal constructs according to social cognitive theories. Participants' *knowledge* of HIV transmission was assessed with 23 true or false items (Kelly, St. Lawrence, Hood, & Brasfield, 1989). Internal consistency (Cronbach's alpha) in the present sample was .69. A scale of nine items was used to assess *self-efficacy* for safer drug and sexual behaviors (Smith, McGraw, Costa, & McKinlay, 1996). Respondents were asked how sure they were that they could, for example, talk about safe sex with a sexual partner or buy condoms. Each item was scored from *not at all sure* (1) to *extremely sure* (5). Internal consistency in the present sample was .86. Finally, one item asked respondents to estimate their *perceived risk* of contracting HIV/AIDS from *no risk* (0) to *high risk* (3).

Trauma

With a checklist of six items (e.g., physically assaulted by family member), respondents indicated whether they had ever been physically or sexually assaulted by a spouse/partner, family member, or stranger.

Barriers to Condom Use

From a checklist of 16 items (Meyers et al., 1993), the sexually unsafe participants were asked to indicate all the reasons they did not use a condom or barrier during vaginal and anal sex in the last 6 months.

Attitudes Toward the Female Condom

Participants were asked six yes/no items about the female condom. Internal consistency in the present study was .59.

Community and Program Planning

Finally, in a series of checklists and one open-ended item, respondents indicated targets for HIV communication they had used and preferred, service preferences, and barriers to accessing services.

Procedure

The present survey constituted the first step in a comprehensive assessment of HIV risk behaviors and service among AIs in NYC. A literature review, key informant interviews, a focus group of HIV educators (described later), and pilot testing of measures preceded work on the survey.

Two AI women active and known in the AI community were informed about the project and trained to distribute the present survey at an AI gathering (powwow) in an outer borough of NYC in the summer of 1997. The two workers recruited a convenience sample by encouraging AI men and women who approached the American Indian Community House (AICH) HIV outreach table to complete the survey and by circulating at the powwow and encouraging AI individuals to go to the table to complete the questionnaire. AI individuals who did not want to approach the table were given the survey to complete away from the table.

The study's title (American Indian Wellness Project) and eligibility criteria (at least age 18 and of AI descent) were clearly printed on the cover sheet of the questionnaire. The introduction thanked respondents for volunteering and stated that the information provided would be used to access funding and to provide services that will better assist AI people. Respondents were paid $5 for completing the survey, which required less than 30 minutes.

Results

The qualitative themes that emerged from the focus group and key informant interviews are highlighted below, followed by a discussion of the quantitative results. To identify any potential subgroups at risk, we ran bivariate analyses using chi-squares, t tests, and Pearson correlation coefficients with all the general and Indian-specific demographic indicators and the main variables of interest. The very few that were significant are controlled in the multivariate analyses.

Qualitative Data

To identify critical community-based needs and themes, we interviewed key informants, including service recipients and other community members, and conducted a focus group with eight AI service providers (four men and four women), including case managers, outreach workers, and staff. This preliminary qualitative work suggested AI gay men, youth, and women in violent relationships were at increased risk for exposure to HIV due to unsafe sexual practices. Sex traders, IDUs, and their partners were also identified as being at risk. Participants expressed concerns regarding circular migration; in particular, they cited AI men who come to the city for job-related concerns and have anonymous sex with other men and then return to their wives in AI communities upstate. In terms of AOD use, the outreach coordinators stated that AI youth are likely to engage in sex and alcohol use simultaneously, thereby increasing their risk for HIV exposure. They also mentioned culturally specific risk behaviors, including skin piercing, marking (i.e., tattooing), and the use of indigenous healing practices that involve blood (i.e., piercing, blood letting). One member noted that during ceremonies (e.g., at Sun Dance which involves piercing the chest for men

and dancing until feet might become bloody for both men and women), some medicine people are beginning to take precautions to protect against HIV infection such as cleaning piercing equipment.

Attitudinal Factors: Risk Perception, Self-Efficacy, and HIV Knowledge

Two survey respondents indicated they were HIV seropositive; others reported they had no (32%), low (52%), moderate (13%), or high (2%) risk of getting HIV/AIDS. The mean level of self-efficacy for safer behavior was 4.55 (*SD* = .69) of a possible 5 and was highly negatively skewed. The mean level of HIV knowledge also was fairly high (19.91 of a possible 23; *SD* = 3.03). Items most frequently missed (and the correct answers) were: "People who have the AIDS virus quickly get sick" (F), "A negative result on the HIV test can happen even if somebody has the AIDS virus" (T), "No case of AIDS was ever caused by social (dry) kissing" (T), "By having just one sex partner at a time you can protect yourself from AIDS" (F). Four independent-samples t tests indicated HIV knowledge was generally higher among the 81% of the sample who personally knew someone with HIV/AIDS, $t(98) = -2.25$, $p \leq .05$; the 41% who had family or close friends with HIV/AIDS, $t(97) = -1.87$, $p \leq .10$; the 78% who had considered having a test, $t(98) = -2.24$, $p \leq .05$; and the 58% who had actually taken the test, $t(98) = -2.34$, $p \leq .05$. HIV knowledge was positively correlated with self-efficacy to engage in safer behaviors, $r(98) = .36$, $p \leq .001$, but, contrary to social cognitive models, neither predicted any drug, trauma, or HIV sexual risk behavior indicator.

Lifetime Exposure to Trauma

A relatively small number of respondents reported physical assault by a family member (16%), spouse/partner (16%), or stranger (19%), or sexual assault by a family member (13%), spouse/partner (7%), or stranger (15%). However, when responses were collapsed across perpetrator, another, more disturbing picture emerged: 29% reported physical assault by a nonpartner, 26% reported sexual assault by a nonpartner, and 20% reported physical or sexual assault by a partner (i.e., domestic violence). All three were intercorrelated.

Patterns of Risk Behavior

Lifetime drug and sexual risk behaviors. From a checklist of 15 lifetime drug and sexual risk behaviors, participants reported engaging in an average of 3.40 (*SD*=3.31); 76% had engaged in at least one. Percentages for each behavior are shown in Table 1.
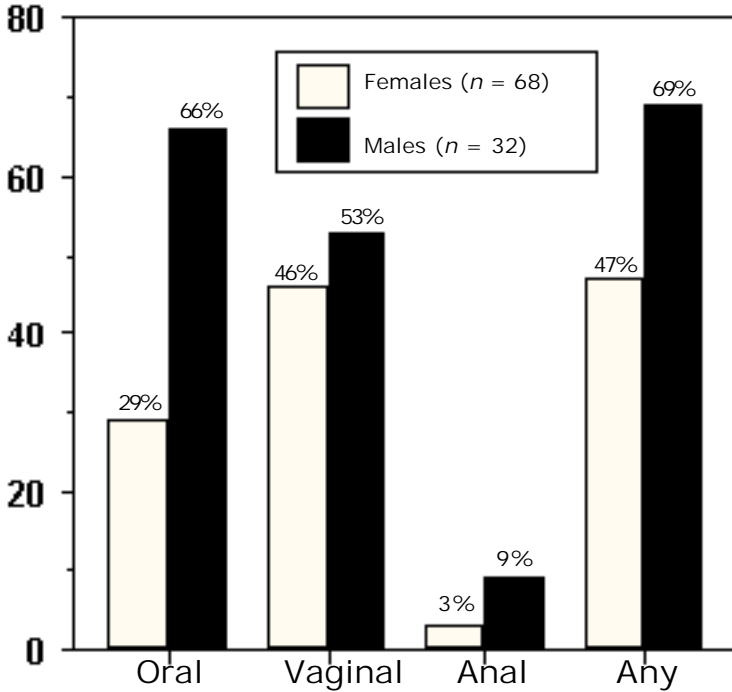
Table 1
Lifetime Risk Behaviors

%	Behavior
67	Condomless vaginal intercourse
51	[3]Sex while drunk or high
42	[3]Condomless sex while drunk or high
31	[2]Sex with a non-monogamous partner
29	[2]Sex with a stranger
24	Condomless anal intercourse
22	[2]More than 2 sexual partners in a month
20	[2]Sex with someone with an STD
19	[2]Had an STD
13	Forced condomless sex
10	[1]Sex with an injection drug user
8	[2]Traded sex for money, drugs, or favors
4	[1]Injected nonprescription drugs
4	[2]Sex with HIV+ person
3	[1]Shared dirty needles

Note: *N*=96–98. STD=sexually transmitted disease. 1=used to calculate the IDU-sex risk indicator. 2=used to calculate the sex risk indicator. 3=used to calculate the high-sex indicator.

Sexual risk behaviors in last 6 months. Analyses indicated 63 participants (39 women and 24 men) reported sexual activity in the last 6 months. Among the sexually active participants, 73% had engaged in condomless anal or vaginal sex with at least one partner. Rates of unsafe sex (condomless vaginal, oral, or anal) within each relationship dyad were as follows: female participants with women (*n*=1) 100%, female participants with men (*n*=40) 78%, male participants with men (*n*=4) 100%, male participants with women (*n*=21) 82%. Figure 1 shows rates of unsafe sex by gender. The two items assessing consistency of condom use indicated only 17% of participants used condoms all of the time (52% none of the time) during vaginal/anal sex and 7% used condoms all of the time (85% none of the time) during oral sex.

Drug risk behaviors in the last 6 months. In the past 6 months, 43% of the participants reported AOD use for non-ceremonial purposes. Twenty-seven percent had used alcohol to the point of being drunk, 22% used marijuana, 4% used IDUs, and less than 6% used each of the remaining drugs. Only 3% of respondents said their condom use had been affected because they were drunk or high (2% said because their partner was drunk or high).

Figure 1
Percentage of Male and Female Participants Engaging in Oral,
Vaginal, and Anal Sex Without a Condom in the Last 6 Months

Predictors of Risk Behaviors: Multivariate Analysis

A correlation matrix of bivariate analyses (depicted in Table 2) indicated trauma and drug use may be correlated with sexual risk behaviors. To further explore these associations, we created three multivariate sexual risk behavior models—one for lifetime sex risk behaviors and the other two for unsafe sex in the past 6 months. Variables were selected for inclusion in the models based on their significance in the bivariate analyses.

Lifetime Sex Risk Behaviors

Trauma exposure variables (domestic violence and nonpartner sexual assault) as well as lifetime IDU-sex and high-sex behaviors were explored as predictors of lifetime sex risk behaviors in a simultaneous least squares

Table 2
Intercorrelations Among Main Variables

Variable	%	1	2	3	4	5	6	7	8	9	10
Trauma Variables (Lifetime)											
1. Nonpartner physical assault	29										
2. Nonpartner sexual assault	26	.51***									
3. Domestic violence	20	.18†	.34***								
AOD and Sexual Risk Behaviors (Lifetime)											
4. IDU-sex risk	12	.24*	.14	.35***							
5. High-sex	51	.19†	.21*	.10	.25*						
6. Sex risk	51	.14	.25**	.35***		.30***		.57***			
Demographic Factors											
7. Steady partner status	55	-.02	.04	-.01	-.10	.21*	.01				
8. Income	na	-.11	-.11	-.20†	-.05	-.06	-.14	.20*			
Risk Behaviors (Last 6 Months)											
9. AOD use	43	.09	.05	.07	.05	.28***		.23*	.23*	-.10	
10. Condomless vaginal/anal sex	73	.06	-.01	.19	.02	.12	.12	.36***	.29*	-.06	
11. Condom consistency for vaginal/anal sex	na	-.05	-.24†	-.21	-.18	-.18	-.17	-.44***	-.25†	.03	-.49***

Note: N=97-100, except for #10 and #11 where N=58-63. Statistics are Pearson correlation coefficients.

†p<.10.   *p<.05.   **p<.01.   ***p<.005.

logistic regression (refer to Walters & Simoni, 1999, for an analysis of women only). Steady partner status was not included because the model included risks across the lifetime and only current partner status was assessed. The simultaneous logistic regression model was significant (X^2 [4, N=95], p<.005, Hosmer-Lemeshow statistic=1.75, df=4, p=.78), indicating respondents who had engaged in sex while drunk or high were 14.35 times more likely than those who had not to engage in risky sexual behaviors (odds ratio [OR]=14.35, 95% Confidence Interval [CI]=4.65, 44.25). Additionally, those who had experienced domestic violence were 9.26 times more likely than those who had not to engage in risky sexual behaviors (OR=9.26, 95% CI=1.80, 47.53). Neither sexual assault nor IDU-sex risk had a significant net effect on lifetime sexual risk behaviors.

Unsafe Sex in the Last 6 Months

Income and steady partner status were explored as predictors of condomless vaginal or anal sex in the last 6 months in a simultaneous logistic regression (trauma and AOD were not significant in bivariate analyses and, therefore, not included). The logistic regression model was significant (X^2 [2, N=62], p<.01, Hosmer-Lemeshow statistic=7.50, df=4, p=.11), indicating that respondents in steady partnerships were 4.33 times more likely to engage in condomless vaginal or anal sex than those without steady partners (OR=4.33, 95% CI=1.11, 16.77). Monthly income status had no net effect on condomless vaginal or anal sex.

Consistency of Condom Use in the Last 6 Months

Nonpartner sexual assault, steady partner status, and monthly income were explored as predictors of consistency of condom use during vaginal and anal sex in the last 6 months in a simultaneous regression. The model accounted for 23% of the variance in consistency of condomless sex, F (2,52)=7.69, p.<005. Having a current steady partner (B=-.40, T=-.22, p≤.005) as well as a history of nonpartner sexual assault (B=-.27, T=-2.25, p≤.05) were predictors of decreased consistency of condom use. Monthly income had no net influence.

Reasons for Not Using Condoms

The 48 participants who had unsafe vaginal or anal sex in the past 6 months indicated from a checklist of 16 items all the reasons they had not used a condom. The majority indicated being with their steady partner (87%), assuming they were safe (68%), not having the AIDS virus (63%), and simply not wanting to (57%). They less frequently endorsed their partner

not wanting to (41%), their partner saying he or she did not have the AIDS virus (37%), not having a condom at the time (29%), the sex being so exciting they didn't want to use one (26%), finding condoms painful or uncomfortable (14%), using AODs (10%), desiring pregnancy (6%), their partner getting angry for suggesting using one (6%), and being too embarrassed to get condoms (4%). Two percent each said not being able to talk about it, not being able to afford condoms, or being forced to have sex against their will were reasons for not using condoms.

Attitudes Toward the Female Condom

Respondents reported generally positive attitudes toward the female condom. Most reported having heard about (88%) or seen (55%) this new contraceptive and would consider using it (67%) or would like to learn how to use it (57%). However, far fewer had personally bought or obtained (11%) or actually used one (6%).
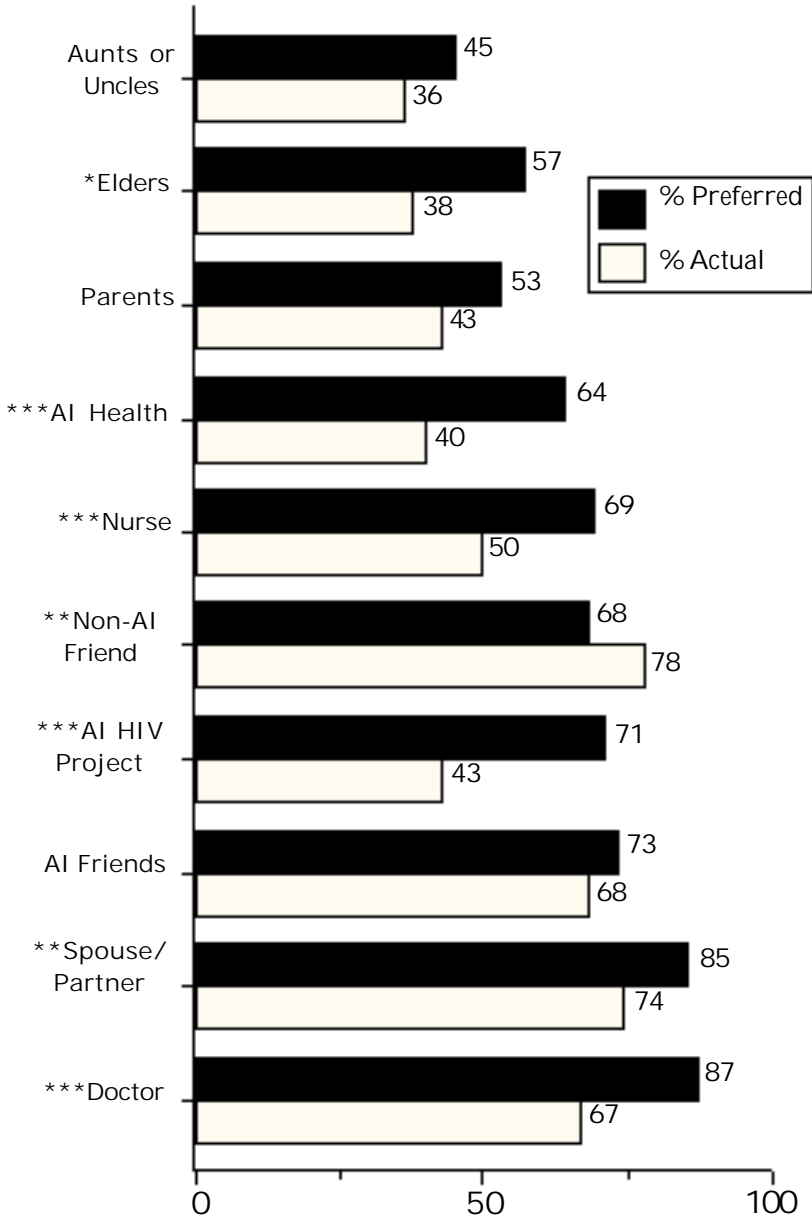
Community and Program Planning Issues

As shown in Figure 2, most respondents indicated they would prefer to speak about HIV/AIDS to doctors, followed by their spouse/partner and AI friends. Paired *t* tests of mean responses indicated a higher percentage of respondents preferred to speak to doctors, their spouse/partner, AI HIV project staff, nurse, AI health representative, or elders than those who actually did speak to these targets, whereas a lower percentage of respondents preferred to talk to non-AI friends than those who actually did.

In answer to an open-ended item on what services would decrease respondents' risk of getting HIV/AIDS or would assist them if they had HIV/AIDS, respondents indicated culturally relevant peer counseling and outreach, telephone hot line, outreach to youth (especially in the schools), condom negotiation skills, peer groups, TV programs, free condom distribution, and public workshops by healthcare providers. Additionally, in response to a checklist of which HIV services would be most helpful to them, respondents indicated sex education and condom use to AI youth (77%), HIV education services at the AICH (75%), cultural approaches to negotiating condom use (62%), instruction in how to use the female condom (61%), HIV education services available in your home (52%), and instruction in getting a partner to use a condom (45%).

Responses to the checklist of means of being informed about HIV/AIDS services indicated respondents preferred direct, face-to-face encounters such as educational talks or workshops (68%) and community outreach workers (36%), followed closely by more anonymous methods such as television (55%), AICH bulletin (34%), pamphlets (31%), radio (29%), word-

Figure 2
Preferred and Actual Sources of HIV Information

Note: *N*=94-100. Statistics were paired *t* tests of mean preferred versus mean actual percentages for each target.
*p<.05. **p<.01.   ***p<.005.

of-mouth (26%), or other (15%). Only eight respondents needed or wanted information, education, or treatment related to HIV in the last 6 months. As only four attempted to access these services, we did not conduct analyses of reported barriers.

Discussion

A survey of 100 AIs at a powwow in NYC provided some of the first data available on the HIV risk behaviors of urban AIs. Findings indicated relatively high knowledge and self-efficacy for safer sex behavior, which may indicate that HIV education and outreach have been successful with this population. However, elevated knowledge and self-efficacy were not associated with safer sex behaviors (i.e., consistent condom use), which may suggest that community education and outreach does not adequately change community behaviors. Although this study did not adequately test social cognitive models, these findings suggest the effectiveness and applicability of such models need to be further considered with respect to urban AIs.

The majority of respondents knew someone living with HIV/AIDS. Over half had been tested for the virus, and 2% were HIV-positive. This seroprevalence is almost three times the estimated rate for NY state of .8% and corresponds with initial Indian Health Service seroprevalence estimates of 1-3% for AI populations. Of course, we employed a nonprobability sampling design, limiting the extent to which we can generalize these findings.

Among the 63 participants who were sexually active in the last 6 months, rates of condomless sex were high and related to having a steady partner. Inconsistent condom use was related to having a steady partner and nonpartner sexual assault. These findings support targeting couples for safer sex condom interventions. Future research will need to identify the specificity of the HIV risk associated with condomless sex among different types of steady partner relationships (i.e., monogamous or nonmonogamous). Because approximately one-third of all AI children are estimated to be at risk for becoming victims of child abuse, with AI girls incurring disproportionate sexual and physical abuse (National Indian Justice Center, 1990), it is imperative that future studies identify the cumulative effect of sexual trauma on condom use among AIs. The finding also highlights the importance of integrating sexual trauma survivor issues into HIV prevention strategies.

Over two-thirds of the sample engaged in at least one unsafe sexual or AOD risk behavior in their lifetime. Moreover, exposure to trauma, AOD use, and sexual risk behaviors were intercorrelated, suggesting these factors needed to be considered in concert to decrease HIV risk among urban AIs.

These initial findings on the relationship between AOD use and exposure to trauma are supported by previous research. Preliminary studies of both non-AI male and female samples suggest that there is a causal connection between childhood victimization and development of drinking problems (Flanigan, 1990). Kovach (1986) postulates that the link between childhood abuse and adult alcohol abuse might be mediated by a delayed onset of posttraumatic stress disorder (PTSD) symptoms in adulthood with which the individuals attempt to cope through alcohol abuse (i.e., self-medication hypothesis). Other studies also supported this linkage with respect to exposure to other forms of violent crime and trauma (Stewart, 1996). Kilpatrick, Acierno, Resnick, Saunders, and Best (1997) found that the severity of trauma symptoms is positively associated with comorbid alcoholism across a variety of traumatic events. Future research with AI populations will need to identify the role of PTSD or other traumatic symptomatology as a factor related to AOD use in sexual encounters. Previous trauma might have implications for current sexual behavior, negotiation skills in sexual encounters, and alcohol use as a form of self-medication (Stewart, 1996) among AI populations.

Future research will need to discern how the patterns of sexual risk behaviors are temporally associated with AOD use and exposure to trauma. For example, the self-medication hypothesis postulates that AOD use dampens cognitive symptoms (Stewart, 1996). Individuals exposed to trauma may be at increased risk for learning to drink to reduce tension. Consistent with a postcolonial framework (Duran & Duran, 1995), alcohol may be used as a coping mechanism for those who have experienced prolonged, cumulative trauma, although future research will need to empirically substantiate this possibility. Although there is evidence of the comorbidity of alcohol-related problems and trauma among AI populations, studies of comorbidity fail to resolve the temporal ordering of AOD alcohol use, trauma exposure and subsequent HIV sexual risk behaviors. Future research will need to identify the temporal patterns of exposure to trauma (including delayed traumatic reactions) and alcohol-drug use (including drinking styles) to ultimately discern the mechanisms by which alcohol and trauma may act as covariates in sexual risk-taking. Moreover, the mixing and phasing of AOD while simultaneously engaging in risky sexual behaviors reinforces the importance in future research of identifying the contextual use of alcohol in relation to sexual expectations (i.e., alcohol-sex expectancy).

The data on services have implications for community-based HIV preventive program planning among urban AIs. Findings that 57% of the respondents were willing to learn how to use the female condom indicate the eagerness of AIs to incorporate new HIV prevention strategies. AIs in the study also identified preferred targets for HIV communication (e.g., doctors), but we need further information as to the preferred gender, age, ethnicity, and tribe (if these preferences exist). Some AIs may not want to access a local tribal-affiliated organization for fear that via the "moccasin

telegraph" their questions or concerns will not remain confidential. Participants also indicated a strong preference for direct, face-to-face encounters for public dissemination of HIV education, suggesting the possibility of home visits. In fact, in a study of domestic violence among urban AIs, Norton and Manson (1995) successfully used home visits. Perhaps a culturally appropriate home-visit intervention could address domestic violence and HIV risk simultaneously.

There are several important methodological limitations to these data. First, because we employed a non-probability convenience sample (of mainly heterosexual, educated women), generalizability of the findings is not possible. Future studies might incorporate modified probability sampling methods, such as multiplicity sampling (Rothbart, Fine, & Sudman, 1989). Second, because the data were self-reported, the findings may be subject to social desirability. Future research comparing self-administered versus interview survey methodologies among AIs are warranted to decrease cultural insensitivity and social desirability. The results from the focus group and key informant interviews support matching respondents by gender for survey interviewing techniques given the charged nature of the HIV sexual risk behavior questions. Third, our assessment of trauma, AOD use, and sex risk variables was primarily dichotomous and did not provide depth and breadth or the social context related to such behaviors. For example, drinking styles (abusive vs. moderate), chronicity, frequency, and quantity of AOD use were not addressed. Additionally, we did not identify the role of the steady partner and meaning of that relationship to the respondent (again it was a dichotomous variable) which would give us a better understanding of what steady partner status means in terms of inconsistent condom use. Further quantitative and qualitative methods for psychometric refinement regarding trauma, AOD use/ abuse, and HIV sexual risk behaviors clearly need to be cultivated, validated, and refined in collaboration with AI populations. Finally, our cross-sectional design precludes any causal interpretations.

Despite these methodological limitations, the study has provided some preliminary data on an understudied and potentially at-risk population. Future preventive efforts should consider the strengths and resources of those who are using condoms consistently. Incorporating the role of resilient AI community members into the development of research and community intervention would not only facilitate construction of culturally meaningful interventions, but would also reinforce the current resilience and strength of urban AI communities.

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