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Sexual Risk Factors Among Self-Identified Lesbians, Bisexual Women, and Heterosexual Women Accessing Primary Care Settings

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Objectives: **There is scant data on the sexual behaviors of women of diverse sexual orientations in a low-risk population.**

Goals: **The goals of this study were to sample women of all sexual orientations in primary care settings and to evaluate sexual behaviors and risk for HIV and other sexually transmitted diseases (STDs).**

Study: **A total of 1,304 women (self-identified as 49% heterosexual, 11% bisexual, and 40% lesbian) were surveyed by anonymous questionnaire at 33 healthcare sites.**

Results: **Among women who recently had sex with men (N = 600), 51% reported ever using condoms. Heterosexual women were at highest risk for acquiring HIV as a result of lack of condom use ($P < 0.001$), particularly in higher-risk situations. Bisexual women reported substance use with sex at a higher rate than lesbians or heterosexual women ($P < 0.001$). Lesbians had higher rates of sex with bisexual men ($P < 0.001$) and injection drug users ($P < 0.02$), but also a higher rate of condom use ($P < 0.001$) compared with bisexual or heterosexual women.**

Conclusion: **Women of all sexual orientations, and particularly heterosexual women, engaged in behaviors that put them at risk for HIV and STD.**

SEXUAL HEALTH CONTINUES TO DETERIORATE among women in the United States, as evidenced by unprecedented rates of sexually transmitted diseases (STDs),[1] increased incidence of HIV in women,[2] and related consequences of STD such as infertility and cervical cancer.[1] Attention to sexual health and behaviors in relation to sexual orientation is absent from most studies of women.[3] Studying sexual orientation with more specificity—along with the complexities of sexual behavior—gives a fuller picture of the contexts in which women place themselves at risk. Such knowledge will lead to more effective counseling on STD prevention for the full spectrum of female patients.

Sexual orientation can be characterized by behavioral (gender of sex partners), affective (attraction or desire), and cognitive (identity) dimensions that may or may not overlap and can fluctuate over an individual's lifetime.[3] Women may identify themselves as heterosexual, bisexual, or lesbian. Researchers may categorize women as women who have sex with women (WSW), women who have sex with men (WSM), or women who have sex with both men and women (WSMW) rather than by the sexual orientation labels.

Among some groups of WSW, considerable risk-taking has been found, particularly among WSMW.[4–11] In a sample taken from an STD clinic, WSMW were at greater risk for HIV infection as a result of their partner types, substance use, and number of partners in the last year in comparison to women with exclusively women partners and women with exclusively men partners.[12]

Studies that have targeted women considered at high risk for HIV and STDs resulting from their sexual behavior, drug use, or place of residence have also gathered information regarding same-sex behavior. Results from these studies indicated that 9% to 24% of women self-identify as lesbian or bisexual, and as many as 41% report at least one female partner since 1980.[13–15] A consistent finding across these and other studies is that regardless of self-identified sexual identity, women who report at least one female sexual partner appear to have significantly higher sexual risk factors than the exclusively heterosexual women.[9,11,13–16] These data have led some investigators to the conclusion that all WSW engage in high-risk behaviors. However, research that directly compares women by sexual orientation and research within lower-risk populations of women have not been available to test this conclusion.

This study examines such a lower-risk population by sampling women in outpatient primary care settings. It is an analysis of a large dataset that examined preventive health behaviors of 1,304 women attending healthcare offices.[17] Women who identified their sexual orientation as lesbian, bisexual, or heterosexual were compared in terms of their sexual behavior, specifically looking at high-risk partners and condom use. The primary objective of this analysis is to determine whether and how risk patterns differ across sexual orientation when sampling a relatively large group of women in primary care settings across the country.

Materials and Methods

Study Design

A cross-sectional study was conducted of women attending 33 healthcare sites across the United States, including sites in

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Alabama, California, Georgia, Louisiana, Massachusetts, Minnesota, New York, Ohio, Oregon, Pennsylvania, Washington, and the District of Colombia. Sites were invited to participate based on geographic distribution and likelihood of serving women of diverse sexual orientations. Selected sites were predominantly private medical offices and community clinics providing primary care services. Site recruitment was through communication between one of the authors (A.K.) and clinicians, announcements in newsletters and at conferences of two national lesbian and gay health organizations, and by the "snowball" technique, in which new sites are recruited through the networks of those already participating. The study protocol was approved by the Institutional Review Board of California Pacific Medical Center in San Francisco, California.

Procedures

Two sampling schemes were developed for recruiting participants: one for use at sites with up to 30% lesbian-identified women among female patients and one for sites with more than 30% lesbian-identified patients. The 30% threshold was chosen in an effort to gather approximately equal numbers of heterosexual respondents and lesbian and bisexual female respondents. This estimate was readily available from the lead clinician at each site. At sites where more than 30% of female patients were known to be lesbians (approximately half the sites), surveys were offered to all women coming in for their medical appointments by means of a self-serve display in the reception area. At sites with fewer than 30% lesbian patients, surveys were distributed by the clinician or the receptionist to each patient who was known to be a lesbian and to the next two female patients coming in for their medical appointment. Women were given the option to complete the survey on-site or return it by mail. At all sites, dropboxes and individual business reply envelopes were supplied to allow the surveys to be returned anonymously. The surveys were serially numbered and the survey numbers sent to particular sites were recorded. Thus, the number and proportion of surveys returned from particular sites were known.

Instrument

The survey instrument was developed by a panel of experts and refined after two pilot tests. It took approximately 20 minutes to complete and contained 98 questions regarding access to health care, use of screening tests, general health, substance use, sexual behavior, and demographic information such as race and income. The questionnaire did not state that sexual orientation was an issue of interest. The results on the use of screening tests and general health status,[17] and access to health care[18] have been previously reported. This analysis focused on demographic variables, sexual behavior patterns, and STD screening practices.

Sexual orientation was assessed solely by the participant's self-identification in response to: "How do you define your sexual orientation?" (Response options included: "heterosexual/straight, bisexual, lesbian/gay/homosexual, unsure.") Being married or in a committed relationship was assessed by self-definition. Sexual behaviors were assessed, including number and gender of partners; condom use with male partners in the previous year; HIV risk characteristics of sex partners, i.e., gay or bisexual males or injection drug users (IDUs); substance use with sex ("During the past 12 months, when you have had sex, how often have you been drunk or high?"); and trading sex for drugs or money. STD screening and HIV testing were assessed. The participant's perceived susceptibility to HIV infection was assessed with this question: "What do you think your chances are of getting HIV (the virus that causes AIDS)?" (responses: "high, medium, low, or none").

Statistical Analysis

Means with standard deviations and proportions were used to compare demographic variables, HIV and STD screening practices, perceived vulnerability to HIV, and sexual behavior patterns across categories of sexual identity. *t* tests and chi-squared tests of homogeneity were used to test the statistical significance of these comparisons. All analyses were conducted using SPSS version 10.0 for Windows.

Results

Overall Sample Characteristics

From May 1996 to February 1997, a total of 2,716 surveys were distributed across sites; 1,362 were completed and returned, yielding a 50% response rate. After excluding those surveys with incomplete information, 1,304 surveys (48%) were available for analysis.

Overall sample characteristics by sexual orientation have been previously reported.[17] Selected sample characteristics are displayed in Table 1. Mean age of the sample was 40 years. The sample was predominantly white (83%), well-educated (92% had at least some college), and income-earning (61% reported at least $40,000 household income in the past year).

Differences based on sexual orientation were observed for each of these characteristics. Heterosexual women were slightly older (mean age 41 years), whereas bisexual women were younger (36 years) compared with lesbians (39 years; $P < 0.001$). Lesbians were more likely to be white, were more educated, and reported higher household incomes compared with bisexual and heterosexual women ($P < 0.01$, $P < 0.001$, and $P < 0.001$, respectively). Of each of the three groups, heterosexual women were the least educated (12% reported high school education or less; $P < 0.001$) and bisexual women reported the lowest income (48% reported annual household income under $40,000; $P < 0.001$).

Overall Sexual Behavior

Table 2 contains information on the overall sexual behaviors reported in the sample. The majority of respondents were married or in committed relationships (71%). Fifty-three percent of women reported having sex with a woman at some point in their lives, and 43% reported having sex with a woman in the past year. Among those who had sex in the past year, women reported similar numbers of male and female sex partners (mean = 1.4 and 1.5, respectively). Among those who had sex with men in the past year, 51% reported ever using condoms, 6% reported sex with men who have sex with men (MSM), and 2% reported sex with a male IDU. Remarkably, 23% of women reported always being high (using alcohol or other drugs) during sex in the past year. Only nine women (1%) reported having sex for money, drugs, or shelter in the past year.

Sexual Behavior by Sexual Orientation

Differences across categories of sexual orientation were observed in the following characteristics. Lesbians were more likely to be in committed relationships (78%) in comparison to the bisexual (60%) and heterosexual women (69%; $P < 0.001$). As anticipated, heterosexual women were more likely to have male partners exclusively, and lesbians were more likely to have female partners exclusively, both in their lifetime and in the past year

TABLE 1. Selected Sample Characteristics by Sexual Orientation

Characteristics	Sexual Orientation				
	Heterosexual (n = 637)	Bisexual (n = 143)	Lesbian (n = 524)	Total (N = 1,304)	*P*
Age; years (mean ± SD)	41.1 ± 13.1	36.3 ± 9.7	39.0 ± 8.6	39.7 ± 11.2	<0.001
Race/ethnicity					<0.01
White	518 (82)	115 (82)	445 (85)	1,078 (83)	
Black	55 (9)	6 (4)	18 (3)	79 (6)	
Asian/Pacific Islander	26 (4)	5 (4)	14 (3)	45 (4)	
Latino	12 (2)	8 (6)	18 (3)	38 (3)	
American Indian	9 (1)	3 (2)	10 (2)	22 (2)	
Mixed	11 (2)	4 (3)	17 (3)	32 (3)	
Education					<0.001
High school or less	73 (12)	5 (4)	21 (4)	99 (8)	
1–4 y college	333 (53)	75 (53)	249 (48)	657 (51)	
Graduate school	227 (36)	61 (43)	252 (48)	540 (42)	
Annual household income					<0.001
<$20,000	104 (17)	33 (24)	75 (14)	212 (17)	
$20,000–39,999	159 (26)	33 (24)	94 (18)	286 (22)	
$40,000–59,999	138 (22)	31 (23)	112 (22)	281 (22)	
≥$60,000	218 (35)	40 (29)	237 (46)	495 (39)	
Region					NS
Major city	490 (77)	120 (84)	418 (80)	1,028 (79)	
Small city	93 (14)	14 (10)	63 (12)	170 (13)	
Country/rural	40 (6)	7 (5)	34 (7)	81 (6)	
Other	10 (2)	2 (1)	7 (1)	19 (1)	

SD indicates standard deviation; NS = not significant.

($P < 0.001$). Bisexual women had more male sexual partners and lesbians reported more female sexual partners in the past year compared with women in the other two groups ($P < 0.001$).

Lesbians were more likely to use condoms with male partners in the past year (94%) than bisexual (75%) or heterosexual women (46%; $P < 0.001$). Lesbians and bisexual women (36% and 22%, respectively) were significantly more likely than heterosexual women (3%; $P < 0.001$) to have sex with MSM in the past year. Lesbians were slightly more likely than bisexual women (6% and 4%, respectively) and significantly more likely than heterosexual women (2%) to have sex with male IDUs in the past year ($P < 0.02$). Thirty-six percent of bisexual women reported always being high during sex in the past year, whereas 24% of heterosexual women and 19% of lesbians reported this behavior ($P < 0.001$). Sex for trade did not differ by sexual orientation in this sample.

Other Variables of HIV/Sexually Transmitted Disease Risk by Sexual Orientation

The majority of the women in the sample perceived their chance of HIV infection as high (see Table 3). Most of the women (62%) had been tested for HIV at least once, but a significant proportion (38%) had never had an HIV test. Half of the sample had been tested for STD in the past 2 years.

The proportion of women perceiving themselves at high risk for HIV infection was fairly consistent across sexual orientation categories. Bisexual women were the least likely to perceive themselves at no risk for HIV infection (23%). In contrast, heterosexual women were the most likely to report no perceived risk of HIV infection (39%). Bisexual women were more likely than heterosexual women and lesbians to have ever had an HIV test (77%). Bisexual women were also more likely to have been tested for STDs in the past 2 years (63%). Lesbians were more likely to have never been tested for STDs (27%).

Women Who Had Sex With Men

To concentrate on risk of transmission of HIV, the rest of the analyses focuses on WSM in the past year. This focus was chosen as a result of the rarity of ongoing IDU in this study population and as a result of the extreme rarity of HIV transmission by woman-to-woman sexual behavior.[19–22] Sample characteristics and overall sexual behaviors among this subset of women are summarized in Table 4. In contrast to the overall sample, among these women, heterosexual women were older than bisexual women and lesbians. In addition, bisexual women were more educated, but were less likely to report an annual household income over $40,000 compared with lesbian and heterosexual women. Lesbians reported more male sexual partners in the past year (2.4) as compared with bisexual women (2.2) and heterosexual women (1.4). Lesbians were also more likely than bisexual and heterosexual women to report sex with MSM. Similar to results in the overall sample, bisexual women were more likely to report always being high during sex compared with women in the other sexual orientation categories.

Subjects who reported any condom use versus subjects who reported no condom use were younger (age 34 vs. 43), more educated (college degrees in 69% vs. 65%), poorer (annual household income under $40,000 in 57% vs. 30%), and less likely to be in a committed relationship (59% vs. 91%). In the past year, condom users also had had more male sex partners (2.0 vs. 1.1), were more likely to have sex with MSM (11% vs. 2%), and were more likely to report always being high during sex (28% vs. 23%).

Table 5 summarizes sample characteristics and overall sexual behavior by condom use and sexual orientation within the sample. Although condom users were younger than noncondom users in all three sexual orientation categories, lesbians who used condoms were significantly younger than women in the other two groups who reported condom use. Bisexual women and lesbians who had

TABLE 2. Sexual Behavior by Sexual Orientation

Characteristics	Sexual Orientation				
	Heterosexual (n = 637)	Bisexual (n = 143)	Lesbian (n = 524)	Total (N = 1,304)	*P*
Married or in committed relationship	436 (69)	85 (60)	405 (78)	926 (71)	<0.001
Sexual partners in lifetime					<0.001
No partners	11 (2)	0 (0)	2 (<1)	13 (1)	
Men only	567 (90)	10 (7)	17 (3)	594 (46)	
Women only	18 (3)	8 (6)	220 (42)	246 (19)	
Men and women	36 (6)	120 (87)	282 (54)	438 (34)	
Sexual partners past year					<0.001
No partners	99 (16)	16 (12)	42 (8)	157 (12)	
Men only	513 (83)	48 (35)	3 (<1)	564 (45)	
Women only	18 (3)	41 (30)	446 (88)	493 (39)	
Men and women	36 (6)	31 (23)	14 (3)	48 (4)	
Sexual partners in past year (mean ± SD)					<0.001
Men	1.4 ± 1.4	1.9 ± 3.0	0.5 ± 1.2	1.4 ± 1.7	
Women	0.6 ± 1.2	1.3 ± 1.5	1.6 ± 4.9	1.5 ± 4.4	
Condoms with male partner in past year					<0.001
Ever	234 (46)	59 (75)	15 (94)	308 (51)	
Never	271 (54)	20 (25)	1 (6)	292 (49)	
Sex with men who have sex with men (MSM) in past year					<0.001
Yes	17 (3)	15 (22)	4 (36)	36 (6)	
No	468 (97)	53 (78)	7 (64)	528 (94)	
Sex with injection drug user (IDU) male partner in past year					<0.20
Yes	8 (2)	3 (4)	1 (6)	12 (2)	
No	508 (98)	76 (96)	16 (94)	600 (98)	
Sex while high during past year					<0.001
Always	127 (24)	43 (36)	89 (19)	259 (23)	
Sometimes	69 (13)	18 (15)	42 (9)	129 (12)	
Never	335 (63)	60 (50)	329 (72)	724 (65)	
Sex for trade during past year					NS
Yes	3 (1)	2 (2)	4 (1)	9 (1)	
No	522 (99)	116 (98)	444 (99)	1,082 (99)	

SD indicates standard deviation; NS = not significant.

college degrees or higher household incomes were more likely to report condom use compared with women with less education and fewer economic resources in the same sexual orientation category. In contrast, heterosexual women with college degrees or annual household incomes greater than $40,000 were less likely to report condom use than heterosexual women without college degrees or incomes less than $40,000.

Among women in committed relationships, condom use was least among heterosexual women (29%) as compared with bisexual women (35%) and lesbians (50%). Among women not in committed relationships, condom use was again the least among heterosexual women (17%) as compared with bisexual women (40%) and lesbians (44%).

Women who ever used condoms reported more sexual partners than women who did not use condoms across all three sexual

TABLE 3. Other Variables of HIV/Sexually Transmitted Disease (STD) Risk by Sexual Orientation

Characteristics	Sexual Orientation				
	Heterosexual (n = 637)	Bisexual (n = 143)	Lesbian (n = 524)	Total (N = 1,304)	*P*
Chance of HIV infection					≤0.001
High	352 (57)	88 (63)	308 (60)	748 (59)	
Median/low	27 (4)	19 (14)	21 (4)	67 (5)	
None	242 (39)	32 (23)	183 (36)	457 (36)	
HIV test					≤0.001
Yes	322 (54)	106 (77)	346 (68)	774 (62)	
No	275 (46)	32 (32)	166 (32)	473 (38)	
STD test					≤0.001
0–2 years	275 (53)	85 (63)	193 (42)	553 (50)	
3–5 years	64 (12)	23 (17)	71 (16)	158 (14)	
5+ years	72 (14)	14 (10)	67 (15)	153 (14)	
Never	110 (21)	12 (9)	125 (27)	247 (22)	

TABLE 4. Sexual Orientation Among Women Who Had Sex With Men in the Past Year (N = 600)

Characteristics	Heterosexual (n = 505)	Bisexual (n = 79)	Lesbian/Gay (n = 16)	*P*
Age	39 (12)	34 (9)	31 (9)	≤0.001
College degree				≤0.044
Yes	336 (66%)	61 (79%)	10 (59%)	
No	177 (35%)	16 (21%)	7 (41%)	
Annual household income >$40,000				≤0.003
Yes	299 (59%)	29 (39%)	7 (47%)	
No	205 (41%)	46 (61%)	8 (53%)	
Married/committed relationship				≤0.001
Yes	394 (78%)	45 (58%)	8 (50%)	
No	111 (22%)	33 (42%)	8 (50%)	
Number of male sex partners; mean (SD)	1.4 (1.4)	2.2 (3.1)	2.4 (1.9)	≤0.001
Sex with MSM				≤0.001
Yes	17 (4%)	15 (22%)	4 (36%)	
No	468 (97%)	53 (78%)	7 (64%)	
Always high during sex				≤0.011
Yes	122 (24%)	30 (38%)	2 (12%)	
No	391 (76%)	49 (62%)	15 (88%)	

SD indicates standard deviation; MSM = men who have sex with men.

orientation categories. This disparity was more pronounced among bisexual women and lesbians than among heterosexual women. There were no statistically significant differences in condom use among women who had sex with MSM across sexual orientation categories. However, 100% of bisexual women and lesbians who reported sex with MSM reported at least some condom use in the last year. Among women who reported always being high during sex, heterosexual women were less likely to report condom use compared with bisexual women and lesbians who reported always being high during sex.

To elucidate whether the results were confounded by differences between the two types of sites and their sampling techniques (i.e., sites with a high prevalence of lesbians in which all women were sampled vs. sites with a lower prevalence of lesbians in which the known lesbian and the next two women were sampled), the data were analyzed according to type of site and sampling. The differences in sampling frames did not have a substantial impact on the relationship between sexual orientation and sexual risk behavior.

Discussion

This is the first study to compare the sexual risk behaviors of lesbian, bisexual, and heterosexual women in the same setting. It is also the first large study to describe women of diverse sexual orientations and behaviors who are using the healthcare system.

There were differences in socioeconomic status according to sexual orientation within this generally high socioeconomic status population. Lesbians had higher educational and household incomes than did the heterosexual women. These differences echoed the findings of a recent study of lesbians compared with their

TABLE 5. Condom Use by Sexual Orientation Among Women Who Had Sex With Men in the Past Year (N = 600)

	Heterosexual		Bisexual		Lesbian/Gay		
	Condom Use		Condom Use		Condom Use		
Characteristics	Yes	No	Yes	No	Yes	No	*P*
Age (years)	34 (11)	43 (12)	33 (9)	37 (7)	29 (7)	42 (0)	≤0.001
College degree							≤0.003
Yes	156 (31%)	174 (35%)	46 (60%)	15 (20%)	9 (56%)	0 (0%)	
No	77 (15%)	96 (19%)	11 (14%)	5 (7%)	6 (38%)	1 (6%)	
Annual household income >$40,000							≤0.052
Yes	104 (21%)	189 (38%)	20 (27%)	9 (12%)	5 (36%)	1 (7%)	
No	125 (25%)	76 (15)	36 (48%)	10 (13%)	8 (57%)	0 (0%)	
Married/committed relationship							≤0.001
Yes	147 (29%)	247 (49%)	27 (35%)	18 (23%)	8 (50%)	0 (0%)	
No	87 (17%)	24 (5%)	31 (40%)	2 (3%)	7 (44%)	1 (6%)	
Number of male sex partners; mean (SD)	1.9 (1.9)	1.1 (0.4)	2.5 (3.6)	1.2 (0.5)	2.5 (1.9)	1.0 (0.0)	≤0.001
Sex with MSM							≤0.69
Yes	11 (2%)	6 (1%)	15 (22%)	0 (0%)	4 (36%)	0 (0%)	
No	207 (43%)	256 (53%)	35 (52%)	18 (27%)	7 (64%)	0 (0%)	
Always high during sex							≤0.022
Yes	62 (12%)	60 (12%)	23 (29%)	7 (9%)	2 (13%)	0 (0%)	
No	172 (34%)	209 (42%)	36 (46%)	13 (17%)	13 (81%)	1 (6%)	

SD indicates standard deviation; MSM = men who have sex with men.

heterosexual sisters.[23] Rothblum's analysis suggests that lesbians make different life choices, leading to higher educational and occupational attainment, compared with their heterosexual sisters. Thus, demographic differences within a study population analyzed by sexual orientation may be tied to the sexual orientation rather than the result of sampling bias, as has been previously assumed.

Despite the demographics of relatively high socioeconomic status women using primary care health services, the women in this sample still undertook risky sexual behaviors.

Heterosexual women in this sample displayed the riskiest behaviors for acquiring HIV, mainly as a result of their lack of condom use: in general and when not in a committed relationship, when drunk or high, and with MSM. At-risk heterosexual women, who largely are the ones becoming infected with HIV and STDs, were not protecting themselves in the same ways as lesbians were in this sample. Prevention messages need to target these women more effectively to slow HIV incidence rates and protect the health of women and their partners.

Bisexual women undertook riskier sexual behaviors than lesbians but were less risky than the heterosexual women generally. Bisexual women were the most likely of the three groups to report always being drunk or high during sex. Bisexual women in our sample also had more MSM partners and a higher mean number of male sexual partners than did heterosexual women. However, bisexual women used condoms and had STD and HIV testing at higher rates compared with heterosexual women. Bisexual women engaged in both risky and protective behaviors, thereby moderating their net risk.

Lesbians who had sex with men engaged in some high-risk activities such as sex while being drunk or high. Compared with the other WSM, lesbians had the greatest numbers of male sexual partners and the highest rate of sex with MSM. However, they also reported protective behaviors such as consistent condom use, testing for HIV, and appropriate perceptions of their own risk. Some prevention messages seemed to have reached this population of women, perhaps as a result of their proximity to the AIDS epidemic in the gay community. As a consequence, their overall risk was lower compared with their heterosexual counterparts.

Overall, women in this study reported less risk-taking behavior compared with women in previously published studies that include WSW. These results also differ from previously published studies by showing a different sexual orientation risk profile. In this study, heterosexual women reported more overall risk behavior as compared with lesbians and bisexual women. In previous studies, WSW in general and WSWM have reported more risk behaviors compared with women who have sex with men only. Instead of contradicting previous studies, it is likely that this sample represents a different subpopulation of women than those represented in previous studies.

Among WSM, lesbian and bisexual women were younger than the heterosexual women. As previously mentioned, the lesbian subgroup had a higher mean number of male partners and a higher mean number of MSM partners than the bisexual and heterosexual women. It is possible that lesbians were generally more risk-tolerant than their bisexual and heterosexual female counterparts. It may also be that lesbians at a younger age were exploring their sexual identities and thus had greater numbers of sexual partners, including high-risk partners. This highlights the risk behaviors undertaken as women explore their sexual identities. It underscores the importance for providers of discussing sexual behaviors and risks with all patients. Youth in particular should be targeted for nonjudgmental safer sex discussions by their pediatricians, gynecologists, and other primary care providers.

There was an alarmingly high rate of substance use during sex among all respondents. Bisexual women, heterosexual women, and lesbians reported being "sometimes," "usually," or "always" drunk or high during sex 51%, 37%, and 28% of the time, respectively. Counseling regarding substance abuse in general and sexual behaviors while using drugs and alcohol is needed.

Our study has several limitations. Women in this sample may have better health promotion behaviors than the general population for several reasons. Women were recruited from primary healthcare settings and thus, may have disease prevention behaviors. Women in this sample were older, better educated, and had higher incomes overall than women in previous studies, all of which are associated with better use of preventive health strategies. These women completed an anonymous written survey without follow-up prompting. They were willing to participate in a study of preventative health practices and thus may be more knowledgeable or concerned about preventative health care than nonrespondents or than the general population.

Characteristics of the sites and the participating healthcare providers might also introduce bias. Although efforts were made to include a variety of healthcare settings, most of the sites were urban primary care practices. Approximately half of the sites had a substantial proportion of lesbian and bisexual women as patients. The practitioners at these sites were interested in research on women and preventative health and may be attuned to sexual orientation minorities. These sites may have attracted clients who seek information on preventative health as it relates to their sexual orientation. These sites may be associated with women who apply preventative health messages more extensively than is found in the general population.

Thus, multiple selection biases limit the generalizability of these results. Similar problems of an even greater magnitude may exist among women who are not using the healthcare system and among women in rural areas.

This is the first large study of women who use the healthcare system that examines sexual behaviors among women of all sexual orientations. This study describes the richness of sexual behaviors and reveals the interplay of multiple risk assessments and resulting actions. The results of this study indicate that prevention programs are necessary for all women regardless of sexual orientation and socioeconomic circumstance. Counseling by healthcare providers should be tailored to the patient's sexual behaviors as determined by nonjudgmental history-taking. Universal principles of sexual risk reduction (applying to sexual partners of either gender) should also be discussed, particularly for younger patients or patients whose sexual identity is in flux. Further studies are needed to examine various risk-taking behaviors associated with sex and how and whether they interrelate.

The primary care settings from which these women were recruited provide an excellent venue to conduct HIV and STD prevention programs. Primary care providers reach a broad range of women in their communities. Women may be more receptive to discussing their sexual and other risk behaviors in the context of their health care, and providers are a trusted source for health prevention and promotion messages. Healthcare providers must not squander the opportunity for optimal counseling on sexual risk reduction.

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