

ORIGINAL ARTICLE

# Characteristics of female sexually transmitted disease clinic clients who report same-sex behaviour

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**Summary:** Female STD clinic clients were categorized by report of sex partners' gender in the preceding 2 months and characterized with respect to HIV risk and STD diagnosis. Among 18,585 visits, 290 women (1.5%) reported sex exclusively with women, and 841 (4.5%) reported sex with both men and women. Relative to women reporting sex only with men, those reporting sex with both men and women reported more recent partners, sex with partners at high risk for HIV, injection drug and crack cocaine use, and exchange of sex for drugs or money. Women reporting sex exclusively with women more frequently reported prior sex with a bisexual man or an HIV-infected partner. Female STD clinic clients who report sex with both men and women may be at increased HIV risk relative to women reporting sex exclusively with men, and women who report sex only with women may be more likely to have had sex with men at high risk for HIV infection.

**Keywords:** Sexually transmitted disease, human immunodeficiency virus, lesbian, homosexuality, bisexuality

## INTRODUCTION

During their lifetimes, 8–20% of women engage in sex with other women<sup>1–5</sup>. Although uncommon, transmission of HIV between female sex partners has been reported<sup>6–9</sup>. Bacterial vaginosis (BV), a condition associated with pelvic inflammatory disease (PID) and adverse outcomes of pregnancy<sup>10</sup>, may be common in women who have sex with women (WSW)<sup>11–15</sup>, and sexual transmission of BV between women has been debated<sup>11,13</sup>. Even though human papillomavirus (HPV) may also be transmitted between female sex partners<sup>16–18</sup>, WSW do not receive Pap smear screening according to recommended guidelines<sup>16,19–21</sup>.

Despite this evidence that WSW are at risk, there is very limited understanding of the frequency and range of behaviours that put WSW at risk for STD and HIV acquisition. Among WSW attending STD clinics, report of sex with women in addition to sex with men has been associated with a high prevalence of HIV-related risk behaviours, including sex with gay or bisexual men, use of injection

drugs, use of crack cocaine, and exchange of sex for drugs or money<sup>22,23</sup>. Further, report of same-sex behaviour among female injection drug users (IDUs) has been independently associated with a greater than 2-fold risk of HIV infection<sup>24</sup>. The proportion of HIV-infected women who have sex with women may be substantial, while use of barrier methods to prevent STD transmission in such encounters may be low<sup>25</sup>.

The present study was undertaken among women who sought care at an urban public STD clinic in order to characterize and compare risk behaviours and STD diagnoses in 3 groups: women who reported sex exclusively with women in the past 2 months, women who reported sex with both men and women, and women who reported sex exclusively with men.

## METHODS

Client records for initial visits to the Public Health–Seattle and King County STD Clinic from 1993 through 1997 were analysed. Follow-up visits (defined as any visit that occurred within 3 months of an initial visit) were excluded. Demographic data are collected at clinic registration; other information is recorded on a standardized form routinely used by clinicians that includes standard risk assessment for HIV acquisition. For subjects

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who undergo physical examination (including assessment of external genitalia, vagina, cervix, and bimanual examination), exam findings, laboratory results, and final diagnosis are entered by clinicians. Examination of vaginal fluid includes pH measurement, saline preparation to assess the presence of clue cells or trichomonads, and potassium hydroxide (KOH) preparation to assess the presence of volatile amines and yeast forms.

Bacterial vaginosis is diagnosed if any 3 of the following 4 criteria were present: (1) vaginal pH  $\geq 4.7$ , (2) clue cells (squamous vaginal epithelial cells covered with many bacteria, giving them a granular appearance with indistinct borders) on wet mount, (3) detection of 'fishy' odour with the addition of KOH to the vaginal fluid (KOH whiff test), and (4) abnormal vaginal discharge (increased in amount, differing from normal consistency, or malodorous)<sup>26</sup>. *Chlamydia trachomatis* and *Neisseria gonorrhoeae* are diagnosed using endocervical cultures as previously described<sup>27</sup>. A diagnosis of trichomoniasis requires visualization of motile trichomonads on saline preparation of vaginal fluid or a positive culture for *Trichomonas vaginalis*. Vulvovaginal candidiasis (VVC) is diagnosed clinically, and vaginal KOH preparation and pH are employed to substantiate the diagnosis of VVC for most patients. All women tested for HIV have enzyme-linked immunoassay (ELISA) performed with confirmatory Western blot if ELISA was reactive. Syphilis is defined by confirmation of a specific haemagglutination assay (TPHA).

For the analysis, female clients were categorized by their report of their sex partners' gender in the preceding 2 months: exclusively women, men and women, or exclusively men. Women who reported sex only with women but whose records indicated report of vaginal-penile sex or fellatio in the preceding 2 months were categorized as having had sex with both men and women. Dichotomous variables were compared in the 3 groups of women using Chi-square analysis or Fisher's exact test if the expected cell frequency was  $< 5$ . Data analysis was performed using SPSS for Windows, version 8.0 (Chicago, IL).

## RESULTS

From 1993 through 1997, 20,077 initial visits were recorded for women at the clinic. Information on the sex of partners was not provided for 1249 (6.2%) of these encounters, and they were excluded from the analysis; these 1249 women did not differ from those included in the study with regard to STD diagnoses or HIV risk behaviours. Women evaluated at the remaining 18,585 visits constituted the study population (Table 1). Of these, 290 (1.5%) reported sex exclusively with women in the prior 2 months, and 841 (4.5%) reported sex with both men and women. Compared with women reporting sex only with men, women reporting sex with women only were older, more likely to be white, and more

likely to cite either HIV screening or referral from an outside provider as their reason for visiting the clinic. They were less likely to cite symptoms or sex with a person with STD, less likely to report a history of abnormal Pap smear or douching in the past month, and they reported fewer sex partners in the prior year (but not in the past 2 months). Women reporting sex with both men and women did not differ from women who reported sex exclusively with men in age, racial distribution, or report of sex with a person with STD, and they were less likely to cite the presence of symptoms as their reason for visit. However, they reported over 3 times the number of sex partners in the prior year and almost twice the number of new and total sex partners in the preceding 2 months, and were more likely to report a history of abnormal Pap smear.

Standard risk assessment for infection with HIV was performed for all subjects (Table 2). Compared with women reporting sex with men only, women reporting sex with only women were more likely to report ever having had sex with a gay or bisexual man and to have had sex with a person known to be infected with HIV. They were less likely to report the use of crack cocaine and exchange of drugs for money or sex. Compared with women reporting sex with men only, women who reported sex with both men and women were more likely to report sex with gay or bisexual men, sex with IDUs, and sex with known HIV-infected persons. In addition, injection drug use, use of crack cocaine, exchange of sex for drugs or money, and sex with  $> 4$  males in the preceding year were all reported much more commonly among women reporting sex with both men and women. Only one-third of the women who reported sex with both men and women acknowledged no risk factor for HIV acquisition.

Clinical and laboratory diagnoses among subjects who underwent physical examination and laboratory testing are presented in Table 3. Although a smaller proportion of women who reported sex exclusively with women underwent endocervical culture for *C. trachomatis* and *N. gonorrhoeae* relative to women who reported sex with men, chlamydial infection was diagnosed in 2 women reporting sex only with women. Subjects did not differ in the prevalence of BV, trichomoniasis, hepatitis B, syphilis, or VVC. BV was common in all 3 groups.

## DISCUSSION

Among women attending our STD clinic, those who reported sex with both male and female partners in the preceding 2 months had a high prevalence of risk behaviour for HIV acquisition. This risk was related both to characteristics of sex partners (HIV-infected, IDUs) and to the subject's own substance use (intravenous drug use, crack cocaine). Women reporting sex only with other women in the preceding 2 months were similar to heterosexual women in their HIV risk profile, with

Table 1. Characteristics of female clients undergoing evaluation at Harborview STD Clinic, 1993–1997, by sex of partners\*

Characteristic	Sex with females only n=290 (%)	Sex with females and males n=841 (%)	Sex with males only n=17454 (%)	All subjects n=18585 (%)
Mean age $\pm$ SD	31 $\pm$ 8	28 $\pm$ 7	27 $\pm$ 9	27 $\pm$ 9
Race				
White	241 (83.1) <sup>†</sup>	586 (69.0) <sup>†</sup>	10014 (56.6)	10841 (57.6)
Black	20 (6.9) <sup>†</sup>	136 (16.0) <sup>†</sup>	4335 (24.5)	4491 (23.9)
Hispanic	8 (2.8)	19 (2.2)	680 (3.8)	707 (6.2)
Native American	3 (1.0)	22 (2.6)	487 (2.7)	512 (2.7)
Asian	9 (3.1)	17 (2.0)	1065 (6.0)	1095 (5.8)
Other/unknown	9 (3.1)	65 (7.7)	1108 (6.3)	1182 (6.4)
Reason for visit				
Symptoms	69 (23.8) <sup>†</sup>	404 (47.6) <sup>§</sup>	9204 (52.0)	9677 (51.4)
STD screen	81 (27.9)	209 (24.6)	3948 (22.3)	4238 (22.5)
HIV test	60 (20.7) <sup>§</sup>	146 (17.2)	2598 (14.7)	2804 (14.9)
Referral	57 (19.7) <sup>†</sup>	24 (3.2)	424 (2.4)	505 (2.7)
STD contact	3 (1.0) <sup>§</sup>	19 (2.2)	634 (3.6)	656 (3.5)
Positive test	2 (0.7)	8 (0.9)	248 (1.4)	258 (1.4)
Not recorded	18 (6.2) <sup>§</sup>	39 (4.6)	633 (3.6)	690 (3.7)
No. sex partners, past years (mean $\pm$ SD)	3.4 $\pm$ 22.3	16.5 $\pm$ 85.9	5.3 $\pm$ 40.0	5.8 $\pm$ 43.0
No. sex partners, past 2 months (mean $\pm$ SD)	1.0 $\pm$ 0.8	2.7 $\pm$ 8.1	1.5 $\pm$ 1.0	1.5 $\pm$ 4.1
No. new sex partners past 2 months (mean $\pm$ SD)	0.4 $\pm$ 1.0	1.8 $\pm$ 7.9	0.7 $\pm$ 3.7	0.8 $\pm$ 4.0
Contact to:				
Gonorrhoea	0 (0)	13 (1.5)	355 (2.0)	368 (2.0)
Chlamydia	3 (1.0)	12 (1.4)	397 (2.2)	412 (2.2)
HIV	1 (0.3)	4 (0.5)	58 (0.3)	63 (0.3)
Genital warts	0 (0)	8 (1.1)	203 (1.1)	211 (1.1)
Genital herpes	7 (2.4)	17 (2.0)	298 (1.7)	322 (1.7)
Douching, past month	4 (1.4) <sup>§</sup>	67 (7.9)	1121 (6.3)	1192 (6.3)
History of abnormal Pap smear	23 (7.9) <sup>§</sup>	122 (14.4) <sup>§</sup>	2105 (11.9)	2250 (12.0)

\*Defined on the basis of reported sex of sex partner(s) and type of sexual behaviour during the preceding 2 months. SD=standard deviation. <sup>†</sup> $P<0.001$  relative to women reporting sex with men only. <sup>§</sup> $P=0.001-0.05$  relative to women reporting sex with men only

Table 2. Self-reported risk behaviours among subjects

	Sex with females only n=290 (%)	Sex with females and males n=841 (%)	Sex with males only n=17454 (%)	All subjects n=18585 (%)
Condom use at last sex				
Yes	–	140 (16.5)	2431 (13.7)	2579 (13.7)
No	–	275 (32.4)	4967 (28.1)	5307 (28.2)
Missing	–	433 (51.0)	10291 (58.2)	10942 (58.1)
Sex with gay or bisexual man, ever	29 (10.0) <sup>§</sup>	245 (28.9) <sup>†</sup>	1025 (5.8)	1299 (6.9)
Sex with IDU ever	30 (10.3)	218 (25.7) <sup>†</sup>	1790 (10.1)	2038 (10.8)
Sex with person known to be HIV-infected, ever	10 (3.4) <sup>§</sup>	40 (4.7) <sup>†</sup>	217 (1.2)	267 (1.4)
Injection drug use since 1978	19 (6.6)	136 (16.0) <sup>†</sup>	1015 (5.7)	1170 (6.2)
Injection drug use, past year	11 (3.8)	95 (11.2) <sup>†</sup>	621 (3.5)	727 (3.9)
Crack cocaine use since 1978	9 (3.1) <sup>§</sup>	177 (20.8) <sup>†</sup>	1612 (9.1)	1798 (9.5)
Crack cocaine use, past year	7 (2.4) <sup>§</sup>	141 (16.6) <sup>†</sup>	1187 (6.7)	1335 (7.1)
Exchange of drugs or money for sex	5 (1.7) <sup>§</sup>	157 (18.5) <sup>†</sup>	1082 (6.1)	1244 (6.6)
>4 male sex partners, past year	–	205 (24.1) <sup>†</sup>	1832 (10.4)	2038 (10.8)
Other risk for HIV acquisition*	15 (5.2)	57 (6.7) <sup>§</sup>	826 (4.7)	898 (4.8)
No identified risk for HIV acquisition	180 (62.1)	293 (34.5) <sup>†</sup>	11036 (62.4)	11509 (61.1)

\*Includes transfusion, occupational exposure, other unspecified risk. <sup>†</sup> $P<0.001$  relative to women reporting sex with men only. <sup>§</sup> $P=0.001-0.05$  relative to women reporting sex with men only. IDU=intravenous drug user

Table 3. Clinical and laboratory findings among subjects\*

	Sex with females only n=290 (%)	Sex with females and males n=849 (%)	Sex with males only n=17689 (%)	All subjects n=18585 (%)
Culture for <i>C. trachomatis</i>				
No. tested (%)	187 (64) <sup>§</sup>	648 (76)	13442 (76)	14277 (77)
No. positive (%)	2 (1.1) <sup>§</sup>	12 (1.9) <sup>†</sup>	788 (5.9)	802 (5.6)
Culture for <i>N. gonorrhoeae</i>				
No. tested	192 (66) <sup>†</sup>	661 (78)	13596 (77)	14449 (78)
No. positive (%)	0 (0) <sup>§</sup>	14 (2.1)	342 (2.5)	356 (2.5)
HIV infection				
No. tested	218 (75) <sup>§</sup>	571 (67) <sup>§</sup>	9964 (56)	10753 (58)
Positive	0 (0)	4 (0.7)	26 (0.3)	30 (0.3)
Indeterminate	0 (0)	5 (0.8)	39 (0.4)	44 (0.4)
Syphilis*				
No. tested	134	403	7780	8317
No. (%) positive	1 (0.7)	5 (1.2)	106 (1.4)	112 (1.3)
No. with vaginal fluid examination	199 (69) <sup>†</sup>	660 (78)	13750 (78)	14609 (79)
Bacterial vaginosis	43 (21.6)	182 (27.6)	3342 (24.3)	3567 (24.4)
<i>Trichomonas vaginalis</i>	4 (2.0)	34 (5.2)	717 (5.2)	755 (5.2)
Vulvovaginal candidiasis	29 (14.6)	113 (17.1)	2660 (19.3)	2802 (19.2)

\*See text for diagnostic criteria. <sup>†</sup> $P < 0.001$  relative to women reporting sex with men only. <sup>§</sup> $P = 0.001-0.05$  relative to women reporting sex with men only

the exception of reporting ever having had sex with a gay or bisexual male more often. Chlamydial infection and trichomoniasis occurred in this group, and the prevalence of BV was over 20%, similar to that found in women reporting sex with men.

Some studies have reported a low prevalence of STD among WSW<sup>12,19,28</sup> and others suggest that the risk of transmission of HIV between female sex partners is very low<sup>29-31</sup>. However, concurrent sex with men has not always been clearly delineated in such studies. Further, transmission of HIV<sup>6-9</sup>, *T. vaginalis*<sup>32</sup> and hepatitis A<sup>33</sup> have been reported to occur between female sex partners, and HPV and associated cervical neoplasia have been detected in WSW who reported no prior sex with men<sup>16-18</sup>. Even when surveyed outside of the STD clinic setting, many WSW (53-99%) report having had sex with men, and a sizable minority (20-30%) continue to have sex with men as well as women<sup>2,34</sup>. Therefore, most WSW are likely to be at some risk for past acquisition of chronic viral STD, including HIV, genital herpes, and HPV from male partners.

Our findings regarding HIV risk behaviour among WSW are in accord with those of other investigators. Attempts to use national or local surveillance data to estimate the prevalence of STD among WSW are limited by the fact that many risk classification schemes have either excluded same-gender sex among women or subsumed it under a hierarchy of other behaviours viewed as conferring greater risk<sup>35,36</sup>. Few state or local STD reporting systems routinely collect information on same-sex behaviour among women. However, Shotsky examined HIV seroprevalence data from New York State's HIV counselling and testing programmes from 1993-1994<sup>37</sup>. HIV seroprevalence

among the 27,370 women tested was highest among women who reported sex with both men and women (4.8%), compared with that among women who were sexually active with women exclusively (3.0%) or with men (2.9%). Several studies have found that a report of sex between women was highly correlated with other behaviours conferring a high risk for HIV infection, most notably injection drug use and sex with gay or bisexual men<sup>22,23,28,33,37-39</sup>. One community-based study of 498 WSW found that 40% of those surveyed had had unprotected vaginal or anal sex with a man in the past 3 years<sup>23</sup>; others have found that 20-30% of WSW report unprotected sex with men<sup>20,40,41</sup>. The National Lesbian and Bi Women's Health Survey found that 16% of 6146 respondents had sex with both women and men concurrently<sup>42</sup>. Further, many women reported contracting an STD from a female partner, including herpes in 135, chlamydia in 102, genital warts in 100, gonorrhoea in 16, hepatitis in 9, and HIV in one. Among 79 WSW assessed in a community health centre who reported no prior sex with males, trichomoniasis, abnormal Pap smears, and anogenital warts were reported<sup>20</sup>. Female adolescents who have sex with other females may be especially likely to engage in unprotected sex with both male and female partners<sup>43,44</sup>. Finally, in a large, cross-sectional, community-based study of sociometric networks among IDUs, Friedman *et al.* found report of same-sex behaviour among women to be associated with a 2-fold increase in the likelihood of HIV infection<sup>24</sup>.

Other findings in our study deserve comment. First, the fact that subjects who reported sex exclusively with women were older than women in the other 2 groups raises the question of accurate assessment of and appropriate access for young

WSW. Although younger WSW are likely to be at greatest risk for acquisition of STD by virtue of age-related STD prevalence and perhaps by higher number and male sex of partners<sup>43-45</sup>, they may not view an STD clinic as an appropriate place to obtain care. Alternatively, younger STD clinic clients may not have been as likely to acknowledge same-sex behaviour as were the older subjects in our study. Nonetheless, young WSW should have appropriate STD evaluation at accessible sites. Second, women reporting sex exclusively with women in the prior 2 months in our study were twice as likely to report ever having had sex with a gay or bisexual man as were exclusively heterosexual women. Given that such men are at high risk for HIV infection, which is often clinically inapparent, as well as for other STD, this exposure could prove significant for WSW who may be classified as 'low risk' when they later report exclusive same-sex behaviour. A thorough exposure history is warranted in all individuals undergoing HIV risk assessment and counselling. Finally, the relatively high prevalence of BV in women reporting sex with other women accords with findings of other investigators<sup>11-15</sup>. Reasons for this high prevalence are not known, although a high degree of concordance for the presence of BV within lesbian couples has fostered debate about a possible role for sexual transmission<sup>11,13</sup>.

Our study has several limitations. The possibility for inaccurate recording or entry of data exists in all studies based on retrospective review of client records. Also, interviews took place in the context of routine clinical assessment, and interviewers were not trained in administering questions in any standardized fashion. The structure of the clinic database provided for only cross-sectional analysis, so prospective information was not obtained. Information on sexual practices between women was not recorded, nor were we able to assess whether subjects had never had sex with male partners. Finally, and most importantly, findings among WSW attending STD clinics may not be generalizable to all WSW; this is especially true given the relatively older age and predominantly white race of our subjects who reported sex only with women.

In summary, our study highlights the importance of obtaining current sexual behaviour and sexual history in the STD and HIV risk assessment of WSW. Women who report recent sex with both men and women at an STD clinic may be at higher risk for acquisition of HIV, and such behaviour should be assessed with appropriate counselling as indicated. This is particularly important for settings which provide STD-related care to WSW, for whom there are barriers to regular use of healthcare services, including perceived homophobia of providers<sup>46-49</sup> and misinformation about risk for HIV, STD and cervical neoplasia<sup>2</sup>. Women who report recent sex only with women may have had sex in the past with men at high risk for HIV

infection and therefore, they should not be summarily classified as 'low-risk'. Both bacterial and viral STD, including chlamydial infection, trichomoniasis and genital herpes, occur among women who report recent sex exclusively with women, and established clinical algorithms for the diagnosis and treatment of these STD apply equally to these women as to women who report sex with men. As recently recommended in the Institute of Medicine report on research priorities for lesbian health, there is a need for more extensive data on sexual practices and healthcare seeking behaviours that put women who have sex with women at risk for STD<sup>50</sup>.

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