



HHS Public Access

Author manuscript

AIDS Behav. Author manuscript; available in PMC 2016 February 01.

Published in final edited form as:

AIDS Behav. 2015 February ; 19(2): 257–269. doi:10.1007/s10461-014-0937-2.

Sexual Orientation- and Race-Based Discrimination and Sexual HIV Risk Behavior Among Urban MSM

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Abstract

Understanding what social factors are associated with risk of HIV acquisition and transmission among gay, bisexual and other men who have sex with men (MSM) is a critical public health goal. Experiencing discrimination may increase risk of HIV infection among MSM. This analysis assessed relations between experiences of sexual orientation- and race-based discrimination and sexual HIV risk behavior among MSM in New York City. 1,369 MSM completed a self-administered computerized assessment of past 3-month sexual behavior, experience of social discrimination and other covariates. Regression models assessed relations between recent experience of discrimination and sexual HIV risk behavior. Mean age was 32 years; 32 % were white; 32 % Latino/Hispanic; 25 % African American/Black. Of MSM who self-reported HIV-positive or unknown status (377), 7 % ($N = 27$) reported having unprotected insertive anal intercourse with an HIV-negative or unknown status partner (“HIV transmission risk”). Of MSM who self-reported HIV-negative status (992), 11 % (110) reported unprotected receptive anal intercourse with an HIV-positive or unknown status partner (“HIV acquisition risk”). HIV acquisition risk was positively associated with sexual orientation-based discrimination in home or social neighborhoods, but not race-based discrimination. We observed that sexual orientation-based discrimination was associated with sexual HIV risk behavior among urban-dwelling MSM. Addressing environmental sources of this form of discrimination, as well as the psychological distress that may result, should be prioritized in HIV prevention efforts.

Keywords

HIV prevention; Social discrimination; Sexual behavior; MSM

Introduction

In the United States (US), gay, bisexual and other men who have sex with other men (MSM) continue to be disproportionately affected by HIV, accounting for 61 % of new cases in 2010 [1, 2]. Young Black MSM were the only group in the US with a statistically significant increase (48 %) in new HIV infections between 2006 and 2009 [2]. In New York City (NYC) during 2011, 51 % of new HIV diagnoses were among MSM, and new diagnoses among MSM younger than 30 increased from 2001 to 2010. Further, young African American or Black MSM accounted for approximately 50 % of new HIV diagnoses among young MSM living in NYC [3]. Despite limited evidence of the importance of the roles of individual-level risk behavior, for example number of sexual partners and drug use [4–6], in explaining racial disparities in HIV incidence and prevalence, the role of sexual behavior in HIV transmission is crucial to epidemic propagation among MSM [7]. Identifying personal,

social and environmental factors associated with the sexual behavior that increases HIV acquisition and transmission risk among MSM is critical to informing prevention policy and practice.

Increasingly, social and environmental factors are being assessed as contributors to sexual behavior that increases risk of HIV infection [8], among MSM specifically [9–12]. A recent meta-analysis ranked correlates of HIV infection among MSM and found that sociostructural factors constituted the majority of the top 10 correlates, including low income and education, recent unemployment, and history of incarceration, with African American or Black MSM being twice as likely to report experiencing these factors than other MSM [13]. These sociostructural factors represent static markers of social systems [14, 15] that marginalize specific subpopulations and produce adverse health outcomes at the population level. Over the life-course, among MSM, intersecting systems of race and sexual orientation increase the chances of exposures and experiences that result in negative health outcomes, termed syndemics [16, 17].

Sexual Orientation- and Race-Based Discrimination

Sexual orientation-based discrimination manifests the heteronormativity and homophobia that characterize the values and attitudes inherent in the sex-gender-sexuality system [18]. This system depends upon the cultural stigma associated with homosexuality and gender identity deviance to legitimize its oppressive function [19, 20]. Men who identify as gay or bisexual, engage in same-sex sexual behavior, and/or are gender non-conforming, transgress the prescribed heterosexual and masculine norms; thus, they are often targets for acts of discrimination. Similarly, the race system operates to maintain the marginalized status of racial and ethnic minorities [21]. A robust body of literature documents the positive relationship between experiences of racial discrimination and poor health (for an overview see Williams and Mohammad 2009) [22].

Social stress theory helps explain how social discrimination experience translates into adverse health behaviors and ultimately poor health outcomes. Sexual minority stress theory posits that certain environments both increase the likelihood of experiencing personal stress events (i.e., traumatic events, daily hassles) and provide resources to cope with such stressors [23, 24]. Extending social stress theory [25, 26], Meyer posits that sexual minorities experience chronic stress in their daily interactions due to being members of stigmatized groups, including social discrimination based on perceived sexual orientation or gender identity [27]. Increased stress due to experience of sexual orientation-based discrimination may contribute to depression, drug and alcohol use and/or sexual compulsivity as a coping mechanism [28]. The negative health effects of sexuality-based discrimination include psychological distress [29], drug and alcohol use [30], and risky sexual behavior [31, 32]. Associations between sexual orientation-based discrimination and sexual risk behavior have been found in several recent studies among MSM [31, 33–35].

Gay, bisexual and other MSM who are also racial or ethnic minorities potentially experience the “double whammy” of both the sex-gender-sexuality and the race systems [15] and associated racial discrimination and negative life events, leading to increased risk of adverse health outcomes [36–38]. Individuals who are affected by both race and sexual orientation

systems [39] are said to possess “dual minority status” and thus may be at particularly high risk of adverse health outcomes, such as HIV infection. Recent reports on the relationship between both forms of social discrimination and sexual risk behavior assess how sexual orientation- and race-based discrimination work in conjunction. Mizuno and colleagues [31] found that Latino MSM who experienced both sexual orientation- and race-based discrimination were more likely to report unprotected anal intercourse (with a casual sex partner) and binge alcohol drinking, as compared to Latino men who did not experience either form of discrimination. Diaz et al. (2004) found among Latino MSM that risky sexual situations mediated the relationship between both social oppression and psychological distress and high HIV risk [40]. Another analysis among both Latino and Black MSM found statistically significant paths between experiences of both sexual orientation- and race-based discrimination and sero-discordant unprotected anal intercourse (SUAI) mediated by “risky sexual situations” (e.g., sex while high or survival sex) among Black MSM. However, among Latino MSM, significant paths were found only between experiences of sexual orientation-based discrimination and SUAI [33].

This analysis assessed the relationship between sexual orientation- and race-based experiences of discrimination and sexual HIV risk behavior among a large and diverse sample of men living in a major urban area. Like previous analysts, we examined race- and sexual orientation-based social discrimination separately and in combination, however we extend prior work by exploring whether place of experienced discrimination, specifically participants’ self-defined home and social neighborhoods, relates to sexual HIV risk behavior. Additionally, we stratified our analyses by self-reported HIV status and perceived partner HIV status to examine potential acquisition and transmission risks, as the literature has shown that HIV-positive MSM reduce their sexual risk behavior significantly once they learn their status to avoid transmission to their partners [41]. Further, we assessed factors that may explain the connection between experiences of discrimination and sexual HIV risk behavior, such as internalized homophobia, psychological distress and sex while under the influence of alcohol and/or drugs. In addition, we controlled for a range of psychosocial factors that have been found to be independently associated with sexual HIV risk behavior. These included identity-related factors, such as race/ethnicity-related identity factors, which consistent with social stress theory may buffer the negative effects of social discrimination on sexual risk behavior [42, 43], and sexuality-related identity and attachment factors, which may act to increase risk behavior [44–46]. We also controlled for peer norms and condom use self-efficacy, two factors that have consistently been found to be highly correlated with sexual HIV risk behavior among MSM [47, 48]. Finally, our analysis was limited to African American or Black and Latino MSM in order to examine unique correlates of sexual HIV risk behavior for minority men.

Methods

Sampling and Study Eligibility

Details of the NYC M2M study procedures have been published previously [49]. Briefly, from October 2010 to July 2013, MSM in New York City were recruited using a modified venue-based time–space sampling methodology for both physical (e.g., street locations,

bars/clubs, and retail businesses, etc.) and virtual (e.g., geospatial networking applications, etc.) venues [50]. Locations and associated day-time periods were randomly selected each month from a sampling frame that included a wide range of neighborhoods that are traditionally considered gay enclaves, those with a growing gay population, and neighborhoods with a much less visible or documented gay presence. The internet- and mobile application-based recruitment strategy was added in July 2012 in response to the proliferation of apps that appeared since recruitment for the study began. Banner and pop-up ads were placed on various websites and apps every 2–3 months until the study was fully enrolled. In the sample presented here, 56 % (724) of MSM were recruited using face-to-face methods and 44 % (645) were recruited via the internet or using mobile apps.

Individuals were eligible to participate if they reported being a biological male at birth, were at least 18 years of age, resided in NYC, reported engaging in anal sex with a man in the past 3 months, communicated in English or Spanish and were willing and able to give informed consent for the study. Thus, 4,998 men were approached and provided contact information; 1,997 men met the study's eligibility criteria and scheduled a study visit and 1,503 men enrolled (75 %). After excluding 21 men who did not report any sex partners in the past 3 months and 107 men with significant missing data, 1,369 MSM were included in the present analysis. Institutional review boards at the New York Blood Center, New York Academy of Medicine and New York University reviewed the study. After providing informed consent, participants met with a staff member to complete the Neighborhood Locator Questionnaire which collected information on the location of their home (where they live) and social (where they socialize most often) neighborhoods. All other data collected, other than HIV testing, were gathered by participant self-report using audio computer-assisted self-interview (ACASI) technology. Upon completion of the visit, participants received \$50 and a two-way Metrocard for their time and transportation costs.

Measures

Primary Dependent Measures—Sexual behavior data collected included total number of male, female and transgender partners and total number of anal sex acts by partner HIV status, number of acts where condoms were used and use of drugs/alcohol in conjunction with sex in the three months prior to study. In this analysis, we created two outcome variables based on self-reported sexual behavior and self-reported HIV status: HIV acquisition risk behavior and HIV transmission risk behavior. Among 992 HIV-negative participants, HIV acquisition risk behavior was coded as 1 among HIV-negative participants who had unprotected receptive anal sex with any type (e.g., primary, casual, etc.) of HIV-positive or unknown HIV status male sex partner; the remaining HIV-negative participants were coded as 0. Among the remaining 377 participants, HIV transmission risk behavior was coded as 1 among HIV-positive or unknown status participants who had unprotected, insertive anal sex with any HIV-negative or unknown status male sex partner; the remaining HIV-positive or unknown status participants were coded as 0.

Primary Independent Measures—Experience of race- and sexual orientation-based discrimination in the participant's home and social neighborhoods were assessed in the 3 months prior to interview. Racial discrimination was assessed using the following question:

“Have you experienced discrimination, been prevented from doing something or been hassled or been made to feel inferior because of your race, ethnicity or color?”. Sexual orientation-based discrimination was assessed using the following question: “Have you experienced discrimination, been prevented from doing something or been hassled or been made to feel inferior because of your sexual orientation?”. These questions were asked in reference to both the home (where they lived) and social (where they spent most of their time socializing) neighborhoods of the participants. Using these questions we created a 4-category independent variable reflecting: (1) experience of *neither* sexual orientation- nor race-based discrimination; (2) experience of *only* sexual orientation-based discrimination; (3) experience of *only* race-based discrimination; or (4) experience of *both* sexual orientation- and race-based discrimination. We created variables for each neighborhood type separately and in combination, that is, the four-category discrimination outcome in *either* the home or social neighborhood. In multivariable analyses, experience of neither form of social discrimination was the referent category.

Sociodemographic Measures—Demographic characteristics assessed included measures for age, race/ethnicity, education, employment status, annual personal income, income insufficiency for basic needs (i.e., food, shelter, and utilities) and partnership status (i.e., married or registered domestic partnership). All sociodemographic measures were modeled as categorical variables.

Psychosocial and Condom Use-Related Measures—Factors that may link experiences of sexual orientation-based discrimination to sexual risk behavior include psychological distress, internalized homophobia and sex while buzzed on alcohol or having used drugs before or during sex. Psychological distress was operationalized as a combination of measures of depression and anxiety, using adapted versions of the Patient Health Questionnaire (PHQ-9) and the Generalized Anxiety Disorder Assessment (GAD-7) [51, 52], respectively. The PHQ-9 is a brief depression scale, which we adapted to ask participants whether they experienced one of nine symptoms for a 2-week period during the past 3 months (yes/no). Similarly, the GAD-7 is a brief measure of anxiety disorder, which we adapted to ask participants whether they experienced one of the seven symptoms for a 2-week period during the past 3 months (yes/no). For use in this analysis, the total number of symptoms experienced for a 2-week period in the past 3 months was summed. Internalized homophobia was assessed using Herek's scale (1984) using 5-point Likert scale with answer choices ranging from strongly disagree to strongly agree and was modeled as a continuous variable [53, 54]. The internal consistency was 0.89. Sex while drunk or high/having used drugs was assessed with two questions regarding last anal sex, “The last time you had anal sex, were you buzzed or drunk on alcohol?” and “The last time you had anal sex, did you use any drugs within two hours before or during the time you had sex?” If a respondent responded yes to either question the value assigned was 1; if they responded no to both the value assigned was 0.

Measures of identity and affiliation included racial/ethnic identity using the Multigroup Ethnic Identity Measure (MEIM) [55] and gay community attachment [42]. The MEIM is a 21-item scale that uses a 4-point Likert scale with responses ranging from strongly disagree

to strongly agree. The measure of gay community attachment was assessed using a 12-item scale using a 4-point Likert scale with responses ranging from strongly disagree to strongly agree. Both were modeled as continuous variables and internal consistencies were Cronbach's alpha = 0.85 and 0.81, respectively. Degree of "outness" about sexual identity to friends and family was measured with a single item assessing how "out" participants were on a scale of 1–10, with 1 being "not out to anyone" and 10 being "out to everyone." Finally, condom use self-efficacy [56] and perceived peer sexual risk norms [57] were also assessed, using 11- and 7-item scales, respectively, and 5- and 4-level Likert responses, because of their strong association with condom use behavior among MSM [58–60]; both were modeled as continuous variables. Internal consistencies were acceptable, with 0.87 and 0.84 for condom use self-efficacy and perceived peer norms, respectively.

Analysis

Data from this cross-sectional study were analyzed in SAS software (version 9.3) for Windows (SAS Institute Inc., Cary NC, USA). Unadjusted associations between the primary independent variables, sociodemographic factors, psychosocial factors (e.g., psychological distress, internalized homophobia, AOD use before sex, peer norms, etc.) and the primary dependent variable were assessed using χ^2 , t tests, one-way ANOVAs, and Mann–Whitney non-parametric tests, as appropriate. The bivariate significance level was set at $p < .05$ for inclusion in the multivariable model. Continuous measures were standardized so that the odds ratios reflect one standard deviation change in the score of the measure. In building our multivariable logistic regression models, we began by estimating the crude association between the primary independent variables and the outcomes. Next, we added psychosocial variables in conceptual sets, starting with the factors that might link our primary independent and dependent variable (i.e., psychological distress, alcohol and/or drug use before or during sex and internalized homophobia). Next we added sociodemographic factors to the model; finally we added the remaining psychosocial and condom use-related factors. Factors that did not retain statistical significance in the model were removed after each step.

Results

Univariate Results

The average age was 32.0 (SD = 10.3); 32 % of the sample were white (non-Hispanic); 32 % Hispanic; 25 % Black/African American and 13 % reported another ethnicity, such as Asian, Native American Indian, etc. Nearly half (49 %) of men reported having a college degree or more and another third had some college education; just 6 % had less than a high school degree. The plurality of men (40 %) worked full-time and 24 % worked part-time; less than a third (30 %) was not working. Just over a quarter (26 %) reported an average personal income of less than \$10,000 per year; 42 % reported an income of \$10,000–39,999 and 32 % reported an income of \$40,000 or greater. Financial insecurity affected nearly half of the sample with 48 % reporting that they sometimes did not have enough money for rent, food utilities and other basic needs. Only 4 % of men sampled reported being married or in a registered domestic partnership with another man. The majority of men (88 %) self-identified as exclusively gay or homosexual; 9 % self-identified as bisexual and 3 %

identified as straight/heterosexual or “other”. Average “outness” was 8.2 (range: 1–10; SD = 3.3), indicating that most men were “out” to most people they know (Table 1).

Seventy-three percent (992) of the sample reported that they were HIV-negative; 23 % (312) reported being HIV-positive and 5 % (65) did not know or refused to answer. The mean number of sex partners in the past 3 months was 5.2 (SD = 7.8) and the median was 3 (IQR = 2, 5). Of the HIV-positive or unknown status men (377), 7 % ($N = 27$) reported unprotected insertive anal intercourse with a partner who was HIV-negative or unknown status (“HIV transmission risk”). We did not find any statistically significant differences in the primary outcomes by recruitment method (venue- vs. Web-based) (data not shown). Of the HIV-negative MSM (992), 11 % (110) reported unprotected receptive anal intercourse with an HIV-positive or unknown status partner (“HIV acquisition risk”). Over a third (36 %) of men reported using drugs or alcohol at last sex. Mean internalized homophobia was 1.7 (SD = 0.8), approaching the “disagree” response; mean psychological distress was 4.6 (SD = 4.6) out of a possible of 16.

In the past 3 months, 15 % of men reported experiencing either sexual orientation- or race/ethnicity-based discrimination in their home or social neighborhood; 5 % reported sexual orientation-based discrimination only and another 5 % reported race-based discrimination only. Six percent reported experiencing both forms of discrimination in their home or social neighborhoods. Upon examination of distribution of discrimination experiences by home and social neighborhood, fewer participants reported experiencing either form of discrimination in their social neighborhoods, as compared with their home neighborhoods. We did not observe differences in the direction of the estimates of association among social discrimination and the outcomes by neighborhood (home vs. Social) where the discrimination took place (Table 2).

Bivariate Results

Experience of sexual orientation-based discrimination only, but not race-based or both forms of discrimination, in either the home or social neighborhood, was significantly associated with sexual HIV acquisition risk behavior (UOR = 3.36; 95 % CI 1.71, 6.61). Experiencing *only* race-based discrimination or *both* race- and sexual orientation-based discrimination was not significantly associated with acquisition risk behavior. Estimates of association with transmission risk behavior were unstable due to small numbers and thus are not presented (Table 2).

Of the factors we considered to potentially link experience of social discrimination and sexual risk behavior, alcohol or drug use before or during last sex (uOR = 2.01; 95 % CI 1.35, 2.99), psychological distress (uOR = 1.65; 95 % CI 1.37, 1.98), and internalized homophobia (uOR = 1.22; 95 % CI 1.01, 1.46) were significantly associated with acquisition risk in bivariate analyses. Just one of the sociodemographic factors, financial insecurity, and two of the psychosocial factors that we considered as potential independent correlates of unprotected sex, condom use self-efficacy and perceived peer sexual risk norms, were statistically significantly related to acquisition risk behavior. In terms of transmission risk, the factors were either not significantly associated or estimates were unstable, due to low numbers (Table 3).

Multivariate Results

The final model included the 4-category primary independent variable, with experience of sexual orientation-based discrimination only in either the home or social neighborhood being significantly associated with sexual HIV acquisition risk behavior (aOR = 2.50; 95 % CI 1.17, 5.35). Psychological distress (aOR = 1.43; 95 % CI 1.17, 1.76), alcohol or drug use before or during last sex (aOR = 1.76; 95 % CI 1.13, 2.72) and condom use self-efficacy (aOR = 0.47; 95 % CI 0.38, 0.58) were all independently and significantly associated with the outcome (Table 4).

Finally, we ran models on the sample including only African American/Black or Latino participants ($N = 498$). Bivariate analyses revealed that unlike in the full sample, financial insecurity and perceived peer norms around condom use were not associated with acquisition risk among African American and Latino participants (Table 5). As with the full sample, we found a pattern of association where the odds of acquisition risk increased with the experience of sexual orientation-based discrimination (uOR = 2.24; 95 % CI 0.86, 5.80), but the association was not statistically significant (Table 6).

Discussion

In this racially and ethnically diverse sample, we found that 15 % of participants reported experiencing either race-and/or sexual orientation-based discrimination in either their home or social neighborhoods. Participants reported similar levels of the two forms of discrimination, yet it was self-reported experience of sexual orientation-based discrimination *only* within the past 3 months that was significantly associated with sexual HIV acquisition risk behavior, controlling for known psychosocial correlates. This result is consistent with prior work among MSM [29–31, 33]. When we restricted the sample to African American and Latino men, we found that sexual orientation-based discrimination only was associated with sexual HIV acquisition risk behavior, but it was not statistically significant. This result may have been due to the smaller sample size and reduced power to detect the association among the restricted sample; other studies where such an association was found have had larger samples [31, 33, 61].

Factors that may link experiences of discrimination and sexual risk behavior, psychological distress and alcohol and/or drug use before/during last sex, were associated with the outcome. Including these factors in the model with the full sample attenuated the relationship between sexual orientation-based discrimination and acquisition risk behavior, as evidenced by the diminishment of the odds ratio of sexual orientation-based discrimination in Model 2 as compared with Model (Table 4). Empirical evidence is accumulating that psychological distress and substance abuse are outcomes of experiences of sexual orientation-based discrimination among LGBTQ individuals [62–65]. In our sample, these two factors may partially explain the association between social discrimination and sexual HIV risk behavior among MSM, which is generally consistent with sexual minority stress theory [27]. However, further longitudinal research is needed to assess causal relations among these factors.

We did not find support for the role of internalized homophobia as a correlate of HIV acquisition risk behavior, once psychological distress and alcohol and/or drug use before/ during sex were controlled. Results of recent analyses of the role of internalized homophobia and sexual risk behavior have been mixed. One study reported that internalized homophobia mediated the relationship between heterosexual discrimination and depression among a sample of MSM [66]. A recent meta-analysis, which assessed relations among internalized homophobia and internalizing mental health problems (e.g., anxiety and depression), concluded that the association may be decreasing over time, as the authors found a moderating effect of the year of publication of the study [67]. We also assessed the impact of attachment to the gay community and racial/ethnic identity on the relationship between social discrimination and risk behavior, but did not find evidence of any protective effect of either factor. This finding contrasts with the work of O'Donnell and colleagues (2002) and Chng and Geliga-Vargas (2000) among Latino men [42, 43]. However other recent studies have also not found ethnic or racial identity or community affiliation to be associated with lower sexual risk behavior among MSM [35, 68].

This analysis has several limitations that must be taken into account when considering the results. First, as a cross-sectional study, it is impossible to infer causality from the correlations reported here; a prospective cohort study would be required to properly identify mediation and/or causal relations among the factors studied. Second, the assessment of discrimination relied on participants evaluating the discriminatory treatment they received as being due to their sexual orientation and/or race/ethnicity; participants who were discriminated against, but who did not attribute the behavior to racial or sexual orientation-based bias, would not have provided positive responses to these questions. In addition, the measure of race/ethnicity-based discrimination did not assess individually the various domains where discrimination occurs (e.g., home, school, work, etc.) or varying forms or levels of discrimination (e.g., micro-aggressions), which resulted in a less sensitive measure [69]. Third, because of low prevalence of sexual transmission risk behavior among the HIV-positive participants in our sample, we were unable to model relations between discrimination and this outcome. Finally, we have used the phrase “unprotected” sex to denote sex without a condom; we recognize that some HIV-negative MSM may have been having sex with HIV-positive partners whose viral loads were undetectable, significantly reducing acquisition risk. Alternatively, the participant may have been using pre-exposure prophylaxis (PrEP) ; however, at the time of data collection, PrEP was not approved for use and was not commonly available.

Conclusions

Our analysis builds on the work of several recent studies that have examined the role of social discrimination in sexual risk behavior. We have extended this work by examining different forms of social discrimination in combination and separately. We have also explored whether place of experienced discrimination, either the home or social neighborhood, related to sexual risk behavior, which it did not. We stratified our sample by the risk behavior outcome, understanding that correlates of acquisition risk behavior among HIV-negative men are different from transmission risk behaviors among HIV-positive and unknown status men. In addition, we examined the roles of internalized homophobia,

psychological distress and alcohol and/or drug use before/during sex, factors that may link discrimination and sexual HIV acquisition risk behavior. Finally, we included in our models individual-level potential predictors of condom use, in order to properly specify the models.

The finding that sexual orientation-based discrimination in home or social neighborhoods is associated with sexual HIV acquisition risk behavior is consistent with previous research and suggests that further effort should be expended to address the root causes of sexual orientation-based discrimination, such as homophobia and HIV/AIDS stigma. Existing interventions to decrease homophobia and HIV/AIDS stigma have provided information and education, worked to change attitudes and values, and increased contact with people living with HIV/AIDS, activities that reduce stereotyping, prejudice, and acts of sexual orientation-based discrimination [70, 71]. However, most of these interventions have been conducted at the individual level, with a meta-analysis of HIV prevention interventions for MSM reporting no community-level interventions focused on social discrimination, such as sexual orientation-based discrimination and/or homophobia [72]. Further longitudinal research is needed to determine whether reductions in sexual HIV risk behavior will occur as a result of decreasing exposure to sexual orientation-based discrimination among MSM, a critical social goal independent of its role in the HIV epidemic.

Acknowledgments

The authors acknowledge the assistance of Krista Goodman, DaShawn Usher, Travis Cronin, Jermaine McCrossin, John Bonelli, Geneva Ortiz, Kiwan Stewart, Kimberly Morales, Evelyn Rivera, Blaz Bush, Heriberto Oquendo, Jr., Michael Hernandez, and Damon Jacobs. We also thank the individuals who gave their time and efforts to participate in this study. This study was supported by National Institute of Child Health and Human Development R01 HD059729 to Dr. Beryl Koblin of the New York Blood Center. Dr. Victoria Frye's work was also supported through a National Institute on Drug Abuse mentored career development award (K01 DA-020774).

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Table 1

Sociodemographic, sexual behavior, and identity- and attachment-related characteristics and HIV acquisition^a and transmission^b risk behavior, M2MNYC, *N* = 1,369

Characteristics	Total ^c <i>N</i> (%)	Acquisition risk (<i>N</i> = 992)		<i>p</i> value	Transmission risk (<i>N</i> = 377)		<i>p</i> value
		Yes <i>N</i> (%)	No <i>N</i> (%)		Yes <i>N</i> (%)	No <i>N</i> (%)	
Recruitment				NS			NS
Venue	724 (52.9)	65 (59.1)	459 (52.0)		12 (44.4)	188 (53.7)	
Online	645 (47.1)	45 (40.9)	423 (48.0)		15 (55.6)	162 (46.3)	
Sociodemographics							
Age (Mean, SD)	32.0 (10.3)	31.5 (11.0)	30.6 (9.6)	NS	39.6 (11.0)	34.9 (10.9)	0.033
Age, categorized				NS			NS
18-24	358 (26.1)	30 (27.3)	257 (29.2)		2 (7.4)	69 (19.7)	
25-29	368 (26.9)	37 (33.6)	251 (28.5)		3 (11.1)	77 (22.0)	
30-39	330 (24.1)	21 (19.1)	222 (25.2)		8 (29.6)	79 (22.6)	
40+	312 (22.8)	22 (20.0)	151 (17.1)		14 (51.9)	125 (35.7)	
Race/ethnicity				NS			0.001
White	431 (31.6)	39 (35.5)	319 (36.3)		13 (48.2)	60 (17.2)	
Black	334 (24.5)	22 (20.0)	186 (21.2)		6 (22.2)	120 (34.4)	
Hispanic	429 (31.5)	31 (28.2)	259 (29.5)		7 (25.9)	132 (37.8)	
All other	170 (12.5)	18 (16.4)	114 (13.0)		1 (3.7)	37 (10.6)	
Education				NS			NS
Less than high school graduate	78 (5.7)	6 (5.5)	29 (3.3)		1 (3.7)	42 (12.0)	
High school graduate	152 (11.1)	16 (14.5)	83 (9.4)		3 (11.1)	50 (14.3)	
Some college	468 (34.2)	29 (26.4)	284 (32.2)		11 (40.7)	144 (41.1)	
College graduate or more	671 (49.0)	59 (53.6)	486 (55.1)		12 (44.4)	114 (32.6)	
Employment				0.075			NS
Working full-time	547 (40.0)	48 (43.6)	405 (46.0)		10 (37.0)	84 (24.1)	
Working part-time	322 (23.6)	23 (20.9)	221 (25.1)		6 (22.2)	72 (20.6)	
Not working, looking/not working, not looking/temporarily laid off/retired	413 (30.2)	37 (33.6)	209 (23.8)		8 (29.6)	159 (45.6)	
Working off the book/other	84 (6.1)	2 (1.8)	45 (5.1)		3 (11.1)	34 (9.7)	
Personal Income				NS			0.020
<\$10,000	348 (25.9)	32 (29.1)	194 (22.4)		7 (25.9)	115 (33.5)	
\$10,000-39,999	561 (41.7)	40 (36.4)	348 (40.2)		9 (33.3)	164 (47.8)	
\$40,000-59,999	209 (15.5)	14 (12.7)	163 (18.8)		3 (11.1)	29 (8.5)	
\$60,000+	228 (16.9)	24 (21.8)	161 (18.6)		8 (29.6)	35 (10.2)	
Financial insecurity							
Not enough \$ for rent, food, or utilities	649 (47.7)	59 (53.6)	378 (43.1)	0.035	16 (59.3)	196 (56.7)	NS
Not enough \$ for social activity	951 (69.6)	81 (73.6)	590 (67.0)	NS	18 (66.7)	262 (75.3)	NS
Partnership status							
Married or registered domestic partner	60 (4.4)	5 (12.8)	34 (87.2)	NS	0 (0.0)	21 (6.0)	NS

Characteristics	Total ^c	Acquisition risk (N = 992)		p value	Transmission risk (N = 377)		p value
	N (%)	Yes N (%)	No N (%)		Yes N (%)	No N (%)	
Sexual Identity				NS			NS
Gay, homosexual, queer, same gender loving, etc.	1,201 (87.7)	99 (90.0)	764 (86.6)		26 (96.3)	312 (89.1)	
Bisexual	125 (9.1)	9 (8.2)	93 (10.5)		1 (3.7)	22 (6.3)	
Straight, heterosexual	8 (0.6)	0 (0.0)	6 (0.7)		0 (0.0)	2 (0.6)	
Unsure or questioning/other/missing	35 (2.6)	2 (1.8)	19 (2.2)		0 (0.0)	14 (4.0)	
Psychosocial Factors							
“Outness” (Mean, SD)	8.2 (3.3)	8.2 (2.3)	8.2 (2.2)	NS	8.8 (2.0)	8.3 (5.3)	NS
Racial/ethnic identity (Mean, SD)	3.0 (0.6)	2.9 (0.6)	3.0 (0.6)	NS	3.1 (0.6)	3.1 (0.5)	NS
Gay community attachment (Mean, SD)	3.2 (0.5)	3.1 (0.5)	3.2 (0.5)	NS	3.3 (0.4)	3.2 (0.5)	NS
Condom use-related factors							
Condom use self-efficacy (Mean, SD)	4.2 (0.6)	3.8 (0.6)	4.3 (0.6)	<.001	3.8 (0.4)	4.1 (0.7)	0.009
Perceived peer condom use norms (Mean, SD)	2.9 (0.6)	2.8 (0.5)	2.9 (0.5)	0.012	2.5 (0.7)	2.9 (0.6)	0.002

^aHIV acquisition risk behavior was coded as 1 among HIV-negative participants who had unprotected receptive anal sex with any type (e.g., primary, casual, etc.) of HIV-positive or unknown HIV status male sex partner; the remaining HIV-negative participants were coded as 0

^bHIV transmission risk behavior was coded as 1 among HIV-positive or unknown status participants who had unprotected, insertive anal sex with any HIV-negative or unknown status male sex partner; the remaining HIV-positive or unknown status participants were coded as 0

^cN do not total to 1,369 due to missing data

Table 2

Unadjusted associations among sexual orientation- and race-based discrimination (past 3 months) and HIV acquisition^a and transmission^b risk behavior, M2MNYC, *N* = 1,369

Characteristics	Total <i>N</i> (%)	Acquisition risk (<i>N</i> = 992)		<i>p</i> value
		OR	95 % CI	
Home neighborhood only				
None	1,204 (88.0)	ref		0.038
Sexual orientation-based only	57 (4.2)	2.87	1.36, 6.07	
Race-based only	56 (4.0)	1.48	0.61, 3.61	
Both	52 (3.8)	0.78	0.24, 2.61	
Social neighborhood only				
None	1,270 (92.8)	ref		0.049
Sexual orientation-based only	28 (2.1)	3.80	1.41, 10.23	
Race-based only	43 (2.5)	1.03	0.31, 3.48	
Both	36 (2.6)	0.41	0.06, 3.10	
Either home or social neighborhood				
None	1,163 (85.0)	ref		0.002
Sexual orientation-based only	63 (4.6)	3.36	1.71, 6.61	
Race-based only	66 (4.8)	1.67	0.76, 3.68	
Both	67 (5.6)	0.57	0.17, 1.88	

Odds ratios reflect change of 1 standard deviation

^a HIV acquisition risk behavior was coded as 1 among HIV-negative participants who had unprotected receptive anal sex with any type (e.g., primary, casual, etc.) of HIV-positive or unknown HIV status male sex partner; the remaining HIV-negative participants were coded as 0

^b HIV transmission risk behavior was coded as 1 among HIV-positive or unknown status participants who had unprotected, insertive anal sex with any HIV-negative or unknown status male sex partner; the remaining HIV-positive or unknown status participants were coded as 0

Table 3

Unadjusted associations among select psychosocial factors and HIV acquisition^a and transmission^b risk behavior, M2MNYC, *N* = 1,369

	Total <i>N</i> (%)	Acquisition risk (<i>N</i> = 992)		<i>p</i> value	Transmission risk (<i>N</i> = 377)		<i>p</i> value
		OR	95 % CI		OR	95 % CI	
Alcohol and/or drug use before/during sex	490 (35.8)	2.01	1.35, 2.99	<0.001	0.80	0.36, 1.80	NS
Psychological distress (Mean, SD) ^{<i>l</i>}	4.6 (4.6)	1.65	1.37, 1.98	<0.001	1.26	0.87, 1.83	NS
Internalized homophobia (Mean, SD) ^{<i>l</i>}	1.7 (0.8)	1.22	1.01, 1.46	0.038	0.64	0.38, 1.07	NS

^aHIV acquisition risk behavior was coded as 1 among HIV-negative participants who had unprotected receptive anal sex with any type (e.g., primary, casual, etc.) of HIV-positive or unknown HIV status male sex partner; the remaining HIV-negative participants were coded as 0

^bHIV transmission risk behavior was coded as 1 among HIV-positive or unknown status participants who had unprotected, insertive anal sex with any HIV-negative or unknown status male sex partner; the remaining HIV-positive or unknown status participants were coded as 0

^{*l*}Odds ratios reflect change of 1 standard deviation

Table 4Adjusted associations among social discrimination and HIV acquisition^a risk behavior, M2MNYC, *N* = 937

	MODEL #1 AOR (95 % CI)	MODEL #2 AOR (95 % CI)	MODEL #3 AOR (95 % CI)
Discrimination (P3M)			
None	Reference	Reference	Reference
Sexual orientation-based only	3.36 (1.71, 6.61)	2.54 (1.26, 5.12)	2.50 (1.17, 5.35)
Race/ethnicity-based only	1.67 (0.76, 3.68)	1.39 (0.61, 3.14)	1.27 (0.53, 3.06)
Both sexual orientation- and race/ethnicity-based	0.57 (0.17, 1.88)	0.47 (0.14, 1.56)	0.43 (0.12, 1.60)
Psychosocial factors			
Psychological distress ¹		1.61 (1.33, 1.94)	1.43 (1.17, 1.76)
Alcohol and/or drug use before/during sex		1.77 (1.17, 2.67)	1.76 (1.13, 2.72)
Condom use-related factors			
Condom use self efficacy ¹			0.47 (0.38, 0.58)

^aHIV acquisition risk behavior was coded as 1 among HIV-negative participants who had unprotected receptive anal sex with any type (e.g., primary, casual, etc.) of HIV-positive or unknown HIV status male sex partner; the remaining HIV-negative participants were coded as 0

¹Odds ratios reflect change of 1 standard deviation

Table 5

Sociodemographic, sexual behavior, and identity- and attachment-related characteristics and HIV acquisition^a risk behavior among African American/Black and Latino MSM, M2MNYC, *N* = 498

Characteristics	Total	Acquisition risk (<i>N</i> = 498)		<i>p</i> value
	<i>N</i> (%)	Yes	No	
Recruitment		<i>N</i> (%)	<i>N</i> (%)	NS
Venue	273 (54.8)	27 (50.9)	246 (55.3)	
Online	225 (45.2)	26 (49.1)	199 (44.7)	
Sociodemographic				
Age (Mean, SD)	29.5 (9.1)	28.7 (9.7)	29.6 (9.1)	NS
Age, categorized				NS
18–24	176 (35.3)	19 (35.9)	157 (35.3)	
25–29	142 (28.5)	19 (35.9)	123 (27.6)	
30–39	104 (20.9)	10 (18.9)	94 (21.1)	
40+	76 (15.3)	5 (9.4)	71 (16.0)	
Race/ethnicity				NS
Black	208 (41.8)	22 (41.5)	186 (41.8)	
Hispanic	290 (58.2)	31 (58.5)	259 (58.2)	
Education				NS
Less than high school graduate	31 (6.2)	5 (9.4)	26 (5.8)	
High school graduate	72 (14.5)	12 (22.6)	60 (13.5)	
Some college	208 (41.8)	17 (32.1)	191 (42.9)	
College graduate or more	187 (37.6)	19 (35.9)	168 (37.8)	
Employment				NS
Working full-time	188 (37.8)	20 (37.7)	168 (37.8)	
Working part-time	133 (26.7)	11 (20.8)	122 (27.4)	
Not working, looking/not working, not looking/temporarily laid off/retired	158 (31.7)	22 (41.5)	136 (30.6)	
Working off the book/other	19 (3.8)	0 (0.0)	19 (4.3)	
Personal income				NS
<\$10,000	154 (31.7)	24 (45.3)	130 (30.0)	
\$10,000–39,999	211 (43.4)	19 (35.9)	192 (44.3)	
\$40,000–59,999	72 (14.8)	4 (7.6)	68 (15.7)	
\$60,000+	49 (10.1)	6 (11.3)	43 (9.9)	
Financial insecurity				
Not enough \$ for rent, food, or utilities	265 (53.5)	30 (56.6)	235 (53.2)	NS
Not enough \$ for social activity	372 (74.9)	42 (79.3)	330 (74.3)	NS
Partnership Status				
Married or registered domestic partner	16 (3.2)	3 (5.7)	13 (2.9)	NS
Sexual identity				NS
Gay, homosexual, queer, same gender loving, etc.	407 (81.7)	46 (86.8)	361 (81.1)	
Bisexual	70 (14.1)	6 (11.3)	64 (14.4)	
Straight, heterosexual	5 (1.0)	0 (0.0)	5 (1.1)	

Characteristics	Total	Acquisition risk (<i>N</i> = 498)		<i>p</i> value
	<i>N</i> (%)	Yes	No	
Unsure or questioning/other/missing	16 (3.2)	1 (1.9)	15 (3.4)	
	Mean (SD)			
“Outness” (Mean, SD)	7.8 (2.5)	7.9 (2.5)	7.8 (2.5)	NS
Racial/ethnic identity (Mean, SD)	3.1 (0.5)	3.0 (0.5)	3.1 (0.5)	NS
Gay community attachment (Mean, SD)	3.1 (0.5)	3.0 (0.6)	3.1 (0.5)	NS
Condom use-related				
Condom use self efficacy (Mean, SD)	4.3 (0.6)	3.9 (0.6)	4.3 (0.6)	<.001
Perceived peer condom use norms (Mean, SD)	3.0 (0.5)	3.0 (0.5)	3.0 (0.6)	NS

^a HIV acquisition risk behavior was coded as 1 among HIV-negative participants who had unprotected receptive anal sex with any type (e.g., primary, casual, etc.) of HIV-positive or unknown HIV status male sex partner; the remaining HIV-negative participants were coded as 0

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Table 6

Unadjusted associations among sexual orientation- (SO) and race-based discrimination and HIV acquisition^a risk behavior among African American/Black and Latino MSM, M2MNYC, *N* = 498

Characteristics	Total	Acquisition Risk (<i>N</i> = 498)	<i>p</i> value
Either home or social neighborhood	<i>N</i> (%)		
None	412 (82.7)	ref	0.297
Sexual orientation-based only	29 (5.8)	2.24 0.86, 5.80	
Race-based only	29 (5.8)	0.64 0.15, 2.77	
Both	28 (5.6)	0.66 0.15, 2.88	

^aHIV acquisition risk behavior was coded as 1 among HIV-negative participants who had unprotected receptive anal sex with any type (e.g., primary, casual, etc.) of HIV-positive or unknown HIV status male sex partner; the remaining HIV-negative participants were coded as 0