

The Interaction of Sexual Identity With Sexual Behavior and Its Influence on HIV Risk Among Latino Men: Results of a Community Survey in Northern San Diego County, California

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Latinos and sexual minorities are disproportionately affected by HIV/AIDS. Latinos represented 14% of the US population in 2005,¹ but they accounted for 18% of HIV/AIDS cases diagnosed in 2006.² Although an estimated 6% to 9% of the US population has a lifetime history of homosexual sex,^{3,4} men who have sex with men accounted for 49% of all HIV/AIDS cases diagnosed in the United States in 2006.² Sexual risk for HIV varies considerably by sexual orientation, with gay-identified and bisexually identified men generally at greater risk.^{5,6} However, a person's self-identified sexual orientation frequently does not correspond to his or her sexual behavior.⁷⁻⁹

Within Latino culture, it is possible for a man to have sex with men while maintaining a heterosexual identity and protecting his sense of masculinity.¹⁰⁻¹³ For Latino men, sexual identity appears to be contingent upon certain behavioral and contextual factors, such as whether they have female sexual partners, are primarily attracted to women, adopt an insertive role in sexual practices, have sex with effeminate men, or have sex with men when under the influence of alcohol or drugs. Homophobia, social stigma attached to same-sex practices, and sexual conservatism are commonly found throughout Latino culture and may inhibit Latino men who have sex with men from self-identifying as gay or bisexual.^{9,10,14-16} Research suggests that Latino men are more likely than are White men to engage in bisexual behavior (i.e., to have sex with both men and women)^{8,17,18} but are less likely than are White men to disclose a non-heterosexual orientation.^{16,19,20}

Among men, bisexual behavior appears to be more prevalent than bisexual identity. Although approximately 1% to 2% of the US male population identifies as bisexual,^{3,4} rates of male bisexual behavior in national samples have ranged from 1% to 5%.^{4,21,22} However, these

Objectives. We examined the sexual behavior, sexual identities, and HIV risk factors of a community sample of Latino men to inform efforts to reduce Latinos' HIV risk.

Methods. In 2005 and 2006, 680 Latino men in San Diego County, California, in randomly selected, targeted community venues, completed an anonymous, self-administered survey.

Results. Most (92.3%) respondents self-identified as heterosexual, with 2.2%, 4.9%, and 0.6% self-identifying as bisexual, gay, or other orientation, respectively. Overall, 4.8% of heterosexually identified men had a lifetime history of anal intercourse with other men. Compared with behaviorally heterosexual men, heterosexually identified men who had sex with both men and women were more likely to have had a sexually transmitted infection, to have unprotected sexual intercourse with female partners, and to report having sex while under the influence of alcohol or other drugs. Bisexually identified men who had sex with men and women did not differ from behaviorally heterosexual men in these risk factors.

Conclusions. Latino men who have a heterosexual identity and bisexual practices are at greater risk of HIV infection, and efforts to reduce HIV risk among Latinos should target this group. (*Am J Public Health.* 2009;99:125-132. doi:10.2105/AJPH.2007.129809)

estimates are questionable because of differences in sampling methods and varying definitions of bisexuality.²³ Recent research conducted in the United States suggests that men who have sex with men and women (MSMW) are at greater risk of HIV infection than men who have sex with men (MSM) exclusively and men who have sex with women (MSW) exclusively.²⁴⁻²⁶ By contrast, investigators in Mexico have found that MSMW who self-identify as bisexual practice less risky sexual behaviors with their male partners than do exclusively gay men.⁶

It has been difficult to quantify the population of heterosexually identified Latino MSMW because of the secretive nature of their sexual practices. In a homophobic cultural context, the fear of social rejection encourages people to hide their same-sex sexual behavior and lead a double life.¹⁰ A study involving a large population of HIV-positive MSM found that 15% of the Latino

sample identified as heterosexual had a history of same-sex intercourse,²⁷ whereas a survey of 455 men recruited from gay-oriented publications and venues in 12 US cities found that 17% (n=26) of Hispanic respondents (as per terminology used in the original survey) reported being "on the down low".⁹ Although these results may not generalize to community-based US samples of Latino men, they suggest that a substantial proportion of heterosexually identified Latino men have a history of sex with men. Similarly, a household probability survey in Mexico City found that 73% of men with a lifetime history of bisexual practices identified as heterosexual, as did 29% of those with a lifetime history of having sex only with men.⁶

Men's nondisclosure of sexual practices with men has implications for the health of their female sexual partners.^{8,17} In the United States in 2006, Latinos accounted for 23.7%

of HIV infections among Hispanics; of these, an estimated 51.7% were infected through heterosexual contact.² Although most cases of heterosexual transmission to Latinas are related to sex with injection drug users,²⁸ women who have unprotected sex with heterosexually identified MSMW are also at risk and are likely a subset of this population.

Although there is some evidence of greater HIV risk among MSMW than among MSM or MSW,^{24–26} previous research has not examined the roles that both sexual behavior and sexual identity play in HIV risk among Latino men in particular. Sexual identity may influence HIV risk among Latino MSMW because a man who identifies as heterosexual may perceive that he is at lower risk of sexually transmitted infections (STIs) than are gay or bisexual men and may thus take fewer measures to protect himself or his partner. MSMW who identify as heterosexual may also be more likely to resort to substance use to reduce sexual inhibition, thus increasing the likelihood that they will engage in unsafe sex.²⁹

Our goal was to learn more about the sexual practices of Latino men and to better understand the interactions among sexual behaviors and sexual identities in this population so as to inform efforts to reduce HIV risk among Latinos. Using survey data, we examined the sexual behavior of a community sample of Latino men; determined the proportions of MSM, MSW, and MSMW among them; elicited any discrepancies between their sexual behavior and their sexual identity; and searched for differences in HIV risk by sexual orientation.

METHODS

Design and Procedures

We used baseline data collected as part of a larger study that evaluated a social marketing campaign to reduce HIV risk among heterosexually identified Latino MSMW in northern San Diego County, California. From December 2005 through April 2006, a cross-sectional community-based survey was conducted with Latino men recruited from 12 local venues. Using formative research, venues were selected to represent both high-risk and low-risk locations, with risk level determined by the extent to which sexual risk practices were likely to occur at or in proximity to the venue. Twelve

sites covering the geographic region of northern San Diego County were identified, including 7 low-risk venues (i.e., a workplace, a migrant camp, a labor pickup site, 2 shopping centers, a center for the teaching of English as a second language, and a men's shelter) and 5 high-risk venues (i.e., an adult bookstore and 4 bars or clubs).

Sampling shifts at each venue were selected based on days and times when sampling venues were operating (e.g., bars and clubs were only open in the evening) and when access to Latino men could be ensured (e.g., men congregated at labor pickup sites only in the morning). During every sampling period, random selection procedures were used to screen and recruit eligible participants. Eligibility included self-reported Latino ethnicity, being 18 years or older, and being alone or in the company of other men. Venue-specific recruitment goals were established based on the results of previous enumeration activities, to ensure that the number of completed surveys for each venue was proportional to the size of the target population visiting each site. The survey design included 3 sampling periods (December 2005, February 2006, and April 2006) and was based on the aims of the larger intervention study for which these data served as baseline. The response rate across all venues was 63% (70% for low-risk venues and 53% for high-risk venues).

Measures

Participants completed a self-administered intercept survey on a handheld computer using Questionnaire Development Software's HAPI data-collection module (NOVA Research Company, Bethesda, MD). The survey was anonymous and was available in either Spanish or English. Survey topics included demographic information; lifetime history of HIV and STI testing; lifetime and recent (previous 60 days) sexual behavior with both female and male partners, including vaginal intercourse, insertive anal intercourse, and receptive anal intercourse; and recent (previous 60 days) substance use.

Statistical Analysis

We defined sexual orientation according to 2 dimensions: gender of lifetime sexual partners and self-identified sexual orientation. We defined men as behaviorally heterosexual if

they self-identified as heterosexual and reported no history of sexual activity with men (heterosexually identified MSW). We defined men as gay if they self-identified as gay or homosexual (gay-identified MSM). We defined men as bisexual if they self-identified as bisexual (bisexually identified MSMW). We defined men as heterosexually identified MSMW if they identified as heterosexual but had a history of having sex with men. All other men were classified as having an orientation of "other."

Descriptive statistics and frequencies were computed for demographics, sexual behavior, substance use, and HIV and STI testing history. Bivariate (likelihood ratio) analyses explored differences in sexual behavior, substance use, and HIV and STI testing history by sexual orientation. Logistic regression models were estimated with each of the HIV risk variables as dependent variables, with sexual orientation as the main predictor variable, and with age, marital status, education, acculturation, and survey venue as covariates. Because of the small sample size and heterogeneity of the "other" sexual orientation category, this subgroup was included in descriptive analyses for the whole sample but was excluded from subsequent bivariate and multivariate analyses comparing HIV risk among sexual orientation categories. All analyses were computed using SPSS version 14.0 (SPSS Inc, Chicago, IL).

RESULTS

Sample Characteristics

A total of 781 Latino men completed the survey. After excluding repeat survey participants, we included 680 participants (mean age=28.4 years; SD=9.1; range=18–65 years) in descriptive analyses. More than half (53%) were single or never married. Only 21.8% had completed a high school education or higher. The vast majority (92%) were born in Mexico, with an additional 5% born in the United States and 3% in another country. Among foreign-born participants (n=647), more than two thirds had been in the United States for 5 or fewer years, with 30% reporting US residency of less than 1 year. The percentage in our sample who reported being of Mexican origin matched US Census data for San Diego County, as did the percentage of foreign-born respondents who reported Mexico as their place of birth.^{30,31}

Almost all respondents were primarily employed in 1 of 4 occupations: agriculture (29%), manufacturing (21%), service industry (24%), and construction (20%).

The majority (92.3%) of participants self-identified as heterosexual, with 2.2%, 4.9%, and 0.6% self-identifying as bisexual, gay, or other orientation, respectively. However, a smaller percentage (86.2%) reported a lifetime history of sexual practices with female partners exclusively. About 6% of men reported having a history of having sex with both men and women, 5.4% reported a history of sex with men only, and 2.4% reported no previous sexual practices with males or females. In all, 4.8% of heterosexually identified men had a lifetime history of anal intercourse with other men. According to our criteria, 87.6% of respondents were classified as heterosexually identified MSW; 4.4% as heterosexually identified MSMW; 2.4% as bisexually identified MSMW; and 4.7% as gay-identified MSM. The following percentages of respondents were recruited from high-risk recruitment venues: 46% of heterosexually identified MSW, 66.7% of heterosexually identified MSMW, 71.9% of gay-identified MSM, and 75% of bisexually identified MSMW.

Sexual Risk Practices

Most (56.5%) of the total sample of men reported sex with a female partner during the previous 60 days; of these, 58.2% reported not using a condom during 1 or more of these encounters, with percentages ranging from 25% among bisexually identified MSMW to 77.5% among heterosexually identified MSMW (Table 1). A minority of respondents (6.8%) reported engaging in anal intercourse with a male partner during the previous 60 days, with 57.8% of these reporting 1 or more unprotected encounters. The percentage of insertive anal intercourse equaled that of receptive anal intercourse (3.97%). By sexual orientation, percentages of insertive anal intercourse during the previous 60 days ranged from 31.2% among gay-identified MSM and bisexually identified MSMW to 36.7% among heterosexually identified MSMW. Percentages of receptive anal intercourse during the previous 60 days ranged from 10% among heterosexually identified MSMW to 50% among gay-identified MSM ($P=.002$). A majority (53.8%) of those who had insertive anal intercourse did so without using a condom, as did almost half (48.1%) of those who had receptive anal intercourse (Table 1).

Out of 30 heterosexually identified MSMW, 40% (n=12) were estimated to have engaged in sex with both female and male partners during the previous 60 days. Among this subset, 91.7% (n=11) reported engaging in unprotected sex with both female and male partners. By contrast, 25% of 16 bisexually identified MSMW (n=4) reported sexual intercourse with both men and women during the previous 60 days; among them, only 1 reported unprotected sex with both genders.

After adjusting for covariates, we found that heterosexually identified MSMW were 3.5 times more likely than were heterosexually identified MSW to report not using a condom with a female partner during the previous 60 days (95% confidence interval [CI]=1.15, 10.81; Table 2). Given the small size of the subsamples that reported recent anal intercourse with male partners, we performed no multivariate tests for significant differences in unprotected insertive and receptive anal intercourse with males by sexual orientation.

Other HIV-Risk-Related Practices

Condom carrying and risk perception. Overall, 23.1% of participants were carrying condoms at the time of the survey, with percentages

TABLE 1—Sexual Behaviors of Latino Men, by Sexual Orientation: San Diego County, CA, 2005–2006

	All (N=680), No. (%)	Heterosexually Identified MSW (n=596), No. (%)	Heterosexually Identified MSMW (n=30), No. (%)	Bisexually Identified MSMW (n=16), No. (%)	Gay-Identified MSM (n=32), No. (%)	P ^a
Lifetime history of having sex with female partner	631 (92.8)	581 (97.5)	26 (86.7)	15 (93.8)	5 (15.6)	<.001
Sexual intercourse with female in previous 60 d	366 (56.5)	331 (55.5)	23 (76.7)	8 (50.0)055
Unprotected sexual intercourse with female in previous 60 d ^b	213 (58.2)	190 (57.4)	19 (82.6)	2 (25.0)007
Lifetime history of anal intercourse with male partner	80 (11.8)	...	30 (100.0)	14 (87.6)	32 (100.0)	.038
Anal intercourse with male in previous 60 d	46 (6.8)	...	15 (50.0)	6 (37.5)	21 (65.6)	.155
Unprotected anal intercourse with male in previous 60 d ^c	26 (57.8)	...	11 (73.3)	4 (66.7)	9 (42.9)	.161
Insertive anal intercourse with male in previous 60 d ^d	27 (3.97)	...	11 (36.7)	5 (31.2)	10 (31.2)	.886
Unprotected insertive anal intercourse with male in previous 60 d ^e	14 (53.8)	...	6 (54.5)	2 (40.0)	6 (60.0)	.763
Receptive anal intercourse with male in previous 60 d ^f	27 (3.97)	...	3 (10.0)	5 (31.2)	16 (50.0)	.002
Unprotected receptive anal intercourse with male in previous 60 d ^{g,h}	13 (48.1)	...	1 (33.3)	4 (80.0)	6 (37.5)	.211

Note. MSW = men who have sex with women exclusively; MSMW = men who have sex with both men and women; MSM = men who have sex with men exclusively. The first column presents percentages estimated for all survey respondents, including 6 participants who were classified as “other” sexual orientation (i.e., could not be classified as heterosexually identified MSW, heterosexually identified MSMW, bisexually identified MSMW, or gay-identified MSM). Thus, total numbers in the first column do not equal the sum of the numbers in the 4 subsequent columns.

^aProbability values on the basis of bivariate likelihood ratio tests on differences in percentages observed by sexual orientation.

^bAmong subsample reporting sexual intercourse with female partner in the previous 60 days.

^cAmong subsample reporting sexual intercourse with male partner in the previous 60 days.

^dIncludes individuals who reported having had insertive anal intercourse or refused to answer whether they had had insertive anal intercourse during the previous 60 days.

^eAmong subsample reporting insertive anal intercourse with male partner in the previous 60 days.

^fIncludes individuals who reported having had receptive anal intercourse or refused to answer whether they had had receptive anal intercourse during the previous 60 days.

^gAmong subsample reporting receptive anal intercourse or not knowing if they had had receptive anal intercourse during the previous 60 days.

^hIncludes individuals who reported not having used condoms or not knowing whether they had used condoms when having receptive anal intercourse during the previous 60 days.

TABLE 2—Adjusted Odds Ratios and 95% Confidence Intervals for Sexual Risk Practices of Latino Men (N = 674), by Sexual Orientation: San Diego County, CA, 2005–2006^a

	Heterosexually Identified MSMW, OR (95% CI)	Bisexually Identified MSMW, OR (95% CI)	Gay-Identified MSM, OR (95% CI)
Lifetime history of sexual intercourse with female partner ^b	0.42*** (0.04, 0.42)	0.38 (0.04, 3.30)	0.00*** (0.00, 0.02)
Sexual intercourse with female partner during previous 60 d ^b	2.50* (1.00, 6.00)	0.51 (0.18, 1.40)	...
Unprotected sexual intercourse with female partner during previous 60 d ^{b,c}	3.50* (1.20, 10.80)	0.21 (0.04, 1.10)	...
Anal intercourse with male partner during previous 60 d	1.00 (Ref)	0.81 (0.19, 3.40)	3.20 (0.84, 11.70)
Unprotected anal intercourse with male partner during previous 60 d ^d	1.00 (Ref)	1.10 (0.09, 13.70)	0.37 (0.05, 2.60)

Note. MSMW = men who have sex with both men and women; MSM = men who have sex with men exclusively; OR = odds ratio; CI = confidence interval.

^aRegression analyses included only respondents who could be classified into 1 of the 4 sexual orientation groups considered.

All models were adjusted for age, level of education, marital status, acculturation, and type of survey venue.

^bReference category is heterosexually identified men who exclusively have sex with women.

^cAmong subsamples who reported having had sex with female partner during the previous 60 days.

^dAmong subsamples who reported having had anal intercourse with a male partner during the previous 60 days.

* $P \leq .05$; *** $P \leq .001$.

ranging from 21% among heterosexually identified MSMW to 53.1% among gay-identified MSM (Table 3). With regard to perceived risk for HIV infection, 26.9% of participants considered themselves at medium or high risk, with percentages of risk perception being lowest among heterosexually identified MSW (23.4%) and highest among bisexually identified MSMW (68.8%; $P < .001$).

After adjusting for covariates, we observed significant differences in the distribution of condom carrying and risk perception. Gay-identified MSM were 3.3 times more likely than were heterosexually identified MSW to report current condom carrying (95% CI=1.5, 7.2; Table 4). Gay-identified MSM were 4.8 times more likely than were heterosexually identified MSW to perceive themselves as being at risk of HIV infection (95% CI=2.2, 10.4), and bisexually identified MSMW were 7.4 times more likely than were heterosexually identified MSW to perceive themselves as being at risk of HIV infection (95% CI=2.5, 22.1). A trend was observed suggesting that heterosexually identified MSMW were more likely to perceive themselves as being at risk of HIV infection than were heterosexually identified MSW;

however, this result did not reach statistical significance ($P = .07$). No significant differences were found between heterosexually identified MSMW and heterosexually identified MSW for condom carrying.

Substance use. Almost one quarter of participants (23.4%) reported having sex while under the influence of alcohol during the previous 60 days, with percentages varying from 18.8% among bisexually identified MSMW to 50% among heterosexually identified MSMW. In addition, 11.5% reported using illegal drugs, 6.1% reported having sex under the influence of illegal drugs, and 14.9% reported injection of a substance (e.g., medication, vitamins, illegal drugs). Heterosexually identified MSMW tended to report the highest percentages of illegal drug use (43.3%), drug use during sex (30%), and substance injection (26.7%). Bivariate statistical tests indicated significant differences in alcohol use before or during sex ($P = .004$), illegal drug use ($P < .001$), and drug use during sex ($P < .001$), by sexual orientation (Table 3).

After adjusting for covariates, we found that heterosexually identified MSMW were 3.3 times more likely to report sex under the influence of alcohol (95% CI=1.5, 7.1), 6 times

more likely to report illegal drug use (95% CI=2.7, 13.5), and 6.2 times more likely to report sex under the influence of illicit drugs (95% CI=2.4, 16.1) than were heterosexually identified MSW (Table 4). Bisexually identified MSMW were also significantly more likely than were heterosexually identified MSW to report use of illegal substances (odds ratio [OR]=3.8; 95% CI=1.2, 11.8). Sexual orientation was not predictive of substance injection.

HIV and STI testing. Only 38.2% of the sample reported having been tested for HIV. Of these, 3.5% (n=9) reported that they were HIV positive. Among those who were HIV negative or whose HIV status was unknown, 46.5% did not know where they could get tested, and 43.4% had no intention of being tested in the next 6 months. Only 23% of men reported having been tested for STIs. Of these, 11% reported having had an STI in their lifetime (Table 3). Results from multivariate analysis indicated that, compared with heterosexually identified MSW, heterosexually identified MSMW and gay-identified MSM were significantly more likely to have been tested for HIV (heterosexually identified MSMW: OR=4.5; 95% CI=2.0, 10.2; gay-identified MSM: OR=11.3; 95% CI=3.8, 33.6). Gay-identified MSM were more likely than were heterosexually identified MSW to intend to be tested in the next 6 months (OR=2.7; 95% CI=1.2, 6.4). Heterosexually identified MSMW (OR=4.1; 95% CI=1.9, 9.0), bisexually identified MSMW (OR=3.1; 95% CI=1.1, 8.8), and gay-identified MSM (OR=3.7; 95% CI=1.7, 8.1) were more likely than were heterosexually identified MSW to have been tested for other STIs (Table 4). Heterosexually identified MSMW were more than 4.3 times more likely than were heterosexually identified MSW to report having had a STI (OR=4.3; 95% CI: 1.8, 9.9).

DISCUSSION

The estimate of behavioral bisexuality found among the present sample of Latino men (6%) was slightly larger than those previously reported in Mexico⁶ (2.1% for lifetime bisexual practices) and national US samples (1%–4.9% for various time frames).^{4,21,22} This may reflect our definition of behavioral bisexuality, which was based on lifetime sexual practices instead of recent sexual practices, and the fact that some

TABLE 3—Prevalence of Other HIV-Related Risk Practices of Latino Men (N = 680), by Sexual Orientation: San Diego County, CA, 2005–2006

	All (N = 680), No. (%)	Heterosexually Identified MSW (n = 596), No. (%)	Heterosexually Identified MSMW (n = 30), No. (%)	Bisexually Identified MSMW (n = 16), No. (%)	Gay-Identified MSM (n = 32), No. (%)	P ^a
Carrying condoms	156 (23.1)	125 (21.0)	7 (23.3)	6 (37.5)	17 (53.1)	.001
Perception of risk is medium or high	181 (27.0)	139 (23.4)	12 (40.0)	11 (68.8)	19 (59.4)	<.001
Alcohol use during sexual intercourse	159 (23.4)	128 (21.5)	15 (50.0)	3 (18.8)	11 (34.4)	.004
Drug use	78 (11.5)	56 (9.4)	13 (43.3)	5 (31.3)	3 (9.4)	<.001
Drug use during sexual intercourse	41 (6.1)	27 (4.5)	9 (30.0)	2 (12.5)	3 (9.4)	<.001
Substance injection	101 (14.9)	82 (13.8)	8 (26.7)	3 (18.8)	8 (25.0)	.126
Ever tested for HIV	260 (38.2)	196 (32.9)	21 (70.0)	10 (62.5)	28 (87.5)	<.001
HIV positive ^b	9 (3.5)	5 (2.6)	2 (9.5)	1 (10.0)	0 (0.0)	.182
Intends to be tested for HIV in next 6 mo	380 (56.6)	319 (54.0)	20 (71.4)	12 (80.0)	24 (75.0)	.006
Ever tested for STIs	154 (23)	112 (18.8)	16 (53.3)	8 (50.0)	18 (56.3)	<.001
Has had an STI ^c	77 (11.3)	55 (9.2)	11 (36.7)	2 (12.5)	7 (21.9)	<.001

Note. MSW = men who have sex with women exclusively; MSMW = men who have sex with both men and women; MSM = men who have sex with men exclusively; STI = sexually transmitted infection. The first column presents percentages estimated for all survey respondents, including 6 participants who were classified as “other” sexual orientation (i.e., could not be classified as heterosexually identified MSW, heterosexually identified MSMW, bisexually identified MSMW, or gay-identified MSM). Thus, total numbers in the first column do not equal the sum of the numbers in the 4 subsequent columns.

^aProbability values on the basis of bivariate likelihood ratio tests on differences in percentages observed by sexual orientation.

^bAmong subsamples who reported having ever been tested for HIV.

^cAmong subsamples who reported having ever been tested for STIs.

of our venues had a significant proportion of gay-identified patrons. It may also be indicative of the higher rates of behavioral bisexuality among men of color reported in previous research.^{8,9,17,18,26,29} However, we obtained a smaller percentage of heterosexually identified MSMW in our sample than those obtained in previous studies that included Latinos in the United States.^{8,9} This difference could be explained by an underreporting of sexual practices, particularly those that are stigmatized; a lack of measures on oral sex in our study; sampling biases in our study and in previous research; or the paucity of research that has simultaneously examined sexual identity and sexual behaviors with both women and men. Regardless, these results indicate that a significant proportion of heterosexually identified Latino men in our sample have engaged in sexual intercourse with men.

HIV testing rates for our sample (38.2%) were lower than those estimated for Latino males in the United States (45%)³² and may be explained by the fact that most of the respondents in our sample were foreign born or recent immigrants. However, our HIV and STI testing rates were higher than were those estimated for

migrants returning to Mexico from the United States (HIV testing: 22%–29%; STI testing: 10%–13%).³³ A surprisingly high proportion of men reported being HIV positive; in the context of limited HIV testing, this finding may actually reflect underestimated rates of infection. However, these data must be interpreted cautiously, because the inclusion of high-risk venues may have caused us to find higher HIV rates than would be seen in the general population and because our data on HIV status are based solely on self-reports. Still, these findings call attention to the need to promote HIV and STI testing for low-aculturated Latinos.

Compared to heterosexually identified MSW, heterosexually identified MSMW were more likely to report a history of STIs and recent unprotected sexual intercourse with a female partner. Moreover, half of heterosexually identified MSMW reported recent anal intercourse with a male partner; among them, 3 out of 4 reported inconsistent condom use during same-sex encounters. These findings add to previous research on behavioral bisexuality^{24–26,34} and have significant implications for the health of our respondents' sexual partners. Previous studies have suggested that

risky bisexual behavior among men may serve as a bridge for HIV transmission from high-prevalence groups to the general population.^{6,25,35} Research suggests that a relatively small proportion of HIV infections in the United States are attributable to bisexual behavior.³⁵ However, these estimates rely on openly reported bisexual behavior. Because of stigma associated with homosexual practices,^{19,36} many behaviorally bisexual men may underreport or deny same-sex practices. Underreporting of same-sex practices among heterosexually identified MSMW may lead to an underestimation of the contribution that this transmission avenue makes to the HIV epidemic in the United States.

Heterosexually identified MSMW were also more likely to report recent drug use and sexual intercourse while under the influence of alcohol or other drugs. This finding is consistent with previous research suggesting that substance use is frequently a contextual factor in same-sex intercourse among heterosexually identified MSMW^{14,16,37} and may contribute to increased risk for HIV infection among these men and their sexual partners.³⁷ With less than 50% of men in our sample reporting using a condom during every recent sexual encounter,

TABLE 4—Adjusted Odds Ratios (ORs) and 95% Confidence Intervals (CIs) for Other HIV-Related Risk Practices of Latino Men (N = 674), by Sexual Orientation: San Diego County, CA, 2005–2006

	Heterosexually Identified MSMW, OR (95% CI)	Bisexually Identified MSMW, OR (95% CI)	Gay-Identified MSM, OR (95% CI)
Participant reports carrying condom	1.1 (0.5, 2.7)	1.9 (0.7, 5.4)	3.3** (1.5, 7.2)
Self-perception of HIV risk is medium or high	2.1† (0.9, 4.5)	7.4*** (2.5, 22.1)	4.8*** (2.2, 10.4)
Alcohol use during sex	3.3** (1.5, 7.1)	0.7 (0.2, 2.5)	1.6 (0.7, 3.7)
Drug use	6.0*** (2.7, 13.5)	3.8* (1.2, 11.8)	0.79 (0.2, 2.8)
Drug use during sex	6.2*** (2.4, 16.1)	1.9 (0.4, 9.8)	1.2 (0.3, 4.5)
Substance injection	2.1 (0.9, 5.0)	1.3 (0.4, 5.0)	0.11 (0.8, 5.0)
Ever tested for HIV	4.5*** (2.0, 10.2)	2.7 (0.9, 7.8)	11.3*** (3.8, 33.6)
Intends to be tested for HIV in next 6 months	2.0 (0.8, 4.6)	3.6† (1.0, 12.9)	2.7* (1.2, 6.4)
Ever tested for STIs	4.2*** (1.9, 9.0)	3.1* (1.1, 8.8)	3.7*** (1.7, 8.1)
Has had an STI ^a	4.3*** (1.8, 9.9)	1.1 (0.2, 5.2)	2.2 (0.8, 5.8)

Note. OR = odds ratio; CI = confidence interval; MSM = men who have sex with men exclusively; MSMW = men who have sex with both men and women; STI = sexually transmitted infection. Regression analyses included only respondents who could be classified into 1 of the 4 sexual orientation groups considered. All models were adjusted for age, level of education, marital status, acculturation, and type of survey venue. Reference category is heterosexually identified men who have sex with women exclusively.

^aAmong subsamples who reported having ever been tested for STIs.

† $P \leq .1$; * $P \leq .05$; ** $P \leq .01$; *** $P \leq .001$.

additional efforts clearly must be taken to encourage heterosexually identified MSMW to consistently use condoms with both male and female partners.

Despite their same-sex sexual practices and substance-influenced encounters, heterosexually identified MSMW did not perceive their risk for HIV to differ significantly from that of heterosexually identified MSW. A considerable proportion of heterosexually identified MSMW in our sample (27%; data not shown) only adopted an insertive role in anal intercourse with men, reducing to some extent their risk of acquiring HIV. However, HIV and STI prevention interventions clearly should be targeted toward this population, including efforts to raise risk awareness.

Implications

These findings have important implications for future HIV prevention research and practice. First, more research is warranted to elucidate the relative contributions of male sexual identity and bisexual behavior to the increasing proportion of Latinas among new HIV cases. Previous studies have suggested that Latino MSM and MSMW are more likely to maintain a heterosexual identity than are Whites.^{16,19}

However, more comparative studies are needed because little research has been conducted with White men on this issue. Additional research is also required to identify factors associated with the adoption of a heterosexual identity among MSMW. Because the only thing that differentiates bisexually identified MSMW from heterosexually identified MSMW is sexual identity, a comparison between these 2 groups would be particularly interesting.

Second, these findings underscore the need for HIV prevention efforts targeting heterosexually identified Latino MSMW and their male and female sexual partners, such as efforts to reduce social stigma attached to same-sex intercourse and campaigns to raise HIV awareness regardless of sexual identity. Other interventions may include (but are not limited to) those promoting routine HIV and STI screening as a standard part of well-adult care³⁸ and those attempting to normalize condom use regardless of sexual identity or the gender of one's sexual partners. Programs need to be consistent with and respectful of these men's sexual identities; they also must reduce the stigma associated with HIV testing and condom use, which are often perceived among Latinos as practices associated with homosexuality and signs

of distrust or infidelity within relationships.^{39,40} Finally, interventions targeting Latinas as the sexual partners of MSMW are needed, especially in light of recent findings that sex within marriage may be the single greatest risk for HIV among Mexican women.^{34,41} These interventions should be gender sensitive, taking into account potential constraints upon women's abilities to respond to their partners' risk, and routine opt-out HIV testing should be promoted.³⁸

Our findings offer additional evidence that both behavior and identity are important dimensions of sexual orientation that need to be contemplated when assessing HIV risk and evaluating prevention interventions. Our results point to the need for future research that will help investigators develop a better understanding of how heterosexual identity might increase HIV risk among behaviorally bisexual Latino men. There is also a need for research examining whether the differences among various sexual orientation groups observed here extend to Latino men in general or to other racial/ethnic male populations. Research on these topics should be carefully framed to avoid adding stigma and generating sensationalist discourses regarding heterosexually identified MSMW of color, or the so-called "down low" phenomenon.

Limitations

Our sampling procedures were part of a larger intervention study and included targeted sampling at venues in which heterosexually identified MSMW were likely to be found. Thus, the results may not reflect the risk dynamics of Latinos outside northern San Diego County and may be limited to the population of Latino men who frequent these types of venues. In addition, the inclusion of lifetime versus recent sexual practices in our definition of behavioral bisexuality may have overestimated the proportion of behaviorally bisexual men among our sample. Estimates of bisexuality have been found to vary substantially depending on the time frame of sexual behavior selected.⁶ Our use of lifetime sexual practices may have captured early same-sex experiences (e.g., single-incident youthful experimentation or instances of childhood sexual abuse) that are not indicative of recent sexual practices. The use of alternate time frames to differentiate past sexual experimentation from current behavioral

practices should be explored, and clear distinction should be made between consensual sexual experiences versus those that were forced or coerced. Future research should also examine the number of male partners and sexual encounters, because these factors would affect the probability of viral exposure and thus the risk for HIV infection.

More than 90% of our sample was born in Mexico, limiting our ability to generalize these results to other foreign-born Latino men. Future research should include larger subsamples of Latino males from countries other than Mexico to allow analysis of possible differences by country of origin. Because of survey space and time limitations, we were also unable to directly assess contextual and sociodemographic factors that might be associated with sexual risk, such as housing type and urban versus rural place of residence. Future research should include measures of these factors and assess the extent to which they may confound the observed association between sexual identity and HIV risk.

Participants in our survey were only asked about anal intercourse with other men, because these present the highest risk for HIV infection or transmission. However, oral sex with male partners may be a more common sexual practice for behaviorally defined bisexual Latino men.⁶ Although oral sex may represent a low-risk behavior from an HIV-transmission perspective, if the experience is perceived favorably, it may serve as a gateway to riskier same-sex practices. Oral sex also has significant implications for STI transmission. Future research should therefore estimate the prevalence of oral sex with male partners among heterosexually identified MSMW and explore the relationship of these practices to subsequent sexual risk behavior.

Finally, because of the small number of men reporting recent anal intercourse with another man, we were unable to explore the relationship between sexual identity and condom use with male partners. Because unprotected anal intercourse represents the greatest risk for HIV and STI transmission between male partners, further research is needed to examine the extent to which heterosexually identified MSMW may differ from men of other sexual orientations in their same-sex sexual practices. ■

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Contributors

J.A. Zellner supervised the study, assisted with analyses, and led the writing of the article. A.P. Martínez-Donate originated and directed the study, performed the data analyses, and contributed substantially to the writing of the article. F. Sañudo was the co-principal investigator of the study. A. Fernández-Cerdeño, C.L. Sipan, M.F. Hovell, and H. Carrillo assisted with the design and implementation of the study. All authors helped interpret findings and reviewed drafts of the article.

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Human Participant Protection

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References

1. US Census Bureau. American Community Survey: United States, 2006. Table generated using American FactFinder (<http://factfinder.census.gov>). Accessed October 30, 2007.
2. Centers for Disease Control and Prevention. *HIV/AIDS Surveillance Report, 2006*. Atlanta, GA: US Dept of Health and Human Services; 2008.
3. Laumann E, Gagnon J, Michael R, et al. *The Social Organization of Sexuality: Sexual Practices in the United States*. Chicago, IL: University of Chicago Press; 1994.
4. Mosher WD, Chandra A, Jones J. Sexual behavior and selected health measures: men and women 15–44 years of age, United States, 2002. *Adv Data Vital Health Stat*. September 15, 2005;362.
5. Gayle H. An overview of the global HIV/AIDS epidemic, with a focus on the United States. *AIDS*. 2000;14:S8–S17.

6. Izazola-Licea JA, Gortmaker SL, de Gruttola V, Tolbert K, Mann J. Sexual behavior patterns and HIV risks in bisexual men compared to exclusively heterosexual and homosexual men. *Salud Pública Méx*. 2003;45 (suppl 5):S662–S671.
7. Millett G, Malebranche D, Mason B, Spikes P. Focusing “down low”: bisexual black men, HIV risk and heterosexual transmission. *J Natl Med Assoc*. 2005; 97(7 suppl):52S–59S.
8. Montgomery J, Mokotoff E, Gentry A, Blair J. The extent of bisexual behaviour in HIV-infected men and implications for transmission to their female sex partners. *AIDS Care*. 2003;15:829–837.
9. Wolitski R, Jones K, Wasserman J, Smith J. Self-identification as “down low” among men who have sex with men (MSM) from 12 US cities. *AIDS Behav*. 2006;10:519–529.
10. Carrillo H. *The Night is Young: Sexuality in Mexico in the Time of AIDS*. Chicago, IL: University of Chicago Press; 2002.
11. Prieur A. *Mama's House, Mexico City: On Transvestites, Queens, and Machos*. Chicago, IL: University of Chicago Press; 1998.
12. Magaña JR, Carrier JM. Mexican and Mexican American male sexual behavior and spread of AIDS in California. *J Sex Res*. 1991;28(3):425–441.
13. Nuñez Noriega J. Reconociendo los placeres, desconstruyendo las identidades: antropología, patriarcado, y homoerotismo en México [Acknowledging pleasure, deconstructing identities: anthropology, patriarchy, and homoerotism in Mexico]. *Desacatos*. 2001;6:15–34.
14. Diaz RM. *Latino Gay Men and HIV: Culture, Sexuality, and Risk Behavior*. New York, NY: Routledge; 1998.
15. Doll LS, Beeker C. Male bisexual behavior and HIV risk in the United States: synthesis of research with implications for behavioral interventions. *AIDS Educ Prev*. 1996;8:205–225.
16. Zea M, Reisen C, Diaz R. Methodological issues in research on sexual behavior with Latino gay and bisexual men. *Am J Community Psychol*. 2003;31(3–4):281–291.
17. Chu SY, Peterman TA, Doll LS, Buehler JW, Curran JW. AIDS in bisexual men in the United States: epidemiology and transmission to women. *Am J Public Health*. 1992;82:220–224.
18. Doll L, Petersen L, White C, et al. Homosexually and nonhomosexually identified men who have sex with men: a behavioral comparison. *J Sex Res*. 1992;29:1–14.
19. Mason H, Marks G, Simoni J, Ruiz M, Richardson J. Culturally sanctioned secrets? Latino men's nondisclosure of HIV infection to family, friends, and lovers. *Health Psychol*. 1995;14:6–12.
20. Zea MC. Latino HIV-positive gay men's narratives on disclosure of serostatus. Paper presented at: American Public Health Association 1999 Annual Meeting; November 7–11, 1999; Chicago, IL.
21. Smith TW. Adult sexual behavior in 1989: number of partners, frequency of intercourse and risk of AIDS. *Fam Plann Perspect*. 1991;23:102–107.
22. Jeffries WL, Dodge B. Male bisexuality and condom use at last sexual encounter: results from a national survey. *J Sex Res*. 2007;44:278–289.
23. Adimora AA, Fullilove RE. Men who have sex with men and women: pieces of the US HIV epidemic puzzle. *Sex Transm Dis*. 2006;33:596–598.

24. Brooks R, Rotheram-Borus MJ, Bing EG, Ayala G, Henry CL. HIV and AIDS among men of color who have sex with men and men of color who have sex with men and women: an epidemiological profile. *AIDS Educ Prev*. 2003;15(1 suppl A):1–6.
25. Prabhu R, Owen C, Folger K, McFarland W. The bisexual bridge revisited: sexual risk behavior among men who have sex with men and women, San Francisco, 1998–2003. *AIDS*. 2004;18:1604–1606.
26. Munoz-Laboy M, Dodge B. Bisexual Latino men and HIV and sexually transmitted infections risk: an exploratory analysis. *Am J Public Health*. 2007;97:1102–1106.
27. Centers for Disease Control and Prevention. Unpublished data. 1999. Cited by: Centers for Disease Control and Prevention. HIV/AIDS among racial/ethnic minority men who have sex with men—United States, 1989–1998. *MMWR Morb Mortal Wkly Rep*. 2000;49(1):4–11.
28. *The HIV/AIDS Epidemic in the Latino Community*. Atlanta, GA: Centers for Disease Control and Prevention. Available at: <http://www.cdc.gov/hiv/resources/reports/slcp/epidemic.htm>. Accessed September 20, 2007.
29. Diaz R. Trips to fantasy island: contexts of risky sex for San Francisco gay men. *Sexualities*. 1999;2:89–112.
30. US Census Bureau. *Census 2000 Summary File 1 (SF-1) 100-Percent Data*. San Diego County, California: Hispanic or Latino by Specific Origin: Mexican. Table generated using American FactFinder (<http://factfinder.census.gov>). Accessed February 15, 2008.
31. US Census Bureau. *Census 2000 Summary File 3 (SF-3) Sample Data*. San Diego County, California: Hispanic or Latino by Specific Origin: Mexican. Table generated using American FactFinder (<http://factfinder.census.gov>). Accessed February 15, 2008.
32. Anderson JE, Chandra A, Mosher WD. HIV testing in the United States, 2002. *Adv Data*. 2005;363:1–32.
33. Rangel M, Martínez-Donate A, Hovell M, Santibanez J, Sipan C, Izazola-Licea J. Prevalence of risk factors for HIV infection among Mexican migrants and immigrants: probability survey in the north border of Mexico. *Salud Publica Mex*. 2006;48:3–12.
34. Pulerwitz J, Izazola-Licea JA, Gortmaker SL. Extra-relational sex among Mexican men and their partners' risk of HIV and other sexually transmitted diseases. *Am J Public Health*. 2001;91:1650–1652.
35. Kahn JG, Gurvey J, Pollack LM, Binson D, Catania JA. How many HIV infections cross the bisexual bridge? An estimate from the United States. *AIDS*. 1997;11:1031–1037.
36. Rosario M, Schrimshaw EW, Hunter J. Ethnic/racial differences in the coming-out process of lesbian, gay, and bisexual youths: a comparison of sexual identity development over time. *Cultur Divers Ethnic Minor Psychol*. 2004;10:215–228.
37. Dolezal C, Carballo-Diequez A, Nieves-Rosa L, Diaz F. Substance use and sexual risk behavior: understanding their association among four ethnic groups of Latino men who have sex with men. *J Subst Abuse*. 2000;11:323–336.
38. Centers for Disease Control and Prevention. Revised recommendations for HIV testing of adults, adolescents, and pregnant women in health-care settings. *MMWR Recomm Rep*. 2006; 55(RR-14):1–17.
39. Hirsch JS, Higgins J, Bentley ME, Nathanson CA. The social constructions of sexuality: marital infidelity and sexually transmitted disease-HIV risk in a Mexican migrant community. *Am J Public Health*. 2002;92:1227–1237.
40. McQuiston C, Gordon A. The timing is never right: Mexican views of condom use. *Health Care Women Int*. 2000;21:277–290.
41. Hirsch JS, Meneses S, Thompson B, Negroni M, Pelcastre B, del Rio C. The inevitability of infidelity: sexual reputation, social geographies, and marital HIV risk in rural Mexico. *Am J Public Health*. 2007;97(6):986–996.