Comparison of Men Who Have Sex with Men in Clinical Samples with MSM in a Community Probability Sample

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Abstract

Objective: To compare the demographic characteristics, HIV prevalence, and STD/HIV transmission behaviors among men who have sex with men (MSM) in clinical settings with a community-based sample of MSM.

Methods: In 2003, 311 MSM participated in a random digit dial telephone survey in Seattle neighborhoods with high prevalences of MSM. We compared the results with data on MSM residing in the same areas seen at a public health STD clinic (n=523) and HIV testing program (n=310).

Results: MSM in the three samples were largely similar in terms of their demographic characteristics, substance use, many aspects of sexual behavior (including unprotected anal intercourse and number of recent male sex partners), HIV testing history, and HIV prevalence. However, MSM in the STD and HIV testing samples were more likely than survey respondents to have had STD. Among HIV negative MSM, 24% of STD clinic patients and 10% of survey respondents were potentially exposed to HIV, i.e., reported unprotected anal intercourse (UAI) with a man who was HIV positive or of unknown HIV status (OR, 2.7, 95%CI, 1.7-4.4). Similarly, 50% of HIV positive MSM STD clinic patients were potential HIV transmitters, reporting UAI with a man of negative or unknown status, compared with 31% HIV positive survey respondents (OR, 2.2, 95% CI, 1.0-4.8).

Conclusions: MSM seen in STD/HIV clinical settings had higher HIV/STD risk than survey respondents. Nevertheless, clinical samples of MSM may be more broadly

representative of urban MSM than previously thought, and remain useful for describing selected aspects of MSM populations.

Introduction

Most epidemiologic studies of HIV infection and sexual behavior in men who have sex with men (MSM) have been based on convenience samples. Clinical samples of MSM recruited at sexually transmitted disease (STD) clinics, human immunodeficiency virus (HIV) testing and counseling services, or HIV/AIDS clinics constitute common types of convenience samples and are readily and inexpensively formed. Although several studies of population-based probability samples of MSM have been reported,[1-11] the results have not been directly compared with data obtained in clinical samples. Given the cost and time required to survey probability samples of MSM in the community, convenience samples from clinical venues are likely to remain the dominant source of epidemiologic data on MSM. Therefore, we compared the profiles of MSM in a population-based probability sample with those of MSM in public health clinical settings to assess what characteristics, behaviors, and associations can be generalized from such clinical samples to the MSM population as a whole.

Methods

We conducted a random-digit dial (RDD) telephone community survey of MSM and compared the results with samples of MSM attending a public health STD clinic and an HIV testing and counseling program, respectively. All samples were based in King County, Washington (population 1.7 million), which encompasses the city of Seattle (population 563,000).

Random Digit Dial Survey

Between February 3 and May 18, 2003, we conducted a probability sample household telephone survey of MSM in zip (postal) codes with high estimated concentrations of MSM.[11] Eligible respondents were men >=18 years old those who reported they had ever had sex with a man since age 14. Respondents participated anonymously. Survey questions asked about respondents' STD/HIV testing and history, substance use, sexual behavior, related attitudes, and demographics. Of 412 initially-identified MSM, 400 (97%) completed the survey. Of the 400 respondents, 311 (78%) reported sex with another man in the preceding 12 months; these 311 men were included in our comparisons with MSM in the clinical samples.

STD Clinic Sample

Between May 19, 2002, and May 18, 2003, 523 men were seen at the Public Health – Seattle & King County (PHSKC) STD Clinic who reported having had sex with another man in the preceding 12 months and resided in one of the three zip codes targeted in the RDD survey. The PHSKC STD clinic is located in a zip code adjacent to the targeted zip codes. When registering at the clinic, patients reported their demographic characteristics on a self-administered questionnaire. During examination, clinicians routinely asked standard questions about sexual behavior, STD/HIV testing and history, and substance use. If a patient attended the clinic more than once during the study period, we used the data he provided at the first visit.

HIV Testing Program Sample

Between May 19, 2002, and May 18, 2003, 310 men received HIV testing and counseling services provided by PHSKC who reported having had sex with another man in the preceding 12 months and resided in one of the three zip codes targeted in the RDD survey. During the study period, PHSKC personnel provided HIV and limited STD testing in several settings both within and outside of the targeted zip codes, including HIV testing units within specialty and general public health clinics, community based organizations, bathhouses, a needle exchange site, and community events with substantial attendance by MSM. During testing visits, clients reported on their STD/HIV testing and history, substance use, sexual behavior, and demographic characteristics, either by self-administered or interviewer-administered standardized questionnaires, depending on the circumstances of the testing site and individual client. We used data from the first visit in the study period for those clients who had multiple visits during that time.

Measures of Potential HIV Exposure and Transmission

From the reported data in the RDD and STD clinic samples, we derived measures of potential exposure to and transmission of HIV.[12] Respondents who said they were HIV negative and reported unprotected anal intercourse (UAI) with HIV positive partners or partners of unknown HIV status were defined as *potentially exposed to HIV*. Similarly, those who acknowledged being HIV positive and who reported UAI with HIV negative partners or partners of unknown status were defined as *potential HIV transmitters*.

There are no data available from the HIV testing clients on the HIV status of their partners with whom they had UAI.

Statistical Analysis

We compared the survey sample with each of the two clinical samples. For dichotomous variables, we calculated odds ratios and the corresponding 95% confidence intervals (CI). For interval scale variables, we computed point biserial correlation coefficients and the corresponding confidence intervals. For the association between particular risk factors and prevalent HIV infection (self-reported), we also computed odds ratios, point biserial correlation coefficients, and their corresponding confidence intervals in each sample.

Results

Demographics and Substance Use

STD patients and HIV testing clients were slightly younger than the RDD respondents, but MSM in the clinical and survey samples were similar in terms of zip code (data not shown), race, and education (Table 1). HIV testing clients had lower incomes and less education, and were somewhat less likely to have a regular medical provider or health insurance than RDD survey respondents. Comparable proportions of survey respondents and HIV testing clients reported lifetime and recent use of alcohol (number of days with > 5 drinks in the last 30 days), amyl nitrite (poppers), and methamphetamine (although HIV testing clients were somewhat more likely to have used methamphetamine recently).

STD/HIV Testing and History

MSM in the clinical samples were slightly more likely to report ever having had any or a specific STD, except for nongonococcal urethritis (NGU), and were more likely to have had a bacterial STD in the last year than RDD survey respondents (see Table 1). Similar proportions of MSM in the clinical and survey samples reported having been tested for HIV. Sixteen percent of both RDD survey respondents and STD patients reported being HIV-positive. As expected for men seeking voluntary HIV testing, substantially fewer of HIV testing clients (9%) reported being HIV positive (most of the infected men sought STD screening, not HIV testing, from the HIV testing staff). Among MSM who reported being HIV negative, STD patients and RDD survey respondents reported testing for HIV more recently than HIV testing clients. HIV positive MSM in both clinical samples were more recently diagnosed with HIV than HIV positive RDD survey respondents. Although HIV positive STD patients were as likely as HIV positive RDD survey respondents to be receiving medical care for HIV, they were half as likely as the HIV infected survey respondents to be receiving antiretroviral medications for HIV.

Sexual Behavior

Small proportions of MSM in each sample reported female sex partners in the preceding 12 months, but HIV testing clients were more likely than MSM in the other samples to have done so. The numbers of reported male sex partners were similar in all three samples, with means of 10-15 partners in the preceding year. Similar percentages of RDD survey respondents and STD patients reported insertive or

receptive anal sex overall and anal intercourse without condoms (unprotected anal intercourse [UAI]) in the preceding 12 months; slightly more HIV testing clients acknowledged UAI.

However, HIV negative STD clinic patients were substantially more likely to be potentially exposed to HIV (i.e., report unprotected anal intercourse (UAI) in the last 12 months with male partners who were HIV-positive or whose HIV status they did not know) than HIV negative survey respondents. Similarly, HIV positive STD clinic patients were more likely to be potential HIV transmitters (i.e., report UAI in the last 12 months with male partners who were HIV negative or whose HIV status they did not know). In general, STD clinic patients and survey respondents showed parallel overall patterns of sexual mixing by HIV serostatus (Table 2). HIV positive MSM more often reported UAI with other HIV-positive men than did HIV negative MSM, and HIV negative MSM were substantially more likely to report UAI with other HIV negative men than were HIV positive MSM. Nevertheless, STD clinic patients were considerably more likely to have UAI with HIV discordant and potentially discordant partners than RDD respondents.

Correlates of Prevalent HIV Infection

Overall, the risk factor profile for prevalent HIV infection is similar across the three samples (Table 3). For every variable, the 95% confidence intervals from the different samples' estimates overlap, and there is no consistent tendency for one sample to produce more extreme estimates than another sample

Discussion

To assess the extent to which MSM in clinical settings are representative of MSM in general, we compared MSM seen in a municipal STD clinic and a voluntary HIV testing program with a community-based probability sample of MSM. MSM STD clinic patients and HIV testing program clients approximated survey respondents in the probability sample of MSM on several demographic characteristics, substance use, HIV prevalence, and many aspects of sexual behavior, including UAI and numbers of sex partners. The three samples also displayed similar patterns of association between various demographic, behavioral, and STD history factors and prevalent HIV infection. Although identical proportions of men in each sample had ever tested for HIV, STD patients and HIV testing clients probably tested more frequently than RDD respondents. The RDD respondents were, when interviewed, likely halfway between their last and next HIV tests, on average, whereas the STD patients and HIV testing clients were interviewed just before being tested, in most cases. STD clinic patients were also much more likely to report behaviors involving direct risk of HIV acquisition and transmission (i.e., UAI with partners of discordant or unknown HIV status). Specifically, HIV negative STD patients were more than twice as likely to be potentially exposed to HIV as HIV negative survey respondents. Likewise, HIV positive STD patients were substantially more likely than HIV positive survey respondents to be classified as potential HIV transmitters.

Our comparisons are limited by the availability of only dichotomous measures for most variables. In addition, many factors critical to HIV and STD transmission, such as

concurrency of sexual partnerships and other aspects of sexual networks, were not captured in the clinical databases. The three samples also differed in data collection procedures which may have influenced the results. Survey respondents were interviewed anonymously by telephone as part of a study, while STD patients and HIV testing clients were interviewed by clinicians and public health personnel in the context of clinical care. Finally, the three samples included MSM who resided in three Seattle zip codes that had the highest prevalence of MSM in the metropolitan area[11]. By our earlier estimates, MSM in these areas accounted for approximately 21-37% of the MSM in the metropolitan area. Our results, therefore, cannot necessarily be generalized to MSM residing outside the core zip codes we studied.

Our results have two implications. First, commonly used measures of sexual risk in MSM, such as number of sex partners and UAI, may be of limited value for characterizing true HIV risk in individual risk assessments. Rather, the behavioral factor that most distinguished MSM STD clinic patients, 18% of whom have a new STD diagnosis at the time of assessment (Golden et al., unpublished data), from the general population of MSM was UAI with a sex partner of discordant or unknown HIV status. Second, we found substantial and somewhat surprising similarities between MSM attending an STD clinic, MSM seeking voluntary HIV testing, and MSM in a community-based probability sample in terms of demographic characteristics, HIV prevalence, and correlates of HIV infection. MSM in clinical settings may be more representative of MSM overall than MSM found in other types of convenience samples, such as visitors at gay Internet sites,[13] patrons at gay bars,[14] and men attending various gay venues.[15]

Even probability samples of MSM, such as those based on random digit dialing to landlines or venue-based sampling, may not be truly representative because the sampling frames can leave out important segments of the MSM population. We conclude that clinical samples of MSM appear to be useful for inexpensively describing the general population of MSM and identifying factors associated with HIV infection in the broader community. However, it remains unknown whether clinical samples are useful for describing trends in the MSM population over time. Furthermore, studies employing comprehensive probability sample designs seem necessary for estimating the absolute level of HIV risk among MSM.

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References

1. Campsmith ML, Golbaum GM, Brackbill RM, et al. HIV testing among men who have sex with men--results of a telephone survey. Preventive Medicine. 1997;26839-844.

2. Catania JA, Osmond D, Stall RD, et al. The continuing HIV epidemic among men who have sex with men. Am J Public Health. 2001;91(6):907-914.

3. MacKellar DA, Gallagher KM, Finlayson T, et al. Surveillance of HIV risk and prevention behaviors of men who have sex with men--a national application of venue-based, time-space sampling. Public Health Rep. 2007;122 Suppl 139-47.

4. Mercer CH, Fenton KA, Copas AJ, et al. Increasing prevalence of male homosexual partnerships and practices in Britain 1990-2000: evidence from national probability surveys. Aids. 2004;18(10):1453-1458.

5. Osmond DH, Pollack LM, Paul JP, et al. Changes in prevalence of HIV infection and sexual risk behavior in men who have sex with men in San Francisco: 1997 2002. Am J Public Health. 2007;97(9):1677-1683.

6. Saxton PJ, Hughes AJ, Robinson EM. Sexually transmitted diseases and hepatitis in a national sample of men who have sex with men in New Zealand. N Z Med J. 2002;115(1158):U106.

7. Schwarcz S, Scheer S, McFarland W, et al. Prevalence of HIV infection and predictors of high-transmission sexual risk behaviors among men who have sex with men. Am J Public Health. 2007;97(6):1067-1075.

8. Valleroy LA, MacKellar DA, Karon JM, et al. HIV prevalence and associated risks in young men who have sex with men. Young Men's Survey Study Group. Jama. 2000;284(2):198-204.

9. Webster RD, Darrow WW, Paul JP, et al. HIV infection and associated risks among young men who have sex with men in a Florida resort community. J Acquir Immune Defic Syndr. 2003;33(2):223-231.

10. Xia Q, Molitor F, Osmond DH, et al. Knowledge of sexual partner's HIV serostatus and serosorting practices in a California population-based sample of men who have sex with men. Aids. 2006;20(16):2081-2089.

11. Brewer DD, Golden MR, Handsfield HH. Unsafe sexual behavior and correlates of risk in a probability sample of men who have sex with men in the era of highly active antiretroviral therapy. Sex Transm Dis. 2006;33(4):250-255.

12. Golden MR, Brewer DD, Kurth A, et al. Importance of sex partner HIV status in HIV risk assessment among men who have sex with men. J Acquir Immune Defic Syndr. 2004;36(2):734-742.

13. Evans AR, Wiggins RD, Mercer CH, et al. Men who have sex with men in Great Britain: comparison of a self-selected internet sample with a national probability sample. Sex Transm Infect. 2007;83(3):200-205; discussion 205.

14. Schwarcz S, Spindler H, Scheer S, et al. Assessing representativeness of sampling methods for reaching men who have sex with men: a direct comparison of results obtained from convenience and probability samples. AIDS Behav. 2007;11(4):596-602.

15. Dodds JP, Mercer CH, Mercey DE, et al. Men who have sex with men: a comparison of a probability sample survey and a community based study. Sex Transm Infect. 2006;82(1):86-87.

Table 1. Comparison of MSM in Probability Sample Survey and STD Clinic Sample

Variable	RDD Survey (n = 311)	STD Clinic (n = 523)	HIV Testing Program (n = 310)	STD Clinic vs. Survey OR/r[1] (95% CI)	HIV Program vs. Survey OR/r[1] (95% CI)
Demographics					
Age in years, mean ± SD	38 ± 9.4	33 ± 8.3	36 ± 9.2	-.28 (-.34 - -.22)	-.10 (-.18 - -.02)
median (IQR)	37 (31-45)	32 (27-38)	35 (30-41)		
4-year college degree, percent	68	---	59	---	1.5 (1.1-2.1)
White, percent	87	85	82	0.9 (0.6-1.3)	0.7 (0.5-1.1)
Income, percent ≥ $40,000/year	51	---	27	---	0.4 (0.2-0.5)
Regular medical provider, percent	83	---	67	---	0.4 (0.3-0.6)
Health insurance, percent	81	---	65	---	0.4 (0.3-0.6)
Drug use					
% ever used methamphetamine	25	---	25		1.0 (0.7-1.4)
% used methamphetamine in last 6 months	6	---	11		1.9 (1.1-3.5)
% ever used amyl nitrite	54	---	50		0.9 (0.6-1.2)
% used amyl nitrite in last 6 months	20	---	21		1.1 (0.8-1.6)
Number of days of binge	2.5 ± 4.4	---	1.8 ± 4.3		-.08 (-.16-.00)
alcohol use in last 30 days, mean ± SD					

Table 1. Comparison of MSM in Probability Sample Survey and STD Clinic Sample (continued)

Variable	RDD Survey (n = 311)	STD Clinic (n = 523)	HIV Testing Program (n = 310)	STD Clinic vs. Survey OR/r[1] (95% CI)	HIV Program vs. Survey OR/r[1] (95% CI)
Lifetime STD history, percent					
Chlamydial infection	8	18	---	2.4 (1.5-3.8)	---
Gonorrhea	20	33	25	2.0 (1.4-2.8)	1.4 (0.9-2.0)
Nongonococcal urethritis	18	18	16	1.0 (0.7-1.5)	0.9 (0.6-1.4)
Genital herpes	9	12	15	1.4 (0.9-2.2)	1.7 (1.0-2.8)
Syphilis	3	6	7	1.8 (0.9-3.8)	2.2 (1.0-4.7)
Any bacterial STD[2,3]	25[2]/21[3]	41	25	2.0 (1.5-2.7)	1.3 (0.9-1.9)
Any bacterial STD[2,3] in last 12 months	3[2]/3[3]	12	9	4.3 (2.2-8.4)	3.3 (1.6-7.2)
HIV testing and history, percent					
Ever tested for HIV	96	96	96	1.0 (0.5-1.9)	1.0 (0.5-2.2)
Tested for HIV in past 6 months[4]	46	50	33	1.2 (0.8-1.6)	0.6 (0.4-0.8)
Tested for HIV in past 12 months[4]	73	72	64	0.9 (0.7-1.4)	0.6 (0.4-0.9)
HIV-positive[5]	16	16	9	1.0 (0.7-1.5)	0.6 (0.3-0.9)
Diagnosed with HIV in past 8 years[6]	42	67	74	3.1 (1.3-7.4)	3.9 (1.4-11)
HIV care, percent					
Receiving medical care for HIV[6]	93	91	---	0.8 (0.2-3.4)	

Table 1. Comparison of MSM in Probability Sample Survey and STD Clinic Sample (continued)

Variable	RDD Survey (n = 311)	STD Clinic (n = 523)	HIV Testing Program (n = 310)	STD Clinic vs. Survey OR/r[1] (95% CI)	HIV Program vs. Survey OR/r[1] (95% CI)
Receiving HIV antiretroviral medications[6]	73	36	---	0.2 (0.1-0.5)	
Sexual behavior in last 12 months					
Sex with women, percent	6	8	12	1.3 (0.7-2.2)	2.0 (1.1-3.7)
Number of male sex partners, mean ± SD	12 ± 43	10 ± 16	15 ± 25	-.03 (-.10-.04)	-.04 (-.12-.04)
median (IQR)	3 (1-10)	5 (3-10)	6 (3-12)		
Any anal sex[7], percent	79	84	---	1.4 (1.0-2.0)	---
Insertive anal sex[7], percent	63	70	---	1.3 (1.0-1.8)	---
Receptive anal sex[7], percent	61	66	---	1.2 (0.9-1.6)	---
Both insertive and receptive anal sex[7], percent	47	52	---	1.2 (0.9-1.6)	---
Any unprotected anal intercourse[7], percent	48	52	59	1.2 (0.9-1.5)	1.6 (1.1-2.2)
Unprotected insertive anal sex[7] , percent	38	32	---	0.8 (0.6-1.0)	---
Unprotected receptive anal sex[7], percent	34	40	---	1.3 (0.9-1.7)	---
Potentially exposed to HIV[4]	10	24	---	2.7 (1.7-4.4)	---
Potential HIV transmitters[6]	31	50	---	2.2 (1.0-4.8)	---

NOTE: For each data source, sample sizes vary slightly across variables due to missing data.

[1]r refers to point biserial correlation

Table 1. Comparison of MSM in Probability Sample Survey and STD Clinic Sample (continued)

[2]for comparison with STD patients: gonorrhea, chlamydia, or syphilis

[3]for comparison with HIV testing clients: gonorrhea, or syphilis

[4]Among HIV-negative MSM.

[5]Among those who have tested and know results.

[6]Among HIV-positive MSM; 8 year threshhold due to limitations in RDD data.

[7]With a male.

Table 2. Unprotected Anal Intercourse (UAI) by HIV Status of Respondent and Partner

	RDD survey respondents			STD Clinic patients		
Partner HIV status	HIV+ (n = 43)	HIV- (n = 241)	OR (95% CI)	HIV+ (n = 43)	HIV- (n = 404)	OR (95% CI)
UAI with HIV+ partner	22 (51)	9 (4)	27 (11-67)	27 (63)	32 (8)	20 (10-40)
UAI with HIV- partner	7 (16)	92 (38)	0.3 (0.1-0.7)	11 (26)	170 (42)	0.5 (0.2-1.0)
UAI with partner of unknown HIV status	10 (23)	21 (9)	3.2 (1.4-7.4)	20 (47)	84 (21)	3.3 (1.7-6.3)

Note: Table excludes MSM who first tested HIV positive in the last 12 months or whose date of HIV diagnosis is unknown.

Table 3. Associations between Specific Variables and Prevalent HIV Infection (self-reported)

Variable	RDD survey	STD Clinic	HIV Testing Prog.
Demographics			
Age[a]	.19 (.08-.30)	.23 (.14-.31)	.05 (-.07-.16)
White	1.3 (0.5-3.6)	1.5 (0.7-3.2)	2.3 (0.5-10)
Education[a]	-.07 (-.18-.05)	---	-.20 (-.31- -.08)
Income[a]	-.23 (-.34 - -.12)	---	-.11 (-.23-.02)
Has regular medical provider	3.0 (0.9-10)	---	2.2 (0.8-6.1)
Has health insurance	2.2 (0.8-5.8)	---	1.0 (0.4-2.5)
Drug use			
Ever used methamphetamine	6.6 (3.4-13)	---	1.8 (0.8-4.3)
Methamphetamine use in last 6 mos.	5.6 (2.0-15)	---	1.4 (0.5-4.4)
Ever used amyl nitrite	5.4 (2.3-13)	---	2.6 (1.1-6.5)
Amyl nitrite use in last 6 months	1.6 (0.8-3.3)	---	3.2 (1.4-7.4)
Number of days of binge alcohol use in last 30 days[a]	-.09 (-.20-.03)	---	.04 (-.08-.16)

Table 3. Associations between Specific Factors and Prevalent HIV Infection (self-reported) (continued)

STD history	RDD survey	STD Clinic	HIV Testing Prog.
Ever had chlamydia	2.3 (0.9-5.8)	2.7 (1.5-4.8)	---
Ever had gonorrhea	3.7 (1.9-7.2)	2.9 (1.8-4.9)	3.9 (1.6-9.1)
Ever had NGU	1.9 (0.9-4.1)	2.0 (1.1-3.7)	1.1 (0.3-3.3)
Ever had genital herpes	4.5 (1.9-11)	---	1.9 (0.7-5.2)
Ever had syphilis	15 (3.6-59)	3.9 (1.7-9.1)	6.9 (2.3-21)
Ever had bacterial STD	4.2 (2.2-8.2)	2.6 (1.5-4.5)	2.9 (1.3-6.8)
Had bact. STD in last 12 mos.	0.8 (0.2-3.7)	2.4 (1.3-4.4)	3.6 (1.4-9.0)
Sexual behavior in last 12 mos.			
Bisexual	1.0 (0.3-3.4)	0.1 (0.0-1.1)	[b]
Number of male sex partners[a]	.01 (-.11-.13)	.10 (.01-.19)	.10 (-.02-.21)
Any anal sex	1.4 (0.6-3.4)	1.3 (0.6-2.6)	---
Any insertive anal sex	0.8 (0.4-1.5)	1.2 (0.7-2.1)	---
Any receptive anal sex	1.7 (0.9-3.4)	1.6 (0.9-2.7)	---
Both insertive and receptive anal sex	1.0 (0.5-1.9)	1.5 (0.9-2.4)	---
Any UAI	1.5 (0.8-2.9)	1.5 (0.9-2.4)	2.1 (0.9-5.2)
Receptive UAI	1.9 (1.0-3.6)	2.8 (1.7-4.7)	4.6 (1.9-11.3)
Insertive UAI	1.4 (0.7-2.6)	1.5 (0.9-2.5)	1.1 (0.5-2.5)

Table 3. Associations between Specific Factors and Prevalent HIV Infection (self-reported) (continued)

Note: Unless otherwise noted, measure of association is the odds ratio (OR). Values in parentheses indicate 95% confidence intervals.

[a]Measure of association is Pearson correlation.

[b]Undefined OR: 11% of homosexual MSM were HIV-positive, but 0% of bisexual MSM were HIV-positive.