Perceived Discrimination and Physical Health among HIV-Positive Black and Latino Men who have Sex with Men

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Abstract

We conducted the first study to examine health correlates of discrimination due to race/ethnicity, HIV-status, and sexual orientation among 348 HIV-positive Black (n=181) and Latino (n=167) men who have sex with men. Participants completed audio computer-assisted self-interviews. In multivariate analyses, Black participants who experienced greater racial discrimination were less likely to have a high CD4 cell count [OR=0.7, 95%CI=(0.5, 0.9), p=.02], and an undetectable viral load [OR=0.8, 95%CI=(0.6, 1.0), p=.03], and were more likely to visit the emergency department [OR=1.3, 95%CI=(1.0, 1.7), p=.04]; the combined three types of discrimination predicted greater AIDS symptoms [F (3,176)=3.8, p<0.01]. Among Latinos, the combined three types of discrimination predicted greater medication side effect severity [F (3,163)=4.6, p<0.01] and AIDS symptoms [F (3,163)=3.1, p<0.05]. Findings suggest that the stress of multiple types of discrimination plays a role in health outcomes.

Keywords

African American/Black; HIV/AIDS; Latino/Hispanic; men who have sex with men; perceived discrimination

INTRODUCTION

Racial/ethnic disparities in health-related outcomes among people living with HIV are well-documented [1]. Compared to other racial/ethnic groups, Blacks with HIV are less likely to be engaged in care, to receive antiretroviral treatment (ART), and to adhere to ART, all of which may contribute to their lower survival rates [1–11]. Latinos with HIV are more likely to be diagnosed later in the HIV disease continuum (with AIDS concurrently), resulting in greater delays in care entry and ART use [1,12–19].

A growing literature suggests that the stress of discrimination plays a role in the health of racial and sexual minorities [20–25], especially those living with HIV [26–28], and may in part explain disparities [24,29–32]. Experiences with uncontrollable, chronic stressors such

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None of the authors have any conflicts of interest to report.

as discrimination often involve sustained activation of physiological stress responses, lowered threshold for coping with new stressors (both behaviorally and physically), and subsequent increased vulnerability to negative physical outcomes and illness [25,33,34]. Anticipated stigma, or perceiving a threat of discrimination (e.g., from healthcare providers), can also be a chronic stressor that leads to worse health outcomes [35], through both behavioral and physiological pathways. For example, individuals who perceive discrimination at a societal level may mistrust societal institutions such as health care, leading to reluctance to adhere to healthcare provider recommendations.

Although people living with HIV often belong to several stigmatized and devalued groups due to, for example, race/ethnicity, sexual orientation, and HIV-serostatus, few studies have examined whether compound or layered stigmas act in concert to affect health and health behaviors, especially among racial/ethnic groups most affected by HIV [36–38]. Research has found that, among Blacks living with HIV, racism is the sole type of discrimination associated with health outcomes such as ART non-adherence [39,40] and sexual dysfunction [41], whereas among Latino gay men, perceived discrimination due to both sexual orientation and race/ethnicity are related to increased distress [42,43]. Beyond these few studies, little is known about the role of multiple forms of discrimination in health status and outcomes among Blacks and Latinos with HIV. Moreover, although measures of discrimination due to race/ethnicity, sexual orientation, and other factors exist, there are no measures of concurrent, multiple forms of discrimination.

Accurate understanding of the effects of layered stigmas may help to explain racial/ethnic disparities in health, which may result from long-lasting psychological, physiological, and behavioral effects of discrimination. However, little consistency exists across studies regarding the types of discrimination measured and their health and behavioral effects, which leads to difficulties in comparing results across research. Furthermore, HIV stigma research tends to conflate internalized stigma, anticipated prejudice from others, and experienced discrimination events [38]. Although internalized stigma and anticipated prejudice are related to discrimination, they are conceptually distinct.

This study had two purposes. The first was to develop a *Multiple Discrimination Scale* (MDS) that assesses perceived interpersonal, institutional, and violent forms of discrimination due to HIV-serostatus, race/ethnicity, and sexual orientation. We then used the MDS to explore health correlates of perceived discrimination due to HIV-status, race/ethnicity, and sexual orientation among Black and Latino men who have sex with men (MSM) living with HIV; we examined relationships between health outcomes and each type of discrimination alone, as well as in combination. Following prior research, including an analysis of the same dataset showing a significant relationship between the MDS and HIV treatment adherence [40], we hypothesized that racial/ethnic discrimination would have a greater effect than other types of discrimination on health outcomes among Black, compared to Latino, MSM [39–45].

METHODS

Participants

A total of 214 Black and 208 Latino male participants on ART participated in separate studies. Only data from participants who reported ever having sex with men were retained for the present analysis: 181 Blacks (85%) and 167 Latinos (81%).

Procedure

Black MSM were recruited at three HIV social service agencies and an HIV medical clinic from January 2007–February 2009 in Los Angeles, CA, by staff who disseminated fliers

advertising a study of "HIV treatment, attitudes and behaviors." Interested individuals were screened by telephone. Participants completed a 1-hour audio computer-assisted self-interview (ACASI) 7 times, once at baseline and then monthly for 6 months. Participants were given incentives of $30 at baseline and $20 for each monthly assessment; those completing all seven assessments received a $30 bonus.

Latino MSM were recruited from August 2010–April 2011 by staff at an AIDS service organization with multiple locations in Los Angeles County that provides culturally relevant services for Latinos. Spanish-language fliers advertised a study of "HIV treatment, attitudes, and behaviors." Participants were given $30 for completing a 1-hour ACASI.

Further details of the larger study methodology are available in prior publications [40,46–49]. All study procedures were approved by the institutional review boards (IRBs) of Boston Children's Hospital, Charles Drew University of Medicine and Science, and RAND Corporation.

Materials & Measures

The 1-hour audio computer-assisted self-interview (ACASI) that was completed at baseline consisted of the new MDS; four existing measures of discrimination that were included to validate the new measure; measures of physical health; and socio-demographic questions. Black participants only completed monthly follow-up MDS assessments, in order to assess test-retest reliability.

Discrimination Measures

Multiple Discrimination Scale (MDS): Participants reported experiences with 10 different discrimination events in the past year due to race/ethnicity (MDS-Race), sexual orientation (MDS-Gay), and HIV-serostatus (MDS-HIV), with response options *yes* and *no*. We used the same items for each type of stigma. The sum of each subscale was computed; higher scores represented more discrimination events in the past year.

MDS items cover concrete behavioral expressions of prejudice, including interpersonal discrimination (close others, partners, strangers, in general), institutional discrimination (verbal, employment, housing, healthcare), and violent discrimination (physical, property) forms of discrimination related to HIV-serostatus, race/ethnicity, and sexual orientation using similar items across different types of stigma; parallel assessments allow for comparability of effects across multiple stigmatized categories. To assure content validity, the discrimination types were drawn from the racial/ethnic- and sexual-orientation discrimination literatures, where such items have been commonly used and consistently demonstrated to be valid and reliable [50–57].

Numerous prior studies demonstrate that these items represent a single, underlying construct [51,52,57–59]. We tested whether a single factor structure was evident in our data as well. We conducted an exploratory factor analysis using maximum likelihood extraction and scree tests to determine the number of factors [60–62]. Inspection of the scree plots suggested that each MDS subscale represented a single factor, and all item loadings for each subscale's factor were greater than .32, a suggested rule of thumb for determining which scale items to retain [60].

Perceived Racial/Ethnic Discrimination Measures: Different measures of perceived discrimination were used for Black and Latino participants, to strengthen our validity assessment by demonstrating convergent validity of the MDS with more than one previously validated scale. Black participants were given the Schedule of Racist Events, which was

validated with Blacks [55], to measure chronic experiences with institutional, interpersonal, and traumatic racial discrimination. The 17-item scale measured the frequency with which individuals experienced specific discriminatory events in a variety of arenas (e.g., by employers, healthcare workers) in the past year (1=*never* to 6=*almost all of the time*; α = .95), and their appraisal of the stressfulness of each event (1=*not at all* to 5=*very*; α = .97).

Latino participants completed the 17-item Perceived Ethnic Discrimination Questionnaire-Community Version (PEDQ-CV), which was validated with Latinos and other racial/ethnic groups [54], regarding racial/ethnic discrimination in the past year, which has the subdomains: exclusion/rejection (α=.74; e.g., people who speak a different language made you feel like an outsider); stigmatization/disvaluation (α=.68; e.g., it has been hinted that you must not be clean); discrimination at work/school (α=.67; e.g., treated unfairly by co-workers or classmates); and threat/aggression (α=.83; e.g., others threatened to hurt you). The total scale (α=.90) contains all subdomain items, plus an item on law enforcement (policemen or security officers were unfair to you). Response options were 1=*never*; 2=*sometimes*; 3=*very often*.

Internalized HIV Stigma and Interpersonal HIV Discrimination Measures: Participants completed the 7-item Internalized AIDS-Related Stigma Scale (IA-RSS), which assesses internalized HIV stigma (e.g., "I am ashamed that I am HIV-positive"; Black α=.85; Latino α=.81) [63]. They also completed the 8-item interpersonal discrimination subscale from the HIV Stigma Scale (e.g., "In the past year, I have lost friends by telling them I have HIV"; Black α=.94; Latino α = .92) [50]. Item responses were averaged. For consistency within the survey, response options were modified from the original scales to: 1=*disagree strongly*; 2=*disagree slightly*; 3=*neutral*; 4=*agree slightly*; and 5=*agree strongly*. (The IA-RSS was originally validated with dichotomous *yes/no* response options, and the HIV Stigma Scale did not originally include a middle neutral option or specify a time-frame.)

Internalized Sexual Orientation Stigma Measures: Internalized sexual orientation stigma was measured with average scores on the Internalized-Homophobia Scale-Revised (e.g., "I wish I weren't gay/bisexual"; Black α=.88; Latino α=.86) [64] with response options 1=*disagree strongly*, 2=*disagree slightly*, 3=*neutral*; 4=*agree slightly*; and 5=*agree strongly*.

Physical Health Measures

CD4 Count and HIV Viral Load: Participants' self-reported most recent CD4 values were dichotomized as <200 cells (indicative of AIDS) or 200 cells. They also self-reported whether their last HIV viral load test was detectable (50 copies per ml, i.e., greater disease progression) or undetectable (<50 copies per ml). Prior research suggests that self-reported CD4 count and viral load are valid [65]. To assess their validity in this study, medical records were obtained from a subset of participants (records for all participants could not be obtained). These revealed significant correlations between self-reported and medical records-data on dichotomized CD4 counts and viral loads for Blacks (r = .51, p < .0001, n = 78 and r = .27, p < .05, n = 93, respectively) and for Latinos (r=.66, p<.0001, n=130 and r=.30, p<.0001, n=159, respectively).

AIDS-related Symptoms: Participants were asked whether they had experienced each of 14 AIDS-related symptoms (e.g., diarrhea, fever) for 2 weeks in the past 3 months. Symptoms were drawn from prior research [66–68]. The number of symptoms endorsed was summed (Black α = .80; Latino α = .80).

Medication Side Effects: Participants were asked a single question, "How much have side effects from your medications interfered with your day-to-day activities?" (1=*No interference* to 5=*A lot of interference*).

Emergency Department Use: Participants were asked whether they visited an emergency room or urgent care center for medical care in the last 6 months (*yes*/*no*).

Socio-demographic Characteristics—Socio-demographic characteristics included date of birth, education (highest degree earned), total annual income (past 12 months), employment status, sexual orientation, housing status, and health insurance type. Age was calculated from date of birth using the interview date minus the date of birth. Education and income were treated as continuous variables. Based on their distributions (see Table 1), employment was categorized into employed full/part-time versus other categories (unemployed, on disability, retired, in school); sexual orientation into heterosexual versus other categories (i.e., gay/same-gender loving, bisexual, not sure or in transition, something else, don't know); housing status into stable (rent or own home or apartment, subsidized housing) versus unstable (homeless, residential treatment facility, temporary/transitional housing like housing for people with HIV, living rent-free with friend/relative); and health insurance type into AIDS Drug Assistance Program versus other public insurance (Medicaid, Medicare, or military), private insurance (through employer or self-pay), COBRA, no insurance, out-of-pocket, or other. Latino participants were additionally asked their US residency status (dichotomized as US citizen or permanent resident vs. undocumented).

Data-Analytic Strategies

MDS Descriptive Data—Means, standard deviations, and frequency distributions of individual MDS items and of the 3 MDS subscale scores were calculated for Blacks and Latinos, along with internal-consistency and test-retest reliability of the MDS subscales. We assessed test-retest reliability by first computing the correlation matrix of all follow-up assessments for each of the three MDS subscales, and then by deriving the average test-retest reliability for each subscale across all six follow-up assessments.

MDS Convergent Validity—We calculated bivariate correlations between the MDS subscales and the four valid, pre-existing scales/measures of perceived discrimination, internalized HIV stigma, and sexual orientation stigma.

Health Correlates of Perceived Discrimination—We used linear regression for the continuous health outcomes (AIDS symptoms, medication side effect severity), and logistic regression for the dichotomous outcomes (HIV viral load, CD4 count, emergency department use). Bivariate models were conducted first, followed by multivariate models in which all three MDS subscales were entered simultaneously. Model significance was assessed using the F-test for continuous outcomes and the Wald statistic for dichotomous outcomes. Analyses were conducted for the Black and Latino subsamples separately. Multivariate models examined main effects and all 2-way and 3-way interaction effects of the MDS subscales. Because no interactions were significant for any outcomes, only the main effects models are reported here. Multivariate models included any socio-demographic covariate that was significantly related to the outcome at alpha<0.10 in the initial, bivariate models.

RESULTS

Participant Characteristics

Table I shows sample characteristics. Blacks and Latinos were significantly different on socio-economic status, housing status, and health insurance type, as indicated by chi-squared statistics. A larger percentage of Blacks (79%) than Latinos (57%) held a high school diploma or its equivalent, $\chi^2(1) = 20.5$, p < .001, whereas a greater percentage of Latinos (35%) than Blacks (15%) were employed, $\chi^2(1) = 18.3$, p < .001. A higher percentage of Latinos (87%) than Blacks (54%) were in stable housing, $\chi^2(1) = 47.2$, p < .001. A higher percentage of Latinos (80%) than Blacks (36%) reported using the AIDS Drug Assistance Program (ADAP) to pay for their healthcare, and a larger percentage of Blacks (55%) than Latinos (16%) reported another form of public insurance, $\chi^2(3) = 68.3$, p < .001.

MDS Descriptive Data

Reported Discrimination—Table II displays descriptive data on the MDS measure for Blacks and Latinos separately. As shown, about 40–50% of both Blacks and Latinos reported experiencing at least one form of each type of discrimination in the past year; across HIV, racial, and sexual orientation discrimination, participants reported an average of 4 or more forms of discrimination (M = 4.2, SD = 6.0 for Blacks; M = 4.0, SD = 6.2 for Latinos; not shown in table).

Of the racial discrimination items, the highest percentage of Blacks (36%) reported that someone had acted as if they could not be trusted due to their race, and the highest percentage of Latinos (27%) reported that someone had insulted or made fun of them. The most common form of HIV discrimination for both groups was being rejected by a partner (27% of Blacks; 25% of Latinos). Substantial percentages of participants reported sexual orientation discrimination; for example, 34% of Blacks and 32% of Latinos reported that they had been insulted or made fun of for this reason.

Overall, Blacks (53%) were more likely to experience discrimination due to race/ethnicity than were Latinos (41%), p < .05, but the two groups did not significantly differ with respect to the extent of discrimination due to sexual orientation or HIV-serostatus. Blacks were more likely than Latinos to endorse all racial discrimination items except one, being insulted or made fun of (27% of Latinos vs. 17% of Blacks).

MDS Scale Reliability—As shown in Table II, internal consistency reliability was high for all three MDS subscales (all $\alpha > .80$). For Blacks only, follow-up scores were used to assess test-retest reliability, which was >.60 for all three MDS subscales. The three MDS subscales were significantly correlated: MDS-Race with MDS-HIV = .77 for Blacks and .73 for Latinos; MDS-Race with MDS-Gay = .77 for Blacks and .75 for Latinos; and MDS-HIV with MDS-Gay = .80 for Blacks and .89 for Latinos (all p-values < .0001).

MDS Convergent Validity

All three MDS subscales were significantly associated with validated stigma constructs from prior research, showing high convergent validity. For Blacks, correlations with the MDS-Race subscale were moderate with the Schedule of Racist Event scales (past year: r=.52, p<.001; stress appraisal: r = .41, p < .001) [55]. Similarly, among Latinos, the MDS-Race subscale was moderately to highly correlated with the total PEDQ-CV scale (r = .74, p < .001) and the exclusion/rejection (r = .57, p < .001), stigmatization/disvaluation (r = .66, p < .001), discrimination at work/school (r = .70, p < .001), threat/aggression (r = .65, p < .001) subscales [54].

The MDS-HIV was moderately correlated with the HIV Stigma Scale [50] (r = .51, p < .001 for Blacks; r = .49, p < .001 for Latinos), which assesses perceived interpersonal discrimination experiences. Although significant, correlations with the MDS were relatively weaker for the internalized stigma scales, suggesting that the MDS is a separate but related construct with respect to internalized stigma [MDS-HIV and Internalized AIDS-Related Stigma Scale [63]: r = .15, p < .05 for Blacks; r = .28, p < .001 for Latinos; MDS-Gay and Internalized-Homophobia Scale-Revised [64]: r = .18, p < .05 among Blacks; r = .23, p < .01 among Latinos].

Health Correlates of Perceived Discrimination

Bivariate Models—As shown in Table III, bivariate models revealed that all three discrimination types were significantly correlated with worse physical health outcomes. For Blacks, greater racial discrimination was associated with experiencing more AIDS symptoms (r = .26, p < .001), being less likely to have an undetectable viral load (r = −.18, p < .05), and being more likely to visit the emergency department in the past 6 months (r = .20, p < .01). Greater discrimination experiences from HIV-serostatus (r = .25, p < .001) and sexual orientation (r = .21, p < .01) were additionally significantly related to reporting more AIDS symptoms. For Latinos, all three types of discrimination (due to HIV-serostatus, race/ethnicity, and sexual orientation) were significantly related to experiencing worse medication side effects (r = .28, p < .001; r = .23, p < .01; and r = .23, p < .01, respectively) and a greater number of AIDS symptoms (r = .22, p < .01; r = .22, p < .01; and .18, p < .05, respectively); both discrimination from HIV-serostatus (r = −.26, p < .01) and sexual orientation (r = −.18, p < .05) were significantly associated with lower CD4 cell counts; and discrimination from sexual orientation was associated with greater emergency department use (r = 1.7, p < .05).

Multivariate Models—Table IV shows the coefficients for models testing the unique effects of the three types of discrimination, as well as the block tests for the combined effects of all three types of discrimination simultaneously. Black participants who experienced greater racial discrimination were less likely to have a high CD4 cell count [OR = 0.7, 95% CI = 0.5, 0.9, p = .02] , and an undetectable viral load [OR = 0.8, 95% CI = 0.6, 1.0, p = .03], and were more likely to visit the emergency department [OR = 1.3, 95% CI = 1.0, 1.7, p = .04]. Although not significant in the bivariate model, sexual orientation discrimination was significantly associated with higher CD4 cell counts in the multivariate model [OR=1.5, 95%CI=(1.0, 2.2), p=.03]; no effects were significant for HIV-serostatus discrimination. Only one block test – for AIDS symptoms – was significant, indicating that the three types of discrimination as a set were associated with more symptoms.

For Latinos, none of the main effects were significant. Two of the block tests were significant, indicating that the discrimination types as a set were significantly related to greater side effect severity and more AIDS symptoms.

DISCUSSION

Consistent with research on perceived discrimination and health [25], our results suggest that discrimination is related to poor physical health among people living with HIV. For Black MSM,1 racial discrimination seemed to be paramount over other types of discrimination in determining health outcomes: Black participants who experienced more racial discrimination had worse health outcomes, including lower CD4 cell counts and higher HIV viral loads, and were more likely to have visited the emergency department in the last 6 months, an indicator of poor health. In contrast, for Latino MSM, no one type of discrimination overrode the effects of the others; rather, the three types of discrimination as

a set significantly contributed to greater perceived side effects and symptoms, indicators of worse subjective illness experiences.

The finding for emergency department use is consistent with prior research indicating that Blacks use the emergency department at almost double the rate of Whites [69]. Greater emergency department use by Blacks is thought to be a consequence of high mistrust of health care [22,70,71], including beliefs that the US health care system is racist or discriminatory [72–75], as well as skepticism about the efficacy of HIV medications [76,77]. Some Blacks may delay help-seeking until their health deteriorates and immediate attention is necessary, through emergency services.

The contrasting findings for Black and Latino MSM suggest that discrimination operates differently by race/ethnicity. For Blacks, race/ethnicity cannot be concealed, and it often may be the first stigmatized characteristic of which others are aware. Accordingly, the Black MSM in our sample experienced more racial discrimination, as well as more harmful health-related effects of racial discrimination compared to other types of discrimination, and compared to the Latino MSM sample. These findings suggest that the discrimination-health relationship does not work similarly across mistreatment types and races/ethnicities. Research is needed that examines the unique effects of different types of discrimination on health by race/ethnicity. Furthermore, research should be conducted to examine the stability of our results in different contexts, countries, and regions (e.g., Africa, Europe, South America), in which race relations, the proportion of Blacks and Latinos, and the legacies of racism and colonialism vary, in addition to levels of HIV stigma – all of which can serve as moderators of the effects of present-day discrimination.

Our research provides preliminary evidence for the reliability and validity of the MDS for assessing three types of discrimination experiences among Black and Latino MSM living with HIV. Until now, there have been no measures available to assess multiple, layered stigmas and their role in the health of these populations. Most prior research on stigma among people with HIV has focused on HIV stigma only. However, HIV stigma must be viewed in the context of other stigmas that are likely to affect the lives of people with HIV. Our scale is likely versatile for use across a variety of settings; the subscales are flexible and can be modified to include other types of layered stigmas (e.g., substance use) and to examine other populations in which stigma and HIV prevalence may be high (e.g., in sub-Saharan Africa), and can be used in tandem or individually (e.g., MDS-race and MDS-HIV only, in countries where HIV is primarily heterosexually transmitted).

Interestingly, we did not find interaction effects among the different types of discrimination. However, we did find that all three types of discrimination as a set were significantly associated with some of the outcomes. Moreover, other research with the MDS has found interactions among the subscales for mental health outcomes [48]. Taken together, these results suggest that all three types of discrimination may be important for understanding health outcomes among HIV-positive Black and Latino men who have sex with men; however, the ways in which the three types of discrimination combine to produce worse health effects may differ based on the context and outcome examined.

The research presented here has implications for stigma-reducing interventions, several of which have been tested in prior research [78,79]; however, none has demonstrated long-term effectiveness. To be effective, such interventions may need to address the other types of stigma that co-occur with HIV stigma among people with HIV. Individual-level interventions to improve health among people with HIV might benefit from fostering resilience among people living with HIV by teaching them adaptive strategies (e.g., support-seeking) for coping with the stress of all types of discrimination, as well as teaching

strategies for the avoidance of maladaptive coping [20,80–85]. Research is needed to determine the kinds of coping strategies that are most successful for discrimination [52]. Moreover, interventions to combat racism are needed at the community level, to reduce prejudicial attitudes and norms for discrimination through open dialogue and positive contact between people of different races/ethnicities [86]; at the structural level, through policy and legislation that reduces high levels of residential racial segregation that stem from societal discrimination; and at the institutional level, to reduce bias from healthcare providers, which may lead to conscious or unconscious provision of lower quality of care by physicians, and consequent reluctance to utilize healthcare among those who are stigmatized [87].

Our findings must be considered within the context of the study's limitations. One major limitation is the reliance on self-reports. We were unable to obtain medical records data for all participants, and therefore used self-reported disease indicators, which were only moderately correlated with medical records data; future research should confirm our findings with biological measurements. Future research should also investigate our unexpected multivariate finding that greater sexual orientation discrimination was associated with higher CD4 cell counts among Black MSM, in terms of whether the result was unique to our dataset or due to an unmeasured third variable. Furthermore, self-reports of discrimination or mistreatment may not be accurate [88], and generally tend to be underestimates. Individuals often are not aware of institutional discrimination, such as in housing or employment [89]. Individuals also are likely to make alternate attributions for discrimination (e.g., the perpetrator is in a bad mood, the target caused the mistreatment and deserves negative outcomes) [52,90,91]. Even when events are perceived and categorized as discrimination, they may not be reported because of fear of repercussion from the perpetrator (albeit unlikely in the context of research), as well as avoidance of negative emotions associated with conceptualizing events as beyond one's control [52,90,91]. That self-reported discrimination nonetheless is strongly associated with health might reflect the health-eroding influence of unreported discriminatory events.

A second limitation is the cross-sectional nature of the analyses; these reveal associations, not causal relations, between discrimination and health. Thus, alternate explanations are possible. For example, rather than perceived discrimination leading to poor health, men who visibly have poor health may experience greater HIV stigma, because they are unable to conceal their illness. In addition, in this analysis we did not examine mechanisms of the relationship between discrimination and poor health outcomes, such as health behaviors or stress. Another source of concern is that we developed and validated the MDS measure on single samples of Blacks and Latinos. A validation sample that is separate from the scale-development sample is required to assess the validity and psychometric integrity of the MDS; hence, the validity data provided here are preliminary. Moreover, due to our recruitment via fliers at HIV social service agencies and medical clinics, and our eligibility criteria specifying that participants needed to be currently taking ART, our sample was primarily of low socio-economic status, was in contact with the healthcare system, and had public insurance. Given that people who are discriminated against may be less likely to utilize healthcare regularly (as suggested by our results for emergency department use), we might expect lower reports of discrimination among samples recruited through private physician offices, and higher reports of discrimination among individuals who are not engaged in care. Future research is needed to examine the MDS scale, and frequency of discrimination, across a range of different types of patients, and to examine both qualitatively and quantitatively the mechanisms of the relationship between discrimination and poor health outcomes.

Despite these limitations, this study highlights the potential of the MDS for assessing the frequency and health correlates of simultaneous discrimination due to multiple social characteristics, and likewise, found strong – but preliminary – associations between such discrimination and health. We encourage further use of the MDS across multiple health outcomes to examine the complex and distinct relationships between discrimination and health among diverse participant groups.

Acknowledgments

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Table I

Descriptive Statistics for 181 Black and 167 Latino MSM with HIV on Antiretroviral Treatment

	Blacks [M(SD) or %]	Latinos [M(SD) or %]
Age	43 (8)	44 (9)
Annual Income $5000	40%	31%
Education high school diploma/GED[a]***	21%	43%
Employment: Full/Part-Time[b]***	15%	35%
Housing Status[c]***		
Own/Rent	42%	70%
Residential Treatment Facility	8%	1%
Living with Friend/Relative	13%	3%
Government-Subsidized Housing	12%	17%
Temporary/Transitional Housing	16%	2%
Homeless	8%	2%
Other	2%	5%
Health Insurance Type[d]***		
AIDS Drug Assistance Program	36%	80%
Other Public Insurance (Medicaid, Medicare)	55%	16%
Private Insurance (Employer, Self-Pay)	4%	2%
Military , COBRA, Other	6%	2%
Heterosexual Identity[e] *	13%	7%
US Citizenship Status		
US Citizen	_____	23%
Permanent Resident	_____	23%
Undocumented	_____	46%
Temporary Visa/Other	_____	8%

*
$p < .05$;

***
$p < .001$

Note: A t-test was used for the test of age differences; all other tests are based on chi-squared statistics.

[a] $\chi^2(1) = 20.5$, $p < .001$

[b] $\chi^2(1) = 18.3$, $p < .001$

[c] $\chi^2(1) = 47.2$, $p < .001$

[d] $\chi^2(3) = 68.3$, $p < .001$.

Table II

Multiple Discrimination Scale (MDS) Item Endorsement, Descriptive Statistics, and Reliability Coefficients for 181 Black and 167 Latino MSM

	Blacks			Latinos		
	MDS-Race	MDS-HIV	MDS-Gay	MDS-Race	MDS-HIV	MDS-Gay
In Past Year						
Treated with hostility/coldness by strangers	28%	15%	28%	22%	16%	24%
Ignored/excluded/ avoided by people close to you	18%	17%	19%	14%	22%	23%
Rejected by a potential sexual/ romantic partner	15%	29%	13%	8%	25%	7%
Someone acted as if you could not be trusted	36%	15%	16%	19%	15%	17%
Denied a place to live/lost a place to live	10%	9%	9%	6%	6%	5%
Treated poorly/ made to feel inferior when receiving health care	10%	8%	6%	7%	10%	9%
Denied a job/lost a job	7%	3%	6%	14%	8%	8%
Someone insulted/ made fun of you	17%	18%	34%	27%	15%	32%
Personal property damaged/stolen	7%	6%	11%	7%	6%	10%
Physically assaulted/beaten up	6%	5%	6%	6%	3%	4%
Sum (M, SD)	1.5 (2.2)	1.2 (2.1)	1.5 (2.2)	1.3 (2.2)	1.2 (2.2)	1.5 (2.3)
Range	0–10	0–10	0–10	0–10	0–10	0–10
Frequency, Past Year						
None	47%	55%	56%	59%	60%	53%
1–2	30%	27%	20%	21%	23%	23%
3–10	23%	18%	24%	20%	17%	25%
Cronbach's Alpha	.83	.85	.86	.86	.88	.86
Test-Retest Reliability[a]	.63	.66	.63	—	—	—

[a] Average across all six follow-up assessments

Table III

Bivariate Correlations of Discrimination with Physical Health among 181 Black and 167 Latino MSM

MDS Subscale	Side Effect Severity	AIDS Symptoms	CD4 Cell Count 200	Undetectable Viral Load	Emergency Dept. Use (Past 6 Mos.)
Black MSM					
Discrimination-Race	.12	.26 ***	−.06	−.18 *	.20 **
Discrimination-HIV	.10	.25 ***	.02	−.08	.13 +
Discrimination-Gay	.06	.21 **	.08	−.08	.14 +
Latino MSM					
Discrimination-Race	.23 **	.22 **	−.16 +	.04	.11
Discrimination-HIV	.28 ***	.22 **	−.26 **	.03	.14 +
Discrimination-Gay	.23 **	.18 *	−.18 *	.04	.17 *

+
p < .10.

*
p < .05.

**
p < .01.

***
p < .001.

Table IV

Multivariate Logistic and Linear Regression Models Predicting Physical Health with Three Types of Discrimination among 181 Black and 167 Latino MSM

	Side Effect Severity[b]	AIDS Symptoms[c]	CD4 Cell Count 200[d]		Undetectable Viral Load[e]		Emergency Dept. Use (Past 6 Mos.)[f]	
	b (SE)	b (SE)	OR	95% CI	OR	95% CI	OR	95% CI
Black MSM								
Discrimination-Race	0.1 (0.1)	0.2 (0.2)	0.7*	[0.5, 0.9]	0.8*	[0.6, 1.0]	1.3*	[1.0, 1.7]
Discrimination-HIV	0.0 (0.1)	0.2 (0.2)	1.0	[0.7, 1.5]	1.1	[0.8, 1.4]	0.9	[0.7, 1.2]
Discrimination-Gay	−0.1 (0.1)	−0.1 (0.2)	1.5*	[1.0, 2.2]	1.1	[0.9, 1.4]	1.0	[0.8, 1.3]
Discrimination Set[a]	1.2	3.8*	6.9+		5.9		7.7+	
Latino MSM								
Discrimination-Race	0.0 (0.1)	0.2 (0.1)	1.0	[0.6, 1.6]	1.0	[0.8, 1.3]	1.0	[0.7, 1.3]
Discrimination-HIV	0.2 (0.1)+	0.3 (0.2)	0.4+	[0.1, 1.1]	1.0	[0.7, 1.4]	1.1	[0.7, 1.6]
Discrimination-Gay	−0.1 (0.1)	−0.2 (0.2)	2.0	[0.7, 6.0]	1.1	[0.7, 1.5]	1.1	[0.8, 1.6]
Discrimination Set[a]	4.6**	3.1*	6.6+		0.3		3.8	

+ p < .10;

* p < .05;

** p < .01

Note: OR = odds ratio; CI = confidence interval

[a] Wald χ^2 (3 df) for logistic regressions (undetectable viral load, emergency department use) and F (3 numerator df) for linear regressions (side effect severity, AIDS symptoms; denominator degrees of freedom are 173 and 176 for Black sample, respectively, and 162 and 163 for Latino sample, respectively).

[b] For the Black sample, model included sexual orientation as a covariate; for the Latino sample, model included employment status and income.

[c] For the Black sample, model included income, employment status and housing status as covariates; for the Latino sample, model included income, employment status, sexual orientation, and health insurance type.

[d] For the Black sample, model did not include covariates; for the Latino sample, model included income.

[e] For the Black sample, model did not include covariates; for the Latino sample, model did not include covariates.

[f] For the Black sample, model included employment as a covariate; for the Latino sample, model did not include covariates.

f For the Black sample, model did not include covariates; for the Latino sample, model included education, health insurance type, and employment status. Although sexual orientation was associated with emergency department use at an alpha level of p<.07, it could not be used as a covariate because no heterosexual participants reported emergency department use.