Women at a Sexually Transmitted Disease Clinic Who Reported Same-Sex Contact: Their HIV Seroprevalence and Risk Behaviors

Pamela Jean Bevier, PhD, MPH, Mary Ann Chiasson, DrPH, Richard T. Heffernan, MPH, and Kenneth G. Castro, MD

ABSTRACT

Objectives. This study compares characteristics, behaviors, and human immunodeficiency virus (HIV) infection in women who reported same-sex contact and women who had sex only with men.

Methods. Participants were patients attending a New York City sexually transmitted disease clinic. Structured questionnaires were administered by interviewers.

Results. Overall, 9% (135/1518) of women reported same-sex contact; among these, 93% also reported contact with men. Women reporting same-sex contact were more likely than exclusively heterosexual women to be HIV seropositive (17% vs 11%; odds ratio [OR] = 1.7, 95% confidence interval [CI] = 1.0, 2.6), to exchange sex for money/drugs (48% vs 12%, OR = 6.7, 95% CI = 4.6, 9.8), to inject drugs (31% vs 7%, OR = 6.3, 95% CI = 4.1, 9.5), and to use crack cocaine (37% vs 15%, OR = 3.3, 95% CI = 2.2, 4.8). HIV in women reporting same-sex contact was associated with history of syphilis (OR = 8.8), sex for crack (OR = 5.7), and injection drug use (OR = 4.5).

Conclusions. In this study, women who reported same-sex contact were predominantly bisexual. They had more HIV risk behaviors and were more often HIV seropositive than women who had sex only with men. Among these bisexual women, heterosexual contact and injection drug use were the most likely sources of HIV. There was no evidence of female-to-female transmission. (*Am J Public Health.* 1995;85: 1366–1371)

Introduction

Little is known about human immunodeficiency virus (HIV) seropositivity and its associated risk factors in women who report sexual contact with other women. This lack of information—especially concerning bisexuals and minorities—has left a major gap in research on women as well as on HIV transmission.

Only 2% (182/9717) of all female acquired immunodeficiency syndrome (AIDS) cases reported through September 1989 involved women identified as homosexual or bisexual[1]; however, an estimated 3% to 4% of all women may be homosexual or bisexual.[2–4] National AIDS surveillance recorded 164 cases of AIDS in exclusively homosexual women from June 1980 through June 1991; of these, 93% were attributed to injection drug use while the remaining 7% involved women with a history of blood transfusion.[5] For bisexual women, injection drug use was reported for 79% of the 103 recorded AIDS cases from June 1980 through September 1989.[1]

Only a few studies have assessed HIV seropositivity in women reporting sex with other women. Three separate analyses of nationwide data have found that HIV seropositivity in lesbians and bisexuals is linked to injection drug use and heterosexual contact.[2,3,6] Surveys of more restricted populations (readers of a lesbian magazine, clinic patients, lesbian-identified injection drug users) have also found heterosexual risk behavior in addition to injection drug use.[7–9] Other surveys have offered incidental or anecdotal evidence of risky behaviors and high HIV seroprevalence among women having same-sex contact.[10–13] To describe risk factors associated with HIV seropositivity in this population more accurately, the present study, undertaken at a New York City sexually transmitted disease clinic, compares characteristics and behaviors of women who reported sex with women (93% of whom also had male partners) with those of women who reported sex only with men.

Methods

From February 1988 through December 1992, the New York City Department of Health surveyed patients attending an inner-city sexually transmitted disease clinic to determine the seroprevalence of HIV and its associated risk behaviors. The number of patients approached on any given day depended on the availability of study personnel. Selection bias owing to day or time of recruitment was unlikely since a review of registration records at this clinic uncovered no pattern of arrival based on sex, ethnicity, or reason for clinic visit; furthermore, refusal to participate in our study was rare. Patients diagnosed with genital ulcers (syphilis, chancroid, and genital herpes) were recruited more intensively. However, the proportions of women reporting same-sex contact and of heterosexual women with these diagnoses were similar (18% and 20%, respectively).

Of the approximately 60 000 patients who attended the clinic during this 5-year period, 4585 (8%) participated in the study. Participants were similar to nonpar-

Pamela Jean Bevier, Mary Ann Chiasson, and Richard T. Heffernan are with the New York City Department of Health. Kenneth G. Castro is with the Centers for Disease Control and Prevention, Atlanta, Ga.

Requests for reprints should be sent to Mary Ann Chiasson, DrPH, New York City Department of Health, Room 315, Box 6, 125 Worth St, New York, NY 10013.

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ticipants in age and sex but were somewhat more likely to be HIV seropositive. For men and women, sample seroprevalence was 11% to 12% compared with 7% to 8% in the total clinic population (as determined by blinded serosurveys conducted annually throughout the study period).

All 1518 women in the survey sample were included in this report. The study group consisted of women reporting sex with one or more women since 1978, while the comparison group reported sex only with men during this time. Twenty-three women reported same-sex contact prior to 1978 but only male sex partners since then; these women were included in the heterosexual group on the assumption that more recent behavior would be not only more characteristic but more relevant to HIV serostatus.

Trained bilingual interviewers administered a structured questionnaire covering demographics, sexual behavior (primarily since 1978), and drug use (ever). During a return visit, participants were advised of their HIV status, counseled, and referred for treatment as needed. Medical charts were also reviewed. Informed consent was obtained, and the study was approved by the Institutional Review Board of the New York City Department of Health.

Laboratory Methods

Sexually transmitted diseases were diagnosed by clinical examination and standard laboratory procedures, and HIV status was determined by enzyme-linked immunosorbent assay and confirmatory Western blot. Laboratory methods and questionnaire design have been described in detail elsewhere.[14]

Statistical Methods

Data were analyzed with the SAS statistical software system, version 6.06.[15] Differences between subject and comparison groups on categorical variables were tested by Pearson chi-square test, and differences on continuous variables were evaluated by the Wilcoxon rank-sum test or by the Student's *t* test (two-tailed). Multiple logistic regression analysis was performed separately for each group of women with the SAS LOGISTIC procedure to assess the relationship between potential risk factors and HIV seropositivity.

Results

Since information on self-labeled sexual orientation was not recorded, terminology used below refers to behaviors only. "Homosexual" designates women who had sex exclusively with women, and "bisexual" refers to women who had sex with both men and women.

TABLE 1—Demographic Characteristics of Women Attending a New York City Sexually Transmitted Disease Clinic, by Same-Sex or Heterosexual Contact

	Women with Same-Sex Contact (n = 135)		Heterosexual Women (n = 1383)				
	No.	%	No.	%	OR	95% CI	*P*
Mean age, y (SD)	29	7.1	28	8.9			.10*
Race/ethnicity							
Black	76	56	743	54			
Hispanic	50	37	590	43			
White	6	5	40	3			
Other	3	2	10	1			.15**
Unmarried	113	84	975	71	2.1	1.3, 3.4	
< high school graduate	61	45	701	51	0.8	0.6, 1.1	
Unemployed	96	71	852	62	1.5	1.0, 2.3	
Income <$10 000/year	97	72	949	69	1.2	0.8, 1.7	

Note. SD = standard deviation; OR = odds ratio; CI = confidence interval.
*P value for *t* test.
**Chi-square *P* value.

Of the 1518 female patients interviewed, 135 (9%) reported sexual contact with at least one woman since 1978, whereas 1383 (91%) women reported sex only with men since 1978. The spectrum of sexual behavior can be further subdivided as follows: 4 (0.3%) women were exclusively homosexual; 6 (0.4%) had sex with men prior to 1978 but were homosexual thereafter; 125 (8%) had both male and female partners since 1978; 23 (2%) had female partners before 1978 but were heterosexual afterward; and 1360 (90%) were exclusively heterosexual.

Demographically, women reporting same-sex contact were similar to heterosexual women in age, racial/ethnic distribution, level of education, and annual income; however, they were more likely to be unemployed and less likely to be married (Table 1).

Women reporting same-sex contact were more sexually active, with 38% reporting three or more partners of either sex in the last 3 months compared with 13% of heterosexual women (OR = 4.1; 95% confidence interval [CI] = 2.8, 6.0). Women reporting same-sex contact since 1978 estimated having a median of 14 partners (range = 1 to ≥999), compared with 4 (range = 0 to ≥999) for heterosexual women (Wilcoxon rank-sum $P = .0001$). Approximately 95% of all sex partners of women reporting same-sex contact were men.

Forty-eight percent of women reporting same-sex contact acknowledged exchanging sex for money or drugs at least once since 1978, compared with 12% of heterosexual women (Table 2). The difference remained significant when the comparison was restricted to those who made such exchanges 50 or more times per year (32% vs 6%; OR = 7.6; 95% CI = 5.0, 11.7). All but 2 of the 65 women reporting same-sex contact exchanged sex with men, and 14 (22%) said they also had exchanged sex with women. More than 50% in both groups of women exchanged sex for crack, although both injection drug use and crack use were more common in women who had sex with women (Table 2).

Women reporting same-sex contact also had more high-risk sex partners since 1978, including injection drug users, bisexual men, and persons infected with HIV (Table 2). Users of crack cocaine—another group at increased risk for HIV—were partners of 15% of women reporting same-sex contact compared with 8% of heterosexual women (OR = 2.1; 95% CI = 1.3, 3.5).

When the analysis comparing selected high-risk behaviors among women reporting same-sex contact with that among heterosexual women was stratified by the exchange of sex for money or drugs, women reporting same-sex contact were

TABLE 2—Behavioral Characteristics of Women Attending a New York City Sexually Transmitted Disease Clinic, by Same-Sex or Heterosexual Contact

	Women with Same-Sex Contact (n = 135)		Heterosexual Women (n = 1383)			
	No.	%	No.	%	OR	95% CI
Sexual behavior[a]						
Age at first intercourse (with men or women) < 14 y	53	39	210	15	3.6	2.5, 5.3
Sex for pay	65	48	168	12	6.7	4.6, 9.8
> 50% sex partners one-time only	34	25	101	7	4.3	2.8, 6.6
Sex partner risk						
Injection drug use	61	45	287	21	3.1	2.2, 4.5
Bisexual man	25	19	67	5	4.5	2.7, 7.4
HIV positive	13	10	76	6	1.8	1.0, 3.4
Activity in more than 50% of sexual encounters						
Vaginal intercourse	110	81	1373	99	0.03	0.01, 0.07
Oral-penile sex	76	56	534	39	2.0	1.4, 2.9
Anal intercourse	17	13	85	6	2.2	1.3, 3.8
Drug use (ever)						
Injection drug use	42	31	93	7	6.3	4.1, 9.5
Crack use	50	37	211	15	3.3	2.2, 4.8
Sexually transmitted disease history[a]						
Syphilis	41	30	195	14	2.7	1.8, 4.0
Any genital ulcer disease[b]	49	36	288	21	2.2	1.5, 3.1
Any sexually transmitted disease	84	62	662	48	1.8	1.2, 2.6
HIV seropositive	23	17	153	11	1.7	1.0, 2.7

Note. OR = odds ratio, CI = confidence interval, HIV = human immunodeficiency virus.
[a]Since 1978 unless otherwise indicated.
[b]Includes primary syphilis, herpes, chancroid.

still more likely to report injection drug use, more high-risk sex partners, a greater number of recent sex partners, and a history of syphilis (Table 3).

During heterosexual encounters, women who had same-sex contact had more oral-penile sex and anal intercourse, and less vaginal-penile intercourse, than heterosexual women (Table 2). Although condom use by partners was rare for all women—64% of women reporting same-sex experiences and 69% of heterosexual women said condoms were used during fewer than half of their vaginal-penile contacts since 1978 (OR = 0.8; 95% CI = 0.6, 1.2)—more women reporting sexual contact with other women had been diagnosed with sexually transmitted diseases, especially syphilis.

As seen in Table 2, HIV seropositivity was more common among women reporting same-sex contact. All 10 women who had sex exclusively with women since 1978 were HIV seronegative. Bisexuals, however, were more likely to be HIV seropositive than heterosexuals (18% vs 11%; OR = 1.8; 95% CI = 1.1, 2.9).

To examine the associations between behavior and HIV seropositivity, univariate and stepwise multiple logistic regression analyses were performed separately for women reporting same-sex contact, heterosexuals, and all women combined. In the analysis limited to women reporting same-sex contact, a history of syphilis, of exchanging sex for crack cocaine, and of injection drug use were all strongly associated with being HIV seropositive. For heterosexual women, significant risks were using injection drugs, having high-risk sex partners, not finishing high school, engaging in anal intercourse, and trading sex. For all women, stepwise multiple logistic regression analysis retained the same factors that were significant for both groups of women separately. In addition, having sex with women had a significant negative association with HIV; i.e., same-sex sexual contact was not related to HIV after controlling for heterosexual behavior and injection drug use (Tables 4–6).

Discussion

Women in this study who reported same-sex contact were much more likely than heterosexual women to engage in HIV-associated risk behaviors such as injection drug use, contact with high-risk male sex partners, and sex trading. Bisexuals (93% of those reporting same-sex contact) were more likely than homosexual or heterosexual women to be HIV seropositive. However, these findings should be interpreted cautiously. Since most female patients at a sexually transmitted disease clinic have a disease transmitted through heterosexual contact, the study group was biased toward bisexuals and, therefore, not representative of all women who have sex with women. In addition, the participants who visited this sexually transmitted disease clinic and volunteered to be tested for HIV were predominantly poor Black and Hispanic women from an inner-city area with high rates of drug use, sexually transmitted diseases, and HIV infection.

Although homosexuals were underrepresented, women who reported same-sex contact nevertheless constituted 9% of all female patients in the sample and 13% of all HIV-seropositive women. These proportions are similar to those found among women studied at an outpatient clinic in New York City: 10% (101/1014) had same-sex contact, and 13% of those were HIV seropositive.[7] It is possible, therefore, that both the number of women having same-sex contact and the extent of their risk for HIV have been underrecognized in AIDS surveillance data.

High-risk sexual behavior among women who have sex with women has been described by other researchers.[2,7,12,13] Multiple sex partners, including bisexual men and injection drug users, have been acknowledged by self-identified lesbians as well as bisexuals. Although vaginal intercourse occurred less often among women reporting same-sex contact in this study than among heterosexual women, most bisexual women had significant heterosexual contact. The higher frequency of oral-penile sex may be related to selling sex on the street or exchanging sex for crack cocaine.[16,17] Moreover, women who exchange sex for drugs may

TABLE 3—Behavioral Risk Characteristics for Women with Same-Sex Contact and Heterosexual Women, by Their Exchange or Nonexchange of Sex for Money or Drugs

	Sex for Pay[a]						No Sex for Pay					
	Women with Same-Sex Contact (n = 65)		Heterosexual Women (n = 168)				Women with Same-Sex Contact (n = 70)		Heterosexual Women (n = 1215)			
Risk Characteristic	No.	%	No.	%	OR	95% CI	No.	%	No.	%	OR	95% CI
Injection drug use	23	35	39	23	1.8	1.0, 3.4	19	27	54	4	8.0	4.4, 14.5
High-risk partner[b]	46	71	74	44	3.1	1.7, 5.7	28	40	275	23	2.3	1.4, 3.7
More than three partners in last 3 months	40	62	94	56	1.3	.7, 2.3	11	16	85	7	2.5	1.3, 4.9
History of syphilis	27	42	48	29	1.8	1.0, 3.2	14	20	147	12	1.8	1.0, 3.3

Note. OR = odds ratio; CI = confidence interval.
[a]Exchanged money or drugs for sex at least once since 1978.
[b]Including injection drug users, bisexual men, and persons who are HIV positive.

be willing to perform acts refused by others, such as anal intercourse.[17–19]

In the study population, there was a strong association between bisexuality and exchange of sex for pay; 48% of women reporting same-sex contact engaged in this behavior and 28% of all women who were paid for sex were bisexuals. Undoubtedly, some sex trading can be characterized as "survival sex" and attributed to drug addiction or to low income and education levels. Sex trading might also be one manifestation of the multiple-risk behavior syndrome identified by some researchers.[20–22]

Drug use was also more common among women reporting same-sex contact, whether they were homosexual or bisexual, sex traders or not. A high prevalence of substance abuse in this population has been reported previously.[12,13,23–25] Although injection drug use has been identified as the major risk behavior for HIV infection in this population,[1–3,5–11,26] studies based on AIDS surveillance data may reflect an unintentional bias toward injection drug use since hierarchical classification ranks such behavior above other AIDS risks with lower transmission probabilities. Moreover, current AIDS patients were infected earlier in the epidemic and, for the most part, do not represent more recent HIV transmission patterns associated with crack cocaine, heterosexual contact, and sexually transmitted disease.

Finally, the high rate of sexually transmitted disease and strong association between syphilis and HIV among women reporting same-sex contact provide further evidence that sexually transmitted disease, especially genital ulcer disease, may facilitate HIV transmission.[27–31] Our study also confirms other data linking recent increases in syphilis and HIV to exchange of sex for crack among inner-city, minority populations.[14,16,32–38]

We found no clinical or statistical evidence of female-to-female transmission of HIV. Women who were exclusively homosexual had no sexually transmitted diseases or HIV, and sexual contact with other women was the only behavior

TABLE 4—Univariate and Stepwise Multiple Logistic Regression of Risk Characteristics Associated with HIV Seropositivity: Women with Same-Sex Contact (n = 135)[a]

	HIV+ (n = 23)		HIV− (n = 112)				
Risk Characteristic	No.	%	No.	%	Odds Ratio	Adjusted Odds Ratio	95% Confidence Interval
History of syphilis	16	70	25	22	7.9	8.7	2.9, 26.0
Sex for crack	12	52	24	21	4.0	5.8	1.9, 18.1
Injection drug use	12	52	27	24	3.4	4.5	1.5, 13.8

[a]Variables not meeting the 0.05 criterion for remaining in the model were having high-risk sex partners, not finishing high school, engaging in anal intercourse, and number of female partners (log-transformed).

TABLE 5—Univariate and Stepwise Multiple Logistic Regression of Risk Characteristics Associated with HIV Seropositivity: Heterosexual Women (n = 1383)[a]

	HIV+ (n = 153)		HIV− (n = 1230)				
Risk Characteristic	No.	%	No.	%	Odds Ratio	Adjusted Odds Ratio	95% Confidence Interval
Injection drug use	47	31	42	3	12.5	5.5	3.3, 9.2
High-risk partner[b]	116	76	332	27	8.5	5.4	3.5, 8.2
< high school graduate	111	73	590	48	2.9	2.6	1.7, 3.9
Anal intercourse	19	12	66	5	2.5	2.5	1.3, 4.7
Sex for money/drugs	49	32	119	10	4.4	1.8	1.2, 2.7

[a]Variables not meeting the 0.05 criterion for remaining in the model were history of syphilis and number of male partners (log-transformed).
[b]High-risk sex partners include injection drug users, bisexual men, and persons who are HIV positive.

TABLE 6—Univariate and Stepwise Multiple Logistic Regression of Risk Characteristics Associated with HIV Seropositivity: All Women (n = 1518)[a]

Risk Characteristic	HIV+ (n = 176) No.	%	HIV− (n = 1342) No.	%	Odds Ratio	Adjusted Odds Ratio	95% Confidence Interval
High-risk partner[b]	135	77	404	30	7.6	4.8	3.2, 7.2
Injection drug use	59	33	69	5	9.3	4.7	3.0, 7.4
< high school graduate	126	72	639	48	2.8	2.4	1.7, 3.5
Sex for money/drugs	67	38	166	12	4.4	1.9	1.3, 2.9
Anal intercourse	21	12	81	6	2.1	1.9	1.1, 3.4
History of syphilis	52	30	184	14	2.6	1.7	1.1, 2.6
Same-sex contact	23	13	112	8	1.6	0.5	0.3, 0.8

[a]All variables entered in the equation met the 0.05 criterion for remaining in the model.
[b]High-risk sex partners included injection drug users, bisexual men, and persons who were HIV positive.

examined that was negatively associated with HIV seropositivity. Studies of noninjection drug–using women who are exclusively homosexual are needed to better determine the risk of this mode of transmission.

Epidemiologically, our findings indicate that women reporting same-sex contact in this New York City sexually transmitted disease–clinic population were most likely to acquire HIV through heterosexual contact and injection drug use. In terms of prevention, health care professionals and women themselves should be aware that bisexuality may be more common than expected among women thought to be exclusively heterosexual or homosexual, and that women who report sex with women may be at high risk for HIV infection from sources other than their female partners. These multibehavioral risks (including same-sex sexual contact) must be fully evaluated and addressed in all HIV prevention messages and risk-reduction counseling sessions. □

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