

# Association of Medical Mistrust and Poor Communication with HIV-Related Health Outcomes and Psychosocial Wellbeing Among Heterosexual Men Living with HIV

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## Abstract

Studies have suggested that effective patient–provider relationships may reduce health disparities and foster engagement across the HIV care continuum among people living with HIV/AIDS. However, no studies have explored specific mechanisms between medical mistrust/poor communication and HIV-related/psychosocial health outcomes among HIV-positive men of color who have sex with women (MCSW) in the United States. From 2011 to 2012, the research team recruited 317 eligible participants in New York City. Using validated explanatory and predictive modeling strategies, we explored the associations between mistrust/poor communication and HIV-related/psychosocial health outcomes among this group. Subgroup analyses were further conducted to assess the different effects of non-Hispanic black and Hispanic men. A total of 313 males (204 black, 93 Hispanic, and 16 others) reported that valid responses were included in the current analysis. In the explanatory models, both mistrust and poor communication were negatively associated with various HIV-related and psychosocial outcomes among this group of HIV-positive MCSW. In the predictive models, predictors of mistrust for the overall sample and the black subsample were nearly the same. On the contrary, predictors of poor communication were substantially different when comparing black and Hispanic HIV-positive MCSW. Our findings confirm that patient–provider relationship quality is associated with poor HIV-related and psychosocial outcomes in black and Hispanic MCSW. A different set of multi-level predictors are associated with mistrust and poor communication comparing black and Hispanic MCSW. We call for interventions addressing patient–provider relationship quality that are tailored differently for black and Hispanic men.

**Keywords:** men of color who have sex with women, explanatory and predictive modeling, black and Hispanic men, people living with HIV/AIDS (PLWHA)

## Introduction

**T**HE PATIENT–PROVIDER RELATIONSHIP has emerged as one of the key hallmarks of high-quality health care.<sup>1</sup> Studies have suggested that effective patient–provider relationships and communication may improve health behaviors and health outcomes as well as reduce health disparities among patients with various conditions.<sup>2,3</sup>

Moreover, for people living with HIV/AIDS (PLWHA), such improvements may reduce health disparities.<sup>2–7</sup> Several studies have indicated that positive patient–provider relationships can foster engagement across the HIV care continuum encompassing antiretroviral therapy (ART) initiation, retention, and adherence, leading to viral suppression and

better quality of life.<sup>8–11</sup> In addition, patient-reported HIV-related stigma (experienced or anticipated) from their health providers was significantly associated with suboptimal HIV prevention and treatment outcomes.<sup>12–14</sup>

Furthermore, patient–provider relationships have been identified as one of the key factors that contribute to health disparities in HIV care among people of color.<sup>15</sup> People of color accounted for 69% of new HIV diagnoses in the United States in 2017, while comprising less than one-third of the US population.<sup>16,17</sup> Studies examining racial/ethnic disparities in HIV care have primarily focused on men who have sex with men or heterosexual women,<sup>15,18,19</sup> very few studies have assessed health disparities in HIV care among heterosexual men, who accounted for 8% of all HIV diagnoses in

2017, but constitute the primary risk group for HIV transmission to women.<sup>17</sup>

Medical mistrust and poor communication are key negative indicators for patient–provider relationships. Medical mistrust is defined as the belief among patients that providers do not act in their best interest.<sup>20</sup> Mistrust is shaped and formed by patients' experience and interactions with people in- and outside of health care settings,<sup>21</sup> and it is considered a key barrier for optimal utilization of health care services and positive health outcomes.<sup>22</sup> Medical mistrust has been cited as a social determinant of health, especially for marginalized populations who already encounter health disparities that originate from their individual, ethnic, and social identities.<sup>20</sup> Furthermore, medical mistrust among people of different ethn racial groups may be due to specific historical or social factors. For instance, mistrust among African Americans may be rooted in the history of government-sanctioned medical mistreatment and exploitation targeting African Americans.<sup>23–26</sup> Mistrust among Hispanics/Latinos are more likely attributed to experiences of ethn racial discrimination, migration status, and language deficiency.<sup>27–29</sup> Medical mistrust has been shown to vary considerably across ethn racial groups.<sup>28</sup>

On the contrary, medical communication is often cited as “the most important but least accomplished” component in health care, and poor communication may lead to medical mistrust or vice versa.<sup>30</sup> Like medical mistrust, poor communication between patients and health providers can decrease the quality of care received by the patient and result in poor health outcomes,<sup>30</sup> especially for those who engage in HIV care as open and honest communication about one's condition is key to joint-decision making and fostering a patient-centered approach.<sup>21,31</sup>

While studies indicating that medical mistrust and poor communication may be associated with suboptimal health outcomes and health behaviors among PLWHA,<sup>31–33</sup> very few studies have quantitatively explored the role of the patient's perceived relationship with providers in HIV care engagement and health disparities among HIV-positive heterosexual men across ethn racial groups.<sup>10</sup> Although several studies have explored mistrust as either an exposure, a mediator, or a covariate,<sup>19,28,33</sup> there is scarce research that has identified potential predictors of medical mistrust and poor communication among PLWHA, or that has examined differences among ethn racial groups. In the current study, we explored specific mechanisms between medical mistrust/poor communication and physical/psychosocial comorbidities among HIV-positive men of color who have sex with women (MCSW). We hypothesize that medical mistrust and poor communication will be associated with poor HIV-related and psychosocial health outcomes among non-Hispanic black and Hispanic MCSW. In addition, we aimed to identify plausible predictors of medical mistrust and poor communication with health providers among HIV-positive MCSW. Only in understanding mechanisms of how medical mistrust and poor communication function, can we explore potential solutions to address health disparities among MCSW in the HIV care continuum.

## Methods

### Study design and procedure

Data in the current study were collected from 317 heterosexual non-Hispanic black and Latino men using a

cross-sectional study design. Eligible participants were those who (1) were cisgender male, (2) self-reported HIV-positive, (3) aged 18–60 years old, (4) were able to communicate in English or Spanish, (5) self-identified as heterosexual, (6) had vaginal or anal sex with at least one woman in the past 3 months, (7) had no cognitive impairment, and (8) were able to understand and sign the informed consent.

Study procedure have been documented in detail elsewhere.<sup>34</sup> In brief, from 2011 to 2012, eligible participants were recruited using a two-stage sampling process. In the first stage, 121 agencies that provided services to PLWHA in New York City were randomly selected for future contact from a list of 656 such agencies. A further effort was made to recruit younger eligible participants using a stratified sampling scheme among agencies serving younger (18–35 years) adults living with HIV. Among the 121 contacted agencies, 63% ( $n=76$ ) agreed to assist with study recruitment by posting and distributing study materials (i.e., recruitment posters, flyers, and cards), which described the study and provided a toll-free number for interested men to call to learn more about the study and undergo initial screening. An enrollment and data collection visit was then scheduled at a research office facility with men who screened eligible. At the interview, informed consent was obtained and a quantitative survey was completed. The survey was administered in either English or Spanish by trained bilingual interviewers using computer-assisted personal interview software (QDS ver.6.2.1; Nova Research). Each interview lasted about 1.5 h. Upon completion, participants were reimbursed \$50 for their time. An Institutional Review Board reviewed and approved the research protocol.

### Measurements

**Background information.** Participants were asked to provide information regarding their age (years), monthly income (in US dollars), race/ethnicity (black, Latino, and other), and time since HIV diagnosis (in years). Participants were further assessed on their HIV knowledge using a 10-item inventory, as well as their *HIV conspiracy belief* ( $\alpha=0.77$ ) using a 5-item scale adapted from the HIV/AIDS Conspiracy Beliefs scale.<sup>35</sup> Both scales have been validated.<sup>36</sup> In addition, *perceived social support* ( $\alpha=0.98$ ) was measured using 3 items from the Lubben Social Network Scale.<sup>37</sup>

Poor communication and mistrust with health providers. *Poor communication with health providers* was measured using an 8-item scale ( $\alpha=0.79$ ) designed to assess quality of communications with health providers during medical visits (e.g., clear instruction, have questions unanswered, ever disagree with a health provider, and feel blamed). Dichotomous responses with affirmative answers were summed to obtain a total score of communication, with higher scores indicating poorer communication. *Mistrust of health providers* was measured by 3 items ( $\alpha=0.89$ ) to assess participants' trust in health providers' technical judgment for medical care and treatment and overall trust, using a 5-point Likert scale ranging from “strongly agree” to “strongly disagree.” A composite score was calculated to indicate the magnitude of mistrust with health providers, with higher

scores indicating a higher level of mistrust. Both scales were validated by previous studies.<sup>20,38,39</sup>

**HIV-related outcomes.** HIV-related outcomes included both physical health and ART adherence behaviors. Physical health was measured by self-reported CD4 count and viral load based on participant accounts of most recent test results, and HIV symptoms. *HIV symptoms* were assessed using a 15-item inventory (e.g., muscle aches, fevers, and coughs) that were drawn from an HIV symptom index.<sup>40</sup> A composite score was calculated as the sum of the affirmative responses pertaining to the 15 symptoms. We further measured *ART adherence* using the self-reported number of missed HIV medication doses in the past month.

**Psychosocial wellbeing indicators.** A few measurements for psychosocial wellbeing were used in the current study. *HIV-related stigma* was assessed using a 12-item multi-dimensional scale measuring four domains of stigma, including disclosure, social relationship, stereotype, and self-acceptance ( $\alpha=0.83$ ).<sup>41</sup> Both *anxiety* ( $\alpha=0.78$ ) and *depression* ( $\alpha=0.79$ ) were assessed using the Client Diagnostic Questionnaire (CDQ).<sup>42</sup> *Discrimination* was measured using the Major Experiences of Discrimination Scale to track discriminatory events encountered by men ( $\alpha=0.57$ ).<sup>43</sup> *Maladaptive coping* was measured by asking participants if they used any negative coping strategies (e.g., reactive avoidance, substance abuse) to cope with HIV ( $\alpha=0.65$ ).<sup>44</sup> The *Family Environment Scale* ( $\alpha=0.82$ ) was used to measure the overall childhood and current living environment of the participants (e.g., residential care, community).<sup>45</sup>

#### Statistical analysis

Analysis of variance was used to assess differences in demographics, HIV-related outcomes, psychosocial wellbeing, and relationships with health providers among black, Hispanic, and other racial/ethnic groups. Next, we used explanatory models to assess the effects (regression coefficients) and explained variance ( $R^2$ ) between mistrust/poor communication and HIV-related and psychosocial outcomes among HIV-positive MCSW. A series of linear and zero-inflated Poisson regression models were used, accounting for model-specific confounders identified by directed acyclic graphs and a prior knowledge.<sup>46</sup> We used the 10% change-in-estimate criterion to select confounders for each final model, and reported adjusted coefficients and corresponding 95% confidence intervals (CI) if the outcome variables were continuous, and incidence rate ratios and corresponding 95% CI if the outcome variables were count data that had an excess of zero counts.<sup>47</sup> After exploring how mistrust and poor communication affect participants' HIV-related outcomes and psychosocial wellbeing in the combined sample, a subgroup analysis was used to explore these associations separately in black and Hispanic men.

In addition to explanatory modeling, we followed a validated procedure of establishing predictive models to identify predictors of mistrust and poor communication with health providers among black and Hispanic men.<sup>48</sup> As both mistrust and poor communication were continuous variables, multivariate linear regression with backward selection based on global likelihood ratio tests (LRT) (i.e., Chi-square test

for the model with all the terms vs. the model with only the intercept) was used.<sup>49</sup> We used the  $p$ -value of 0.20 as the cutoff point for both the global LRT and the stepwise regression tests. In addition to identifying predictors for the entire sample, we used the same procedures to explore predictors among black and Hispanic men separately.  $R$ -squares were reported to indicate how much variance was explained by the predictive model. All analyses were conducted using the STATA<sup>®</sup> package (Version 15; College Station, TX).

#### Results

In this study, a total of 313 males (204 black, 93 Hispanic, and 16 men from other ethnorracial identities, including 8 whites and 8 "mixed" status) reported valid responses and were included in the current analysis. Among these 313 men, the mean age was 47.91 (SD=1.83) years, with an average income of \$833.70 (SD=782.66) per month, and self-reported average time from diagnosis of HIV was 14.84 (SD=7.14) years. When comparing by racial/ethnic groups, black men were older (48.53 years for black vs. 46.60 for Hispanic vs. 46.69 for others) and reported greater magnitudes of HIV conspiracy beliefs (2.17 for black vs. 1.67 for Hispanic vs. 2.00 for others) and mistrust with health providers (2.98 for black vs. 2.56 for Hispanic vs. 2.88 for others) than other groups. On the contrary, Hispanic men reported living longer with HIV (16.68 years for Hispanic vs. 14.07 for black vs. 13.71 for others), and better ART adherence as measured by the number of missed doses (1.06 doses for Hispanic vs. 2.61 for black vs. 2.94 for others) (Table 1).

#### Findings from explanatory models

We found that both mistrust and poor communication were associated with poorer HIV-related and psychosocial outcomes among this group of HIV-positive MCSW. Specifically, poor communication with health providers was associated with suboptimal ART adherence ( $B=3.05$ , 95% CI=1.54 to 6.04), HIV symptoms ( $B=10.05$ , 95% CI=7.16 to 13.35), anxiety ( $B=0.26$ , 95% CI=0.08 to 0.45), and experiences of discrimination ( $B=2.02$ , 95% CI=0.64 to 3.41). When examined by race/ethnicity, the negative effects of poor communication on HIV-related outcomes among black men were greater compared with those of Hispanics. For instance, poorer communication was associated with lower CD4 counts ( $B=-10.21$ , 95% CI=-19.18 to -1.25) and greater number of missed ART doses (5.62, 95% CI=2.54 to 12.45) among black men, whereas these associations were much weaker or inconclusive among Hispanic men. On the contrary, the effects of poor communication on psychosocial outcomes were greater in Hispanics compared to black men. Experiences of discrimination ( $B=3.71$ , 95% CI=1.12 to 6.31) as well as HIV-related stigma ( $B=0.83$ , 95% CI=0.20 to 1.47), especially disclosure stigma ( $B=1.15$ , 95% CI=0.13 to 2.18) and self-acceptance stigma ( $B=1.48$ , 95% CI=0.65 to 2.30), were conclusively associated with poor provider communication in Hispanic men but not among black men.

Mistrust of health providers followed a different pattern, with associations more stable across racial and ethnic groups. For HIV-related outcomes, greater mistrust was related to a

TABLE 1. DESCRIPTION OF EXPOSURE, OUTCOME, AND KEY COVARIATES BY RACE/ETHNICITY

	Overall (n=313)	Black men (n=204)	Hispanic (n=93)	Others (n=16)	p-Value
Key exposure variables					
Poor communication (sum)	1.31	1.20	1.40	1.44	0.612
Mistrust	2.85	2.98	2.56	2.88	0.014
HIV-related outcomes					
CD4	447.40	455.96	434.46	407.93	0.665
Viral load	8380.24	7006.407	8186.17	23,183.87	0.009
Adherence	2.13	2.61	1.06	2.94	0.043
HIV symptom	5.50	5.28	5.82	6.38	0.249
Psychosocial outcomes					
Anxiety	1.95	1.90	2.07	1.89	0.116
Depression	1.74	1.68	1.84	1.78	0.094
Discrimination	1.87	1.91	1.81	1.69	0.726
Internalized stigma	2.41	2.44	2.36	2.26	0.472
Stereotype	2.61	2.69	2.44	2.48	0.081
Disclosure concerns	2.21	2.26	2.19	1.81	0.389
Social relationship	1.68	1.68	1.74	1.34	0.354
Self-acceptance	2.51	2.51	2.52	2.33	0.805
Maladaptive-coping	1.94	1.89	2.05	1.78	0.102
Toxic family environment	1.26	1.19	1.40	1.33	0.111
Background information					
Age (years)	47.91	48.53	46.60	46.69	0.033
Monthly income (in USD)	833.70	899.07	725.92	750.69	0.188
Time since diagnosis (years)	14.84	14.07	16.68	13.71	0.011
Social support (mean)	2.57	2.59	2.53	2.79	0.516
HIV knowledge (sum)	8.93	8.91	8.92	9.19	0.534
HIV Conspiracy (sum)	2.02	2.17	1.67	2.00	0.050

higher number of missed ART doses among both black (B=2.90, 95% CI=2.03 to 4.14) and Hispanic men (B=2.25, 95% CI=0.89 to 5.65) and HIV symptoms among black men (B=2.82, 95% CI=1.11 to 4.54). Few psychosocial variables were conclusively associated with mistrust of providers, except for experiences of discrimination in the pooled sample (B=0.61, 95% CI=0.04 to 1.19), disclosure stigma in the entire sample (B=0.22, 95% CI=-0.01 to 0.45), and among black men (B=0.28, 95% CI=0.00 to 0.57) (Table 2).

#### Findings from predictive models

Table 3 presents the results of the predictive models of mistrust with health providers for the overall sample and among black and Hispanic HIV-positive MCSW. With few exceptions, predictors of mistrust for the overall sample and the black subsample were nearly the same. Among black MCSW, greater mistrust of providers was associated with higher levels of toxic family environment, whereas greater social support was marginally associated with lower mistrust. Two dimensions of HIV stigma were also related to mistrust of providers, but in opposite directions: disclosure stigma predicted greater mistrust of providers, whereas relationship stigma predicted lower mistrust. Provider-level predictors of greater mistrust among black MCSW, including disagreeing with health providers, feeling judged or blamed, and concerns about not being understood. Greater HIV knowledge was associated with lower mistrust of providers. Notably, among black MCSW perceiving a language barrier predicted greater mistrust of providers, but language was not a predictor of mistrust among Hispanic men.

Among Hispanic MCSW, greater social support and higher monthly income were associated with lower mistrust of providers, whereas several provider-level predictors were associated with greater mistrust, including questions not answered, concerns about not being understood, and experiences of perceived disrespect by health providers. Among black HIV-positive MCSW, the predictive model accounted for 26.4% of the variance in mistrust of providers, with psychosocial and provider-level variables contributing nearly equally. For Hispanic HIV-positive MCSW, the predictive model explained 29.8% of the variance in mistrust of providers, with provider-level variables accounting for substantially more of the variance, although social support alone accounted for over 10% of the variance (Table 3).

Table 4 presents results examining predictors of poor communication with health providers. Similar to mistrust of providers, predictors of poor communication were substantially different when comparing black and Hispanic HIV-positive MCSW. The one exception was experiences of discrimination, which predicted poorer communication with health providers in both groups. Among black MCSW, greater levels of anxiety and lack of trust in providers' judgment and decision-making were associated with poorer communication. Having a greater number of HIV-related symptoms and higher HIV conspiracy beliefs were also predictors of poorer communication with providers.

Among Hispanic HIV-positive MCSW, in addition to experiences of discrimination, further predictors of poor communication with health providers included self-acceptance stigma, toxic family environment, inability to trust provider, and language barriers. Higher monthly income was associated with better communication with health providers.

TABLE 2. EXPLANATORY MODEL OF EFFECTS OF POOR COMMUNICATION/MISTRUST WITH HEALTH PROVIDERS ON HIV-RELATED AND PSYCHOSOCIAL OUTCOMES

HIV-related outcomes	Poor communication with HP (n = 317)			Mistrust with HP (n = 315)		
	Overall <sup>a</sup>	Black <sup>a</sup>	Hispanic <sup>b</sup>	Overall <sup>a</sup>	Black <sup>a</sup>	Hispanic <sup>b</sup>
CD4 <sup>c</sup>	-6.84 (-13.71 to 0.03)	-10.21 (-19.24 to -1.19)	-4.49 (-17.05 to 8.06)	-2.23 (-5.13 to 0.68)	-4.51 (-8.09 to -0.92)	1.73 (-3.39 to 7.35)
R <sup>2d</sup>	5.52%	8.24%	8.77%	4.99%	8.78%	8.62%
Viral load <sup>c</sup>	-4.49 (-17.05 to 8.06)	1.98 (-1.62 to 5.58)	-4.50 (-10.14 to 1.14)	0.70 (-0.52 to 1.91)	1.27 (-0.17 to 2.71)	-1.83 (-4.21 to 0.55)
R <sup>2d</sup>	8.77%	3.78%	11.83%	2.51%	4.87%	11.56%
Adherence <sup>e</sup>	3.05 (1.54 to 6.04)	5.62 (2.54 to 12.45)	0.84 (0.07 to 10.04)	2.04 (1.50 to 2.78)	2.90 (2.03 to 4.14)	2.25 (0.89 to 5.65)
Pesudo (Nagelkerke) <sup>d</sup> R <sup>2</sup>	9.80%	23.60%	20.30%	13.20%	30.6%	23.2%
HIV symptom <sup>c</sup>	10.25 (7.16 to 13.35)	12.25 (8.20 to 16.31)	7.92 (2.07 to 13.77)	2.72 (1.34 to 4.09)	2.82 (1.11 to 4.54)	2.06 (-0.63 to 4.76)
R <sup>2d</sup>	15.69%	19.39%	18.08%	8.21%	9.06%	13.30%
Psychosocial outcomes	Overall <sup>f</sup>	Black <sup>f</sup>	Hispanic <sup>e</sup>	Overall <sup>h</sup>	Black <sup>h</sup>	Hispanic <sup>b</sup>
Anxiety <sup>c</sup>	0.26 (0.08 to 0.45)	0.34 (0.09 to 0.58)	0.33 (-0.03 to 0.69)	0.011 (-0.07 to 0.09)	0.06 (-0.03 to 0.15)	-0.04 (-0.21 to 0.12)
R <sup>2d</sup>	41.63%	44.07%	39.46%	40.33%	42.44%	39.17%
Depression <sup>c</sup>	0.23 (-0.03 to 0.49)	0.21 (-0.11 to 0.54)	0.33 (-0.18 to 0.85)	0.07 (-0.03 to 0.18)	0.09 (-0.03 to 0.22)	0.04 (-0.19 to 0.27)
R <sup>2d</sup>	42.53%	47.68%	35.07%	42.36%	47.87%	35.05%
Discrimination <sup>c</sup>	2.02 (0.62 to 3.41)	1.49 (-0.33 to 3.32)	3.71 (1.12 to 6.31)	0.61 (0.04 to 1.19)	0.52 (-0.17 to 1.22)	1.07 (-0.14 to 2.28)
R <sup>2d</sup>	12.44%	15.26%	17.25%	11.45%	15.28%	12.53%
Internalized stigma (overall) <sup>c</sup>	0.27 (-0.06 to 0.60)	-0.02 (-0.44 to 0.39)	0.83 (0.20 to 1.47)	0.06 (-0.07 to 0.20)	0.07 (-0.08 to 0.23)	0.04 (-0.26 to 0.33)
R <sup>2d</sup>	15.92%	14.99%	27.25%	17.31%	16.36%	23.41%
Stereotype	0.10 (-0.29 to 0.49)	-0.09 (-0.60 to 0.42)	0.48 (-0.24 to 1.19)	0.06 (-0.10 to 0.21)	0.04 (-0.16 to 0.23)	0.08 (-0.24 to 0.40)
R <sup>2d</sup>	7.63%	6.10%	13.15%	7.71%	6.10%	11.57%
Disclosure concerns	0.45 (-0.12 to 1.02)	0.02 (-0.74 to 0.77)	1.15 (0.13 to 2.18)	0.22 (-0.01 to 0.45)	0.28 (0.00 to 0.57)	0.05 (-0.42 to 0.53)
R <sup>2d</sup>	14.48%	12.87%	23.14%	14.82%	14.59%	18.57%
Social relationship	0.19 (-0.31 to 0.68)	0.10 (-0.55 to 0.76)	0.10 (-0.84 to 1.04)	-0.08 (-0.28 to 0.11)	-0.05 (-0.30 to 0.20)	-0.28 (-0.70 to 0.13)
R <sup>2d</sup>	15.08%	14.49%	19.65%	15.12%	14.52%	21.32%
Self-acceptance	0.45 (-0.001 to 0.90)	-0.16 (-0.72 to 0.40)	1.48 (0.65 to 2.30)	0.07 (-0.11 to 0.25)	0.07 (-0.14 to 0.28)	0.17 (-0.23 to 0.56)
R <sup>2d</sup>	13.41%	12.42%	31.30%	12.46%	12.47%	21.42%
Maladaptive-coping <sup>c</sup>	0.09 (-0.79 to 0.96)	-0.33 (-1.51 to 0.86)	1.06 (-0.47 to 2.58)	-0.05 (-0.41 to 0.31)	-0.04 (-0.49 to 0.41)	-0.03 (-0.67 to 0.72)
R <sup>2d</sup>	5.23%	8.21%	4.74%	5.25%	8.12%	3.06%

Each explanatory model adjusts for each different set of covariates based upon the directed acyclic graphs.

<sup>a</sup>Model controls age, income, social support, years since diagnosis, and HIV knowledge.

<sup>b</sup>Model controls age, income, social support, years since diagnosis, language barrier and HIV knowledge.

<sup>c</sup>Reported coefficients from linear regression models.

<sup>d</sup>R<sup>2</sup> is the variance explained by the specific individual variable from the model.

<sup>e</sup>Using Zero-inflated Poisson Regression to model the outcome variable with inflated zeros, reported incidence rate ratio.

<sup>f</sup>Model controls age, income, social support, years since diagnosis, and HIV symptoms.

<sup>g</sup>Model controls age, income, social support, years since diagnosis, language barrier and HIV symptoms.

<sup>h</sup>Model controls age, income, social support, years since diagnosis, HIV conspiracy theory, and HIV symptoms.

<sup>i</sup>Model controls age, income, social support, years since diagnosis, HIV conspiracy theory, language barrier, and HIV symptoms.

TABLE 3. PREDICTIVE MODELS OF MISTRUST WITH HEALTH PROVIDERS AMONG OVERALL, BLACK, AND HISPANIC MEN (N=315)

	Overall			Black			Hispanic		
	Predictors	B <sup>a</sup> and 95% CI		Predictors	B <sup>a</sup> and 95% CI		Predictors	B <sup>a</sup> and 95% CI	
Psychosocial level	Social support	-0.06 (-0.09 to -0.02)		Social support	-0.04 (-0.09 to 0.01)		Social support	-0.09 (-0.14 to -0.03)	
	Disclosure stigma	0.07 (0.01 to 0.12)		Disclosure stigma	0.11 (0.04 to 0.18)		—	—	
	Relationship stigma	-0.07 (-0.13 to -0.001)		Relationship stigma	-0.09 (-0.17 to -0.001)		—	—	
	Toxic family environment	0.03 (-0.01 to 0.07)		Toxic family environment	0.07 (0.02 to 0.12)		—	—	
R <sup>2</sup> (psychosocial-level) <sup>b</sup>		9.80%			8.99%			10.43%	
Provider level	Receive unclear instruction	-0.05 (-0.16 to 0.05)		—	—		—	—	
	—	—		—	—		Questions not answered	0.10 (-0.05 to 0.24)	
	Disagree with HP	0.07 (0.00 to 0.14)		Disagree with HP	0.08 (0.001 to 0.16)		—	—	
	Feel being judged or blamed	0.09 (-0.01 to 0.18)		Feel being judged or blamed	0.11 (-0.01 to 0.23)		—	—	
	Concerns not being understood	0.14 (0.04 to 0.23)		Concerns not being understood	0.10 (-0.02 to 0.21)		Concerns not being understood	0.09 (0.03 to 0.34)	
	—	—		—	—		Experience disrespect from HP	0.14 (-0.06 to 0.33)	
R <sup>2</sup> (provider-level) <sup>b</sup>		13.65% (Δ = 3.85%)			11.43% (Δ = 2.44%)			19.16% (Δ = 8.73%)	
Background information	Years since diagnosis (every 5 years)	-0.01 (-0.03 to 0.01)		—	—		—	—	
	Language barrier	0.20 (0.03 to 0.37)		Language barrier	0.53 (0.24 to 0.82)		—	—	
	HIV symptoms	0.07 (-0.001 to 0.02)		HIV knowledge	-0.03 (-0.07 to 0.01)		—	—	
	—	—		—	—		Monthly income (in 1000 USD)	-0.12 (-0.25 to 0.01)	
R <sup>2</sup> (overall)		22.00% (Δ = 8.35%)			26.41% (Δ = 14.98%)			29.76% (Δ = 10.60%)	

<sup>a</sup>B is unstandardized coefficient.

<sup>b</sup>The R<sup>2</sup> value is hierarchical, and it indicates variations explained by the specific block. CI, confidence interval.

TABLE 4. PREDICTIVE MODELS FOR POOR COMMUNICATION WITH HEALTH PROVIDERS AMONG OVERALL, BLACK, AND HISPANIC MEN (N=315)

	Overall			Black			Hispanic		
	Predictors	B <sup>a</sup> and 95% CI	R <sup>2</sup>	Predictors	B <sup>a</sup> and 95% CI	R <sup>2</sup>	Predictors	B <sup>a</sup> and 95% CI	R <sup>2</sup>
Psychosocial level	Anxiety	0.08 (0.02 to 0.14)	15.66%	Anxiety	0.08 (0.01 to 0.16)	15.70%	—	—	—
	Discrimination	0.09 (0.001 to 0.02)		Discrimination	0.01 (-0.002 to 0.02)		Discrimination	0.01 (-0.003 to 0.03)	
	Self-acceptance stigma	0.02 (-0.001 to 0.05)		—	—		Self-acceptance stigma	0.08 (0.04 to 0.12)	
R <sup>2</sup> (psychosocial-level) <sup>b</sup>	—	—	—	—	—	—	Toxic family environment	0.03 (0.001 to 0.05)	33.60%
Provider level	Cannot trust my HP's judgment	0.05 (-0.01 to 0.11)	18.85% (Δ = 3.1920.73)	Cannot trust my HP's judgment	0.07 (0.001 to 0.14)	20.73% (Δ = 5.03%)	Cannot trust my HP's judgment	0.11 (0.04 to 0.18)	18.48% (Δ = -15.12%)
	Cannot trust provider's decision	0.05 (-0.002 to 0.10)		Cannot trust provider's decision	0.10 (0.04 to 0.15)		Cannot trust provider's decision	—	
	Cannot completely trust my HP	0.06 (0.01 to 0.11)		—	—		Cannot completely trust my HP	—	
R <sup>2</sup> (provider-level) <sup>b</sup>	—	—	—	—	—	—	—	—	—
Background information	HIV symptoms	0.005 (0.00 to 0.01)	18.85% (Δ = 3.1920.73)	HIV symptoms	0.06 (0.00 to 0.01)	20.73% (Δ = 5.03%)	Language barrier	0.08 (-0.003 to 0.17)	18.48% (Δ = -15.12%)
	HIV conspiracy belief	0.01 (-0.001 to 0.01)		HIV conspiracy belief	0.06 (-0.001 to 0.014)		HIV conspiracy belief	—	
	—	—		—	—		Monthly income (in 1000 USD)	—	
R <sup>2</sup> (overall)	—	—	30.36% (Δ = 11.51%)	—	—	32.82% (Δ = 12.09%)	—	44.40% (Δ = 25.92%)	—

<sup>a</sup>B is unstandardized coefficient.

<sup>b</sup>The R<sup>2</sup> value is hierarchical, and it indicates variations explained by the specific block. CI, confidence interval.

Among black HIV-positive MCSW, the predictive model accounted for 32.8% of the variance in poor communication with providers, with provider-level variables contributing slightly more than psychosocial variables. For Hispanic HIV-positive MCSW, the predictive model explained 44.4% of the variance in poor communication with providers, with psychosocial-level variables accounting for substantially more of the variance, although the inability to trust providers alone accounted for over 18% of the variance (Table 4).

## Discussion

In the current study, we quantitatively examined ethnorace-based health disparities in, and determinants of, patient-provider relationship quality among MCSW. Among all men in the sample, there were associations between HIV-related health and psychosocial wellbeing variables, and patient-provider relationship quality as measured by patient-perceived poor communication and mistrust. However, the manifestation and magnitude of these relationships varied across ethnoracial groups. Findings confirmed our hypotheses that HIV-related health outcomes and psychosocial wellbeing were negatively associated with medical mistrust and poor communication among HIV-positive men in this study. Poor communication was associated with HIV-related outcomes among black MSW at a higher magnitude, whereas poor communication was negatively associated with psychosocial wellbeing among Hispanic men to a greater degree. Our findings aligned with results from a qualitative study that was conducted among black HIV-positive males who believed that poor communication with health providers increased their fears about HIV infection and constrained their engagement in HIV care.<sup>32</sup> Perceived poor communication with providers was highest among black men in this study. If poor communication is a product of provider discriminatory behavior and practice, this finding would align with the literature on discriminatory experiences of black patients in health care, which may outpace those experiences of other ethnoracial groups.<sup>50</sup> In addition to its explanatory role, we also identified that mistrust of the health provider, physiological comorbidities, and HIV conspiracy beliefs served as potential predictors for poor communication among HIV-positive MCSW.

Medical mistrust was associated with ART adherence consistently across the different ethnoracial groups, but only affected HIV-related symptoms and disclosure concerns among black men. This finding was partially consistent with previous studies involving HIV-positive individuals, which found that provider mistrust was associated with ART non-adherence; however, when medication necessity beliefs were considered, this relationship was no longer conclusive.<sup>51</sup> Whetten et al. found positive associations between trust in health providers and better mental and physical health as well as more frequent HIV clinic visits among PLWHA in the Deep South.<sup>33</sup> Similarly, another study found that health care provider mistrust was associated with longer lapses between HIV clinic visits, which in turn was associated with suboptimal virologic outcomes.<sup>22</sup> Trust in the health care providers has been demonstrated to affect the engagement of PLWHA across the HIV care continuum, and subsequently, HIV-related health outcomes.<sup>52,53</sup> Patients living with HIV who

trust their providers are more likely to adhere to provider recommendations, adhere to HIV treatment and adhere to clinic appointments. Graham et al., however, reported no association between provider trust and linkage to HIV care among a group of newly diagnosed HIV patients.<sup>53</sup> As we did not distinguish between provider mistrust and medical mistrust in the current study, the influence of mistrust on health care engagement and health outcomes may not be captured by this single-level measurement.<sup>20,22</sup> In addition to the explanatory role, lack of social support and poor communication with health providers served as predictors of provider mistrust across ethnoracial groups. This relationship is aligned with previous research that indicated trust with health providers hinged upon the quality of communication as well as patients' everyday experiences and social interactions.<sup>21,54,55</sup>

No conclusive differences regarding poor communication with providers were observed between black and Hispanic HIV-positive men. However, Hispanic men reported much lower levels of mistrust than black men, which aligns with findings from previous studies.<sup>21,28</sup> Our predictive models revealed that HIV-related stigma and toxic family environment were less likely to impact mistrust among Hispanic men than black men, but social support had a greater impact on reducing mistrust among Hispanic men. This difference may be explained more by cultural differences rather than racial ones.<sup>21</sup> Contrary to previous studies, in which language deficiency was consistently cited as a problem that disproportionately impinged upon mistrust among Latinos,<sup>56,57</sup> language barrier served as a predictor for mistrust only among black but not among Hispanic men in the current analyses. Future studies are needed to clarify this specific pathway.

A few caveats need to be taken into consideration when interpreting findings from the current study. First of all, due to the nature of the cross-sectional design, causal inferences cannot be established among these men living with HIV. Future longitudinal studies are needed to explore the temporal associations. Second, all participants in the current study were recruited from NYC via the assistance of service agencies. Exclusion of HIV-positive men who reside in nonurban areas or those who do not have access to services may be characterized by even greater disparities in patient-provider relationship quality, resulting in sampling bias. All included participants were aged 33 years or older with a mean age of nearly 48 years, despite efforts to recruit younger men. Therefore, findings in the current study may not be generalizable to younger self-identified heterosexual HIV-positive men, or those who reside in nonurban areas, or those who lack access to health care services. Third, as all data were recalled and self-reported, topics such as medical adherence, substance abuse, and sexual behaviors may have not been recalled accurately or are recalled to be socially desirable. Fourth, the current study was generated from a secondary data analysis; there were no specific ethnoracial measurements (e.g., specific family environment measurements for black/Latino, respectively). Therefore, residual confounding due to incomplete or insufficient measurements may distort the observed associations. Fifth, only health care provider-level mistrust was measured in the current study, which may fail to capture the influence of mistrust toward the medical system. Recent studies have



suggested that fundamental distinctions between individual-level (e.g., mistrust for physician) and structural-level (e.g., mistrust for health system) mistrust, which may influence health outcomes among PLWHA via different mechanisms and cannot be transferrable.<sup>19–21,28</sup> Future studies need to address these issues to better understand associations between patient–provider relationships and health disparities among men of color in the United States.

Despite these limitations, the current study is one of the first studies to capture ethnoracial disparities in the patient–provider relationships among self-identified heterosexual men living with HIV in the United States. Findings from the current study have some practical implications for health professionals as well as other key stakeholders. First, patient–provider relationship quality (mistrust and communication) is associated with poor HIV-related and psychosocial outcomes in black and Hispanic MCSW. Interventions enhancing communication skills as well as fostering trust among health providers are urgently needed. Second, a different set of multi-level predictors are associated with mistrust and poor communication comparing black and Hispanic MCSW. For instance, perceiving a language barrier predicted greater mistrust of providers among black men, while greater social support was associated with lower mistrust of providers among Hispanic men. Therefore, culturally sensitive interventions need to be tailored differently for black and Hispanic men. Third, HIV-related stigma constantly played a key role in shaping and forming patient–provider relationships. Interventions need to continuously address the interactional stigma among men of color.

These findings indicate the importance of joint decision-making and patient-centered HIV care, concepts that ensure consensus between patients and providers on the approach to care, leading to improved health care utilization and treatment adherence.<sup>58</sup> Joint decision-making and patient-centered care requires that provider–patient communication is open, the needs of the patient are put first, and the care is tailored to the individual patient resulting in improved patient HIV-related outcomes.<sup>51,58</sup> In conclusion, our study attempted to advance knowledge on a complex issue regarding ethnoracial disparities in the patient–provider relationship among HIV-positive heterosexual men of color. Greater understanding of the role of poor communication and mistrust in the HIV care continuum will help guide improvements in the quality of care and quality of life to reduce the health disparities among PLWHA with different ethnoracial backgrounds.

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