

The Risk of HIV Infection in a National Sample of Women with Injection Drug-Using Partners

ABSTRACT

Objectives. This study reports on a large, national cohort of women with injection drug-using sex partners. Information is provided on demographic characteristics; human immunodeficiency virus (HIV) risk factors, including unprotected sex and incidence of sexually transmitted diseases; use of noninjected drugs; HIV serostatus; and other selected health variables.

Methods. A sample of 5162 heterosexual women was recruited for a national acquired immunodeficiency syndrome (AIDS) research and demonstration project. A structured interview was administered, and the women had the option of undergoing HIV testing. Statistical analyses compared three groups on variables of interest: women with single sex partners, women with multiple partners, and women with multiple partners who exchanged sex for drugs and/or money.

Results. These groups differed significantly on virtually all of the demographic and risk variables examined. Women with multiple partners who exchanged sex for drugs and/or money were at higher risk for HIV than women in the other groups, even when selected demographic variables were controlled.

Conclusions. Research is needed on the efficacy of prevention efforts involving these diverse groups of women at risk for AIDS. (*Am J Public Health*. 1994;84:1243-1249)

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Introduction

Stimulated by World AIDS Day in December 1990, which highlighted the lack of knowledge regarding HIV in women, efforts have begun to focus on gaining the information necessary to treat and prevent this disease among women.¹ Women with injection drug-using sex partners are among those at highest risk and are the most rapidly growing group of adults with AIDS in the United States.^{2,3} As of June 1993, 7495 US women had acquired AIDS as a result of their sexual relationship with an injection drug user.⁴ Also, of the 3054 women who contracted AIDS as a result of having sex with an HIV-infected person with risk unspecified, many may have been partners of injection drug users and unaware of their partner's drug use.⁵

Although women with injection drug-using partners often have no history of using injected drugs themselves, many use noninjected drugs, especially crack.⁶⁻⁸ Interrelationships have been demonstrated among crack use, sexually transmitted diseases, and HIV infection. Crack use is a risk factor for HIV because of its association with high-risk sexual behaviors.⁹⁻¹¹ Cocaine use is also associated with syphilis,¹²⁻¹⁴ and sexually transmitted diseases in general are implicated in the enhancement of HIV transmission.¹⁵

Unfortunately, the number of women who acquire AIDS as a result of sex with infected men is likely to continue to increase.³ Even when other factors are controlled, male-to-female transmission is more efficient than female-to-male transmission.¹⁶ Also, there are currently more infected men than women, thus increasing the probability that a woman would have an infected partner, especially in neighbor-

hoods with high concentrations of infected men.

Although there is a pressing need to develop programs aimed at reducing HIV risk behaviors among women with injection drug-using partners, little is known about this group.^{1,17} Even in the midst of the AIDS epidemic, drug treatment programs have made few efforts to work with partners of injection drug users.¹⁸ If meaningful intervention programs are to be developed for women with injection drug using sex partners, more information is needed about their extent of risk and other aspects of their lives.

In this study, data from a large national cohort of women with injection drug-using sex partners were analyzed. As specified by the research protocol, the women reported one or more injection drug-using sex partners and no such drug use themselves in the 6 months prior to their initial interview.

Previous analyses of an earlier version of this data set (n = 3589) focused on racial/ethnic differences among the women in sexual risk, drug use, and incidence of sexually transmitted diseases.⁸ Major racial/ethnic groups were African Americans, Whites, Puerto Rican Latinas, and other Latinas (primarily Mexicans). Results indicated that, for women with one injection drug-using partner, White women reported a higher frequency of unprotected vaginal sex than did those in the other groups. Among

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women with multiple partners, there were no racial/ethnic differences in mean frequency of unprotected vaginal sex. African Americans were more likely to report using crack, alcohol, and cocaine than were those in the other groups. African Americans and Whites generally reported more sexually transmitted diseases than did women in either Latina group.

Because patterns of sexual activity vary and may have a major impact on the degree of AIDS risk as well as other health and economic factors, it was decided to compare three behaviorally defined groups of heterosexual women with injection drug-using partners. These groups were composed of women who, during the 6 months prior to the interview, (1) had single partners, (2) had multiple partners and did not exchange sex for drugs and/or money, and (3) had multiple partners and did exchange sex for drugs and/or money. The three groups were compared on demographic and economic characteristics, involvement with the criminal justice system, sexual risk behaviors, non-injected drug use, and health characteristics. The effect of the grouping on HIV risk and other variables was then examined while controlling for selected demographic characteristics.

Methods

Procedure

The National AIDS Demonstration and Research program, on which this research was based, was implemented in 1987 by the National Institute on Drug Abuse and targeted two "hard to reach" groups: out-of-treatment injection drug users and those with injection drug-using sex partners. The goals were to collect information concerning HIV risk and to test the efficacy of various AIDS prevention strategies. Sixty-three sites were involved across the continental United States, in Hawaii and Puerto Rico, and along the US-Mexican border. Both target groups were offered equivalent incentives for participation. This paper reports only on heterosexual women with injection drug-using sex partners.

Individual sites determined their own recruitment strategies but were generally guided by indigenous outreach workers with knowledge of local drug using networks. To maximize the participation of this "hidden population," recruitment efforts were directed toward "street" locations where drug users congregate, as well as places where their partners are likely to be found (e.g., family-planning/

obstetrical-gynecological clinics, housing projects, shelters, social service agencies, prisons). Efforts were made to recruit sex workers because many have injection drug-using partners.¹⁷ Prior to any intervention, the women participated in a structured 45-minute interview. Topics included demographic and economic characteristics, involvement with the criminal justice system, sexual risk behaviors, non-injection drug use, incidence of sexually transmitted diseases, and other health characteristics. Data were collected from January 1988 through June 1991. Test-retest reliability (over an interval of 2 to 14 days; $n = 196$) was high for questions on number, gender, and injection drug-using status of sex partners and on exchange of sex for money or drugs (kappa range of .53 to 1.00). Test-retest correlations for the most risky sexual behaviors were .66 (vaginal sex) and .79 (anal sex). Test-retest correlations for frequency of noninjection drug use, based on ever having used a particular drug, ranged from .15 for heroin to .75 for alcohol. Women were offered HIV testing, and, when they were tested by National AIDS Demonstration and Research projects, HIV serostatus was included in the data set. In order to minimize responding based on "self-diagnosis," questions regarding history of sexually transmitted diseases were worded as follows: "Have you ever been told by a doctor or a nurse that you had . . . ?" Systematic quality control procedures were implemented by a research firm under contract to the National Institute on Drug Abuse to verify client eligibility criteria and to assess the consistency of responses within each questionnaire.

Sample

The sample consisted of 5162 heterosexual women with injection drug-using partners; 53.1% were African Americans, 15% were Puerto Rican Latinas, 15% were Mexican Latinas, 12.5% were Whites, and 4.4% were Asian Americans, Native Americans, or other Latinas. The geographic distribution was as follows: 30% from the South, 27% from the Northeast, 23% from the West, 11% from Puerto Rico, and 10% from the North Central region.

Only 43% were high school graduates, and 15.5% were employed (full or part time). Homeless women (living on the streets or in a shelter) accounted for 11.6% of the sample. Regarding sexual activity, 53% ($n = 2734$) reported a single injection drug-using partner, 23.3% ($n = 1205$) reported multiple partners but

had not exchanged sex for drugs and/or money, and 23.7% ($n = 1223$) reported multiple partners and had exchanged sex for drugs and/or money.

Statistical Analyses

One-way analyses of variance (ANOVAs) and chi-square tests were used to compare the three groups on demographics, drug use, sexual behavior, and health characteristics. Pairwise comparisons of means were conducted with Tukey's studentized range test when a significant ($P < .05$) ANOVA F value was obtained. All chi-square tests producing a significant overall finding ($P < .05$) were followed up with a series of 2×2 chi-squares to compare all three possible pairs of groups. Chi-square follow-up tests were reported as significant at the $P < .05$ level or better.

A second stage of analysis was conducted to assess whether grouping predicted risk behaviors and health outcomes when major demographic variables were controlled. Both multiple regression (sex risk and drug use behaviors) and logistic regression (dichotomous health and AIDS outcomes) were used. The grouping effect was examined in two ways: (1) by comparing women who had multiple injection drug-using partners but who did not exchange sex for drugs and/or money and those who had single partners and (2) by comparing women who had multiple injection drug-using partners and who did exchange sex for drugs and/or money and those who had multiple partners but did not exchange sex for drugs and/or money. Four series of regression analyses were conducted, since sex risk and drug use behaviors (continuous variables) and health and AIDS outcomes (dichotomous variables) were analyzed separately for each of the two group comparisons. The following variables were included in all regression analyses: age, African-American ethnicity, Latina ethnicity, northeastern region, southern region, western region, homelessness, and high school education. These independent variables (except for age) were coded dichotomously.

Results

Significance levels for the variables discussed in this section are reported only in the tables.

Demographic Characteristics

Table 1 indicates many significant differences among the groups. Women

with multiple partners who exchanged sex for drugs and/or money were most likely from the Northeast (35.8%); women with single partners were most likely from the South (32.8%) ($\chi^2 = 222.47$). While women in all three groups were most likely to be African-American ($\chi^2 = 311.60$), there were significant differences by group: two thirds of women with multiple partners were African-American, compared with about one half of the other groups. About 40% of women with single partners were Latina, in comparison with less than 20% of women who exchanged sex for drugs and/or money. Women with single partners (mean age = 30.3 years) were slightly older than those in either of the other two groups ($F = 22.94$, $df = 25159$) (see Table 1 for more detail).

Women with multiple partners who exchanged were more likely to be homeless (17.9%) than either women with single partners (7.5%) or those with multiple partners (11%) ($\chi^2 = 95.20$). They were less likely to be high school graduates (40.0%) than either women with single partners (41.7%) or women with multiple partners (48.8%) ($\chi^2 = 22.98$) and less likely to have children living with them (35.6%) than either women with single partners (66.5%) or women with multiple partners (60.1%) ($\chi^2 = 334.77$). Women with multiple partners who exchanged were also more likely to have been in drug treatment (41.7%) than either women with single partners (15.3%) or those with multiple partners (24.7%) ($\chi^2 = 324.61$).

Economic Characteristics and Criminal Justice Involvement

Table 2 displays information regarding economic characteristics and experiences with the criminal justice system. Both women with single partners (16.9%) and those with multiple partners (16.7%) were more likely to be employed than were women with multiple partners who exchanged sex for drugs and/or money (11.6%) ($\chi^2 = 19.87$). Women with multiple partners who exchanged (57.8%) were more likely to report income from illegal sources than were either women with single partners (5.8%) or those with multiple partners (8.6%) ($\chi^2 = 1582.69$). Although most women with multiple partners who exchanged (55.4%) reported income from welfare, the proportion was still significantly less than the proportions of women with single partners (67.5%) and women with multiple partners (66.1%) ($\chi^2 = 51.68$). More

TABLE 1—Demographic Characteristics of Women with Injection Drug-Using Sex Partners

	Single Sex Partner (Group 1) (n = 2734)	Multiple Partners without Exchange (Group 2) (n = 1205)	Multiple Partners with Exchange (Group 3) (n = 1223)	Group Differences
Geographic region,** %				
Northeast	23.7	25.2	35.8	...
North Central	9.2	12.7	7.9	...
South	32.8	26.5	26.3	...
West	19.4	25.1	27.3	...
Puerto Rico	14.9	10.6	2.8	...
Ethnic status,** %				
African American	47.0	50.8	69.0	...
Puerto Rican	20.0	13.0	5.8	...
Mexican American	18.2	11.0	11.9	...
White	10.2	19.4	10.9	...
Other	4.6	5.8	2.4	...
Mean age, y (SD)*	30.3 (8.3)	28.9 (7.7)	28.6 (6.7)	1 > 2, 3
Homeless, %	7.5	11.0	17.9	3 > 2 > 1
High school graduates, %	41.7	48.8	40.0	2 > 1, 3

Note. All reported group differences were significant at $P < .01$ or better.
* $P < .001$; ** $P < .0001$.

TABLE 2—Economic Characteristics and Involvement with the Criminal Justice System: Women with Injection Drug-Using Sex Partners

	Single Sex Partner (Group 1) (n = 2734), %	Multiple Partners without Exchange (Group 2) (n = 1205), %	Multiple Partners with Exchange (Group 3) (n = 1223), %	Group Differences
Full- or part-time job**	16.9	16.7	11.6	1, 2 > 3
Source of income during previous 6 mo ^a				
Illegal activities**	5.8	8.6	57.8	3 > 2 > 1
Welfare**	67.5	66.1	55.4	1, 2 > 3
Sex partner(s)**	28.2	25.3	44.0	3 > 1, 2
Friend(s)**	9.2	19.7	28.7	3 > 2 > 1
Job**	29.0	35.2	27.4	2 > 1, 3
Family member(s)**	20.7	26.1	26.2	2, 3 > 1
Other sources*	30.9	35.5	34.8	2, 3 > 1
Ever been in jail or prison**	32.0	38.1	58.8	3 > 2 > 1
Legal status				
On probation**	6.9	9.0	14.8	3 > 2 > 1
On parole	1.3	1.8	2.2	
Facing charges**	3.5	3.8	10.6	3 > 1, 2

Note. All reported group differences were significant at $P < .01$ or better.
^aResponse categories are not mutually exclusive.

* $P < .001$; ** $P < .0001$.

women with multiple partners who exchanged reported income from sex partners (44%) than either women with single partners (28.2%) or those with multiple partners (25.3%) ($\chi^2 = 124.10$).

Women with multiple partners who exchanged sex for drugs and/or money were also most likely to have had experience with the criminal justice system. More than 58% of these women had been

TABLE 3—Sexual Behavior of Women with Injection Drug-Using Partners

	Single Sex Partner (Group 1) (n = 2734)	Multiple Partners without Exchange (Group 2) (n = 1205)	Multiple Partners with Exchange (Group 3) (n = 1223)	Group Differences
Frequency of vaginal sex without a condom ^{a**}	22.7	24.2	34.5	3 > 1, 2
Frequency of oral sex without a condom ^{a**}	4.6	7.7	19.5	3 > 2 > 1
Frequency of anal sex without a condom ^{a*}	1.2	1.3	2.4	3 > 1, 2
Total no. unprotected sexual acts ^{b**}	28.6	33.1	56.5	3 > 2 > 1
Condom use, ^{c**} %	7.8	15.5	34.0	3 > 2 > 1
Mean no. drug injecting partners	...	1.4	9.5	3 > 2

Note. All reported group differences were significant at $P < .01$ or better.

^aMean monthly frequency during the 6 months prior to the initial interview.

^bSum of vaginal, oral, and anal sex (without a condom) during the 6 months prior to the interview.

^cPercentage of time condoms were used during vaginal, oral, and anal sex in the 6 months prior to the interview.

* $P < .001$; ** $P < .0001$.

TABLE 4—Drug Use Behavior of Women with Injection Drug-Using Partners

	Single Sex Partner (Group 1) (n = 2734)	Multiple Partners without Exchange (Group 2) (n = 1205)	Multiple Partners with Exchange (Group 3) (n = 1223)	Group Differences
Frequency of crack use ^{**}	7.3	10.0	50.1	3 > 1, 2
Frequency of alcohol use ^{**}	12.9	18.2	31.6	3 > 2 > 1
Frequency of noninjected cocaine use ^{**}	4.5	6.1	22.4	3 > 1, 2
Frequency of marijuana use ^{**}	8.0	12.2	17.5	3 > 2 > 1
Frequency of noninjected heroin use [*]	2.1	2.3	3.7	3 > 1, 2

Note. Results are reported in terms of mean monthly frequencies during the 6 months prior to the interview. All reported group differences were significant at $P < .01$ or better.

* $P < .05$; ** $P < .0001$.

imprisoned, in comparison with 32% of women with single partners and 38.1% of women with multiple partners ($\chi^2 = 254.80$). Women with multiple partners who exchanged (10.6%) were also more likely to be facing criminal charges at the time of the interview than were women with multiple partners (3.8%) or women with single partners (3.5%) ($\chi^2 = 90.38$).

Sexual Risk Behaviors

Three sexual behaviors were examined (see Table 3): frequency of unprotected vaginal sex, oral sex (fellatio), and anal sex. Also included was the sum of the three unprotected sexual activities and the mean percentage of condom use for

the three activities. Although women with multiple partners who exchanged sex for drugs and/or money (34%) reported a higher mean monthly percentage of condom use across all three activities than did women with single partners (7.8%) or those with multiple partners (15.5%) ($F = 486.80$, $df = 2512$), the frequency of unprotected sex in this group was also significantly higher than in the other groups. Mean monthly frequency of unprotected vaginal sex among women with multiple partners who exchanged was 34.5, significantly more than women with single partners and women with multiple partners (22.7 and 24.2, respectively; $F = 548.11$, $df = 2515$). Unprotected anal

sex was a relatively low frequency behavior. Women with multiple partners who exchanged (56.5) reported a higher total number of unprotected sex acts than did women with single partners (28.6) and women with multiple partners (33.1) ($F = 123.81$, $df = 2515$). Finally, women with multiple partners who exchanged had significantly more injection drug-using partners (mean = 9.5) than did women with multiple partners (mean = 1.4).

Noninjection Drug Use

During the 6 months prior to the interview, the mean monthly frequencies of crack, alcohol, cocaine, marijuana, and noninjection heroin use, analyzed individually for each substance, were highest for women with multiple partners who exchanged sex for drugs and/or money. The most frequently used drugs were crack, alcohol, and noninjected cocaine. As Table 4 indicates, the frequency of crack use for women with multiple partners who exchanged was extremely high (50.1); among women with single partners and women with multiple partners, the frequencies were considerably lower (7.3 and 10, respectively). The mean monthly frequency of alcohol use among women with multiple partners who exchanged was 31.6; the corresponding figures for women with single partners and those with multiple partners were 12.9 and 18.2 ($F = 110.97$, $df = 2515$). Women with multiple partners who exchanged (22.4) also reported more frequent noninjected cocaine use than did either women with single partners (4.5) or those with multiple partners (6.1) ($F = 170.5$, $df = 2,515$).

Health Characteristics

The health characteristics assessed (see Table 5) were prevalence of gonorrhea, syphilis, chlamydia, genital herpes, genital sores, and persistent yeast infections; perceived likelihood of contracting AIDS; perceived health status; pregnancy status; and HIV serostatus. The most prevalent sexually transmitted disease was gonorrhea; 40.1% of women with multiple partners who exchanged reported ever having gonorrhea, in comparison with 25.8% of women with multiple partners and 13.4% of women with single partners ($\chi^2 = 369.32$). Women with multiple partners who exchanged were also more likely to report ever having syphilis (17.7%) than women with multiple partners (7.9%) or women with single partners (4.1%) ($\chi^2 = 206.69$). Finally, women with mul-

multiple partners who exchanged (22.5%) were more likely than women with multiple partners (13%) and those with single partners (8.1%) to report ever having genital sores ($\chi^2 = 159.45$).

More women with multiple partners who exchanged reported being pregnant (16.43%) than either women with single partners (11.98%) or those with multiple partners (9.93%) ($\chi^2 = 23.71$). Approximately 30% of the sample underwent HIV testing. Women with single partners and women with multiple partners (both 33.7%) were more likely to report having had an HIV test than women with multiple sex partners who exchanged (20.8%) ($\chi^2 = 73.58$). Although more women with multiple partners who exchanged (7.9%) were confirmed as seropositives than women with single partners (5.4%) and women with multiple partners (4.4%), the differences were not statistically significant ($\chi^2 = 3.60$). Finally, among women who were not tested, those with multiple partners who exchanged (21.4%) were more likely to report that they had a high or sure chance of contracting AIDS than were either women with single partners (13%) or women with multiple partners (11%) ($\chi^2 = 41.73$).

Effects of Group Status

As Table 6 indicates, most of the differences in sex risk and drug use behaviors between women with multiple sex partners who exchanged sex for drugs and/or money and women with multiple partners who did not do so remained highly significant, even when the effects of demographic variables were taken into account. Thus, the effect of exchanging was significant above and beyond the combined influence of age, ethnicity, geographic region, level of education, and homelessness. However, the effect of having multiple sex partners (vs having one partner) was less pronounced. This effect remained significant for alcohol and marijuana use, but there were no differences between women with multiple partners and women with single partners in the use of crack, cocaine, or heroin or in unprotected sex when demographic characteristics were controlled.

The results presented in Table 7 suggest that the effects of (1) having multiple sex partners vs a single sex partner and (2) having multiple partners and exchanging sex for drugs and/or money (among women with multiple partners) are both associated with a significantly greater likelihood of having a sexually transmitted disease and having

TABLE 5—Health Characteristics of Women with Injection Drug—Using Sex Partners

	Single Sex Partner (Group 1) (n = 2734), %	Multiple Partners without Exchange (Group 2) (n = 1205), %	Multiple Partners with Exchange (Group 3) (n = 1223), %	Group Differences
Prevalence of sexually transmitted diseases				
Gonorrhea (ever)*	13.4	25.8	40.1	3 > 2 > 1
Syphilis (ever)*	4.1	7.9	17.7	3 > 2 > 1
Chlamydia (ever)*	4.6	10.9	12.7	2, 3 > 1
Genital herpes (ever)*	1.5	3.4	6.3	3 > 2 > 1
Any sexually transmitted disease (ever)*	19.8	36.9	53.5	3 > 2 > 1
Prevalence other conditions				
Genital sores (ever)*	8.1	13.0	22.5	3 > 2 > 1
Persistent yeast infection (ever)*	6.2	6.5	12.0	3 > 1, 2
Perceived health status*				
Fair or poor	36.1	39.1	47.8	3 > 2 > 1
Good or excellent	63.9	60.9	52.2	
Reported being pregnant*	12.0	9.9	16.4	3 > 1, 2
HIV testing				
Tested	33.7	33.7	20.8	1, 2 > 3
Tested positive ^a	5.4	4.4	7.9	
Perceived likelihood of contracting AIDS ^{b*} : high or sure chance	13.0	11.0	21.4	

Note. All reported group differences were significant at $P < .01$ or better.

^aResults are based on the 1582 persons (922 in group 1, 406 in group 2, and 254 in group 3) who had one HIV test under the auspices of the National AIDS Demonstration and Research programs.

^bResults are based on the 3580 persons (1812 in group 1, 799 in group 2, and 969 in group 3) who were not tested as part of the National AIDS Demonstration and Research programs.

* $P < .0001$.

had each of several specific illnesses. Thus, women with multiple sex partners were about twice as likely (odds ratio [OR] = 2.16) as women with single sex partners to have had at least one sexually transmitted disease, and, among women with multiple partners, those who exchanged (OR = 1.80) were more likely than those who did not to have had a sexually transmitted disease, even when demographic factors were taken into account. The effects of having multiple partners vs having a single partner and of exchanging vs not exchanging were also associated with a significantly greater likelihood of having had genital herpes, gonorrhea, syphilis, and genital sores.

Discussion

Several points must be made before considering the implications of these data. First, National AIDS Demonstration

and Research projects were not planned as population studies, and subjects were not randomly selected. Thus, the data were not intended to represent the universe of women with injection drug—using sex partners. Also, the data, excluding HIV serostatus, were based on self-report. There may be limitations to the precision of these data, especially since most questions concerned behavior over a period of 6 months. Finally, in order to have been involved in these projects, women had to have some knowledge of a partner's injection drug use. As noted previously, many women probably are unaware of their partner's injection drug use and thus constitute one particularly vulnerable group not represented here. Nonetheless, conclusions drawn from this research can be helpful in planning prevention strategies as well as indicating areas for future research.

TABLE 6—The Effect of Sex Partner Status on Sex Risk and Drug Use Behaviors, with Age, Ethnic Status, Geographic Region, Education, and Homelessness Controlled

Risk Behavior	Multiple Partners without Exchange vs Single Sex Partner		Multiple Partners with Exchange vs Multiple without Exchange	
	Parameter Estimate ^a	<i>t</i>	Parameter Estimate ^b	<i>t</i>
Unprotected sex acts (vaginal, oral, and anal), no.	2.93	1.92	23.20	8.82***
Condom use, %	6.74	8.86***	16.91	14.06***
Alcohol use	4.33	3.87**	12.47	7.08***
Marijuana use	2.90	3.11*	4.73	3.31**
Crack use	1.85	1.91	33.51	16.94***
Noninjection cocaine use	1.09	1.50	13.71	8.92***
Noninjection heroin use	0.48	0.91	1.28	1.76

Note. All risk behaviors (except condom use) are expressed as mean number of times per month.

^aStatistically adjusted mean difference between women with multiple partners (no exchange) (n = 1205) and women with single sex partners (n = 2734).

^bStatistically adjusted mean difference between women with multiple partners who exchanged (n = 1223) and women with multiple partners (no exchange) (n = 1205).

P* < .05; *P* < .001; ****P* < .0001.

TABLE 7—The Effect of Sex Partner Status on Health and AIDS-Related Outcomes, with Age, Ethnic Status, Geographic Region, Education, and Homelessness Controlled

Outcome	Multiple Partners without Exchange vs Single Sex Partner		Multiple Partners with Exchange vs Multiple Partners without Exchange	
	Odds Ratio ^a	Wald Chi-Square	Odds Ratio ^b	Wald Chi-Square
Genital herpes (ever)	2.03	9.38**	2.16	13.43***
Gonorrhea (ever)	2.16	71.88****	1.71	33.65***
Syphilis (ever)	1.98	21.27***	2.07	29.08***
Chlamydia (ever)	2.00	26.18***	1.28	3.29
Any sexually transmitted disease (ever)	2.16	92.95****	1.80	45.07***
Genital sores (ever)	1.53	13.84***	1.96	34.13***
Yeast infection (ever)	1.00	0.00	2.11	22.94***
Perceived health status of fair or poor	1.16	4.02*	1.46	19.36***
Pregnant at time of interview	0.67	10.28**	1.45	7.16**
Tested one or more times for HIV	0.95	0.42	0.51	43.56***
Tested positive on at least one HIV test	0.88	0.17	1.37	0.78
High or sure perceived likelihood of contracting AIDS	0.89	1.40	1.92	41.21***

Note. All outcome variables were coded dichotomously.

^aStatistically adjusted difference in the likelihood of having a particular outcome between women with multiple partners (no exchange) (n = 1205) and women with single partners (n = 2734).

^bStatistically adjusted difference in the likelihood of having a particular outcome between women with multiple partners who exchanged (n = 1223) and women with multiple partners (no exchange) (n = 1205).

P* < .05; *P* < .01; ****P* < .001; *****P* < .0001.

may take precedence over other motivations, including the prevention of AIDS. AIDS is but one of many concerns faced by these women, most of whom reside in economically and socially devastated inner cities. Experience with the National AIDS Demonstration and Research projects indicates that women with injection drug-using partners can be reached and appear interested in reducing their HIV risk.¹⁹ However, it must be recognized that the more immediate goal of HIV prevention may not be realized without addressing the broader social issues affecting these women's lives.

The major conclusion reached from these data is that differences among women with injection drug-using partners are clearly associated with the type of sexual contacts they have with men. On nearly all of the characteristics examined, even when major demographic variables were controlled, findings indicated that women who traded sex for drugs and/or money lead lives that are the most chaotic, the least healthy, and the most risky. The differences are not only statistically significant but are of a magnitude that is very dramatic in terms of what they mean in "real life." As poignantly written by researchers involved in a Miami-based project, "women who exchange sex for crack [as do many in this group] experience a level of human suffering previously unknown in the street drug scene."²⁰ Women who exchanged were much more likely to be homeless, to have been incarcerated, and to have engaged in illegal activities as a way to survive. Although they were more likely to report that their partners used a condom during sexual activities, a better indication of HIV risk was the significantly higher amount of unprotected high risk (vaginal and anal) sex in which they engaged. Also, they had significantly more injection drug-using partners than did women in the other groups, further increasing their risk for exposure to the virus. Crack use was rampant in this group, indicating a pressing need for drug treatment as a part of HIV prevention. Also, the rate of sexually transmitted diseases was extremely high, probably as a result of urban poverty, social disintegration, prostitution, and the exchange of sex for drugs.²¹ The rate of seropositivity in this group was higher than that in the other two groups, but not significantly so. However, because serostatus results were available for only 30% of the sample, it is highly likely, given the levels of risk reported among this group, that the difference would have been

Overall, considerable numbers of these women were poorly educated and unemployed. Also, many had jail or prison

experiences, were homeless, and had significant drug problems. These facts suggest that their daily need to survive

significant if a larger number of women had been tested.

Much that has been written about sex workers and AIDS has focused on the role of the former as "vectors of transmission" into the heterosexual community.¹ The dangers of this type of life for the women themselves have often not been addressed. Yet, with the relative efficiency of transmission from an infected man to a woman and the high probability in certain communities that women have sexual contacts with large numbers of infected men, these women probably face a greater risk of being infected themselves than infecting others.

Women with single partners presented a different picture in terms of HIV risk. They were most likely to receive an income from public assistance and to have children living with them. They were least likely to have been in jail or prison or in a drug treatment program. Their men were also least likely to use a condom during sexual activities. Thus, although they had a lower frequency of unprotected vaginal sex than the women with multiple partners who exchanged sex for drugs and/or money, women with a single injection drug-using sex partner must still be considered at high risk. Because their reports of noninjected drug use were relatively low, as was their incidence of sexually transmitted diseases, they are mainly at risk through unprotected sex with a single injection drug user. While condom use is recommended as an HIV prevention strategy for all sex partners of injection drug users, qualitatively different relationships (e.g., monogamous couples vs women who trade and their clients) may call for different approaches to condom use negotiation. This issue needs more investigation. Also recommended is more research on developing and testing protective methods that are controlled by women, including the recently introduced female condom.²²

Women with multiple sex partners who did not trade sex for drugs and/or money appeared to be more like women with single sex partners on both demographic characteristics and level of HIV risk. Thus, they are at risk primarily through unprotected sex with multiple injection drug users.

Many research questions remain to be investigated. For example, which demographic and drug use variables predict group status? Also, more information is needed regarding the relative efficacy of different models of outreach and interven-

tion with these women. HIV risk reduction efforts among drug users have generally focused on two behavior change strategies: social learning techniques (to teach the skills necessary for risk reduction) and the community organizing model, which is based on changing norms, values, and practices directly connected with HIV risk reduction.²³ It is not yet clear which is most relevant to women with injection drug using sex partners. Finally, the present study focused on a single point in time. One particular variable that needs to be examined more closely is the past use of injection drugs by this population. Unfortunately, detailed information regarding prior injection behavior, including when drug injection stopped, was not available from this sample. Additional research is required to assess the extent to which risk behaviors among identified groups of women with injection drug-using partners vary over time and to identify those factors affecting change. □

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