

The Number of Recent Sex Partners Among Bisexual Men in the United States

CONTEXT: Little is known regarding bisexual men's number of recent sex partners, a risk factor for HIV and other STDs. Furthermore, it is unclear if bisexual men have more partners than heterosexual or homosexual men, and whether partner number varies by measures of sexual behavior, identity and attraction.

METHODS: Sexual orientation—defined separately by sexual behavior during the past year, identity and attraction—was assessed for 3,875 sexually active men aged 15–44 who had participated in the 2002 National Survey of Family Growth. Chi-square and t tests examined differences in background characteristics, behavioral risk factors and number of past-year sex partners by sexual orientation according to each definition. Multivariate ordinary least-squares regression was used to assess predictors of the number of partners.

RESULTS: When sexual identity and attraction were controlled for, behaviorally bisexual men were predicted to have had 3.1 more past-year partners than behaviorally heterosexual men and 2.6 more than behaviorally homosexual men. After controlling for sexual identity and behavior, bisexual-attracted men had had 0.7 fewer partners than homosexual-attracted men. In a model including background characteristics and behavioral risk factors, behaviorally bisexual men were predicted to have had 2.5–2.6 more partners than others. Neither bisexual identity nor bisexual attraction independently predicted the number of recent partners.

CONCLUSION: The way in which bisexuality relates to men's number of recent sex partners depends on how sexual orientation is measured. Interventions to reduce behaviorally bisexual men's number of partners will likely lessen their risk for HIV and other STDs.

Perspectives on Sexual and Reproductive Health, 2011, 43(3):151–157, doi: 10.1363/4315111

By William L. Jeffries IV

At the time of this study, William L. Jeffries IV was a McKnight Doctoral Fellow in the Department of Sociology and Criminology & Law, University of Florida, Gainesville.

The risk of acquiring and transmitting HIV and other STDs dramatically increases with an individual's number of sex partners,^{1–5} particularly when partnerships occur during a short time span or simultaneously.^{6,7} Although all of the mechanisms by which multiple partnerships increase STD risk are not known, individuals with multiple partners tend to have sex within networks of individuals who also have multiple partners.^{6–9} Moreover, the likelihood of encountering a partner whose STD status is unknown may increase with the number of sex partners.¹⁰ In addition, condoms are not always consistently or properly used, and they provide minimal protection against some STDs (e.g., human papillomavirus and herpes simplex virus).¹¹

Understanding the relationship between bisexuality and the number of sex partners among U.S. men is important because bisexual men are at increased STD risk.^{12–15} Existing studies, however, have employed designs, analyses and sampling strategies that produced limited knowledge of this relationship. For example, studies of men who have sex with men have traditionally combined behaviorally bisexual and homosexual men,¹⁶ and studies on the number of partners among U.S. bisexual men have used only bivariate analyses.^{12,13} Research on differences among behaviorally bisexual, heterosexual and homosexual men has been limited by the use of non-probability-based samples of either

HIV-infected men or non-U.S. men.^{14,15} To the author's knowledge, no study has examined whether bisexual identity (i.e., thinking of oneself as bisexual) is independently associated with the number of partners among men in the United States.

The present study explores the relationship between the number of recent sex partners and bisexuality among U.S. men. To account for the multidimensionality and complexity of sexual orientation, the analysis considered it separately in terms of sexual behavior, identity and attraction.^{17,18} Previous research has suggested that bisexual men are younger than heterosexual men and more likely to be a racial or ethnic minority, have low educational attainment, exchange sex for money or drugs, use substances and have experienced forced sex; some of these differences also hold between bisexual and homosexual men.^{12–15,19–21} Furthermore, bisexual men are less likely than heterosexual men, but more likely than homosexual men, to be married; they are less likely than homosexuals, and more likely than heterosexuals, to reside in urban areas.²² The models used in this study controlled for these factors because they may mediate the relationship between bisexuality and men's number of partners.^{1,3–6,10}

Three research questions guided this analysis: Does bisexuality predict men's number of recent sex partners?

TABLE 1. Selected characteristics of sexually active men aged 15–44, according to sexual behavior in the past year, National Survey of Family Growth, 2002

| Characteristic | Behaviorally heterosexual (N=3,674) | Behaviorally homosexual (N=124) | Behaviorally bisexual (N=77) |
|-------------------------------------|-------------------------------------|---------------------------------|------------------------------|
| Race/ethnicity | | | |
| Mexican | 10.5 (7.9–13.0) | 3.6 (0.0–7.1)*,† | 16.6 (7.5–25.7) |
| Other Latino | 5.9 (4.4–7.4) | 9.8 (4.1–15.5) | 10.0 (2.7–17.4)† |
| Black | 12.1 (10.1–14.1) | 13.0 (5.8–20.2) | 17.7 (5.8–29.4) |
| White | 66.8 (63.2–70.5) | 72.5 (62.3–82.8) | 50.3 (34.9–65.7) |
| Other | 4.7 (3.5–5.8) | 1.1 (0.0–3.3)† | 5.4 (0.0–13.4)† |
| Mean age | 30.9 (30.4–31.4) | 32.0 (30.0–33.9)* | 29.0 (26.5–31.6) |
| Mean yrs. of education | 13.1 (12.9–13.3) | 13.6 (13.2–14.1)* | 12.6 (12.0–13.3) |
| Marital status | | | |
| Married | 50.4 (47.5–53.2)* | 0.5 (0.0–1.4)*,† | 18.6 (5.1–32.1) |
| Unmarried, cohabiting | 11.0 (9.5–12.4) | 0.5 (0.0–1.1)† | 7.1 (0.0–15.5)† |
| Unmarried, noncohabiting | 38.7 (36.2–41.1) | 99.1 (98.0–100.0) | 74.3 (59.7–88.8) |
| Residence | | | |
| Central city | 33.1 (27.8–38.3) | 64.8 (52.4–77.2) | 49.5 (33.4–65.6) |
| Other metropolitan | 48.2 (42.5–53.8) | 30.6 (19.2–42.1) | 33.6 (19.2–47.9) |
| Nonmetropolitan | 18.7 (12.0–25.5) | 4.6 (0.6–8.6)† | 16.9 (3.9–29.9) |
| Binge drinking frequency‡ | | | |
| Never | 39.0 (36.4–41.4) | 31.9 (22.3–41.3) | 35.3 (21.1–49.4) |
| 1–2 times | 19.0 (17.2–20.7) | 20.4 (11.5–29.3) | 17.9 (6.6–29.1) |
| Several times | 13.0 (11.5–14.6) | 14.0 (4.8–23.2) | 14.1 (4.4–23.9) |
| About once per month | 12.9 (11.3–14.5) | 14.4 (7.6–21.2) | 16.2 (3.1–29.3) |
| At least once per week | 16.1 (14.6–17.7) | 19.3 (10.8–27.8) | 16.5 (3.0–29.9) |
| Injection-drug use‡ | | | |
| High during sex ≥ half of the time‡ | 0.4 (0.2–0.6)* | 1.3 (0.0–2.9)† | 6.7 (0.0–17.2)† |
| Exchanged sex for money/drugs‡ | 9.4 (7.9–10.9)* | 16.1 (8.9–23.3) | 32.3 (17.9–46.7) |
| Ever had forced sexual experience | 1.2 (0.8–1.7)* | 8.3 (0.0–16.7)† | 18.5 (7.0–30.0) |
| ≥6 sex partners‡,§ | 7.0 (5.7–8.3)* | 28.2 (17.7–38.6) | 36.0 (22.4–49.7) |
| | 4.0 (3.2–4.8)* | 17.0 (4.9–29.0)* | 51.5 (36.9–66.2) |

*Significantly different from behaviorally bisexual men at $p \leq .05$. †Unstable population estimate (relative standard error is 30% or more of the estimate). ‡In the past year. §Because no behaviorally bisexual men had had only one partner during the past year, a chi-square test could not examine differences in the number of partners using the six-category variable employed in analyses by sexual identity and attraction; hence, analysis assessed the likelihood of having had six or more partners. Notes: Unless otherwise noted, data are percentages. Rao-Scott chi-square tests examined differences between percentages, and t tests examined differences between means. Figures in parentheses are 95% confidence intervals.

If so, then which measures of bisexuality—behavior, identity or attraction—are independently associated with the number of partners? And does the relationship between behavioral bisexuality and the number of recent partners differ by men's sexual identity or attraction?

METHODS

Sample

Data on 4,928 household-residing males aged 15–44 were drawn from the 2002 cycle of the National Survey of Family Growth (NSFG).²³ The sampling frame consisted of 121 primary sampling units derived from the 2000 U.S. Census. Female interviewers used computer-assisted personal interviewing (CAPI) to collect most of the data; participants used audio computer-assisted self-interviewing (audio-CASI) to hear, read and answer questions on sexual orientation, number of sex partners and STD risk behaviors. Interviews occurred during March 2002–March 2003 and averaged 60 minutes in length. Participants received \$40 in compensation, and the response rate was 78%.

Dependent Variable

The NSFG assessed the number of past-year female partners in both CAPI and audio-CASI sections of the interview. However, while CAPI-based measures accounted

only for vaginal sex in heterosexual partnerships, audio-CASI measures assessed oral and genital-penetrative sex in both opposite- and same-sex partnerships. Furthermore, the total number of female partners reported in audio-CASI was greater than that reported in CAPI, consistent with the notion that the former method facilitates the disclosure of sexuality-related information.²⁴ Therefore, only audio-CASI data were used.

Men who had ever had sex with a woman were asked, “Thinking about the last 12 months, how many female sex partners have you had?” Responses were coded from zero to 20 or more. Men who had ever had sex with a man were asked a parallel question; these responses were coded from zero to six or more. Respondents who refused to answer or who responded “don't know” were excluded from the analytic sample.

To create the dependent variable, data for men who had had sex only with women in the past year were recoded with a cutoff of six or more partners (the highest category for men who had had only male partners). For behaviorally bisexual men, the sum of male and female partners was calculated after the data for female partners were recoded. Thus, for all respondents, the analytic measure was a six-category variable.

Independent Variables

The sex of men's partners in the past year determined their behavioral categorization: behaviorally heterosexual (only female partners), behaviorally homosexual (only male partners) or behaviorally bisexual (partners of both sexes).

Sexual identity was ascertained by asking, “Do you think of yourself as heterosexual, homosexual, bisexual or something else?” Men who answered “heterosexual,” “homosexual” or “bisexual” were categorized as such. To maintain the size of the multivariate analytic sample, respondents who refused to answer were categorized as “missing,” and those who answered “don't know” or “something else” were grouped as “other.” These categorizations were useful because some men distinguish themselves from heterosexual-identified men but shun the labels “gay” and “bisexual.”²⁵

To assess sexual attraction, the NSFG asked, “Which best describes your feelings? Are you only attracted to females, mostly attracted to females, equally attracted to females and males, mostly attracted to males, only attracted to males or not sure?” Responses were recoded to distinguish among men who were heterosexual-attracted (only to females), homosexual-attracted (only to males) or bisexual-attracted (any attraction to both females and males). To maintain the size of the multivariate sample, those who selected “not sure” or “don't know,” or who refused to respond, were grouped as “other.”

Covariates

Race or ethnicity was categorized as Mexican, other Latino, black, white or other; age was determined using birth dates. Education level, based on years of completed schooling,

was assessed as a continuous measure. Heterosexual marital status denoted whether men were married, unmarried and cohabiting, or unmarried and noncohabiting. Zip codes were used to assign respondents to one of three residence categories: central city, other metropolitan (including suburban) area or nonmetropolitan (rural area or small town).

Binge drinking was defined as having “five or more drinks within a couple of hours”; the frequency of binge drinking in the past year was divided into five categories, ranging from “never” to “at least once per week.” Respondents also indicated whether they had engaged in the following risk behaviors in the past year: injection-drug use, being “high” on alcohol or drugs during sex at least half of the time, and exchange of sex for money or drugs. Men aged 18 or older were asked whether they had ever been forced to have sex “against your will.” To prevent the exclusion of 15–17-year-olds, a disproportionate number of whom were behaviorally bisexual, a “missing” category was created to retain them in the multivariate analytic sample. A small number of respondents refused to answer or responded “don’t know” to risk measures, and were excluded from multivariate analyses.

Analysis

The analytic sample consisted of the 3,875 men who had had sex during the past year. In separate analyses for the different sexual orientation measures, Rao-Scott chi-square tests compared bisexual and other men on all categorical measures; t tests compared bisexual and other men by age and years of education. However, because by definition no behaviorally bisexual men could have had only one partner in the past year, a chi-square test could not examine differences in the number of sex partners by behaviorally defined sexual orientation. For that analysis, behaviorally bisexual men were compared with others for the likelihood of having had six or more partners. SAS for Windows (version 9.2) was used for analyses and data management. The PROC SURVEYFREQ and PROC SURVEYMEANS procedures generated population estimates, standard errors and confidence intervals, adjusted for the NSFG’s complex design.²⁶

Multivariate analyses began with cumulative logit models. However, the relationship between independent and dependent variables significantly violated the proportional odds assumption. Therefore, ordinary least-squares regression was used to model relationships between the number of past-year sex partners and bisexual behavior, identity and attraction. Unstandardized coefficients were presented in a nested design so that changes in the relationship between sexual orientation measures and the number of partners were observed relative to each other and the effects of covariates. Bisexual men were the reference group for all analyses. The PROC SURVEYREG procedure utilized weights that accounted for the survey design by adjusting standard errors in multivariate analyses.²⁶ All analyses utilized scaled sampling weights to adjust for oversampling, noncoverage and nonresponse.

TABLE 2. Selected characteristics of sexually active men, according to sexual identity

| Characteristic | Heterosexual-identified (N=3,471) | Homosexual-identified (N=110) | Bisexual-identified (N=90) |
|------------------------------------|-----------------------------------|-------------------------------|----------------------------|
| Race/ethnicity | | | |
| Mexican | 9.7 (7.4–12.1) | 8.8 (0.0–17.8)† | 7.2 (0.0–14.3)† |
| Other Latino | 5.8 (4.3–7.3) | 4.6 (1.1–8.2)† | 8.5 (2.9–14.1) |
| Black | 11.8 (9.9–13.7) | 9.3 (3.5–15.0) | 12.8 (6.9–18.8) |
| White | 67.9 (64.3–71.5) | 75.8 (64.7–86.9) | 66.6 (54.4–78.9) |
| Other | 4.7 (3.5–5.9) | 1.5 (0.0–3.7)† | 4.9 (0.0–12.7)† |
| Mean age | 30.9 (30.4–31.4) | 30.7 (28.5–33.1) | 31.9 (29.9–34.0) |
| Mean yrs. of education | 13.2 (13.0–13.4) | 13.5 (12.9–14.1) | 13.2 (12.5–13.9) |
| Marital status | | | |
| Married | 50.8 (47.8–53.7)* | 6.3 (0.0–15.1)*,† | 35.3 (18.1–52.5) |
| Unmarried, cohabiting | 10.1 (8.6–11.7) | 13.2 (0.0–28.2)† | 2.3 (0.0–6.2)† |
| Unmarried, noncohabiting | 39.1 (36.5–41.7) | 80.6 (64.5–96.6) | 62.4 (45.6–79.3) |
| Residence | | | |
| Central city | 33.0 (27.8–38.2) | 54.9 (39.6–70.3) | 47.4 (29.0–65.8) |
| Other metropolitan | 49.0 (43.4–54.6)* | 37.1 (22.1–52.0) | 21.1 (9.0–33.1) |
| Nonmetropolitan | 18.0 (11.5–24.6) | 8.0 (1.8–14.3)† | 31.5 (10.0–53.1) |
| Binge drinking frequency‡ | | | |
| Never | 39.1 (36.5–41.7) | 27.1 (16.7–37.5) | 36.0 (19.8–52.3) |
| 1–2 times | 19.4 (17.6–21.1) | 18.4 (7.9–29.0) | 15.9 (7.4–24.4) |
| Several times | 12.8 (11.2–14.4) | 14.7 (5.7–23.6) | 18.0 (3.0–33.0)† |
| About once per month | 12.6 (10.9–14.3) | 21.0 (6.8–35.3) | 15.4 (4.9–25.9) |
| At least once per week | 16.2 (14.6–17.7) | 18.8 (8.8–28.7) | 14.7 (3.6–25.8)† |
| Injection-drug use‡ | 0.5 (0.2–0.8) | 0.9 (0.0–2.2)† | 0.4 (0.0–1.1)† |
| High during sex ≥half of the time‡ | 9.5 (8.0–11.0) | 15.8 (7.5–24.1) | 14.0 (5.8–22.1) |
| Exchanged sex for money/drugs‡ | 1.2 (0.8–1.7) | 6.8 (0.0–14.3)† | 3.8 (0.0–7.6)† |
| Ever had forced sexual experience | 6.7 (5.4–8.0)* | 30.7 (15.6–45.7) | 20.3 (11.6–29.1) |
| No. of sex partners‡ | | | |
| 1 | 77.6 (75.4–79.9) | 43.2 (28.9–57.4) | 59.4 (45.2–73.6) |
| 2 | 9.8 (8.5–11.0) | 13.0 (5.3–20.6) | 14.6 (6.1–23.0) |
| 3 | 4.9 (3.9–5.8) | 12.5 (5.0–20.0) | 5.6 (0.8–10.4)† |
| 4 | 2.1 (1.5–2.6) | 7.6 (2.3–13.0) | 4.3 (0.2–8.4)† |
| 5 | 1.5 (1.1–2.0) | 4.6 (0.0–9.7)† | 3.4 (0.4–6.4)† |
| ≥6 | 4.1 (3.3–4.9)* | 19.1 (6.8–31.4) | 12.7 (5.3–20.1) |

*Significantly different from bisexual-identified men at $p \leq .05$. †Unstable population estimate (relative standard error is 30% or more of the estimate). ‡In the past year. Notes: Unless otherwise noted, data are percentages. Rao-Scott chi-square tests examined differences between percentages, and t tests examined differences between means. Figures in parentheses are 95% confidence intervals.

RESULTS

Sample Characteristics

Sixty-seven percent of participants were white; men’s mean age and years of education were 31 and 12, respectively. Most men were either married to (49%) or cohabiting with (11%) women. The majority resided in metropolitan areas (34% in central cities and 48% in other metropolitan areas). Participants reported fairly low levels of past-year binge drinking (39% had never done it, and 19% had done so once or twice). Small proportions of men had used injection drugs (fewer than 1%), engaged in sex while high on alcohol or drugs (10%), exchanged sex for money or drugs (2%), or been forced to have sex (8%). Most men (86%) had had either one or two sex partners during the past year.

Bivariate Findings

Compared with behaviorally heterosexual men, behaviorally bisexual respondents were less likely to be married to women (19% vs. 50%—Table 1). However, they were more likely than behaviorally heterosexual men to have used injection drugs (7% vs. 0.4%), been high on alcohol or drugs during sex (32% vs. 9%), exchanged sex for money or drugs (19% vs. 1%), had a forced sexual experience

TABLE 3. Selected characteristics of sexually active men, according to sexual attraction

| Characteristic | Heterosexual-attracted (N=3,505) | Homosexual-attracted (N=81) | Bisexual-attracted (N=264) |
|------------------------------------|----------------------------------|-----------------------------|----------------------------|
| Race/ethnicity | | | |
| Mexican | 10.2 (7.8–12.6) | 6.0 (0.3–11.8)† | 15.9 (6.9–24.8) |
| Other Latino | 5.8 (4.4–7.3) | 2.5 (0.3–4.8)† | 9.9 (4.1–15.7) |
| Black | 12.0 (10.0–14.0) | 9.7 (3.2–16.2) | 14.4 (9.3–19.6) |
| White | 67.3 (63.6–70.9) | 80.3 (70.1–90.5)* | 55.5 (45.5–65.5) |
| Other | 4.7 (3.4–5.9) | 1.4 (0.0–4.3)† | 4.3 (0.2–8.3)† |
| Mean age | 30.9 (30.5–31.4) | 32.4 (30.1–34.6)* | 29.9 (28.5–31.2) |
| Mean yrs. of education | 13.1 (12.9–13.3) | 13.6 (12.9–14.3) | 13.2 (12.7–13.7) |
| Marital status | | | |
| Married | 51.1 (48.2–53.9)* | 6.7 (0.3–13.1)*,† | 27.2 (19.3–35.1) |
| Unmarried, cohabiting | 10.7 (9.3–12.1) | 3.3 (0.0–6.9)† | 14.1 (6.3–22.0) |
| Unmarried, noncohabiting | 38.3 (35.8–40.8) | 90.0 (82.7–97.2) | 58.7 (48.9–68.5) |
| Residence | | | |
| Central city | 32.9 (27.7–38.1) | 63.0 (48.6–77.4) | 43.8 (33.3–54.2) |
| Other metropolitan | 48.3 (42.7–54.0) | 35.3 (21.2–49.4) | 40.4 (29.8–51.0) |
| Nonmetropolitan | 18.8 (12.0–25.6) | 1.7 (0.0–4.2)*,† | 15.8 (5.9–25.8) |
| Binge drinking frequency‡ | | | |
| Never | 39.1 (36.6–41.6) | 31.4 (18.5–44.4) | 34.8 (26.6–43.1) |
| 1–2 times | 19.1 (17.3–20.9) | 14.2 (6.2–22.2) | 17.9 (10.8–24.9) |
| Several times | 12.9 (11.3–14.5) | 18.5 (7.4–29.7) | 14.8 (8.9–20.7) |
| About once per month | 12.9 (11.3–14.4) | 13.6 (5.0–22.2) | 14.3 (8.1–20.5) |
| At least once per week | 16.0 (14.4–17.5) | 22.2 (11.2–33.3) | 18.2 (10.7–25.8) |
| Injection-drug use‡ | | | |
| High during sex ≥half of the time‡ | 0.4 (0.2–0.6)* | 1.3 (0.0–3.3)† | 2.6 (0.0–6.0)† |
| Exchanged sex for money/drugs‡ | 9.3 (7.9–10.7)* | 20.4 (10.3–30.5) | 15.0 (9.4–20.7) |
| Ever had forced sexual experience | 1.3 (0.9–1.8) | 15.2 (5.4–25.1)* | 2.6 (0.1–5.1)† |
| No. of sex partners‡ | | | |
| 1 | 78.1 (75.9–80.3) | 34.5 (21.2–47.8) | 57.4 (49.2–65.6) |
| 2 | 9.6 (8.3–10.8) | 13.9 (4.0–23.8) | 14.3 (9.5–19.1) |
| 3 | 4.6 (3.7–5.5) | 11.5 (4.7–18.4) | 10.3 (4.6–15.9) |
| 4 | 2.0 (1.5–2.4) | 10.7 (2.5–19.0) | 4.4 (0.1–8.8)† |
| 5 | 1.5 (1.1–1.9) | 3.1 (0.0–6.9)† | 4.8 (1.2–8.3)† |
| ≥6 | 4.2 (3.4–5.1)* | 26.3 (10.6–42.0)* | 8.8 (5.5–12.1) |

*Significantly different from bisexual-attracted men at $p \leq .05$. †Unstable population estimate (relative standard error is 30% or more of the estimate). ‡In the past year. Notes: Unless otherwise noted, data are percentages. Rao-Scott chi-square tests examined differences between percentages, and t tests examined differences between means. Figures in parentheses are 95% confidence intervals.

(36% vs. 7%), and had six or more past-year sex partners (52% vs. 4%). Behaviorally bisexual men were younger than behaviorally homosexual men (mean, 29 vs. 32) and had less education (mean, 13 vs. 14 years); they also were more likely to be of Mexican descent (17% vs. 4%). In addition, they were more likely to be married to women (19% vs. 1%) and to have had six or more past-year sex partners (52% vs. 17%).

Bisexual-identified men were less likely than those who said they were heterosexual to be married to women (35% vs. 51%—Table 2, page 153) and reside in metropolitan areas other than central cities (21% vs. 49%). However, they were more likely than heterosexual-identified men to report a forced sexual experience (20% vs. 7%) and six or more past-year sex partners (13% vs. 4%). A greater proportion of bisexual-identified men than of homosexual-identified men were married to women (35% vs. 6%).

Compared with heterosexual-attracted men, bisexual-attracted men were less likely to be married to women (27% vs. 51%—Table 3). However, they were more likely than heterosexual-attracted men to have used injection drugs (3% vs. 0.4%), been high on drugs or alcohol during sex (15% vs. 9%), had a forced sexual experience (20% vs. 7%), and had six or more past-year sex partners (9% vs. 4%). Relative to homosexual-attracted men, bisexual-attracted

respondents were less likely to be white (56% vs. 80%) and were younger (mean, 30 vs. 32). In addition, they were more likely than homosexual-attracted men to be married to women (27% vs. 7%) and reside in nonmetropolitan areas (16% vs. 2%), but less likely to have exchanged sex for money or drugs (3% vs. 15%) and had six or more past-year sex partners (9% vs. 26%).

Multivariate Findings

In the uncontrolled regression analyses, behaviorally bisexual men had had 3.2 more partners in the past year than behaviorally heterosexual men and 2.1 more than behaviorally homosexual men (Table 4). Bisexual-identified men had had 0.6 more partners than both heterosexual-identified men and those who refused to answer the sexual identity question. Bisexual-attracted men had had 0.6 more partners than heterosexual-attracted men, but one partner fewer than homosexual-attracted men.

When all three sexual orientation measures were controlled for, behaviorally bisexual men had had 3.1 more partners than behaviorally heterosexual men and 2.6 more partners than behaviorally homosexual men. Independent of sexual behavior and identity, bisexual-attracted men had had 0.7 fewer partners than homosexual-attracted men. Sexual identity did not predict the number of partners in the past year.

In the model that adjusted for all sexual orientation measures, background characteristics and risk covariates, behaviorally bisexual men had had 2.5 more partners than behaviorally heterosexual men and 2.6 more than behaviorally homosexual men. Neither sexual identity nor sexual attraction predicted the number of partners.

The full model also showed that Latino and black men had had 0.2–0.4 more partners than whites, men who were neither married nor cohabiting had had 0.8 more partners than married men, and residents of central cities had had 0.1 more partners than men living in other metropolitan settings.

Each increase in the level of binge drinking corresponded to a 0.1 increase in men’s number of partners. Moreover, men who reported having been high on alcohol or drugs during sex at least half the time, and those who had exchanged sex for money or drugs, had had more partners than men who had not engaged in these behaviors in the last year (differences of 0.4 and 0.9, respectively). Finally, men who had not been asked about forced sexual experience had had 0.3 fewer partners than men who had never experienced forced sex.

Separate models tested whether behaviorally bisexual men’s number of sex partners varied by their sexual identities and attractions (not shown). The interaction terms were not significant, suggesting that it did not.

DISCUSSION

These findings suggest that the way bisexuality relates to men’s number of recent sex partners depends on how bisexuality is conceptualized and measured. For example,

behaviorally bisexual men had significantly more past-year partners than behaviorally heterosexual or homosexual men even after background and risk factors known to be associated with having multiple partners were controlled for. Notably, half of behaviorally bisexual men had had six or more partners in the preceding year, although considerably smaller proportions of behaviorally heterosexual or homosexual men reported this many partners.

By contrast, when men's sexual orientation was based on their sexual identity or attraction, a different narrative emerged. Although bisexual-identified and bisexual-attracted men had had more partners, on average, than their heterosexual counterparts, neither sexual identity nor sexual attraction was independently associated with the number of partners. These findings underscore what prior research has suggested: STD risk reduction interventions for bisexual men should focus on sexual behaviors with both women and men, rather than on sexual identity or attraction alone.²⁷

Behaviorally bisexual men's increased number of partners might be attributed to several factors. Social constructionist theory posits that individuals adopt behaviors that give credence to their sexualities.^{16,28} Men who are behaviorally bisexual arguably perceive a greater need for such behaviors, given that societal attitudes toward bisexual men are more negative than attitudes toward heterosexual and gay men.²⁹ Thus, having multiple partners may be one way that men assert themselves as bisexual in a society that denigrates bisexuality. Furthermore, because bisexuality is commonly understood as sexual activity with both sexes, having a high number of partners would provide credibility that one is truly bisexual.

Alternatively, an increased number of partners may partially reflect the process through which some behaviorally bisexual men transition to behavioral homosexuality. Indeed, previous research has illustrated how some men maintain behavioral bisexuality throughout this transition,³⁰ and these men's uncertainty regarding their sexualities may manifest in multiple partnerships with both men and women. Bisexual behavior may help to affirm their masculinities and buffer the perceived stigmatization of being exclusively homosexual throughout their lives.³¹ Inclinations toward transitional bisexual behaviors and multiple partnerships might have been augmented by the relative youth of behaviorally bisexual men: They were, on average, three years younger than behaviorally homosexual men. This suggests a disposition toward sexual experimentation with multiple partners of both sexes,³² which is relatively common among men who are transitioning to behavioral homosexuality.^{30,31} Because this cross-sectional study could not examine transitional male bisexuality in relation to the number of sex partners, future investigations using longitudinal data would be useful.

Finally, behaviorally bisexual men's increased number of partners may reflect reverse causation: As men have more partners over time (for whatever reasons), their likelihood

TABLE 4. Coefficients from ordinary least-squares regression analyses assessing associations between sexual orientation measures and men's number of partners in the past year

| Characteristic | Model 1 (N=3,851) | Model 2 (N=3,851) | Model 3 (N=3,851) | Model 4 (N=3,851) | Model 5 (N=3,839) |
|-------------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Sexual behavior | | | | | |
| Heterosexual | -3.24*** | | | -3.09*** | -2.52*** |
| Homosexual | -2.11*** | | | -2.62*** | -2.55*** |
| Bisexual (ref) | na | | | na | na |
| Sexual identity | | | | | |
| Heterosexual | | -0.63** | | 0.17 | 0.11 |
| Homosexual | | 0.59 | | 0.33 | 0.34 |
| Bisexual (ref) | | na | | na | na |
| Other | | -0.33 | | 0.34 | 0.21 |
| Missing | | -0.62* | | 0.16 | 0.06 |
| Sexual attraction | | | | | |
| Heterosexual | | | -0.59*** | -0.15 | 0.00 |
| Homosexual | | | 1.02** | 0.70* | 0.64 |
| Bisexual (ref) | | | na | na | na |
| Other | | | -0.31 | -0.01 | -0.27 |
| Race/ethnicity | | | | | |
| Mexican | | | | | 0.19** |
| Other Latino | | | | | 0.38*** |
| Black | | | | | 0.44*** |
| White (ref) | | | | | na |
| Other | | | | | 0.01 |
| Mean age | | | | | |
| Mean yrs. of education | | | | | 0.00 |
| Marital status | | | | | |
| Married (ref) | | | | | na |
| Unmarried, cohabiting | | | | | 0.03 |
| Unmarried, noncohabiting | | | | | 0.75*** |
| Residence | | | | | |
| Central city (ref) | | | | | na |
| Other metropolitan | | | | | -0.10* |
| Nonmetropolitan | | | | | -0.06 |
| Binge drinking frequency†,‡ | | | | | 0.10*** |
| Injection-drug use† | | | | | 0.41 |
| High during sex ≥ half of the time† | | | | | 0.44*** |
| Exchanged sex for money/drugs† | | | | | 0.91*** |
| Had forced sexual experience | | | | | |
| Ever | | | | | 0.14 |
| Never (ref) | | | | | na |
| Missing | | | | | -0.30* |
| Intercept | 4.76*** | 2.16*** | 2.11*** | 4.57*** | 3.39*** |
| F | 132.18*** | 7.98*** | 18.59*** | 32.23*** | 53.88*** |
| Adjusted R² | 0.09 | 0.02 | 0.03 | 0.10 | 0.27 |

*p≤.05. **p≤.01. ***p≤.001. †In the past year. ‡Binge drinking frequency was a five-category measure and was assessed by each increase in the level of drinking. Notes: ref=reference group. na=not applicable.

of having sex with both men and women may increase. Men who are inclined to have multiple partnerships might welcome opportunities for same- and opposite-sex encounters, whereas others may limit their partners to either sex. Also, men who have had more partners likely have relatively liberal attitudes toward sexuality, which may justify opposite- and same-sex partnering within a short time period. Future studies should assess potentially causal associations between behavioral bisexuality and the number of partners.

Limitations

This study has several limitations. The measure for the number of sex partners was limited to six or more, which precluded the detection of variation that may have occurred at higher numbers. Moreover, the NSFG did not assess the level of commitment to partners or the type of sex engaged in, and dates for past-year same-sex partnerships

were not available. Such information would have been useful in light of variation in STD risk because of partnership type (casual vs. main), type of sexual behavior (anal and vaginal vs. oral) and timing of multiple partnerships (concurrent vs. sequentially monogamous).^{6,7} In addition, the NSFG did not measure same-sex relationship or same-sex marital status, and this variable may have been a salient mediator of the observed associations. Finally, the finding that past-year bisexual behavior was independently associated with the number of partners, but that bisexual identity and attraction were not, might reflect that recent sexual behavior is a more proximate antecedent of the number of recent partners than the other orientation dimensions. Future studies could address these limitations by using longitudinal measures of sexual behavior, identity and attraction.

Conclusions

Minimizing the number of sex partners of behaviorally bisexual men may reduce their risk of acquiring and transmitting HIV and other STDs.³³ Practitioners should acknowledge that men of racial or ethnic minorities are disproportionately represented among the U.S. population of behaviorally bisexual males. This fact begs for culturally appropriate interventions that account for the ways in which race, ethnicity and culture may influence bisexual men's disposition for having multiple partners. Furthermore, the design and implementation of preventive strategies that address the social-structural bases for increased HIV and STD risk among some behaviorally bisexual men are needed.³⁴ Holistic approaches that account for behaviorally bisexual men's proclivities for other risk behaviors (e.g., injection-drug use) would also be beneficial, as would promotion of awareness and social acceptance of bisexual men.

Future investigations should explore if and how bisexual behavior influences men to have multiple partners, or if unobserved factors might be implicated in this phenomenon. Further research on bisexual men will lead to a more thorough understanding of their nuanced risk and behavioral characteristics.

REFERENCES

1. Dolcini MM et al., Demographic characteristics of heterosexuals with multiple partners: the National AIDS Behavioral Surveys, *Family Planning Perspectives*, 1993, 25(5):208–214.
2. Eisenberg B, The number of partners and the probability of HIV infection, *Statistics in Medicine*, 1989, 8(1):83–92.
3. Laumann EO and Youm Y, Racial/ethnic group differences in the prevalence of sexually transmitted diseases in the United States: a network explanation, *Sexually Transmitted Diseases*, 1999, 26(5):250–261.
4. Santelli JS et al., Multiple sexual partners among U.S. adolescents and young adults, *Family Planning Perspectives*, 1998, 30(6):271–275.
5. Smith TW, Adult sexual behavior in 1989: number of partners, frequency of intercourse and risk of AIDS, *Family Planning Perspectives*, 1991, 23(3):102–107.

6. Adimora AA, Schoenbach VJ and Doherty IA, Concurrent sexual partnerships among men in the United States, *American Journal of Public Health*, 2007, 97(12):2230–2237.
7. Rosenberg MD et al., Concurrent sex partners and risk for sexually transmitted diseases among adolescents, *Sexually Transmitted Diseases*, 1999, 26(4):208–212.
8. Britton T, Nordvik MK and Liljeros F, Modelling sexually transmitted infections: the effect of partnership activity and number of partners on R_0 , *Theoretical Population Biology*, 2007, 72(3):389–399.
9. Liljeros F et al., The web of human sexual contacts, *Nature*, 2001, 411(6840):907–908.
10. Laumann EO et al., *The Social Organization of Sexuality: Sexual Practices in the United States*, Chicago: University of Chicago Press, 1994.
11. Centers for Disease Control and Prevention (CDC), Condoms and STDs: fact sheet for public health personnel, 2011, <<http://www.cdc.gov/condomeffectiveness/latex.htm>>, accessed May 3, 2011.
12. Jeffries WL IV and Dodge B, Male bisexuality and condom use at last sexual encounter: results from a national survey, *Journal of Sex Research*, 2007, 44(3):278–289.
13. Goodenow C, Netherland J and Szalacha L, AIDS-related risk among adolescent males who have sex with males, females, or both: evidence from a statewide survey, *American Journal of Public Health*, 2002, 92(2):203–210.
14. Hightow LB et al., Men who have sex with men and women: a unique risk group for HIV transmission on North Carolina college campuses, *Sexually Transmitted Diseases*, 2006, 33(10):585–593.
15. Greco M et al., Differences in HIV-risk behavior of bisexual men in their relationships with men and women, *Revista de Saúde Pública*, 2007, 41(Suppl. 2):109–117.
16. Paul JP, Bisexuality: reassessing our paradigms of sexuality, in: Rust P, ed., *Bisexuality in the United States: A Social Science Reader*, New York: Columbia University Press, 2000, pp. 11–23.
17. Seidman S, Queer-ing sociology, sociologizing queer theory: an introduction, *Sociological Theory*, 1994, 12(2):166–177.
18. Valocchi S, Not yet queer enough: the lessons of queer theory for the sociology of gender and sexuality, *Gender & Society*, 2005, 19(6):750–770.
19. Agronick G et al., Sexual behaviors and risks among bisexually- and gay-identified young Latino men, *AIDS and Behavior*, 2004, 8(2):185–197.
20. Stokes JP, Vanable P and McKirnan DJ, Comparing gay and bisexual men on sexual behavior, condom use, and psychosocial variables related to HIV/AIDS, *Archives of Sexual Behavior*, 1997, 26(4):383–397.
21. Robin L et al., Associations between health risk behaviors and opposite-, same-, and both-sex sexual partners in representative samples of Vermont and Massachusetts high school students, *Archives of Pediatrics & Adolescent Medicine*, 2002, 156(4):349–355.
22. Jeffries WL IV, HIV testing among bisexual men in the United States, *AIDS Education and Prevention*, 2010, 22(4):356–370.
23. CDC, *National Survey of Family Growth, Cycle 6: 2002 ACASI File, User's Guide and Documentation*, Hyattsville, MD: U.S. Department of Health and Human Services, 2005.
24. Turner CF et al., Adolescent sexual behavior, drug use, and violence: increased reporting with computer survey technology, *Science*, 1998, 280(5365):867–873.
25. Stewart FJ, Mischewski A and Smith AMA, "I want to do what I want to do": young adults resisting sexual identities, *Critical Public Health*, 2000, 10(4):409–422.

26. Lepkowski JM et al., National Survey of Family Growth, Cycle 6: sample design, weighting, imputation, and variance estimation, *Vital and Health Statistics*, 2006, Series 2, No. 142.
27. Pathela P et al., Discordance between sexual behavior and self-reported sexual identity: a population-based survey of New York City men, *Annals of Internal Medicine*, 2006, 145(6):416–425.
28. Vance CS, Anthropology rediscovers sexuality: a theoretical comment, *Social Science & Medicine*, 1991, 33(8):875–884.
29. Herek GM, Heterosexuals' attitudes toward bisexual men and women in the United States, *Journal of Sex Research*, 2002, 39(4):264–274.
30. Stokes JP, Miller RL and Mundhenk R, Toward an understanding of behaviourally bisexual men: the influence of context and culture, *Canadian Journal of Human Sexuality*, 1998, 7(2):101–113.
31. Weinberg MS, Williams CJ and Pryor DW, *Dual Attraction: Understanding Bisexuality*, New York: Oxford University Press, 1994.
32. Berg-Kelly K, Adolescent homosexuality: we need to learn more about causes and consequences, *Acta Paediatrica*, 2003, 92(2):141–144.
33. Coates TJ, Richter L and Cáceres CF, Behavioral strategies to reduce HIV transmission: how to make them work better, *Lancet*, 2008, 372(9639):669–684.
34. Malebranche DJ, Bisexually active black men in the United States and HIV: acknowledging more than the “down low,” *Archives of Sexual Behavior*, 2008, 37(5):810–816.

Acknowledgments

The author thanks Barbara A. Zsembik, Chuck W. Peek, William Marsiglio, Kendal L. Broad and Willie L. Baber for feedback on early versions of this article. This research was supported by pre-doctoral fellowships from the Florida Education Fund (McKnight Doctoral Fellowship), the National Science Foundation (Social, Behavioral and Economic Sciences Award) and the University of Florida's College of Liberal Arts and Sciences (McLaughlin Dissertation Fellowship).

Author contact: jeffries@ufl.edu