

Social Discrimination and Resiliency Are Not Associated With Differences in Prevalent HIV Infection in Black and White Men Who Have Sex With Men

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Objectives: To examine the associations of homophobia, racism, and resiliency with differences in prevalent HIV infection in black and white men who have sex with men (MSM).

Methods: The Involve[ment]t study is a cohort of black and white MSM aged 18–39 years in Atlanta, GA, designed to evaluate individual, dyadic, and community level factors that might explain racial disparities in HIV prevalence. Participants were recruited irrespective of HIV serostatus from community-based venues and from Internet advertisements and were tested for HIV. We assessed respondents' demographics, whether they had engaged in unprotected anal intercourse (UAI) within the past 6 months, and attitudes about perceived homophobia, perceived racism, and personal resiliency.

Results: Compared with white MSM, black MSM were less likely to report UAI in the past 6 months [odds ratio (OR): 0.59, confidence interval (CI): 0.44 to 0.80], more likely to be HIV positive (OR: 5.05, CI: 3.52 to 7.25), and—among those HIV positive—more likely to report not being aware of their HIV infection (OR: 2.58, CI: 1.18 to 5.65). Greater perceived racism was associated with UAI in the black sample (partial odds ratio: 1.48, CI: 1.10 to 1.99). Overall, perceived homophobia, perceived racism, and resiliency were not associated with prevalent HIV infection in our samples. Greater resiliency was associated with less perceived homophobia in both black and white samples (Spearman $r = -0.27$, $P < 0.001$, for both).

Conclusion: Future studies of social discrimination at the institutional and network level, than at the individual level, may explain differences in HIV infection in black and white MSM.

Key Words: HIV infection, black and white MSM, homophobia, racism, resiliency

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INTRODUCTION

Men who have sex with men (MSM) continue to endure an overwhelming burden of the HIV epidemic in the United States. However, black MSM are disproportionately impacted, given the racial disparity in HIV prevalence and infection in MSM, especially young men (aged 13–29).¹ In 2010, black MSM represented the majority (72%) of estimated new infections among all black men and the highest proportion (36%) of estimated new HIV infections among all MSM.² Black MSM have the highest estimated risk/race-specific HIV prevalence of any group in the United States.³

This racial disparity in HIV infection persists, despite comparable or lower HIV sexual risk behaviors among black MSM compared with white MSM.^{4–6} Theories of social determinants of health suggest that this disparity cannot exclusively depend on behavioral factors at the individual level but must include social factors, such as social discrimination, that reflect social contextual or macro-level variables.^{7–9} The detrimental effects of social discrimination on physical and mental health have been well established.^{10,11} Researchers have suggested that pervasive influences of adverse social context in the lives of black MSM may better explain the observed racial disparity of HIV infection in MSM.^{12,13} Perceived discrimination has been shown to be one of the major pathways in the patterns of racial disparities in health.¹⁴ The current report, as part of a larger study of HIV racial disparity, examined the impact of social discrimination, specifically perceived homophobia and perceived racism, on differences in HIV infection between black and white MSM.

Moreover, resiliency is a process of adaptation to risk that has been extensively studied as a salient buffer to the negative effects of life stressors on health.^{15–18} Resiliency typically focuses on positive adaptation in the presence of

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adversity. In this perspective, resilience is not assessed directly but indirectly from health-enhancing capacities, individual and structural resources for coping, or developmental outcomes of vulnerable populations, which are all affected by the social determinants of health. If social discrimination confers high risk for HIV infection in MSM populations, resiliency may influence this association between discrimination and HIV infection. Hence, we also examined the effect of resiliency in the possible link between social discrimination and prevalent HIV infection in black and white MSM.

Therefore, given the possible link between social discrimination and vulnerability to HIV infection among African Americans,¹⁹ this study examined the association between perceived discrimination and prevalent HIV infection between black and white MSM in a major HIV epicenter of the Southeastern United States. Previous studies have shown mixed support for a direct or indirect association between social discrimination (either perceived homophobia or racism) and sexual risk behavior outcomes among MSM^{20–32} and limited evidence of an association between resiliency and sexual risk outcomes.^{33–35} However, because substantial evidence^{4–6} indicates that HIV risk behavior does not explain higher HIV prevalence in black MSM compared with white MSM, this study examined the possible association between social discrimination and prevalent HIV infection in MSM and the possible effect of resiliency on this association. Specifically, we examined whether:

1. Experiences of perceived homophobia among both blacks and whites, and perceived racism among blacks, would be positively associated with HIV infection;
2. Resiliency would be negatively associated with perceived homophobia and HIV infection among both blacks and whites and with perceived racism among blacks;
3. Resiliency would mediate any association between perceived homophobia and HIV infection among both blacks and whites and any association between perceived racism and HIV infection among blacks.

METHODS

Participants

From June 2010 through December 2012, a cohort of 454 black and 349 white MSM aged 18–39 years was recruited, regardless of the self-reported HIV status, from venues in the Atlanta metropolitan area primarily using time-space sampling adapted from the Atlanta site of the 2008 MSM cycle of the National HIV Behavioral Surveillance System (NHBS)³⁶ and from Internet sampling frame using Facebook banner advertisements. Eligible participants were 18–39 year old, self-identified, black and white males who reported sex with another man in the previous 3 months, provided at least 2 means of contact for longitudinal follow-up, were not in a mutually monogamous relationship, could complete survey instruments in English, lived in the Atlanta metropolitan area, were not enrolled in another HIV prevention study, and had no plans to relocate in the subsequent

2 years. Men who self-identified as Hispanic or of other/mixed race were not enrolled. Also excluded were 6 men later identified as duplicate enrollments and 2 men determined to be ineligible after enrollment.

Procedure

After screening for eligibility, obtaining written informed consent, and enrolling participants at 1 of the 3 clinic study sites, all participants, regardless of the self-reported HIV status, were tested for HIV antibodies with an FDA-approved HIV rapid test. For those participants with a preliminary positive result on their HIV rapid test, additional specimens were collected by venipuncture for confirmatory testing by Western blot and for CD4 and HIV viral load testing. All HIV-positive men not already in HIV care were linked to care for further evaluation and treatment as needed. Men who were HIV negative were prospectively followed for up to 24 months and underwent HIV antibody testing at 3–6 month intervals.

At the baseline visit, participants completed an approximately 1.5-hour computer-assisted self-interview questionnaire to answer questions about demographic, individual, dyadic, and community level factors of HIV risk. Men who reported through computer-assisted self-interview that they had previously tested HIV positive were considered to be aware of their HIV infection. Participants were reimbursed \$60 for their baseline visit. This study was reviewed and approved by the Institution Review Boards at Emory University and Georgia State University.

Measures and Coded Variables

This report examines baseline visit data for all participants regarding demographics, frequency of unprotected anal intercourse (UAI) in the past 6 months, perceived homophobia, experiences of racism, attitudes about personal resiliency, and HIV status. Participants' demographics were assessed with typical measures regarding their age, education, and income. Participants' experiences of homophobia in the past year were assessed using 8 items adapted from the Experiences of Homophobia Scale developed by Diaz et al.³² Items measured experiences of homophobia within the past year (eg, In the past year, how often did you feel that your attraction to other men hurt and embarrassed your family?) and experiences of verbal harassment and physical assaults based on perceived sexual orientation and gender nonconformity (eg, In the past year, how often were you hit or beaten up for being effeminate or being attracted to other men?). The scale consists of 16 items scored 1–5; some items were reversed so that higher scores indicated greater perceived homophobia; for our sample, $\alpha = 0.86$.

Participants' perceptions of racism in the past year were measured with the Racism and Life Experiences Scale (RaLES) produced by Harrell et al,³⁷ which includes items about experiences of perceived racism in various life situations (eg, How often have your civil rights been violated, such as job or housing discrimination due to racism, racial discrimination, or racial prejudice? How often have others reacted to

you as if they were afraid of you because of your racial and/or ethnic group?). The scale consists of 11 items intended to assess perceptions of racial prejudice and discrimination scored 1–5; for our sample, alpha = 0.87.

Participants’ experiences of psychological resilience, capacity to withstand life stressors, thrive, and make meaning from challenges were assessed with the shortened version of the Wagnild and Young Resilience Scale (eg, My belief in myself gets me through hard times; When I am in a difficult situation, I can usually find my way out of it).³⁸ The scale consists of 10 items scored 1–5; for our sample, alpha = 0.93.

UAI was coded 1 if the participant reported unprotected anal sex within the last 6 months with 1 or more partners, 0 otherwise. HIV infection was coded 1 if the HIV test given at baseline was positive, 0 otherwise. For participants whose baseline HIV test was positive, unaware of HIV infection was coded 1 if the participant reported that his HIV status was something other than positive, 0 otherwise.

Data Analysis

Associations of perceived homophobia, perceived racism, and resilience with the binary variable of HIV infection were analyzed using logistic regression. Associations were characterized with changes in Nagelkerke R²—an R² analog for logistic regression—when variables were added to the logistic regression and with partial odds ratios (pORs), which reflect the contribution of variables, controlling for the other variables in the equation. Because of skewed distributions, associations of resilience with perceived homophobia and racism were analyzed using Spearman correlations. Logistic regressions and Spearman correlations were performed separately for the 2 samples.

RESULTS

Descriptive Statistics and Differences Between Black and White Samples

Compared with the white sample, the black sample was somewhat larger, their mean age was about 2 years younger, and they had less education and income (Table 1). Differences for age, education, and income were all significant: $t_{[801]} = 4.2, P < 0.001$; $\chi^2_{(3, N = 799)} = 57.3, P < 0.001$; $\chi^2_{(4, N = 766)} = 92.2, P < 0.001$, respectively.

Medians for perceived homophobia and resiliency were significantly higher for the black MSM compared with the white sample (2.50 vs. 2.19 and 4.60 vs. 4.30, $P = 0.001$ and $= 0.003$ per Mann–Whitney U test). Although the distribution of perceived homophobia scores for blacks was relatively unskewed, perceived homophobia scores for whites and perceived racism scores for blacks were positively skewed, and resilience scores for both blacks and whites were negatively skewed (Fig. 1). In particular, although the 445 resilience scores for blacks varied from 1 to 5, with 8 scores below 2.5, the median was 4.60 and 120 scores were 5, the highest possible (which is why its plot has no whisker).

Compared with white MSM, black MSM were less likely to report UAI in the past 6 months [odds ratio

TABLE 1. Age, Education, and Income

Variable	Black Sample	White Sample
Number	454	349
Mean age, yr	27.0	29.0
SD for age	6.1	7.3
Education, %		
Some high school	3.5	0.6
Finished HS	22	10
Some college	45	36
Finished college	30	54
Income, %		
<\$10K	27	14
≥\$10K, <\$20K	27	18
≥\$20K, <\$40K	31	25
≥\$40K, <\$75K	13	27
≥\$75K	2.4	17

Education and income percentages may not sum exactly to 100 because of rounding. Age, education, and income differed significantly; see text for details.

(OR): 0.59, confidence interval (CI): 0.44 to 0.80, $P < 0.01$], more likely to be HIV positive (OR: 5.05, CI: 3.52 to 7.25, $P < 0.001$), and—among those who were HIV-positive—more likely to report not being aware of their infection

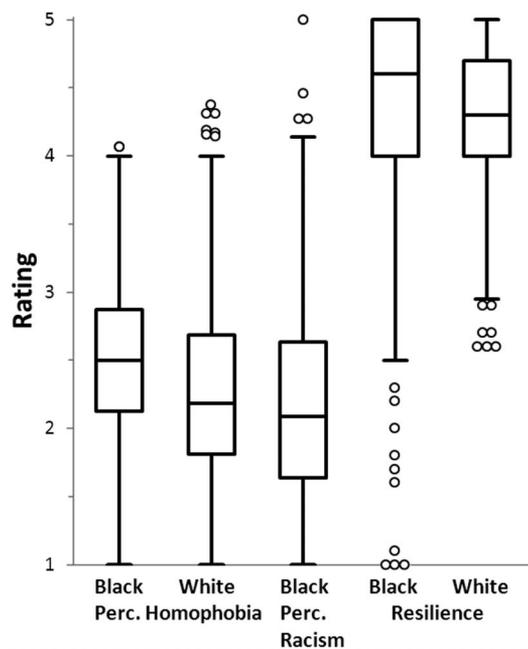


FIGURE 1. Box-and-whisker plots for the 5 key predictor variables. N for blacks vs. whites are 445 vs. 346 for perceived homophobia and resiliency and 450 for black’s perceived racism (perceived racism was assessed only for the black sample). Medians are indicated by the center line in each box and 25th and 75th percentiles by the bottom and top lines, respectively. Whiskers indicate the largest (or smallest) score or 1.5 times the interquartile range if any scores exceed it; such scores are called extreme. Circles indicate extreme scores. P values for black–white differences per Mann–Whitney U test, used due to skewed distributions, were 0.001 and 0.003 for perceived homophobia and resiliency, respectively.

(OR: 2.58, CI: 1.18 to 5.65, $P = 0.018$). Figure 2 shows the numbers graphically; specifically, 76 of 197 HIV-positive black men (39%) reported being unaware of their HIV infection, whereas 9 of 46 HIV-positive white men reported being unaware (20%).

In both samples, men who were HIV positive were more likely to report UAI than men who were HIV negative, although the difference was only marginally significant for the black sample. Reporting UAI were 64% and 56% of black men who were HIV positive and negative, respectively (OR: 1.40, CI: 0.97 to 2.03, $P = 0.083$); comparable percentages for the white sample were 87% and 69% (OR: 2.95, CI: 1.23 to 7.11, $P = 0.017$). Again in both samples, men who were HIV positive but reported being unaware of their HIV infection were more likely to report UAI but not significantly so: 70% of black men who reported being unaware, but 61% who reported being aware, of their HIV infection reported UAI (ORs: 1.46, CI: 0.79 to 2.70, $P = 0.22$); comparable percentages for the white sample were 89% and 86% (ORs: 1.25, CI: 0.13 to 12.3, $P = 0.85$).

Perceived Homophobia, Perceived Racism, and Resilience as Predictors of HIV Serostatus

Associations of the discrimination variables and resiliency with HIV infection were analyzed using logistic regression (hypotheses 1 and 2); demographic variables were included for control (Table 2). Regarding the demographic variables, less education was associated with prevalent HIV infection in the black sample (pOR = 0.69, $P = 0.013$), less income was associated with prevalent HIV infection in the white sample (pOR = 0.66, $P = 0.010$), and increased age was associated with prevalent HIV infection in both samples (pORs = 3.14 and 2.46, $P < 0.001$, for both). Regarding the other variables, none were associated with prevalent HIV infection (although greater resilience was marginally associated with less HIV infection in the black sample, $P = 0.074$).

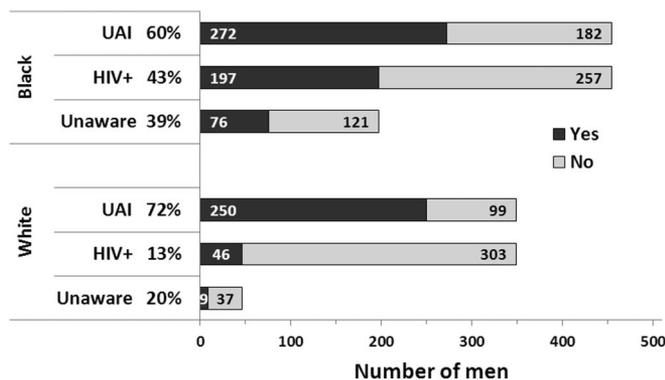


FIGURE 2. Percentage of black and white men reporting UAI within the past 6 months, the percentage who tested HIV positive at baseline, and—of those who were positive—the percentage who were unaware of their HIV infection are shown at the left. The bars indicate graphically the number of men on whom these percentages are based. Odds ratio P values comparing the black and white samples were <0.01 , <0.001 , and $=0.018$ for UAI, HIV+, and unaware, respectively; see text for details.

TABLE 2. Logistic Regression Results

Variable	Black Sample			White Sample		
	pOR	CI	P	pOR	CI	P
Age	3.14	2.10 to 4.69	<0.001	2.46	1.55 to 3.90	<0.001
Education	0.69	0.52 to 0.93	0.013	0.83	0.50 to 1.39	0.49
Income	0.85	0.68 to 1.06	0.15	0.66	0.48 to 0.91	0.010
Perceived homophobia	1.02	0.68 to 1.53	0.93	1.27	0.78 to 2.07	0.34
Perceived racism	1.03	0.76 to 1.39	0.86	—	—	—
Resiliency	0.73	0.52 to 1.03	0.074	0.95	0.50 to 1.79	0.87

Scores are pORs, 95% CIs, and probabilities from logistic regressions of HIV infection, performed separately for black and white samples. For these regressions, age was divided by 10, education was coded 1–4 and income 1–5, and the possible range for the 3 attitude variables was 1–5; thus, pORs indicate the proportion HIV infection odds changed with a change of 1 scale point on the predictor variable, controlling for the other variables.

Associations of resilience with perceived homophobia and racism were analyzed using Spearman correlations (hypothesis 2). Less perceived homophobia was associated with greater resilience in both black and white samples (Spearman $r = -0.27$, for both, $P < 0.001$), but perceived racism was not significantly associated with resilience in the black sample (Spearman $r = -0.06$, $P = 0.19$).

A mediating role for resilience (hypothesis 3) was not supported. Generally, if a predictor variable is not associated with an outcome, the effect cannot be mediated—there is nothing to mediate—and in all 3 cases, adding resilience to the logistic regression had little effect (the pORs for perceived homophobia in the black and white samples and perceived racism in the black sample essentially unchanged—from 1.16 to 1.03, 1.28 to 1.28 to 1.27, and 1.05 to 1.03, respectively).

DISCUSSION

Counter to our hypotheses, we found that perceived racism was not associated with HIV infection in black MSM. Some earlier evidence suggests that structural racism might be indirectly linked with HIV infection in black MSM through effects of poverty in which unstable housing and residence in low-income neighborhoods were positively associated with greater HIV infection and HIV diagnosis.^{23,24} Evidence that social and structural factors (eg, low income, unemployment, and incarceration) are associated with greater likelihood of HIV infection^{39–41} suggests structural racism, more than individual racism, may better explain the link between social discrimination and HIV infection. As noted above, lower income for black men and less education for white men were associated with more HIV infection in our study. Support for an association between individual racism and HIV infection has been suggested as indirectly reflected in findings of a higher probability that black MSM have black sexual partners compared with other MSM.⁴² Other evidence,⁴³ including network data reported from this study,⁴⁴ suggests differences in sexual networks as the basis for partner characteristics (eg, age, race) associated with the higher probability of HIV infection among black MSM compared with other MSM.

Also, there were no significant associations between perceived homophobia and HIV infection for either racial

group. Some studies found that MSM who reported experiences of antigay harassment, discrimination, and violence²⁸ or early gay-related development as adolescents²⁹ were more likely to be HIV positive as adults. However, other evidence³¹ showed that, over all MSM, higher experiences of discrimination and harassment as adolescents was associated with HIV-negative status as adults, with one exception—HIV-positive black MSM reported lower experiences of discrimination, harassment, and sexuality discomfort than HIV-negative black MSM. No differences in these adolescent experiences were found between non-black MSM stratified by HIV status.

Similarly, our findings showed no significant association between resiliency and HIV infection for either racial group, but there was a marginally negative association with HIV infection for black MSM. However, men with greater resilience had less experiences of perceived homophobia in both racial groups but resilience was not associated with perceived racism among black men. Although a few studies have examined links between resiliency outcomes and positive health outcomes,^{33,34} this is the first study to examine the association between resiliency and HIV infection. As a process, our results suggest that both black and white MSM with higher resiliency may have better adapted to experiences of homophobia, and as a consequence of these challenges, either perceived or experienced less encounters of antigay discrimination. However, this association was not found between resiliency and perceived racism for black MSM or between resiliency and HIV infection for either black or white MSM. Herrick et al³³ have suggested that individual level factors are better predictors of resilience for adults and community level factors better predictors for adolescents and young adults. Studies are needed to identify the types and nature of resilience at the structural level that show an effect on the association between social discrimination and HIV prevalence, such as economic and community resources.⁴⁵

Overall, our findings suggest that the perceived social discrimination does not explain the striking racial disparity in HIV infection between black and white MSM. Although black MSM reported higher perceived homophobia and resiliency than white MSM, social discrimination and resiliency were not associated with prevalent HIV infection in either racial group. However, the potentially adverse effects of social discrimination on HIV infection may not only be sufficiently demonstrated by perceived discrimination but also depend on how social discrimination at institutional or network levels may reduce HIV disparities. Notably, Millett et al found in a recent meta-analysis that structural barriers (eg, health insurance access for HIV-positive MSM, low income, low education, incarceration, unemployment health insurance access for HIV-positive MSM) were among the highest ranked disparities associated with HIV infection, while disparities were least for sexual risk outcomes.⁶ Our sociodemographic findings, in which less education for black men and lower income for white men were associated with more HIV infection, reflect similar effects of structural barriers on HIV disparity. Moreover, Millett et al found that sex partner demographics and HIV care were among other

outcomes most associated with HIV infection for black MSM compared with other MSM.⁶ Future studies should focus on such structural barriers or differences to better examine social determinants of racial disparity in HIV among MSM. The potential of these studies are further confirmed by our results that black MSM, in comparison with white MSM in this study, had significantly less education and income, engaged in less HIV sexual risk behavior (UAI), and were more likely to be HIV positive and, unaware of their HIV infection.

Some important limitations of our study should be noted regarding recruitment and assessment procedures. Although we used a venue–time–space sampling approach to increase the likelihood to obtain a systematic and reproducible sample, our study participants are not a representative sample of all black and white MSM from the population recruited. Moreover, causal inferences are not possible because the analyses were derived from cross-sectional data collected at the baseline assessment. Also, as typically known, responses to self-report measures are susceptible to social desirability bias.

The enduring racial disparity in HIV infection among MSM, especially black and white men, raises the need for more data that examine the influence of factors beyond individual risk behaviors that reflect pervasive social structural influences at the neighborhood or residential level. Our findings provide alternative prospects to pursue regarding the effects of social determinants of racial disparities in HIV infection among MSM.

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