

Sexual and Drug Risk Behaviors Among Women Who Have Sex With Women

Ann V. Bell, MHS, Danielle Ompad, PhD, and Susan G. Sherman, PhD, MPH

“Women who have sex with women” (WSW) is a label that has been used throughout the public health literature to categorize women according to a behavioral act rather than an identity. As is the case with any categorization based solely on behavior, there is much individual variation in the behaviors of WSW, such as their frequency and duration, and this in turn influences these women’s levels of health risk. Also, given that they differ in such areas as sexual identity and sociodemographic characteristics, WSW are a diverse group facing several public health issues.

Studying WSW and characterizing them as a group are challenging because of the lack of a consistent definition of “WSW,”¹ the dependence on a behaviorally determined definition of this population, and the stigmatized nature of the WSW label itself. As a result, researchers have hypothesized that the size of the WSW population is underestimated.^{2,3} According to one estimate, 4.1% of women 18 to 59 years of age have had at least 1 female sexual partner.^{4,5}

The complexity of the WSW population as a whole is one of the factors leading to negative health consequences among these women. For example, depending on the extent to which sex with women is integrated into their sexual identities, it may be stigmatizing for them to disclose their sexual activities, and thus, they may define themselves according to only certain types of behavioral acts in which they engage and not disclose activities that could greatly affect their health status.^{6–9} Furthermore, health risks of WSW are heightened because the unique characteristics of these women are frequently overlooked by physicians. It has been shown that women in general are rarely questioned about their sexual behaviors during typical medical examinations and that other risk behaviors, such as drug use, are also not addressed.¹⁰

Several studies among drug users have compared sexual behaviors between WSW

Objectives. We examined risk behaviors of female drug users, comparing those who reported recently having had sex with women (recent WSW), those who reported previously having had sex with women (former WSW), and those who reported never having had sex with women (never WSW).

Methods. We used data from the Risk Evaluation and Assessment of Community Health III Study. Adjusted odds for predictors of WSW status were determined via multinomial logistic regression analyses.

Results. Of the participants, 75% were never WSW, 12% were former WSW, and 13% were recent WSW. In comparison with never WSW status, significant predictors of recent WSW status were living away from one’s parents as a child (adjusted odds ratio [OR]=3.05; 95% confidence interval [CI]=1.07, 8.67) and recently having been paid for sex by men (adjusted OR=4.02; 95% CI=1.67, 9.68). Also, recently having been paid for sex by men was a significant predictor of former WSW status as opposed to never WSW status (adjusted OR=3.97; 95% CI=1.65, 9.59).

Conclusions. The recency with which they had sex with women is one of the facets influencing the risk profile of WSW. The diverse characteristics of the WSW population need to be incorporated into future studies and risk interventions targeting this group. (*Am J Public Health.* 2006;96:1066–1072. doi:10.2105/AJPH.2004.061077)

and women who do not have sex with women (“never WSW”). A number of these studies have shown that, compared with never WSW, WSW begin sexual activities earlier,^{11,12} engage in sex^{5,11–14} and unprotected sex¹³ more frequently, and more often trade sex for money or drugs.^{5,8,11,12,14,15} In combination, these behaviors elevate their risk for infectious diseases,¹² as reflected by several studies indicating that higher percentages of WSW than never WSW have contracted sexually transmitted infections (STIs).^{11,13}

In addition, studies examining drug use among WSW^{10,16–19} have shown that these women more often use tobacco,¹⁷ alcohol,¹⁸ amphetamines,^{8,19} heroin, and cocaine¹⁴ than never WSW. Also, among drug users, WSW are twice as likely as never WSW to report injection drug use.^{8,10,12} Furthermore, according to 1 study, WSW who reported injection drug use were more likely than never WSW who injected drugs to be homeless, to have spent time in a mental health facility, to have been incarcerated, and to have obtained money from transactional sex (as opposed to welfare benefits).¹³

There is a pressing need for an understanding of the factors associated with these elevated drug- and sexual-related risks among WSW.^{2,10,15} The majority of research involving drug-using WSW has been conducted solely within groups of injection drug users (IDUs)^{8,10,13,15,19–21} and has focused on only those women reporting that they currently have sex with women. Although such information could provide more detailed insights in terms of risk, few studies have examined differences within the WSW population itself.¹⁰ The diverse characteristics behind the excess risk behaviors often observed among WSW and how such subtle distinctions perpetuate poor health consequences in this group are areas in need of further research. We compared risk behaviors between WSW and never WSW who were members of a cohort of young women who did and did not use injection drugs, and, in particular, we sought to decipher differences between the behaviors of women who had recently had sex with women and those of women who had formerly had sex with women.

METHODS

Study Design and Population

The Risk Evaluation and Assessment of Community Health (REACH) III Study represented the third phase of a cohort investigation of young adults in Baltimore, Md, who had recently initiated injection drug use and young adults who did not inject drugs ($n=617$). The current study was limited to female participants ($n=251$), a portion of whom included the WSW subgroup. Data were collected between August 2000 and August 2002. The goals of REACH III were to examine correlates of injection initiation and to assess HIV, syphilis, and hepatitis C virus rates among the study population. To be eligible, participants had to be aged 15 to 30 years and to have initiated injection or noninjection use of heroin, crack, or cocaine within the previous 5 years. In addition, non-IDUs had to have reported using heroin, crack, or cocaine 2 days in the previous week, and IDUs had to have injected at least once in the month before their entry into the study.

Street-based targeted outreach was used to recruit REACH III participants. Recruitment areas in Baltimore City were identified through ethnographic observations and previous research conducted with this target population.^{22,23} Experienced outreach workers recruited potential participants in targeted neighborhoods, attended community meetings, and posted study flyers. Approximately 90% of study participants were recruited via street outreach and snowball sampling.²⁴ In addition to the East Baltimore study clinic, a van served as a mobile study center. The study van would regularly park in targeted neighborhoods to recruit potential participants. The continual presence of the study van and attendance at community meetings allowed the outreach workers to establish trust within the study neighborhoods, enhancing their ability to elicit information about stigmatized behaviors from the participants.

Data Collection

All eligible participants were invited to join the study and sign a written informed consent form. At baseline and 6- and 12-month

follow-up visits, interviewers administered a survey and a venipuncture for HIV and hepatitis C virus, accompanied by pretest counseling. Participants returned 2 weeks later to undergo posttest counseling and receive their test results. Participants were compensated \$20 for completing the baseline assessment and \$10 for completing their posttest visit.

The baseline questionnaire was composed of 3 sections focusing on (1) sociodemographic characteristics, including homelessness, incarceration history, and educational attainment; (2) drug use patterns, including initiation of a range of drugs, lifetime and current drug use practices, and injection-related practices (among IDUs); and (3) sexual behaviors, including age at sexual debut, lifetime and current sexual history, STI history, and frequency of unprotected and protected sex with steady, casual, and sex trade partners.

Study Variables

Independent variables of interest included the sociodemographic, drug use, and past and current sexual risk behavior variables just described. Continuous variables (e.g., age) were categorized on the basis of their medians, and categorical variables were reduced (categorized) according to response distribution. The dependent variable, WSW status, was grouped into 3 categories: (1) recent, defined as women who reported having had any sexual contact with women in the 6 months before enrolling in the study; (2) former, defined as women who reported having had sex with women in their lifetime but not in the 6 months before study entry; and (3) never, defined as women who had never had sex with another woman. Sexual activity was defined as oral, anal, or vaginal sex or any combination thereof.

Statistical Analysis

We used exploratory data analyses to compare individual variables and the outcome variable. We used χ^2 tests to assess categorical variables and 1-way analyses of variance to compare means. Multinomial logistic regression was used to model correlates of the dependent variable. We made use of several methods to determine which

variables would be included in the multivariate model.

First, bivariate associations with P values of .20 or below were considered for inclusion. Second, tests of collinearity involving variance inflation factors were used to determine which variables were too highly correlated with other independent variables of interest. Third, we considered variables of theoretical relevance, including at least 1 variable from the sociodemographic, drug behavior, sexual behavior, and STI history categories. Finally, all possible interactions were assessed. Analyses were conducted with Stata (Stata Corp, College Station, Tex).

RESULTS

Demographic Information

Demographic comparisons are shown in Table 1. Of the 251 participants, 75% were categorized as never WSW; 12%, as former WSW; and 13%, as recent WSW. The mean age of the participants was 28 years, 49% were African American, 40% had at least a high-school education or the equivalent, and 61% reported ever having been incarcerated. A significantly lower percentage in the recent WSW group (26%) than in the former WSW (47%) and never WSW (100%) groups self-identified as heterosexual.

More than one-third of those in the recent WSW group reported recently being homeless, compared with 17% of those in the former WSW group and 11% of those in the never WSW group ($P<.01$). This may partially explain the higher average of 10 hours per day on the street among those in the recent WSW group relative to the means of 7.1 and 6.4 hours, respectively, among those in the never and former groups ($P<.05$). Nearly a quarter of participants in both the former and recent WSW groups reported living away from their parents when they were children, compared with 10% of participants in the never WSW group ($P<.05$).

Drug Use Behaviors

Data on participants' lifetime drug use patterns are shown in Table 2. Because the study design required that all participants be recent or current drug users, we analyzed only lifetime drug use patterns to capture

TABLE 1—Demographic Characteristics of Female Participants in the Risk Evaluation and Assessment of Community Health III Study, 2000–2002

Characteristic	Total (n = 251), No. (%)	Recent WSW (n = 32), No. (%)	Former WSW (n = 30), No. (%)	Never WSW ^a (n = 189), No. (%)	<i>P</i> ^b
Mean age, y (SD)	28.0 (4.4)	27.3 (5.0)	27.8 (4.4)	28.1 (4.3)	.613
Race/ethnicity					
White	127 (50.6)	14 (43.8)	20 (66.7)	93 (49.2)	
African American	124 (49.4)	18 (56.2)	10 (33.3)	96 (50.8)	.146
High-school education or more	100 (40.2)	12 (38.7)	14 (46.7)	74 (39.4)	.739
Ever incarcerated	152 (60.8)	20 (62.5)	23 (79.3)	109 (57.7)	.083
Lived away from parents as child	34 (13.7)	8 (25.8)	7 (23.3)	19 (10.2)	.017
Homeless in previous 6 mo	36 (14.9)	10 (34.5)	5 (17.2)	21 (11.4)	.005
No. of hours per day spent on street, mean (SD)	7.4 (5.8)	10.3 (6.9)	6.4 (4.8)	7.1 (5.6)	.011
Self-identified as heterosexual	210 (84.3)	8 (25.8)	14 (46.7)	188 (100.0)	.000

Note. WSW = women who have sex with women.

^aReference group.

^bDerived from 1-way analyses of variance for comparisons of means and from χ^2 tests for categorical variables.

TABLE 2—Drug Use Patterns Among Female Participants in the Risk Evaluation and Assessment of Community Health III Study, 2000–2002

	Total (n = 251), No. (%)	Recent WSW (n = 32), No. (%)	Former WSW (n = 30), No. (%)	Never WSW ^a (n = 189), No. (%)	<i>P</i> ^b
Lifetime crack use	115 (46.2)	20 (64.5)	14 (46.7)	81 (43.1)	.085
Lifetime heroin use	239 (96.0)	30 (96.8)	29 (96.7)	180 (95.7)	.944
Lifetime marijuana use	203 (81.9)	23 (74.2)	26 (86.7)	154 (82.4)	.422
Lifetime cocaine use	150 (61.0)	20 (64.5)	24 (80.0)	106 (57.3)	.056
Lifetime use of cocaine combined with heroin	121 (48.8)	22 (71.0)	20 (66.7)	79 (42.3)	.001
Lifetime inhalant use	26 (10.6)	7 (22.6)	4 (13.8)	15 (8.1)	.045
Injection drug use	174 (69.3)	26 (81.3)	23 (76.7)	125 (66.1)	.149
Recent (past 6 mo) syringe sharing	66 (38.2)	13 (52.0)	13 (56.5)	40 (32.0)	.026
Mean age first saw someone inject, y (SD)	18.5 (5.2)	15.8 (5.1)	18.0 (5.6)	19.2 (5.0)	.006

Note. WSW = women who have sex with women.

^aReference group.

^bDerived from 1-way analyses of variance for comparisons of means and from χ^2 tests for categorical variables.

drug histories and allow the necessary comparisons to be made. Nearly 70% of the participants were IDUs. Participants in the recent WSW group were an average of 3 years younger than participants in both the former and never WSW groups the first time they saw someone inject drugs ($P < .01$).

Significantly more of those in the recent WSW group (23%) than in the never (8%) or former (14%) WSW group reported ever having used inhalants. In comparison with participants in the never WSW group, participants in both the recent and former WSW groups reported significantly more

use of cocaine and cocaine in combination with heroin, with more than two-thirds indicating previous use of these drugs. Among IDUs, there were significant between-group differences in recent receptive syringe sharing (i.e., use of a previously used syringe); more than half of those in the recent and former groups reported such behavior, compared with fewer than a third in the never WSW group.

Sexual Behaviors

Table 3 presents comparisons of recent sexual behaviors. Eighty percent of the participants reported that their first sexual partner was older than they were. Participants in the recent WSW group first engaged in oral, anal, or vaginal sex at a significantly younger age (mean = 13.7 years) than did participants in the never (mean = 14.6 years) and former (mean = 14.2 years) WSW groups. Also, participants in the recent WSW group reported engaging in sex significantly more frequently than those in the former and never WSW groups; approximately one-third of those in the recent group engaged in daily sex with a male or female partner, compared with only 20% of those in the former group and 18% of those in the never group. Furthermore, two-thirds of those in the recent WSW group reported recently having had more than 1 male sex partner, compared with 59% in the former WSW group and 35% in the never WSW group ($P < .001$).

All of the sexual partnership patterns (steady, casual, and sex trade) assessed involved male partners because of the need for comparisons with never WSW. Fewer than two-thirds of participants in the recent WSW group reported having 1 or more steady male partners, in comparison with nearly 90% of those in the former and never WSW groups ($P < .01$). However, among participants with steady male partners, nearly 3 times as many in the recent as in the other 2 groups reported recently having had anal sex at least once ($P < .05$). In addition, significantly more of those in the former group (31%) than in the recent (21%) or never (11%) group reported having engaged in oral sex at least 4 times per week.

TABLE 3—Sexual Behaviors of Female Participants in the Risk Evaluation and Assessment of Community Health III Study, 2000–2002

	Total (n = 251), No. (%)	Recent WSW (n = 32), No. (%)	Former WSW (n = 30), No. (%)	Never WSW ^a (n = 189), No. (%)	P ^b
Older first sexual partner	195 (78.6)	25 (80.7)	22 (75.9)	148 (78.7)	.613
Mean age at sexual debut, y (SD)	14.5 (2.0)	13.7 (2.2)	14.2 (2.8)	14.6 (1.8)	.045
More than 1 male sex partner in past 6 mo	105 (42.0)	21 (65.6)	17 (58.6)	67 (35.5)	.001
Daily sex in past 6 months	50 (20.0)	10 (32.3)	6 (20.0)	34 (18.0)	.011 ^c
Steady male partners					
1 or more partners	207 (82.5)	20 (62.5)	27 (90.0)	160 (84.7)	.005
Oral sex \geq 4 times/wk ^d	30 (14.9)	4 (21.1)	8 (30.8)	18 (11.5)	.029
Use condom at least half the time	27 (16.2)	2 (12.5)	1 (4.6)	24 (18.6)	.233
Vaginal sex \geq 4 times/wk ^d	61 (30.4)	5 (26.3)	13 (50.0)	43 (27.6)	.082
Use condom at least half the time	46 (23.1)	4 (22.2)	7 (26.9)	35 (22.6)	.885
Anal sex at least once ^d	39 (19.9)	8 (44.4)	5 (19.2)	26 (17.1)	.023
Use condom at least half the time	7 (17.1)	1 (12.5)	1 (20.0)	5 (17.9)	.923
Use crack	67 (34.5)	3 (16.7)	13 (59.1)	51 (33.1)	.014
Casual male partners					
1 or more partners	57 (22.7)	11 (34.4)	8 (26.7)	38 (20.1)	.176
Oral sex at least once ^d	27 (51.9)	9 (90.0)	3 (42.9)	15 (42.9)	.027
Use condom at least half the time	11 (42.3)	2 (25.0)	1 (33.3)	8 (53.3)	.401
Vaginal sex \geq 1 time/wk ^d	16 (29.6)	6 (60.0)	3 (42.9)	7 (18.9)	.029
Use condom at least half the time	36 (67.9)	5 (55.6)	7 (100.0)	24 (64.9)	.129
Anal sex at least once ^d	3 (5.6)	2 (20.0)	0 (0.0)	1 (2.7)	.084
Use condom at least half the time	2 (40.0)	1 (50.0)	0 (0.0)	1 (33.3)	.709
Use crack	15 (30.0)	4 (40.0)	2 (28.6)	9 (27.3)	.741
Male sex trade partners					
Paid in past 6 mo	62 (25.2)	16 (51.6)	13 (44.8)	33 (17.7)	.000
5 or more men paying in past 6 mo ^d	34 (54.8)	12 (75.0)	4 (30.8)	18 (54.6)	.059
Oral sex \geq 1 time/wk	35 (57.4)	12 (80.0)	7 (53.9)	16 (48.5)	.093
Use condom at least half the time	29 (59.2)	9 (64.3)	5 (41.7)	15 (65.2)	.364
Intercourse \geq 1 time/wk	37 (60.7)	10 (66.7)	8 (61.5)	19 (57.6)	.928
Use condom at least half the time	40 (75.5)	10 (76.9)	7 (58.3)	23 (82.1)	.274
Ever been paid by female sex trade partner	10 (16.4)	7 (22.6)	3 (10.0)185

Note. WSW = women who have sex with women.

^aReference group.

^bDerived from 1-way analyses of variance for comparisons of means and from χ^2 tests for categorical variables.

^cCompared with 1–6 days per week and 2–3 times per month or less.

^dAmong those with the type of partner in question.

Reports of both oral and vaginal sex with casual male partners were more frequent among participants in the recent WSW group than among participants in the former and never WSW groups. Nearly 90% of those in the recent WSW group reported having had oral sex at least once in the previous 6 months with a casual male partner, compared with fewer than half of those in the former and never WSW groups ($P < .05$). In addition,

a significantly higher percentage of participants in the recent group (60%) than in the former (43%) or never (19%) group reported engaging in vaginal sex at least once a week with a casual male partner. There were highly significant between-group differences in sex trade participation; nearly half of the participants in the recent and former groups reported such behavior, compared with fewer than 20% of participants in the never group.

Sexually Transmitted Infections

We analyzed the STI histories of the participants and their perceptions of the STI histories of their partners (data not shown). More participants in the recent and former WSW groups than in the never WSW group reported ever having had a partner with an STI, as well as ever having been diagnosed with several STIs (e.g., chlamydia, herpes, and genital warts) themselves. There were significant differences between the never WSW, former WSW, and recent WSW groups in the percentages who reported ever having had a partner with an STI in general (11%, 24%, and 31%, respectively; $P < .01$) and with HIV in particular (2%, 10%, and 6%, respectively; $P < .05$).

In comparison with participants in the never WSW group, significantly higher percentages of participants in the former and recent groups reported ever having been diagnosed with any STI (32%, 40%, and 53%, respectively; $P < .05$), with chlamydia (9%, 23%, and 25%, respectively; $P < .01$), and with herpes or genital warts (2%, 3%, and 9%, respectively; $P < .05$). A significantly higher percentage of those in the former group than in the recent and never groups reported ever having had pelvic inflammatory disease (13%, 3%, and 3%, respectively; $P < .05$). Although we analyzed HIV serology, comparisons between groups were not possible owing to the small number of participants (6, only 1 of whom was a WSW) with a positive test result.

Multinomial Analysis

Table 4 displays results of the multinomial analysis in which the effect of each risk behavior was adjusted for the other risk behavior variables assessed. After control for other variables, participants in the recent WSW group were significantly more likely than participants in the never WSW group to have lived away from their parents as children (adjusted odds ratio [OR]=3.05; 95% confidence interval [CI]=1.07, 8.67) and to report having recently been paid for sex by men (adjusted OR=4.02; 95% CI=1.67, 9.68). Also, after adjustment for other variables, those in the former WSW group were more likely than those in the never WSW group to report having recently been paid for sex by men (adjusted OR=3.97; 95% CI=1.65, 9.59).

TABLE 4—Multinomial Analysis of Effects of Risk Behaviors of Female Participants in the Risk Evaluation and Assessment of Community Health III Study, 2000–2002

	Unadjusted OR (95% CI)		Adjusted OR (95% CI)	
	Recent WSW (n = 32), No. (%)	Former WSW (n = 30), No. (%)	Recent WSW (n = 32), No. (%)	Former WSW (n = 30), No. (%)
African American (vs White)	1.25 (0.59, 2.65)	0.48 (0.22, 1.09)	0.95 (0.39, 2.30)	0.42 (0.17, 1.06)
Lived away from parents as a child	3.08 (1.21, 7.83)	2.69 (1.02, 7.10)	3.05 (1.07, 8.67)	2.11 (0.72, 6.12)
Injection drug user	2.22 (0.87, 5.67)	1.68 (0.69, 4.13)	2.92 (0.97, 8.76)	1.30 (0.48, 3.52)
Paid by men for sex in past 6 mo	4.95 (2.23, 10.99)	3.77 (1.65, 8.58)	4.02 (1.67, 9.68)	3.97 (1.65, 9.59)
Ever had a sexually transmitted infection	2.46 (1.15, 5.27)	1.45 (0.65, 3.20)	2.25 (0.94, 5.40)	1.17 (0.48, 2.86)

Note. OR = odds ratio; CI = confidence interval; WSW = women who have sex with women. The comparison group for WSW groups was never WSW.

DISCUSSION

In this examination of the relationship between women's past and recent experiences of having sex with women and their drug use and sexual risk behaviors, we found that differences in risk profiles were dependent on WSW status. Specifically, our results indicate that drug-using WSW, particularly recent WSW, engage in both drug and sexual risk behaviors at higher rates than never WSW.

Although the present data were cross sectional, several differences in reported past behaviors were observed between the 3 study groups. For example, participants in both the recent and former WSW groups were more likely to have lived away from their parents as children than participants in the never WSW group. When entered into the multivariate model, this background covariate remained significant among those in the recent WSW group, suggesting that early independence may lead to future situations involving increased frequencies of experimentation (e.g., sex with women) and participation in drug and sexual risk behaviors.

In accord with the results of several previous studies,^{8,10,12,14–16,19,25} we found significant differences in drug use between WSW and never WSW. Recent and former WSW more frequently used drugs and shared needles than did never WSW. Rates of engaging in injection drug use were nearly statistically significant among recent WSW, a finding supported by previous research.^{8,10,12,16} Our small sample size may have been the reason why full statistical significance was not attained.

Our analyses showed that participants in the recent WSW group were less likely than those in the other 2 groups to have long-term, stable sexual relationships with men, as evidenced by their being less likely to have steady male sex partners but more likely to report having casual male sex partners. They also were more likely than those in the other groups to report frequently engaging in sexual activities with men, including anal sex, which is a proxy for risky sexual behavior.¹⁴ In addition, having been recently paid for sex by men was a significant predictor of both former and recent WSW status in comparison with never WSW status. Although these findings must be interpreted with caution, given that sexual activities with female partners were not assessed, they corroborate the results of previous research.^{5,11–14,16,19}

This combined evidence of recent WSW engaging in more frequent sex with men and having less-stable male partnerships speaks to the need for targeted sexual risk reduction interventions that focus not only on relationships between drug use and sexual behavior but also on the ways in which sexual risks differ among WSW as a result of variations in types of partners, sexual identities, and sexual activities. Those developing such targeted interventions can learn much from research examining men who have sex with men (MSM).^{26–30}

Partnering behaviors tend to be situational, as reflected in our findings as well as those of other studies.^{8,13} For example, recent WSW were more likely than former and never WSW to have been independent at an early age, to have been homeless, and to have

engaged in sex trade. The cross-sectional design of this study did not allow us to further investigate or offer conclusions regarding such phenomena. Future studies focusing on WSW should explore situational effects and their associations with patterns of sexual partnering. Knowledge of what these situations signify and their meanings in the lives of WSW are necessary if there is to be an enhanced understanding of how they relate to risk among WSW and of their public health implications.

A separate sensitivity analysis comparing self-reported sexual identities (lesbian/bisexual vs heterosexual) and associated risk behaviors (data not shown)^{8,10,21} produced no significant differences, reinforcing that the label WSW encompasses fluid sexual behaviors as opposed to sexual identities.³¹ In fact, at least 1 in 4 WSW taking part in this study self-identified as heterosexual. WSW identifying as heterosexual has great public health implications; for example, because they engage in sexual relations with both men and women, WSW represent a bridge population for STIs. The variations observed in the sexual identities of WSW further emphasize the diversity of this population and the care that should be taken in research focusing on it.

WSW and MSM have been so overused and overcategorized in the literature that they have become identities unto themselves.³² As a result, these labels have failed to capture the variable nature of human behavior, including variability in terms of the times at which behaviors occur. When studying these populations, it is important to be aware of—and accurately assess—variations in partner gender and differences in sexual identities.

Our study involved several limitations. For example, this was a cross-sectional study that was part of a larger cohort investigation. Therefore, we could not determine temporality, and we cannot make conclusive causal statements. Another limitation was the small sample size. The WSW population as a whole is small (only 1% to 4% of all women⁵); any study of WSW without specific recruitment efforts will be limited in terms of size. However, this study did comprise one of the largest WSW populations of any such research, with 25% of the sample categorized in one of the 2 WSW groups.

Additionally, WSW status was defined according to participants' self-reports of their sexual behaviors, and thus, in all likelihood, not all WSW within the cohort were captured. We attempted to minimize missing numbers by including both recent and former WSW, allowing for more scope in the definition as well as for the necessary comparisons between groups. Self-report bias may have been a factor as a result of the sensitivity of the questions on sexual identity, sexual behavior, and drug use patterns.

Additionally, risk behaviors of WSW may differ according to study methodology and venue of recruitment; however, such differences were not captured in the present data. We did not explore in detail sexual activities between women because of the need to include never WSW in comparisons; this may have decreased the range of sexual risk behaviors captured. Furthermore, although our results indicate that early life events and current situational devices influence the behaviors of WSW, we did not assess a number of other variables (e.g., violence, trauma) that may play a role. Future research should capture such data to further decipher differences within the WSW population and suggest other areas for intervention. Finally, although recall bias was of concern, the effects of this bias may have been minimized in that recent as well as lifetime participation in the behaviors of interest was ascertained.

In addition to reinforcing previous studies' findings that WSW tend to engage in riskier behaviors than never WSW, our results show that WSW are a complex group for which a complete understanding is absent. Gender of partner, sexual activities, sexual identity, childhood history, and living situation are but a few of the areas exhibiting wide variation within the WSW population, and such factors influence the risk profiles of these women as well as the development of appropriate health interventions targeted toward them.

Future research that ascertains the complex and interconnected levels of detail surrounding the characteristics of WSW would be informative. What are the implications for what female sexual encounters mean in the context of everyday life? For example, what do different types of relationships mean to different women? How do these relationships serve

women? What is the quality of different types of encounters? Do encounters differ depending on the gender of a woman's partner? Such questions must be addressed if there is to be a complete understanding of the risk behaviors engaged in by WSW and if the health consequences that may evolve from these behaviors are to be minimized.

The present results provide initial insight into the unique characteristics of WSW, including the characteristics that affect these women's risk behaviors. Knowledge of women's patterns of sexual partnering is not sufficient to determine their behavioral categorization or risk profile. That is, the time frames at which particular sexual encounters occur also are important in determining risk profiles. We conclude from our results that risks among WSW may cluster at different times and in relation to different partnering practices, necessitating that the dimension of time frame be included in future studies of this population. ■

About the Authors

At time of this study, Ann V. Bell was with the Department of Epidemiology, Johns Hopkins Bloomberg School of Public Health, Baltimore, Md. Danielle Ompad is with the Center for Urban Epidemiologic Studies, New York Academy of Medicine, New York City. Susan G. Sherman is with the Infectious Disease Program, Department of Epidemiology, Johns Hopkins Bloomberg School of Public Health.

Requests for reprints should be sent to Susan G. Sherman, PhD, MPH, Infectious Disease Program, Department of Epidemiology, Johns Hopkins Bloomberg School of Public Health, 615 N Wolfe St, Suite E66543, Baltimore, MD 21215 (e-mail: ssherman@jhsph.edu).

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Contributors

A.V. Bell wrote the article, developed the data analysis plan, and conducted all data analyses. D. Ompad read and provided comments on a draft of the article. S.G. Sherman originated the study, guided the analysis, and contributed to the writing of the article.

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Human Participant Protection

This study was approved by the Committee on Human Research of the Johns Hopkins Bloomberg School of Public Health. Participants provided written informed consent to take part in the study.

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