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Homophobia is Associated with Sexual Behavior that Increases Risk of Acquiring and Transmitting HIV Infection Among Black Men Who Have Sex with Men

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Abstract We investigated whether the experience of homophobic events increases the odds of engaging in unprotected anal intercourse (UAI) among black men who have sex with men (MSM) and whether social integration level buffered the association. Participants (N = 1,154) reported homophobic events experienced in the past 12 months. Social integration measures included social support, closeness with family members and friends, attachment to the black gay community, openness about sexuality within religious communities, and MSM social network size. Logistic regression analyses indicated that experiencing homophobia was associated with (1) UAI among men not previously diagnosed with HIV and (2) sexual HIV transmission risk behavior among men who knew they were HIV-infected. None of the social integration measures buffered these associations. Homophobia may promote acquisition and transmission of HIV infection among black MSM. Interventions are needed to reduce homophobia experienced by black MSM.

Keywords Homophobia · Human immunodeficiency virus · Gay men · Men who have sex with men · Black Americans

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Introduction

In the United States, black men who have sex with men (MSM) are more affected by HIV than any other racial/ethnic group of MSM. The prevalence of HIV infection is considerably higher among black MSM (28 %) than Latino (18 %) or white (16 %) MSM [1]. Additionally, on an annual basis, black MSM acquire almost as many HIV infections as white MSM, who comprise a much larger proportion of the MSM population [2]. Individual-level risk behaviors do not explain these disparities in HIV infection, as black MSM often engage in less HIV risk behavior (e.g., drug use and unprotected sex) than non-black MSM [3, 4]. Societal-level factors, however, may play an important role in increasing HIV infection risk among black MSM and warrant close examination.

One societal factor, homophobia, may be understood using social ecological theory. This framework posits that health is not solely influenced by individual-level characteristics, but is determined by the social environments in which individuals live [5]. Thus, minority groups that experience adverse health outcomes do so, at least in part, because of their unfavorable life circumstances. In the United States, most Americans strongly disapprove of homosexuality [6], and anti-gay sentiment has been

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codified into laws and social policies. Such provide an environment where black MSM, like other sexual minority persons, experience oppression and hostility solely based on their sexual orientations (i.e., homophobia) [7].

Little is empirically known about the relationship between experienced homophobia and unprotected anal intercourse (UAI), the primary sexual risk factor for HIV infection, among black MSM. A recent meta-analysis not focused on black MSM found that internalized homophobia—negative thoughts that MSM have about themselves because of their sexual orientations—had a weak association with risky sexual behavior [8]. However, this study did not assess experiences of homophobia. One study described how experienced homophobia could lead to UAI among black MSM [9], and another found that discrimination based upon sexuality was associated with UAI [10]. Moreover, a study of primarily white MSM found homophobia to be associated with UAI [11], and homophobia increased the likelihood of Latino MSM encountering sexual situations that promote HIV transmission (e.g., having sex while intoxicated) [12]. However, none of these studies provided a detailed analysis of homophobia as a risk factor for engaging in UAI among MSM of different HIV serostatuses. We hypothesized that experiences of homophobia would be associated with increased odds of engaging in UAI among black MSM who, before entering our study, had not been diagnosed with HIV infection and among black MSM who were aware that they were HIV-infected and, thus, at risk of transmitting HIV to others.

Because supportive social environments may be conducive to healthy behaviors [13], we further hypothesized that social integration factors might mitigate homophobia's effect upon UAI. Social integration—often indicated by social support, attachment to others, and affiliations with religious communities—has been found to buffer the adverse health effects of oppression among historically marginalized groups [13]. Although few investigations have examined social support's effect upon UAI among MSM, social support may mitigate psychological distress contributing to UAI [14, 15]. Moreover, strong attachments with other MSM might buffer stress, alienation, and sexual risk that may arise from homophobia [16, 17]. Historically, black Americans have received significant social support from black churches, which can promote protective health behaviors among black MSM [18, 19]. Thus, sexually affirming religious environments might mitigate the potentially adverse effects of homophobia encountered by black MSM. To test this buffering hypothesis, we examined the strength of the association between homophobia and UAI among black MSM reporting different levels of social integration measured on social support, closeness with family members, closeness with friends, attachment to the black gay community, ability to be open about one's sexuality in one's religious community, and the size of their MSM social networks.

Methods

Recruitment

Data for the analysis came from the *Brothers y Hermanos* study, a cross-sectional study that examined correlates of HIV risk behavior and HIV infection among 1,154 black MSM in New York City and Philadelphia [20]. Eligible participants were male, aged $\geq$18 years, residents of one of the recruitment cities, and sexually active with men (reported oral sex, anal sex, or mutual masturbation) during the previous 12 months.

During May 2005–April 2006, we recruited participants using respondent-driven sampling [21]. Project staff members began by recruiting a small number of initial participants ("seeds") who met study eligibility criteria from community-based organizations and venues frequented by MSM. These seeds recruited up to three eligible individuals from their social networks to participate. New enrollees recruited the next wave of participants, with the process continuing until at least 500 men in each research site were enrolled. Sites used additional seeds during the course of recruitment to maintain enrollment. The total number of seeds ranged from 16 at one site to 36 at another. The maximum number of recruitment waves attained in New York City and Philadelphia were 19 and 11, respectively. Participants earned $15 for each eligible person that they recruited. Enrollees consented to an audio computer-assisted self-interview (ACASI) and HIV testing. All enrollees completed both elements and received $50 in compensation. Institutional review boards at the Centers for Disease Control and Prevention and each recruitment site approved the study protocol.

Data Collection

Data collection sessions occurred in project offices located in office buildings, community-based organizations, and community health centers. Participants confidentially completed an ACASI that assessed demographic, behavioral, and psychosocial variables including experienced homophobia and social integration. These data, as well as the HIV test results, were linked to participants via a unique study identification number. Following the ACASI, all participants, except those who disclosed that they previously had been diagnosed as HIV-infected, received a rapid oral fluid HIV antibody test (OraQuick Advance; OraSure Technologies, Inc., Bethlehem, PA). Men who obtained a "preliminary positive" rapid test result as well

as men previously diagnosed with HIV infection provided blood specimens for Western blot confirmatory tests. We provided post-test counseling and referral to medical care and other services as needed and reported confirmed HIV-positive test results to the state in which the testing was done according to state laws.

Measures

For participants reporting that they were not diagnosed as HIV-infected before entering the study, the main outcome variable was occurrence of receptive or insertive UAI with a man in the past 3 months. For men reporting that they were diagnosed as HIV-infected prior to entering the study, the main outcome variable was occurrence of insertive or receptive UAI in the past 3 months with a man perceived to be HIV-negative or of unknown HIV serostatus (i.e., HIV transmission risk behavior). We separately examined these two groups of men to focus on the risk of HIV acquisition and transmission.

To measure experiences of negative interpersonal events based on perceived homophobic actions of other people, we adapted items used by Diaz et al. [12, 15]. Participants indicated the number of times in the previous 12 months that they experienced a specific type of negative interpersonal event because people thought that they "were homosexual or not manly enough." The five negative events were: hit or beaten up; treated rudely or unfairly; made fun of or called names; had to act more manly than usual to be accepted; and felt uncomfortable in a crowd of heterosexual black people in their city. Response options were never, once, 2–3 times, 4–7 times, and ≥8 times. We created 4 categories to classify participants according to the severity of the homophobic experiences, placing men who reported no homophobic events in the category of "none." The "low" severity category included men who reported that they had to act more manly than usual to be accepted or felt uncomfortable in a crowd of heterosexuals at least once, but did not experience any other types of homophobia. The "medium" severity group included men who reported that they had been treated rudely or unfairly, made fun of, or called names at least once, but were not hit or beaten up. The "high" severity group included men who were hit or beaten up at least once, irrespective of other homophobic experiences they may have reported.

We assessed six social integration constructs: social support, closeness with family members, closeness with gay and heterosexual friends, attachment to the black gay community, ability to be open about sexuality within one's religious community, and MSM social network size. Social support was measured using five items from published scales [22, 23]. A factor analysis of data from our participants indicated that all five items loaded highly (range 0.56–0.68) on a single factor (Cronbach's $\alpha = 0.78$). The items assessed the perceived availability of social support and included, for example: "There is no one I can talk to about the important decisions in my life"; "No one really understands my most private worries and fears"; and "There is no one I can depend on to lend me $50 if I needed it for an emergency." Response options were strongly agree, agree, disagree, and strongly disagree. We created a mean score per participant across the five items (range 1–4, with higher scores reflecting higher social support). For analysis, the distribution was divided into four categories: 1–1.9, 2–2.9, 3–3.9, and 4.

Participants indicated their level of closeness with up to 4 family members: mother (or the woman who raised him), father (or the man who raised him), brother(s), and sister(s). We created a variable reflecting the number of family members with whom participants were very close (0, 1, 2, or ≥3 persons). Participants also indicated their level of closeness with gay friends and heterosexual friends. We created a variable reflecting whether participants were very close with neither group of friends, one of the groups, or both groups. Participants indicated the extent to which they felt part of the black gay community in their city. We grouped men into low (not at all), medium (a little/somewhat), and high (very much) categories based on responses to this item. Participants also indicated their level of agreement with the following: "I am able to be open about my sexuality in my religious community." Men were grouped into three categories (no religious community, disagree, agree). Participants indicated the size of their MSM social networks by reporting the number of MSM that they personally knew by name and had seen during the past 6 months within their respective recruitment cities.

The analysis also included variables that might be associated with experiences of homophobia and UAI: recruitment site (New York City or Philadelphia); age (18–29, 30–39, or ≥40 years); education level (<high school diploma, high school diploma or equivalent, or ≥technical school/some college); and sexual identity (gay or non-gay). Additionally, we controlled for participants' same-sex relationship statuses (being in "committed" relationships within the past 3 months or not) because many HIV transmissions among US MSM occur within primary partnerships [24].

Statistical Analyses

The analytic sample included 1,140 of the 1,154 enrollees because 14 men had indeterminate HIV test results. Analyses proceeded separately for two groups: (1) men not previously diagnosed as HIV-infected ($n = 651$); this included men who indicated on the ACASI that their most

recent HIV test outside the study was negative, that they did not obtain the result of their most recent test, or that they had not been tested for HIV infection before entering the study; and (2) men who were aware that they were HIV-infected at the time they enrolled in the study (n = 489).

We characterized these two groups of men on experiences of homophobia, social integration, sociodemographic factors, results of the HIV testing done in the study, and UAI. Pearson's χ^2 test determined between-group differences for categorical variables. Kruskal–Wallis' nonparametric test determined between-group differences in the median MSM social network size. We also report the percentage of men who experienced each type of homophobic event in the past 12 months.

Main effects logistic regression models examined the association of homophobia and the other study variables with UAI for each group of men. We present unadjusted and adjusted odds ratios (AORs) and 95 % confidence intervals (CIs). To adjust for potential confounding, multivariate models controlled for recruitment site, HIV test result (for men not previously diagnosed with HIV), age, education level, sexual identity, same-sex relationship status, and the six social integration variables.

To determine if the association between homophobia and UAI varied by men's levels of social integration, we used multiplicative models that examined the two-way interaction of homophobia with each of the six social integration variables in their categorical formats. We repeated the interaction analyses retaining variables in their continuous formats, centering each variable at its mean. Each multiplicative model included one interaction term (multiple terms were avoided to prevent overspecification of the model), the main effect of homophobia, the main effect of the social integration variable, and the main effects of the sociodemographic variables.

Analyses proceeded with unweighted data because our intent was to describe the findings in our sample rather than to generate population estimates. We used the SAS® System for Windows Version 9.2 (SAS Institute, Cary, North Carolina) for analyses and data management.

Results

Table 1 presents descriptive data on the study variables. Seventeen percent of the men (110 of 651) who were not previously diagnosed with HIV infection tested HIV-positive in the study. All men who reported a previous HIV diagnosis were confirmed to be HIV-positive. Men previously diagnosed were more likely to be recruited in New York City ($\chi^2 = 92.9$, $p < 0.01$), were older ($\chi^2 = 48.2$, $p < 0.01$), had higher levels of education ($\chi^2 = 8.6$, $p < 0.05$), and were more likely to self-identify as gay ($\chi^2 = 70.5$, $p < 0.01$). Moreover, relative to men not previously diagnosed, previously diagnosed men had greater social support ($\chi^2 = 19.9$, $p < 0.01$), closeness with different types of friends ($\chi^2 = 16.1$, $p < 0.01$), attachment to their local black gay communities ($\chi^2 = 32.0$, $p < 0.01$), and openness about their sexuality within their religious communities ($\chi^2 = 10.9$, $p < 0.01$); previously diagnosed men also had larger MSM social networks than men not previously diagnosed (median size = 10 vs. 7; Kruskal–Wallis $\chi^2 = 34.1$, $p < 0.01$).

Among men not previously diagnosed with HIV, those who tested HIV-positive were more likely to have engaged in insertive or receptive UAI with any man in the past 3 months than men who tested HIV-negative (54.6 vs. 36.2 %, $\chi^2 = 12.9$, $p < 0.01$). Among previously diagnosed men, 24.3 % reported that they engaged in insertive or receptive UAI in the past 3 months with a man perceived to be HIV-negative or of unknown HIV serostatus.

Table 2 displays data on the prevalence of each type of homophobic event experienced by participants. The findings were similar for men previously and not previously diagnosed with HIV. In the past 12 months, 9–13 % reported that they were hit or beaten up; 34–39 % were treated rudely or unfairly; 36–41 % were made fun of or called names; 35–45 % had to act more manly than usual to be accepted; and 39–41 % felt uncomfortable in a crowd of heterosexual black people.

Table 3 presents the unadjusted and adjusted odds of engaging in UAI by study variables among men not previously diagnosed with HIV infection. In the multivariate analysis, men whose homophobic experiences were at a medium level (i.e., treated rudely/unfairly or made fun of/called names, but not hit/beaten up) had significantly elevated odds of engaging in UAI than men who experienced no homophobia (AOR = 1.71; 95 % CI = 1.06–2.52). We observed a trend for a high level of homophobia (i.e., being hit/beaten up) being associated with an increased odds of UAI (AOR = 1.71; 95 % CI = 0.95–3.08). The adjusted odds of UAI were also higher among men who tested HIV-positive in the study (AOR = 1.94; 95 % CI = 1.19–3.17) and among men in committed relationships with men (AOR = 2.51; 95 % CI = 1.72–3.65). The odds of UAI were lower among men aged ≥40 versus 18–29 years (AOR = 0.48; 95 % CI = 0.30–0.78).

Table 4 presents the unadjusted and adjusted odds of engaging in HIV transmission risk behavior by study variables among men who were previously diagnosed with HIV infection. In the multivariate model, the odds of UAI were significantly higher among men who experienced low (AOR = 2.77; 95 % CI = 1.39–5.54), medium (AOR = 2.83; 95 % CI = 1.61–4.98), or high (AOR = 2.48; 95 % CI = 1.09–5.65) levels of homophobia relative to men who reported no homophobic events. The odds of UAI were

Table 1 Sample characteristics of black MSM, Brothers y Hermanos Study, 2005–2006

	Not diagnosed HIV+ before study entry[a]		Diagnosed HIV+ before study entry		χ^2
	n/N	%	n/N	%	
Sociodemographic variables					
Site					92.9**
New York City	268/651	41.2	342/489	69.9	
Philadelphia	383/651	58.8	147/489	30.1	
Result of HIV test in study					–
Negative	541/651	83.1	0/489	0.0	
Positive	110/651	16.9	489/489	100	
Age (years)					48.2**
18–29	128/650	19.7	28/488	5.7	
30–39	136/650	20.9	101/488	20.7	
≥40	386/650	59.4	359/488	73.6	
Education level (years)					8.6*
<High school	163/651	25.0	103/488	21.1	
High school diploma/equivalent	325/651	49.9	225/488	46.1	
≥Technical school/some college	163/651	25.0	160/488	32.8	
Sexual identity					70.5**
Gay	237/647	36.6	302/489	61.8	
Bisexual, heterosexual, or other	410/647	63.4	187/489	38.2	
Committed relationship with a man, past 3 months					3.0
Yes	287/650	44.1	241/489	49.3	
No	363/650	55.9	248/489	50.7	
Experienced severity of homophobia[b]					
None	239/651	36.7	202/489	41.3	5.5
Low	102/651	15.7	74/489	15.1	
Medium	224/651	34.4	168/489	34.4	
High	86/651	13.2	45/489	9.2	
Social integration variables					
Social support score[c]					19.9**
1–1.9	110/650	16.9	58/487	11.9	
2–2.9	286/650	44.0	175/487	35.9	
3–3.9	205/650	31.5	203/487	41.7	
4	49/650	7.5	51/487	10.5	
Very close family members					5.9
0	195/650	30.0	126/488	25.8	
1	145/650	22.3	94/488	19.3	
2	131/650	20.2	117/488	24.0	
≥3	179/650	27.5	151/488	30.9	
Very close types of friends					16.1**
None	252/651	38.7	164/489	33.5	
Gay or heterosexual (but not both)	248/651	38.1	159/489	32.5	
Gay and heterosexual	151/651	23.2	166/489	34.0	
Attachment to the black gay community[d]					32.0**
Low	166/651	25.5	65/487	13.4	
Medium	372/651	57.1	292/487	60.0	
High	113/651	17.4	130/487	26.7	

Table 1 continued

	Not diagnosed HIV+ before study entry[a]		Diagnosed HIV+ before study entry		χ^2
	n/N	%	n/N	%	
Able to be open about sexuality within religious community					10.9**
No religious community	160/646	24.8	121/484	25.0	
Disagree	337/646	52.2	212/484	43.8	
Agree	149/646	23.1	151/484	31.2	

* $p < 0.05$, ** $p < 0.01$

[a] This group includes men whose most recent HIV test outside of the study was negative, men who did not obtain the result of their most recent HIV test, or men who had never been tested for HIV infection

[b] The original scale for each homophobia item asked if men experienced homophobia never (1), once (2), 2–3 times (3), 4–7 times (4), or ≥8 times (5) in the past 12 months. For analysis, men were grouped into four categories based on their most severe homophobic experience: *none* no homophobia, *low* acted more manly than usual or felt uncomfortable in a crowd of heterosexual people, *medium* treated rudely/unfairly or made fun of/called names, and *high* hit/beaten up

[c] The original scale for each social support item asked if men strongly disagreed (1), disagreed somewhat (2), agreed somewhat (3), or strongly agreed (4) with each social support statement

[d] Levels of attachment to the black gay community were: *low* not at all, *medium* somewhat or a little, and *high* very much

Table 2 Frequency of homophobic experiences among black MSM in the past 12 months, Brothers y Hermanos Study, 2005–2006

	Not diagnosed HIV+ before study entry[a] N = 651[b]			Diagnosed HIV+ before study entry N = 489[b]		
	Never n (%)	1 Time n (%)	≥2 Times n (%)	Never n (%)	1 Time n (%)	≥2 Times n (%)
Hit or beaten up because people thought you were homosexual or not manly enough	565 (86.8)	52 (8.0)	34 (5.2)	444 (90.8)	30 (6.1)	15 (3.1)
Treated rudely or unfairly because people thought you were homosexual or not manly enough	399 (61.3)	109 (16.7)	142 (21.8)	322 (65.9)	63 (12.9)	102 (20.9)
Made fun of or called names because people thought you were homosexual or not manly enough	383 (58.8)	100 (15.4)	167 (25.7)	313 (64.0)	60 (12.3)	115 (23.5)
Had to act more manly than usual in order to be accepted	356 (54.7)	79 (12.1)	216 (33.2)	313 (64.0)	34 (7.0)	141 (28.8)
Felt uncomfortable in a crowd of heterosexual blacks in your city because people thought you were homosexual or not manly enough	385 (59.1)	83 (12.8)	182 (28.0)	299 (61.2)	53 (10.8)	136 (27.8)

[a] This group includes men whose most recent HIV test outside of the study was negative, men who did not obtain the result of their most recent HIV test, or men who had never been tested for HIV infection

[b] Row totals may not sum to the total N for each group of MSM because there were a few cases of missing data

lower among men who were very close with 3 or more family members versus none (AOR = 0.42; 95 % CI = 0.21–0.82).

The associations between the severity of homophobic experiences and UAI reported in Tables 3 and 4 were not buffered by participants' social support, closeness with family or friends, attachment to the black gay community, ability to be open about their sexuality within their religious communities, or MSM social network size. None of the interactions was statistically significant when variables were analyzed in categorical format or retained as continuous variables.

Discussion

The black MSM in our sample who experienced homophobic events in the past 12 months were more likely to engage in UAI than were men who did not experience homophobic events. For men who were not previously diagnosed with HIV, being treated rudely/unfairly or made fun of/called names (but not being hit/beaten up) was independently associated with increased odds of engaging in UAI. However, for men who were diagnosed with HIV prior to study participation, all levels of homophobic events independently predicted increased odds of HIV

Table 3 Odds of UAI in the past 3 months with a male partner among black MSM who were not previously diagnosed as HIV+, Brothers y Hermanos Study, 2005–2006

	UAI[d]		OR	95 % CI	AOR[e]	95 % CI
	n/N	%				
Experienced severity of homophobia[a]						
None (ref)	72/239	30.1				
Low	40/102	39.2	1.50	0.92–2.43	1.41	0.82–2.42
Medium	102/224	45.5	1.94	1.32–2.84	1.71	1.10–2.65
High	42/86	48.8	2.21	1.34–3.67	1.71	0.95–3.08
Social integration variables						
Social support score[b]						
1–1.9 (Ref)	40/110	36.4				
2–2.9	121/286	42.3	1.28	0.82–2.02	1.34	0.81–2.22
3–3.9	69/205	33.7	0.89	0.55–1.44	0.81	0.46–1.44
4	26/49	53.1	1.98	1.00–3.91	2.10	0.92–4.77
Very close family members						
0 (Ref)	81/195	41.5				
1	54/145	37.2	0.84	0.54–1.30	0.73	0.44–1.20
2	58/131	44.3	1.12	0.72–1.75	1.10	0.66–1.84
≥3	62/179	34.6	0.75	0.49–1.13	0.71	0.43–1.18
Very close types of friends						
None (ref)	99/252	39.3				
Gay or heterosexual (but not both)	94/248	37.9	0.94	0.66–1.35	0.70	0.46–1.08
Gay and heterosexual	63/151	41.7	1.11	0.73–1.67	0.76	0.45–1.28
Attachment to the black gay community[c]						
Low (ref)	48/166	28.9				
Medium	148/372	39.8	1.62	1.10–2.41	1.03	0.65–1.64
High	60/113	53.1	2.78	1.69–4.58	1.30	0.69–2.44
Able to be open about sexuality within religious community						
No religious community (ref)	61/160	38.1				
Disagree	120/337	35.6	0.90	0.61–1.33	0.98	0.63–1.53
Agree	74/149	49.7	1.60	1.02–2.52	1.34	0.79–2.26
MSM social network size (continuous)			1.01	1.00–1.02	1.00	0.99–1.01
Sociodemographic variables						
Site						
New York City (ref)	112/268	41.8				
Philadelphia	144/383	37.6	0.84	0.61–1.15	1.02	0.70–1.49
Result of HIV test in study						
Negative (ref)	196/541	36.2				
Positive	60/110	54.6	2.11	1.40–3.20	1.94	1.19–3.17
Age (years)						
18–29 (Ref)	66/128	51.6				
30–39	61/136	44.9	0.76	0.47–1.24	0.78	0.45–1.34
≥40	129/386	33.4	0.47	0.31–0.71	0.48	0.30–0.78
Education level (years)						
<High school (ref)	57/163	35.0				
High school diploma/equivalent	136/325	41.9	1.34	0.91–1.98	1.28	0.83–2.00
≥Technical school/some college	63/163	38.7	1.17	0.75–1.84	1.14	0.68–1.92
Sexual identity						
Bisexual, heterosexual, or other (ref)	134/410	32.7				

Table 3 continued

	UAI[d]		OR	95 % CI	AOR[e]	95 % CI
	n/N	%				
Gay	121/237	51.1	2.15	1.55–2.98	1.18	0.76–1.82
Committed relationship with a man, past 3 months						
No (ref)	103/363	28.4				
Yes	153/287	53.3	2.88	2.08–3.99	2.51	1.72–3.65

This group includes men whose most recent HIV test outside of the study was negative, men who did not obtain the result of their most recent HIV test, or men who had never been tested for HIV infection

CI confidence interval, *OR* odds ratio, *AOR* adjusted odds ratio for multivariate analysis controlling for all study variables

[a] The original scale for each homophobia item asked if men experienced homophobia never (1), once (2), 2–3 times (3), 4–7 times (4), or ≥8 times (5) in the past 12 months. For analysis, men were grouped into four categories based on their most severe homophobic experience: *none* no homophobia, *low* acted more manly than usual or felt uncomfortable in a crowd of heterosexual people, *medium* treated rudely/unfairly or made fun of/called names, and *high* hit/beaten up

[b] The original scale for each social support item asked if men strongly disagreed (1), disagreed somewhat (2), agreed somewhat (3), or strongly agreed (4) with each social support statement

[c] Levels of attachment to the black gay community were: *low* not at all, *medium* somewhat or a little, and *high* very much

[d] Unprotected receptive or insertive anal intercourse with a man

[e] N = 635 in the multivariate model

transmission risk behavior. The fact that all types of homophobia were associated with UAI among previously HIV-diagnosed men, but not undiagnosed men, could be due to the psychosocial difficulty of managing HIV stigma, which might compromise HIV-infected men's abilities to cope with homophobia [25]. Findings suggest that the experience of homophobic events may place black MSM at risk for acquiring and, most notably, transmitting HIV infection.

Most participants experienced some type of homophobia, with 11 % being physically assaulted, 36 % being treated rudely or unfairly, and 39 % being made fun of or called names presumably because of their sexual orientations. Thus, homophobia impacted a sizable proportion of black MSM and sometimes had violent manifestations, signifying its potential to affect the health of black MSM beyond HIV infection risk (e.g., excess injury).

We found no evidence that social integration mitigated homophobia's association with UAI. These findings were unexpected given research demonstrating the benefits of social integration [13], and MSM-specific research purporting its benefits [15, 17, 18, 26]. Nonetheless, the nature of homophobia experienced by black MSM might explain the absence of buffering effects. Black MSM typically encounter homophobia from individuals embedded within their social environments. These often include members of their families and churches, which have helped black Americans to cope with racism and its dehumanizing sequelae throughout slavery, the Jim Crow era, and current times [27, 28]. Homophobia experienced by black MSM may be particularly damaging because it comes from entities that black MSM might expect to treat them favorably. In this regard, homophobia engenders a severe assault on black MSM's sense of personhood, one that is not sufficiently buffered by their level of integration into potentially healthy social settings. Indeed, societal homophobia is so pronounced that it manifests itself in the collective attitudes of black MSM. A recent study found that 57 % of black MSM in the United States believe that homosexuality is *always* wrong [6], which suggests that black MSM may even encounter homophobic sentiments in social settings dominated by other black MSM. Although we did not observe buffering effects in our analysis, it would be premature to draw strong conclusions based on our findings. We did not measure aspects of social integration (e.g., social engagement) that might potentially buffer the relationship between homophobia and UAI. Future research might benefit from such an analysis.

Previous research has attempted to elucidate mechanisms that potentially link homophobia with UAI among black MSM. Homophobic experiences negatively affect levels of self-esteem, anxiety, depression, and internalized homophobia among MSM [15, 29]. These factors may, in turn, decrease black MSMs motivations to protect themselves and others from acquiring or transmitting HIV [9]. Some MSM may attempt to counteract the loneliness induced by homophobia by engaging in UAI, which often signifies intimacy with male sexual partners [9, 30]. Moreover, homophobia may be a significant source of stress, which MSM sometimes attempt to manage through intentional or unintentional UAI [11, 31]. Homophobia may also lead some black MSM to fear being identified as

Table 4 Odds of UAI with an at-risk male partner in the past 3 months among black MSM who were previously diagnosed as HIV+, Brothers y Hermanos Study, 2005–2006

	UAI[d]		OR	95 % CI	AOR[e]	95 % CI
	n/N	%				
Experienced severity of homophobia[a]						
None (ref)	29/202	14.4				
Low	22/74	29.7	2.52	1.34–4.76	2.77	1.39–5.54
Medium	54/168	32.1	2.83	1.70–4.70	2.83	1.61–4.98
High	14/45	31.1	2.69	1.28–5.67	2.48	1.09–5.65
Social integration variables						
Social support score[b]						
1–1.9 (Ref)	12/58	20.7				
2–2.9	52/175	29.7	1.62	0.79–3.31	1.82	0.84–3.95
3–3.9	42/203	20.7	1.00	0.49–2.06	1.11	0.50–2.47
4	11/51	21.6	1.05	0.42–2.65	1.39	0.49–3.92
Very close family members						
0 (Ref)	38/126	30.2				
1	26/94	27.7	0.89	0.49–1.60	0.76	0.40–1.45
2	29/117	24.8	0.76	0.43–1.35	0.68	0.36–1.30
≥3	26/151	17.2	0.48	0.27–0.85	0.42	0.21–0.82
Very close types of friends						
None (ref)	38/164	23.2				
Gay or heterosexual (but not both)	45/159	28.3	1.31	0.79–2.16	1.34	0.76–2.35
Gay and heterosexual	36/166	21.7	0.92	0.55–1.54	1.38	0.72–2.65
Attachment to the black gay community[c]						
Low (ref)	9/65	13.9				
Medium	77/292	26.4	2.23	1.05–4.72	1.65	0.74–3.70
High	31/130	23.9	1.95	0.87–4.39	1.31	0.52–3.26
Able to be open about sexuality within religious community						
No religious community (ref)	26/121	21.5				
Disagree	44/212	20.8	0.96	0.55–1.65	0.97	0.53–1.77
Agree	47/151	31.1	1.65	0.95–2.87	1.62	0.88–3.01
MSM social network size (continuous)			1.00	1.00–1.00	1.00	1.00–1.00
Sociodemographic variables						
Site						
New York City (ref)	86/342	25.2				
Philadelphia	33/147	22.5	0.86	0.55–1.36	0.89	0.54–1.49
Age (years)						
18–29 (Ref)	10/28	35.7				
30–39	24/101	23.8	0.56	0.23–1.38	0.44	0.16–1.16
≥40	85/359	23.7	0.56	0.25–1.26	0.49	0.20–1.19
Education level (years)						
<High school (ref)	21/103	20.4				
High school diploma/equivalent	60/225	26.7	1.42	0.81–2.49	1.53	0.82–2.87
≥Technical school/some college	38/160	23.8	1.22	0.67–2.22	1.05	0.53–2.08
Sexual identity						
Bisexual, heterosexual, or other (ref)	34/187	18.2				
Gay	85/302	28.2	1.76	1.13–2.76	1.30	0.79–2.16
Committed relationship with a man, past 3 months						
No (ref)	52/248	21.0				

Table 4 continued

	UAI[d]		OR	95 % CI	AOR[e]	95 % CI
	n/N	%				
Yes	67/241	27.8	1.45	0.96–2.20	1.26	0.79–2.02

CI confidence interval, *OR* odds ratio, *AOR* adjusted odds ratio for multivariate analysis controlling for all study variables

[a] The original scale for each homophobia item asked if men experienced homophobia never (1), once (2), 2–3 times (3), 4–7 times (4), or ≥8 times (5) in the past 12 months. For analysis, men were grouped into four categories based on their most severe homophobic experience: *none* no homophobia, *low* acted more manly than usual or felt uncomfortable in a crowd of heterosexual people, *medium* treated rudely/unfairly or made fun of/called names, and *high* hit/beaten up

[b] The original scale for each social support item asked if men strongly disagreed (1), disagreed somewhat (2), agreed somewhat (3), or strongly agreed (4) with each social support statement

[c] Levels of attachment to the black gay community were: *low* not at all, *medium* somewhat or a little, and *high* very much

[d] Unprotected receptive or insertive anal intercourse with a man perceived to be HIV-negative or of unknown serostatus

[e] N = 475 in the multivariate model

gay by others, which can result in them shunning HIV-related interventions and social services that emphasize consistent condom use [32].

Although other variables were not primary foci of our investigation, being young (aged 18–29 vs. ≥40 years), having undiagnosed HIV infection, and being in a committed relationship were significantly associated with UAI among men not diagnosed with HIV prior to study participation. These findings are consistent with some previous studies [20, 33, 34]. Moreover, having 3 or more family members (vs. none) with whom one was "very close" was independently associated with a decreased likelihood of UAI among men who knew they were HIV-infected. This finding is consistent with studies demonstrating that family connectedness is associated with a decreased likelihood of sexual risk behaviors [35]. Interestingly, gay self-identification was not associated with UAI, which is contrary to findings from some previous studies [36, 37]. This may be because our multivariate statistical models included multiple measures which co-varied with gay identification (e.g., attachment to the black gay community).

Our analysis has some limitations. We asked participants if negative interpersonal events they experienced occurred because people thought they "were homosexual or not manly enough." Multiple theoretical frameworks conceptualize homophobic expression as a reaction to the perceived non-masculinity of MSM, who violate socially prescribed definitions of manhood because they engage in same-sex behavior [38, 39]. However, our homophobia measure cannot empirically distinguish differences in adverse experiences that might have occurred because men were perceived as being homosexual from those occurring due to insufficient masculinity. Second, some men may have incorrectly interpreted the bases for negative events that they experienced. Nonetheless, we attempted to maximize the validity of our homophobia measures by asking men to only report events that they thought occurred because of other people's perceptions of them. Third, our data were derived from a sample in which nearly two thirds were 40 years of age or older, approximately half were HIV-infected, and all resided in two US cities. Therefore, the percentages we reported for homophobic events, social integration indicators, sociodemographic variables, and UAI reflect a description of our sample and should not be generalized beyond our participants. Fourth, we did not use respondent-driven sampling weights to adjust for non-random recruitment of participants. In regression analyses, we attempted to minimize the effect of this limitation by controlling for participants' social network sizes (a primary contributor to sampling weights), but the CIs surrounding the odds ratios may still be too narrow and do not represent population estimates. Finally, although theoretical plausibility and previous research suggest that homophobia may be an antecedent of UAI (rather than UAI causing homophobia to be experienced) [9, 11, 12, 16], it is impossible to establish causal relationships with a cross-sectional study design.

Notwithstanding these limitations, interventions to reduce homophobia experienced by black MSM may help reduce its impact on UAI. Two behavioral interventions shown to be effective in reducing sexual risk behaviors among black MSM include discussions of homophobia [40, 41], but discussions among black MSM alone are probably not sufficient to counteract homophobic social environments. Legislation and social policies promoting social acceptance of black and other MSM may be particularly effective [42, 43]. Tackling homophobia directed toward black MSM might be successful via partnerships with communities, academic institutions, and governmental agencies [44]. Because homophobia operates within a constellation of social factors (e.g., racism and poverty)

that make black MSM vulnerable to HIV infection [45], interventions addressing multiple forms of social oppression are needed. As the fourth decade of the HIV epidemic commences, promoting the health of black MSM will require a conscious and deliberate effort to counter the homophobia that may promote behaviors contributing to the spread of HIV within this population.

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