History of Childhood Sexual Abuse and Unsafe Anal Intercourse in a 6-City Study of HIV-Positive Men Who Have Sex With Men

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Considerable evidence suggests that men who have sex with men (MSM) and who experienced childhood sexual abuse are at heightened risk for HIV infection and sexually transmitted infections (STIs) and associated sexual risk behaviors. Several publications have indicated that self-reported history of sexual abuse is indirectly associated with high-risk sexual behaviors among diverse samples of MSM, such as attendees at targeted events and members of support organizations for lesbian, gay, bisexual, and transgender adolescents.[1–4]

These reports corroborate earlier studies that found that MSM who reported childhood sexual abuse were at higher risk of becoming HIV positive and engaged in higher rates of unprotected anal intercourse. Few of these studies have focused on whether a history of childhood sexual abuse among HIV-positive MSM is associated with unprotected anal intercourse with partners who are HIV negative.[5–8] In a study of HIV-positive MSM recruited at gay venues in San Francisco and New York City, O'Leary et al. found an association between a history of childhood sexual abuse and unprotected anal intercourse with partners who were HIV negative or of unknown infection status.[9] With little other research published on the effect of childhood sexual abuse on unsafe sexual behavior among HIV-positive MSM, the generalizability of this report is unknown.

Few studies have had an adequate overall sample size to address differences in reported rates of childhood sexual abuse by race/ethnicity with precision. In a study of more than 1000 predominantly HIV-negative MSM, Doll et al. reported higher rates of childhood sexual abuse among African American and Latino than White MSM.[10] Surveillance reports reveal very high rates of diagnosed and undiagnosed HIV infection among MSM of color[11,12]; therefore it is critical to identify risk factors that may contribute to higher rates of unsafe sex among racial/ethnic subgroups of HIV-positive MSM.

We examined the prevalence of self-reported history of childhood sexual abuse and the demographic and behavioral correlates of such abuse in a group of racially diverse HIV-positive MSM who reported anal intercourse with other men in the past year and who were enrolled in a weekend sexual health intervention to reduce unsafe sexual behavior. We hypothesized that men who reported childhood sexual abuse would also report higher rates of unprotected anal intercourse with men of HIV serodiscordant or unknown HIV infection status.

METHODS

The study population included 593 participants enrolled in the Positive Connections weekend seminar, which was intended to encourage safer sex among MSM. Participants were recruited from Seattle, Washington; Washington, DC; Boston, Massachusetts; New York, New York; Los Angeles, California; and Houston, Texas, from 2005 to 2006. Participants were recruited and screened for eligibility by partner community-based organizations in each city that worked with people living with HIV. These organizations employed a variety of recruitment methods, including publicity to agency clients, print advertising, and Internet- or venue-based outreach to MSM.

Eligibility and Baseline Data Collection

Men were eligible for study inclusion if they were HIV positive by self-report, were aged 18 years or older, reported 1 or more acts of unprotected anal intercourse with other men in the previous 12 months, could read and understand English, and were not cognitively impaired at the time of enrollment. Of 938 eligible men, 861 (92%) chose to register to participate in the intervention, of whom

Objectives. We assessed rates of childhood sexual abuse and its demographic and mental health correlates among HIV-positive men who reported unsafe anal intercourse with other men in the past year.

Methods. We conducted a cross-sectional analysis of baseline data from 593 HIV-positive men who have sex with men enrolled in the Positive Connections intervention.

Results. Childhood sexual abuse was reported by 47% of participants; 32% reported frequency as often or sometimes. Men reporting abuse were more likely to be Latino (odds ratio [OR]=2.6; 95% confidence interval [CI]=1.6, 4.2; P<.001) or African American (OR=1.8; 95% CI=1.2, 2.7; P=.005) than White. Among those who were abused, more frequent abuse was associated with more sexual contacts (for each, rate ratio [RR]=1.3; P<.001) and unsafe anal intercourse (often, RR=1.5; sometimes, RR=2.0; P<.001) compared with men who were not abused.

Conclusions. History of childhood sexual abuse is highly prevalent among HIV-positive men who engage in risky sexual behavior with other men and appears to be more common among men of color. Our findings suggest that abuse is associated with a significantly increased risk of sexually transmitted infections. (*Am J Public Health.* 2009;99:1079–1086. doi:10.2105/AJPH.2007.133280)

675 (78%) provided baseline data prior to randomization. Of the participants providing baseline data, 593 (88%) men reported on the occurrence of childhood sexual abuse. All participants gave informed consent in writing.

Baseline demographic and behavioral data were collected prior to participants' assignment to intervention groups. Data were collected in a group setting, where assistance was available from research staff for participants with problems reading or understanding questions. Data were self-reported on paper questionnaires.

Sexual Abuse History and Demographic Characteristics

Participants were asked to separately report the frequency of childhood sexual abuse (often, sometimes, rarely or once, or never) by older males and females; this method has been described elsewhere[1] First, childhood sexual abuse was dichotomized by answers to a question that asked whether "as a child or adolescent" participants were "ever forced to have unwanted sexual activity with older males or females." Second, childhood sexual abuse was ranked by frequency and by gender of the perpetrator. Abuse frequencies were subsequently combined to categorize respondents as either reporting any childhood sexual abuse with older males or females or reporting no history of abuse.

Demographic data comprised age at enrollment, race/ethnicity (African American, White, Latino, Asian/Pacific Islander, Native American, mixed race, or other), education level (high school or less, some college, 4-year college degree, or at least some graduate school), annual household income, employment status (employed, unemployed and receiving Social Security supplemental income for disability, or unemployed for other reasons), enrollment site, sexual orientation (gay or attracted to men or not self-identified as gay), gender of recent sexual partners (intercourse with only men, mostly men, men and women in equal numbers, mostly women, or only women), calendar year when initially diagnosed with HIV infection, and diagnosis of an STI in the previous 6 months (yes or no).

Mental Health and Sexuality

We used Likert-type scales for mental health and sexuality measures and calculated reliability with Cronbach α scores. We used 13 items drawn from the depression and anxiety subscales of the Brief Symptom Inventory.[13] Higher scores indicated more depression or anxiety (Cronbach $\alpha = 0.93$).

We used the 13-item control subscale from the Compulsive Sexual Behavior Inventory,[14] which measures a sense of lack of control over sexual behavior. Higher scores indicated less control (Cronbach $\alpha = 0.92$). A 4-item scale measured respondents' acceptance of negative views about their own homosexuality.[15] Higher scores indicated greater internalized homonegativity (Cronbach $\alpha = 0.88$). A 6-item scale measured comfort with sexuality and respondent's own body.[16] Higher scores indicated greater sexual comfort (Cronbach $\alpha = 0.83$).

Alcohol Use and Drug Use

Alcohol consumption was measured with 2 items.[17] One item asked how often the respondent consumed alcohol in the previous 90 days; the other asked how many drinks participants consumed, on average, when they drank.

Participants were also asked 2 questions about alcohol use: whether they had an alcohol problem and how often alcohol was used during anal intercourse in the past 90 days (never, rarely, sometimes, or always). Finally, participants were asked how often they used methamphetamine or poppers (alkyl nitrite inhalants) during anal intercourse in the past 90 days (never, rarely, sometimes, or always) and whether they believed that they had a problem with drugs (yes, in past; yes, currently; do not know; or no).

Sexual Behavior

The dependent variable was serodiscordant unprotected anal intercourse, defined as any unprotected anal intercourse in the previous 90 days with male partners who were HIV negative or of unknown HIV infection status. Participants reported how many times they had insertive and receptive anal intercourse without a condom with HIV-positive partners, HIV-negative partners, and partners of unknown HIV infection status. This count was used continuously, dichotomized as having had no unprotected anal intercourse with partners of HIV-serodiscordant or unknown infection status in the past 3 months or having had at least 1 act of unprotected anal intercourse in the past 3 months.

We calculated total acts of anal intercourse by similar methods, but in addition to tallying total acts of unsafe anal intercourse, we combined all reports of anal intercourse, with and without condoms and with all primary and secondary partners. We also calculated total reported sexual acts with all primary and secondary partners, including acts of anal intercourse (with and without condoms), insertive and receptive oral sex acts (with and without condoms), and other sexual acts (not specified).

Analyses

We generated summary statistics for continuous and categorical data, for both abuse subgroups (history or no history of childhood sexual abuse) and for the overall study population. For continuous data, median values and associated interquartile ranges are presented. Differences in distributions between abuse subgroups were tested with the Wilcoxon rank sum test. For ordinal categorical data, we evaluated associations with 2×2 and 2×4 contingency table analyses, including the Pearson χ^2 and Fisher exact test as appropriate.

We conducted 2 series of regressions, with the dependent variable treated as a binary outcome (logistic regression) and as a continuous variable (Poisson regression) for men who reported having had unsafe anal intercourse in the past 90 days. For each set of regressions, childhood sexual abuse history (as 3 dummy-coded variables to indicate frequency as often, sometimes, or rarely or once versus never) was regressed on the dependent variables either alone (for unadjusted analyses) or including covariates identified by descriptive analysis as potential confounding variables. Final models included covariates that altered the magnitude of association of the main effect (childhood sexual abuse) with dependent variables by 10% or more and were themselves significantly associated with outcomes.

RESULTS

Of 593 participants who answered the question, 279 (47%) reported at least 1 incident of childhood sexual abuse. Frequency of abuse was estimated as once or rarely (n=89; 15.0%), sometimes (n=100; 16.8%), or often (n=90; 15.2%). Most respondents (n=154; 58%) reported the gender of the perpetrator as male, 38 (14%) reported childhood sexual

TABLE 1—History of Childhood Sexual Abuse Among HIV-Positive Men Who Have Sex With Men, by Gender of Perpetrator: Positive Connections, 2005–2006

Frequency of Forced Sex With Older Males	Frequency of Forced Sex With Older Females[a]				
	Never, No. (%)	Once/Rarely, No. (%)	Sometimes, No. (%)	Often, No. (%)	Total, No. %
Never	314 (54.0)	21 (3.6)	11 (1.9)	6 (1.0)	352 (60.6)
Once/Rarely	48 (8.3)	20 (3.4)	7 (1.2)	3 (0.5)	78 (13.4)
Sometimes	58 (10.0)	6 (1.0)	18 (3.1)	2 (0.3) .	84 (14.5)
Often	48 (8.3)	10 (1.7)	6 (1.0)	3 (0.5)	67 (11.5)
Total	468 (80.6)	57 (9.8)	42 (7.2)	14 (2.4)	

[a]Twelve men who reported forced sexual intercourse with older males did not report frequency of forced sexual intercourse with older females.

abuse by a female, and 75 (28%) by both (Table 1). These gender differences among perpetrators were reflected in respondents' lack of agreement about rates of forced sexual intercourse with older men and women, with only 60% of participants reporting concordant rates of abuse by older men and women.

Demographic Characteristics and Sexually Transmitted Infections

When we considered childhood sexual abuse dichotomously (ever vs never), we observed few differences in demographic characteristics and HIV and STI indicators in bivariate analyses (Table 2). Although small significant differences in age were evident between the 2 subgroups (77% of all participants were aged ≥ 36 years), men reporting childhood sexual abuse were more likely to be Latino or African American than were men who reported no abuse (28% vs 17% and 47% vs 43%, respectively; $P<.001$). These findings correspond to childhood sexual abuse rates of 58% among Latino (odds ratio [OR]=2.6; 95% confidence interval [CI]=1.6, 4.2), 49% among African American (OR=1.8; 95% CI=1.2, 2.7), and 29% among White participants. Similar, but lower, rates of childhood sexual abuse have been reported for Latino and African American MSM at high risk for acquiring infection.[8,10]

In addition, 43% of men reporting childhood sexual abuse and only 34% of men without an abuse history had a high school education or less ($P<.02$); men with a high school education or less were 1.5 times as likely to report childhood sexual abuse as men with

higher levels of education (OR=1.5; 95% CI=1.1, 2.1; $P<.02$). We did not observe differences in income level, employment status, or enrollment site between men who reported childhood sexual abuse and those who did not.

Mental Health Indicators and Substance Use

Respondents who reported a history of childhood sexual abuse had significantly higher levels of depression and anxiety, with 39% reporting the highest quartile scores for the depression and anxiety subscale; only 24% of men reporting no childhood sexual abuse scored in the highest quartiles. In addition, 19% of men reporting childhood sexual abuse and 26% of men reporting no abuse had depression and anxiety levels in the lowest quartile (P for trend<.001). Men with a history of childhood sexual abuse also had significantly higher levels of compulsive sexual behaviors: 40% of these respondents and only 25% of the no abuse group scored in the highest quartile for compulsive sexual behaviors. By contrast, 9% of men who reported childhood sexual abuse and 25% of men who did not scored in the lowest quartile for compulsive sexual behaviors (P for trend<.001).

Men reporting a history of childhood sexual abuse had significantly higher levels of internalized homonegativity: 41% of this group and 25% of those with no abuse history scored at the highest level for internalized homonegativity ($P<.001$). Men with a history of childhood sexual abuse had significantly less sexual comfort when interacting with partners: 37%

of participants with an abuse history and 48% who did not report abuse scored above the median level for comfort ($P=.007$).

Men reporting childhood sexual abuse were more likely to believe that they had problems with drugs or alcohol currently ($P=.008$) or in the past ($P=.06$): 50% of men in the abuse group and 64% of men in the no abuse group reported that they thought they had never had any problem with alcohol. Similarly, 60% of men reporting a history of childhood sexual abuse and 69% of men without an abuse history thought they had no problem with drugs, although this difference was not statistically significant. Use of alcohol or poppers during anal intercourse in the past 90 days did not differ between the 2 subgroups (data not shown), but men with a history of childhood sexual abuse were more likely to report using crystal methamphetamine during anal intercourse in the past 90 days sometimes or always (14%) than were men reporting no abuse (8%; $P<.05$; Table 3).

Sexual Orientation and Sexual Behavior

Although the HIV-positive MSM in our study overwhelmingly identified as gay (81%), men with a history of childhood sexual abuse were slightly less likely to report being gay (77%) than were men reporting no abuse (84%; $P=.03$). Men who reported abuse were behaviorally more bisexual, with 30% reporting recent male and female sexual partners; only 19% of men without an abuse history reported this behavior ($P<.001$). The number of years since HIV diagnosis was similar between the 2 groups, with an overall median time of 11 years among all study participants ($P=.05$). Rates of STIs in the previous 3 months did not differ between groups (Table 4).

In an initial crude analysis that considered history of childhood sexual abuse as a binary independent variable (ever vs never), the proportion of men reporting any sexual encounter (anal, oral, or other), anal intercourse, or unprotected anal intercourse did not differ between men who reported childhood sexual abuse and those who did not. By contrast, when we compared the frequencies of sexual behaviors in the 2 groups, men with a history of childhood sexual abuse reported significantly higher numbers of total sexual contacts (number of acts; median=24) and anal

TABLE 2—Demographic and Other Background Characteristics Among HIV-Positive Men Who Have Sex With Men (MSM; N = 593), by History of Childhood Sexual Abuse: Positive Connections, 2005–2006

	MSM Reporting Abuse, No. (%)	MSM Not Reporting Abuse, No. (%)	Total Sample, No. (%)	P
Race/ethnicity				<.001
White	54 (19.6)	101 (32.3)	155 (26.4)	
African American	128 (46.6)	134 (42.8)	262 (44.6)	
Latino	77 (28.0)	55 (17.6)	132 (22.5)	
Other	16 (5.8)	23 (7.4)	39 (6.6)	
Education				.02
High school or Less	121 (43.4)	106 (33.8)	227 (38.3)	
Some college	98 (35.1)	129 (41.1)	227 (38.3)	
4-year college degree	38 (13.6)	40 (12.7)	78 (13.2)	
At least some graduate school	22 (7.9)	39 (12.4)	61 (10.3)	
Age, y				.04
18-25	9 (3.3)	7 (2.3)	16 (2.7)	
26-35	55 (19.9)	48 (15.5)	103 (17.6)	
36-45	132 (47.8)	145 (46.8)	277 (47.3)	
≥46	80 (29.0)	110 (35.5)	190 (32.4)	
Enrollment site				.12
Seattle, WA	43 (15.4)	56 (17.8)	99 (16.7)	
Washington, DC	23 (8.2)	38 (12.1)	61 (10.3)	
Boston, MA	26 (9.3)	33 (10.5)	59 (9.9)	
New York, NY	71 (25.5)	80 (25.4)	151 (25.4)	
Los Angeles, CA	74 (26.5)	55 (17.5)	129 (21.7)	
Houston, TX	42 (15.1)	53 (16.8)	95 (16.0)	
Employment status				.24
Employed	70 (25.1)	98 (31.2)	168 (28.3)	
Unemployed, on disability	138 (49.5)	151 (44.3)	277 (46.7)	
Unemployed, other	71 (25.4)	77 (24.5)	148 (25.0)	
Income, by quartile, $				.26
≤5500	51 (23.4)	69 (25.0)	120 (24.3)	
5501-11500	70 (32.1)	67 (24.2)	137 (27.7	
11501-24000	56 (25.7)	70 (25.4)	126 (25.7)	
>24000	41 (18.8)	70 (25.4)	111 (18.8)	

Note. Overall totals vary because not all participants answered all questions. For MSM reporting abuse, n = 279; for MSM not reporting childhood abuse, n = 314.

sexual abuse and total sexual contacts, number of anal intercourse contacts, and number of acts of unsafe anal intercourse among study participants (Table 5). After adjustment for potential confounding variables, the rate of total sexual acts among men who reported being sexual abused often was 1.3 times the rate for men reporting no childhood sexual abuse (rate ratio [RR]=1.3; 95% CI=1.2, 1.3; P<.001). We observed a similar relationship for men reporting childhood sexual abuse as occurring sometimes or once or rarely, with rates that were respectively 1.25 and 1.2 times the rate for men reporting no childhood sexual abuse (for all associations, P<.001).

Similarly, after adjustment for potential confounding variables, we observed significantly higher numbers of anal intercourse contacts among men whose abuse occurred often (RR=1.4; 95% CI=1.3, 1.4; P<.001) or once or rarely (RR=1.2; 95% CI=1.1, 1.25; P<.001) than among men who reported no abuse.

We also observed significantly higher rates of unsafe anal intercourse contacts among men who reported engaging in unsafe anal intercourse during the 3-month reporting period: men who reported childhood sexual abuse that occurred often or sometimes had rates of unsafe anal intercourse that were respectively 1.5 and 2.0 times the rate observed for men with no abuse history (P<.001). After we adjusted for total sexual activity (the offset) and potential confounding variables, these associations (after adjustment for increased sexual activity) remained, although the differences in rates were reduced: men who suffered abuse often or sometimes had rates of unsafe anal intercourse that were respectively 1.1 (P=.11) and 1.7 (P<.001) times the rate observed for men reporting no childhood sexual abuse.

DISCUSSION

The reported rates of childhood sexual abuse in our sample of HIV-positive MSM who engaged in unprotected anal intercourse were much higher than previously reported for samples of MSM recruited without regard for HIV infection status.[1,4–8,10,18,19] Also unusual was the rate of childhood sexual abuse by female perpetrators, which was higher than that reported in many previous studies.[20–24] These

intercourse contacts (median=15) than did men in the no abuse group (median=18 for total contacts and 12 for anal intercourse contacts). We did not observe significant differences in the numbers of unsafe anal intercourse contacts, most likely because of the large proportions of both groups of men who did not engage in unsafe activity.

Because we believed that there would be a dose–response relationship of childhood sexual abuse with behavioral risk outcomes, we subsequently considered associations of

childhood sexual abuse frequency with the numbers of total sexual and anal intercourse contacts and with the total number of unsafe anal intercourse contacts among men who reported any unsafe activity in the past 90 days (Table 5).

Frequency of Abuse and Behavioral Outcomes

When we considered sexual behaviors as continuous variables, we found significant associations between frequencies of childhood

TABLE 3—Associations of Mental Health Measures With History of Childhood Sexual Abuse Among HIV-Positive Men Who Have Sex With Men (MSM; N = 593): Positive Connections, 2005–2006

Characteristic	MSM Reporting Abuse, No. (%)	MSM Not Reporting Abuse, No. (%)	Total Sample, No. (%)	P^a
Compulsive sexual behavior quartile[b]				<.001
Quartile 1	22 (8.8)	71 (24.5)	93 (17.2)	
Quartile 2	73 (29.1)	78 (27.2)	151 (28.0)	
Quartile 3	56 (22.3)	66 (22.8)	122 (22.6)	
Quartile 4	100 (39.8)	74 (25.5)	128 (32.2)	
Internalized homonegativity category[c]				<.001
Category 1	75 (26.9)	136 (43.5)	211 (35.6)	
Category 2	90 (32.3)	98 (31.3)	188 (31.8)	
Category 3	114 (40.9)	79 (25.2)	193 (32.6)	
Depression and anxiety category[d]				<.003
Category 1	49 (18.9)	77 (26.3)	126 (22.8)	
Category 2	57 (21.9)	78 (26.6)	135 (24.4)	
Category 3	52 (20.0)	69 (23.6)	121 (21.9)	
Category 4	102 (39.2)	69 (23.6)	171 (30.9)	
Sexual comfort level[e]				.007
Higher	102 (36.6)	150 (47.6)	252 (42.4)	
Lower	177 (63.4)	165 (52.4)	342 (57.6)	
Problems with drugs[f]				.008
Yes, in past	62 (24.2)	54 (18.4)	116 (21.1)	
Yes, currently	42 (16.4)	28 (9.6)	70 (12.8)	
Do not know	24 (9.4)	24 (8.2)	48 (8.7)	
No	128 (50.0)	187 (63.8)	315 (57.4)	
Problems with alcohol[g]				.06
Yes, in past	65 (23.7)	61 (19.9)	126 (21.7)	
Yes, currently	24 (8.8)	24 (7.8)	48 (8.3)	
Do not know	21 (7.7)	11 (3.6)	32 (5.5)	
No	164 (59.9)	211 (68.7)	375 (64.6)	
Methamphetamine use during anal intercourse				<.05
Never	190 (80.9)	235 (86.4)	425 (83.8)	
Rarely	12 (5.1)	16 (5.9)	28 (5.5)	
Sometimes	18 (7.7)	10 (3.7)	28 (5.5)	
Always	15 (6.4)	11 (4.0)	26 (5.1)	
Alcohol use during anal intercourse				.34
Never	129 (50.8)	152 (52.1)	281 (51.5)	
Rarely	28 (11.0)	40 (13.7)	68 (12.5)	
Sometimes	68 (26.8)	77 (26.4)	145 (26.6)	
Always	29 (11.4)	23 (7.9)	52 (9.5)	

Note. Overall totals vary because not all participants answered all questions. For MSM reporting abuse, n = 279; for MSM not reporting childhood abuse, n = 314.
[a]Values are for tests of trend where response categories are ordinal.
[b]Quartile 1, scores 13 to 16 (lowest); quartile 2, scores 17 to 23; quartile 3, scores 24 to 30; quartile 4, scores over 30 (highest).
[c]Category 1, scores 0 to 4 (lowest); category 2, scores 5 to 10; category 3, scores over 10 (highest).
[d]Category 1, scores 12 to 14 (lowest); category 2, scores 15 to 19; category 3, scores 20 to 26; category 4, scores over 26 (highest).
[e]For higher sexual comfort, scores = 23 and 24 (above median); for lower sexual comfort, scores ≤ 23 (below median).
[f]Self-reported perception of drug problems.
[g]Self-reported perception of alcohol problems.

data indicate that childhood sexual abuse is a much greater problem among HIV-positive MSM than was previously thought.

Latino and African American HIV-positive MSM reported higher rates of childhood sexual abuse than did HIV-positive White MSM. This may partially explain both the higher rates of HIV among MSM communities of color and the greater challenges of behavior change in this population. However, in our final analyses, race/ethnicity in itself was not associated with rates of total sexual encounters or unsafe anal intercourse, but childhood sexual abuse remained associated with high-risk behavior, and this finding cut across all racial/ethnic groups.

A clinical cluster of mental, emotional, and sexual health conditions appeared to be more prevalent in HIV-positive MSM who reported childhood sexual abuse than in those who did not. Our findings are consistent with the research of Stall et al. on syndemics as co-occurring psychosocial health problems that increase vulnerability to HIV.[25,26] The next generation of HIV prevention programs aimed at HIV-positive MSM should consider comprehensive treatment of these clinical conditions.

We found extraordinarily high rates of childhood sexual abuse among HIV-positive MSM in our sample. Almost half of our respondents reported being forced to have sexual intercourse at least once as children or adolescents (47%), with 32% reporting having been abused sometimes or frequently. Furthermore, we documented higher frequencies of sexual behaviors and anal intercourse among HIV-positive MSM who reported childhood sexual abuse.

Moreover, we demonstrated that childhood sexual abuse rates varied significantly by racial/ethic group, with significantly more Latino and African American than White HIV-positive MSM reporting childhood sexual abuse. These differences are not trivial, underscoring the need for increased childhood sexual abuse awareness and prevention in minority communities and as a cofactor for HIV transmission.

Although we found no association between childhood sexual abuse and whether men did or did not report unsafe anal intercourse in this group of HIV-positive men at very high risk for unsafe behavior (an eligibility criterion for participation in this study), abuse

TABLE 4—Sexual Orientation and Risk Indicators Among HIV-Positive Men Who Have Sex With Men (MSM; N = 593), by History of Childhood Sexual Abuse: Positive Connections, 2005–2006

Characteristic	MSM Reporting Abuse, No. (%)	MSM Not Reporting Abuse, No. (%)	Total Sample, No. (%)	P
Gender of recent sexual partners				<.001
Only men	184 (68.4)	248 (80.8)	432 (75.0)	
Mostly men	43 (16.0)	36 (11.7)	79 (13.7)	
Men and women, equal numbers	29 (10.8)	13 (4.2)	42 (7.3)	
Mostly women	8 (3.0)	10 (3.3)	18 (3.1)	
Only women	5 (1.9)	0	5 (0.9)	
Sexual orientation				.03
Gay or same-gender attraction	200 (76.6)	253 (84.0)	453 (80.6)	
Other	61 (23.4)	48 (16.0)	109 (19.4)	
Median no. of sexual acts[a]				
Total[b]	24 (9,53)	18 (8,39)	20 (9,44)	.02
Total anal intercourse[c]	15 (6,34)	12 (5,23)	12 (5,28)	.006
Unsafe anal intercourse[d]	5 (2,10)	4 (2,10)	4 (2, 10)	.47
Median years since HIV diagnosis,[e]	12 (7, 16)	11 (6, 16)	11 (6, 16)	.05
STI diagnosis or treatment in past 3 mo				
Yes	27 (9.9)	21 (6.9)	48 (8.3)	.22
No	247 (90.9)	285 (93.1)	716 (92.5)	.19
No. reporting sexual behaviors				
Any sexual intercourse[b]	242 (86.7)	280 (89.2)	522 (88.0)	.36
Total anal intercourse[c]	225 (80.6)	251 (79.9)	476 (80.3)	.83
Unsafe anal intercourse[d]	125 (44.8)	130 (41.4)	255 (43.0)	.40

Note. STI = sexually transmitted infection. Overall totals vary because not all participants answered all questions. For MSM reporting abuse, n = 279; for MSM not reporting childhood abuse, n = 314.
[a]Among men reporting each behavior, interquartile range, 25% to 75%.
[b]Includes anal, vaginal, and oral sex.
[c]With and without condoms.
[d]Unsafe anal intercourse was defined as no use of condoms with insertive or receptive anal intercourse with partners who were HIV serodiscordant or of unknown HIV status.
[e]Interquartile range, 25% to 75%.

was significantly related to the number of total sexual contacts, and by extension, the number of acts of anal intercourse (with and without condoms) and unsafe anal intercourse among study participants who reported these behaviors. This may well be attributable to the selection of an exceptionally high-risk group of HIV-positive men for our Positive Connections intervention. Similarly, in previous research with HIV-positive and HIV-negative gay or bisexual men enrolled in a community festival setting, Brennan et al. did not observe a larger proportion of men reporting unsafe anal intercourse among those with a history of childhood sexual abuse than among men not reporting childhood abuse.[1]

Thus, our findings suggest that childhood sexual abuse may not be a trigger for unsafe sexual behavior, but rather that childhood sexual abuse is associated with more unsafe anal intercourse among men who already engage in this behavior. This would increase the risk of acquiring and transmitting STIs and of transmitting HIV. This finding is novel and could resolve the conundrum of an earlier finding that childhood sexual abuse was associated with increased risk for HIV infection but not with the increased proportion of men reporting unsafe anal intercourse compared with men not reporting childhood abuse.[1] This mechanism of an increased risk for transmitting STIs (including HIV) via increased contact rates of high-risk behaviors may explain previously reported associations of childhood sexual abuse with HIV infection and STIs among MSM.[4,9,26]

Furthermore, it does not appear that the mental health indicators that we evaluated—including depression and anxiety, sexual compulsion, and sexual comfort—explain the observed association of childhood sexual abuse with increased rates of all sexual behaviors evaluated, including unsafe anal intercourse. In every instance, when we included childhood sexual abuse and selected mental health indicators in regression models, childhood sexual abuse maintained its association with the frequencies of the measured behavior, but mental health indicators did not: the magnitudes of association of mental health indicators with frequencies of sexual behaviors showed no relationship (the RR approached 1.0, the value expected under the null hypothesis of no association), with corresponding nonsignificant *P* values.

Although our findings are significant, our study had some limitations. The overall prevalence of self-reported childhood sexual abuse may have been higher in our self-selected study population—men who were diagnosed with HIV, struggling with same-sex attractions, coping with depression and anxiety, and engaging in sexual behavior likely to transmit HIV (an eligibility criterion). Some or all of these factors may lead some HIV-positive MSM to interpret childhood and adolescent experiences as forced and possibly to use them as an explanation for current behaviors or difficulties. However, this possible overreporting of childhood sexual abuse probably did not significantly affect our results because our behavioral outcomes were assessed independently of childhood sexual abuse and appeared much later in the study questionnaire.

We specifically enrolled HIV-positive MSM with recent histories of unprotected anal intercourse in major cities with large HIV-positive populations; hence it might not be appropriate to generalize our findings to HIV-positive MSM outside these cities or to MSM in general. Accordingly, care is needed in generalizing rates of childhood sexual abuse and sexual behaviors from our self-selected non-random study population to HIV-positive MSM more broadly. Additional research is warranted in other groups of HIV-positive MSM.

Our findings provide compelling evidence for an association of childhood sexual abuse with frequencies of sexual behaviors. The next logical step might be to examine

TABLE 5—Associations of Childhood Sexual Abuse With Number of Total Sexual Contacts and Acts of Anal Intercourse Among HIV-Positive Men Who Have Sex With Men: Positive Connections, 2005-2006

Frequency of Abuse[a]	b_{crude} (95% CI)	$b_{adjusted}$ (95% CI)	$RR_{adjusted}$ (95% CI)	p[b]
Total sexual contacts				
Often	0.40 (0.37, 0.44)	0.25 (0.21, 0.29)	1.28 (1.23, 1.34)	<.001
Sometimes	0.26 (0.22, 0.30)	0.22 (0.19, 0.26)	1.25 (1.21, 1.27)	<.001
Once/Rarely	0.30 (0.26, 0.34)	0.21 (0.17, 0.25)	1.23 (1.19, 1.28)	<.001
Never (Ref)			1.0	
Total acts of anal intercourse				
Often	0.36 (0.31, 0.41)	0.31 (0.26, 0.36)	1.36 (1.30, 1.43)	<.001
Sometimes	0.28 (0.23, 0.33)	-0.10 (-0.15, -0.04)	0.90 (0.86, 0.96)	.001
Once/Rarely	0.26 (0.21, 0.31)	0.17 (0.12, 0.22)	1.19 (1.13, 1.25)	<.001
Never (Ref)			1.0	
Total acts of unsafe anal intercourse[c]				
Often	0.72 (0.63, 0.81)	0.40 (0.28, 0.52)	1.49 (1.32, 1.68)	<.001
Sometimes	0.72 (0.63, 0.82)	0.68 (0.57, 0.79)	1.97 (1.77, 2.20)	<.001
Once/Rarely	-0.02 (-0.14, 0.09)	-0.30 (-0.46, -0.14)	0.74 (0.63, 0.88)	<.001
Never (Ref)			1.0	

Note. CI = confidence interval; RR = rate ratio. For total sexual contacts, n = 496; for total acts of anal intercourse, n = 476; for total acts of unsafe anal intercourse, n = 169.
[a]Comparisons are with men reporting no childhood sexual abuse.
[b]Values are for adjusted models. The model for total sexual contacts was adjusted for being self-identified as gay versus not self-identified as gay. The model for total acts of anal intercourse was adjusted for race/ethnicity and reporting current or past problems with drugs. The model for total acts of unsafe anal intercourse was adjusted for being self-identified as gay versus not self-identified as gay, education level, and reporting current use of crystal methamphetamine during sexual intercourse.
[c]Unsafe anal intercourse was defined as no use of condoms with insertive or receptive anal intercourse with partners who were HIV serodiscordant or of unknown HIV status.

community-level programs aimed at reducing rates of childhood sexual abuse or mitigating the long-term effects of abuse in MSM. Health care providers should be aware of these associations, so that they can assess rates of childhood sexual abuse among their MSM patients and offer referrals for counseling or other mental health treatment options. Finally, we suggest further study into the association of childhood sexual abuse history in HIV-positive MSM with transmission of HIV and STIs, so that appropriate prevention and wellness models will be developed. ∎

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S. L. Welles contributed to the construction of the baseline study instrument, conducted all analyses, and had primary responsibility for writing and editing this article. A.C. Baker, D.J. Brennan, S. Jacoby, and B.R.S. Rosser contributed to interpretation of the findings and to writing and editing this article. M.H. Miner contributed to the analytic strategy, interpretation of the findings, and writing and editing this article.
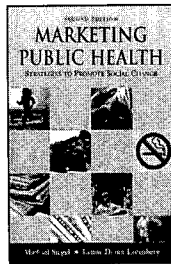
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