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The role of cultural distance between patient and provider in explaining racial/ethnic disparities in HIV care*

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Abstract

Objective—We sought to evaluate whether cultural distance between patients and providers was associated with quality of care for people living with HIV/AIDS, and whether cultural distance helped explain racial/ethnic disparities in HIV care.

Methods—We surveyed 437 patients and 45 providers at 4 HIV clinics in the U.S. We examined the association of patients' perceived cultural distance from their providers with patient ratings of healthcare quality, trust in provider, receipt of antiretroviral therapy, medication adherence, and viral suppression. We also examined whether racial/ethnic disparities in these aspects of HIV care were mediated by cultural distance.

Results—Greater cultural distance was associated with lower patient ratings of healthcare quality and less trust in providers. Compared to white patients, nonwhites had significantly lower levels of trust, adherence, and viral suppression. Adjusting for patient-provider cultural distance did not significantly affect any of these disparities (*p*-values for mediation >.10).

Conclusion—Patient-provider cultural distance was negatively associated with perceived quality of care and trust but did not explain racial/ethnic disparities in HIV care.

Practice implications—Bridging cultural differences may improve patient-provider relationships but may have limited impact in reducing racial/ethnic disparities, unless coupled with efforts to address other sources of unequal care.

Keywords

Physician-patient relations; Culture; HIV

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1. Introduction

Racial/ethnic disparities in the quality of HIV care have been widely documented [1–4]. Minority patients with HIV/AIDS, especially African Americans, receive antiretroviral therapy (ART) less frequently than white patients do [5], receive ART for a shorter period of time [6], and have lower ART adherence [7–10]. The root causes of these disparities are unclear, but some evidence suggests that they may arise in part from interpersonal barriers between minority patients and their health care providers.

Race and ethnicity are complex concepts with broad and varied meanings. Although the two constructs have different origins, over time they have become overlapping frameworks that people use to categorize themselves and others according to some aspect of personal heritage. For instance, in the United States, white (or Caucasian) and black (or African American) are racial categories, whereas Latino (or Hispanic) is classified as an ethnicity. Yet in most situations, these categories are not distinguished as racial vs. ethnic but rather fall along a single continuum. In this paper, we use the combined term “race/ethnicity” to capture this continuum.

Why should race/ethnicity affect patient–provider relationships? People from a given racial/ethnic group may have similar heritage, but perhaps more importantly, they may also share common life experiences and societal circumstances. These similar experiences arise partly from inherited tradition, but also from the effects of racism, both institutional and interpersonal. These effects, which include discrimination and segregation, tend to create divisions, both social and psychological, that give rise to differing perspectives, values, beliefs, biases, customs, and communication styles. These differences may in turn create barriers that make it more difficult for people to interact and form relationships across, as compared to within, racial and ethnic boundaries.

The role of relationship barriers as a source of racial/ethnic disparities in health care quality is suggested by studies examining the influence of concordant vs. discordant race/ethnicity in the patient–provider dyad. The theory underlying studies of patient–provider racial/ethnic concordance is that if barriers related to race and ethnicity impair patient–provider relationships and result in worse outcomes, then one might observe better outcomes when patient and provider are interacting within, as opposed to across, racial/ethnic boundaries. These studies have demonstrated that racial/ethnic concordance is, in many cases, associated with higher quality relationships, characterized by greater patient participation, better communication, and higher satisfaction [11,12]. The quality of patient–provider relationships is in turn associated with the quality of HIV care; closer relationships are associated with greater receipt of ART, higher medication adherence, and higher rates of viral suppression [13–15]. One study found that African Americans with race concordant providers were more likely to be taking recommended antiviral medications than those with race discordant providers [16].

While these studies suggest that interpersonal barriers related to race and ethnicity may adversely affect the quality of care for minority patients, the nature of the barriers is not well understood. A prominent theory is that barriers may arise from cultural differences between patients and providers. Race/ethnicity and culture are distinct concepts, and racial/ethnic discordance does not necessarily imply cultural difference. However, it is reasonable to suspect that cultural difference may be one of the operative barriers in racial/ethnic discordant patient–provider relationships. Culture has different meanings in different contexts. When referring to culture at the level of an individual patient or health care provider, most definitions include the notion that culture reflects the collective influence of

group identities on the way individuals think about health and health care; interpret and respond to life events and experiences, particularly illness; and interact with others [17]. The influence of group identity on individuals is shaped by shared experiences, customs, values, and behavioural norms. As described above, race and ethnicity are group identities that heavily influence the lives of people in the United States and exert a potentially strong effect on an individual's cultural perspectives. Thus, there is theoretical validity to the hypothesis that a cultural divide might exist between racial/ ethnic minority patients – who are not only in the minority but also disproportionately situated in lower and middle social classes and may have a non-biomedical orientation to health – and their health care providers, most of whom are in the racial/ethnic majority, in upper social classes, and have a predominantly biomedical orientation to health.

Schouten and Meeuwesen suggest several mechanisms by which cultural differences may affect patient–provider relationships, including differences in explanatory models of health and illness, cultural values, and preferences for doctor–patient relationships [18]. In a review of the literature, they found that few studies have explored the specific barriers that might affect interactions between minority patients and their providers, and in turn other “downstream” aspects of the quality of care [18]. Likewise, the theory that cultural differences between racial/ethnic minority patients and their providers might help explain racial/ethnic disparities in health care delivery has not been directly tested. We therefore sought to determine whether cultural differences between patients and their providers – measured on a continuum as “cultural distance” – are associated with the quality and equity of care for people living with HIV/AIDS. Specifically, we hypothesized that patient–provider cultural distance, as perceived by patients with HIV/AIDS, would be associated with lower perceived quality of care, less trust in providers, lower receipt of ART, less medication adherence, and lower rates of viral suppression. We also sought to determine the degree to which racial/ethnic disparities in these aspects of HIV care are mediated by perceived cultural distance.

2. Methods

2.1. Setting and subjects

This study took place in the context of the Enhancing Communication and HIV Outcomes (ECHO) project, in which we surveyed providers and patients at HIV clinics in Baltimore, Detroit, New York City, and Portland, Oregon, between October 2006 and June 2007 [19,20]. Institutional Review Board approval for all study procedures was obtained from each participating site. The study team included one HIV provider from each study site, who invited all HIV providers at his/her site to participate in the study. HIV providers included physicians, nurse practitioners, and physician assistants. Providers agreeing to participate in the study completed a baseline, 13-page, paper-and-pencil questionnaire after giving informed consent. Research assistants approached the patients of consenting providers in clinic waiting rooms and attempted to enrol 10 patients for each participating provider. Informed consent was obtained from all research participants. Due to variance in the expected distribution of patient race/ethnicity at the four study sites, the following sampling scheme was designed. In Baltimore and Detroit, research assistants made efforts to consent and enrol equal numbers of African-American and white patients. In New York City and Portland, research assistants attempted to consent and enrol equal numbers of African-American, Latino, and white patients (one-third each). Patients were eligible to participate if they were receiving care for HIV infection, spoke English, and were over 18 years of age. Following the patient–provider encounters, research assistants administered a 33-page patient survey instrument that assessed demographic, social, and behavioural characteristics, along with patients' ratings of their experience of care. We also abstracted data from each

enrolled patient's medical records, including medication regimens, CD4 lymphocyte counts, and viral load recorded within 3 months of the study visit.

2.2. Measures

2.2.1. Race/ethnicity—In keeping with current U.S. Census Bureau methods for evaluating racial and ethnic identity, we asked patients and providers to identify: (1) whether they were Hispanic/Latino, or not and (2) to which racial group(s) they belonged (multiple choices allowed). We then asked them to identify – from a list of options including White/Caucasian, Black/African American, Hispanic/Latino, American Indian/Alaska Native, Asian, Pacific Islander/Native Hawaiian, and other – a single, main racial/ethnic group with which they identified. Our variables for patient and provider race/ethnicity were derived from this latter question. When collapsing racial/ethnic groups into white and nonwhite, we considered anyone identifying as White/Caucasian to be white, and all others to be nonwhite.

2.2.2. Cultural distance—Culture at the level of an individual person is a multidimensional, dynamic, and elusive concept [21], making it inherently difficult to measure. While it may be difficult to locate a particular patient on the multidimensional landscape of culture at any given point in time, it is conceptually more feasible to evaluate, on average, the cultural distance that patients from different groups perceive between themselves and their health care providers. To measure patients' perceptions of cultural distance from their providers, we administered a 4-item scale developed by Haidet et al. as an instrument to capture dimensions of patient–provider cultural concordance vs. discordance [22]. The scale contains items evaluating patients' perceived similarity to their provider in terms of speech and language, reasoning, communication style, and values (Appendix A). While these items capture only a few dimensions of culture, they are dimensions that are particularly relevant to the way in which cultural differences might affect patient–provider interactions [18]. Moreover, the scale has been validated as a predictor of patient satisfaction, trust, and intent to adhere to treatment recommendations [22]. We calculated cultural distance scores by averaging patient responses to the 4 items, such that possible scores ranged from 1 (least distant) to 6 (most distant).

2.2.3. Outcomes—We evaluated five outcome variables: perceived quality of care, trust, receipt of ART, adherence to ART, and viral suppression. Patients rated the overall quality of their health care during the prior six months using a single item with responses ranging from poor to excellent. We measured patients' trust in their providers using the Stanford Trust in Physician Scale, an 11-item measure that has demonstrated validity in predicting continuity with the physician, self-reported adherence to medication, and patient satisfaction [23]. Patients were considered to be on ART if they were taking recognized antiretroviral medications used for the treatment of HIV infection [24]. For patients receiving ART, adherence to ART was measured using a validated survey [25] in which patients were considered adherent if they had not missed any doses in the past three days [26]. Based on the limits of detection for viral load at our sites, we considered a patient's viral load to be suppressed if it was at or below 75 RNA copies/mL [24].

2.2.4. Covariates—In addition to race/ethnicity, providers reported their age, gender, and profession (physician vs. non-physician). Patients additionally reported their age, gender, level of education, marital status, and employment status. We measured patients' health literacy using the Rapid Evaluation of Adult Literacy in Medicine (REALM) [27]. We assessed substance use with items from the Addiction Severity Index-Lite and categorized patients as either actively using drugs or not [28]. Patients rated their overall quality of life using a single, global item with a 100 mm visual analogue scale [29]. They reported

depressive symptoms using the 10-item Center for Epidemiologic Studies Depression Scale (CES-D) [30]. Finally, we measured social support using a 9-item scale developed for the HIV Cost and Services Utilization Study [31].

2.3. Data analysis

We compared patient race/ethnicity, provider and patient covariates, and patient outcomes, across perceived cultural distance tertiles (low, middle, and high), using Pearson's chi-square tests or one-way analysis of variance, as appropriate. We used tertiles only for comparison of patient and provider characteristics across varying levels of cultural distance. For all other analyses, cultural distance was modelled as a continuous variable. For multivariate analyses, we applied linear or logistic regression models, as appropriate, using generalized estimating equations to control for covariates and account for clustering of patients within provider. Following the method described by Baron and Kenny [32], we first tested the association of race/ethnicity with cultural distance scores. We then examined the association of cultural distance with patients' ratings of overall quality of care (dichotomized, excellent vs. lower ratings), trust in HIV care provider (dichotomized, greater than vs. less than or equal to the median score), receipt of ART, adherence, and viral suppression. Next, we examined the association of patient race/ethnicity (white vs. nonwhite) with each outcome variable. Finally, we added perceived cultural distance to each race/ethnicity-outcome model to determine whether racial/ethnic differences were mediated by patients' perceptions of cultural distance from their providers. We used Sobel's test for mediation with dichotomous outcomes to evaluate the significance of cultural distance as a mediating variable in each race/ethnicity-outcome model [33,34].

For analyses where perceived cultural distance was the primary independent variable, we included in multivariate models study site (clinic), patient age and sex, and covariates that differed ($p < .10$) across levels of cultural distance: patient education level (completed high school vs. not), employment (currently working vs. not), substance use (currently using vs. not), quality of life, depressive symptoms, and social support. For analyses where race/ethnicity was the primary independent variable, we included in multivariate models study site (clinic), patient age and sex, and covariates that differed ($p < .10$) for whites vs. nonwhites: patient education level (completed high school vs. not), health literacy (REALM score), quality of life, and depressive symptoms, and provider race/ethnicity and profession (physician vs. non-physician).

Analyses for receipt of ART were restricted to patients eligible for ART, as determined by being on ART or having a CD4 count of less than or equal to 350 cells/mm³. Adherence analyses were limited to patients on ART, and analyses for viral suppression were limited to patients either on or eligible for ART (CD4 count ≤ 350 cells/mm³). Data were analyzed using Stata SE/9.0 (College Station, TX).

3. Results

There were 55 providers eligible for the study across all sites. Overall, 45 (82%) agreed to participate. Two providers refused; the other 8 were not approached because we reached our enrolment target. We identified 617 eligible patients. Providers refused to allow 18 patients to be approached for the study, because they felt too rushed ($n = 12$), considered the patient too sick ($n = 5$), or were seeing the patient to discuss lab results rather than for a complete visit ($n = 1$). Of the remaining 599 patients approached, 436 (73%) agreed to participate and completed the post-encounter survey. Of the 163 patients who declined, the most common reasons were not having time to complete the interview ($n = 106$), not feeling well ($n = 22$), and being uninterested ($n = 13$). The final sample included 250 African American, 60 Latino, and 100 white patients, and 26 from other racial/ethnic groups.

Of the 436 patients in the study, 427 completed the measure of perceived cultural distance. Potential and actual scores for patients' perceived cultural distance from their providers ranged from 1 to 6, with a mean score of 2.15 and a median of 2.0. The scale had good internal consistency (Cronbach's alpha .80). Perceived cultural distance was greater for patients with less education, active substance use, lower overall quality of life, more depressive symptoms, and less social support (Table 1). In unadjusted analyses, perceived cultural distance also varied by the race and ethnicity of patients but not the race or ethnicity of their providers. Nonwhite patients perceived, on average, slightly greater cultural distance from their providers compared to white patients, though there were no significant differences in perceived cultural distance by patient race/ethnicity after adjusting for clinic site and patient and provider characteristics (Table 2). Because cultural distance was similar among minority groups, we aggregated nonwhite patients in stratified analyses.

Perceived cultural distance was associated with both patient ratings of healthcare quality and trust in providers (Table 3). A one-point increase in the 6-point cultural distance score was associated with a 47% lower odds of rating one's care as excellent (OR .53, 95% CI .42–.65) and 43% lower odds of high trust in one's provider (OR .57, 95% CI .46–.71). These findings were consistent among both nonwhite and white patients. Perceived cultural distance was not associated with being on ART, adherence, or viral suppression.

Race/ethnicity was not associated with patient ratings of healthcare quality in our study, though after adjusting for covariates there was a non-significant trend towards lower perceived quality among nonwhites compared to whites (Table 4). After adjusting for perceived cultural distance, this difference did not change significantly (p -value for mediation = .20). We observed a similar pattern for trust in providers. Nonwhites had less trust in their providers than whites, but adjusting for perceived cultural distance only minimally altered this disparity (p -value for mediation = .12). We also found a non-significant racial/ethnic difference in patients' receipt of ART, and significant differences in adherence and viral suppression (Table 4). None of these differences was mediated by perceived cultural distance.

4. Discussion and conclusion

4.1. Discussion

There has been little empirical research exploring cultural distance between patients and providers and the effect of this dimension of the patient–provider relationship on patient experiences and outcomes. In this study based at four HIV clinics across the U.S., we found that greater cultural distance, as perceived by patients, was associated with lower perceived quality of care and less trust in providers. However, patients' perceptions of cultural distance from their providers did not vary substantially by race/ethnicity, and accordingly cultural distance did not explain racial/ethnic differences in any of the outcome measures we examined.

Prior research has found that perceived cultural distance between patients and providers, measured using the same scale we employed in this study, affects patients' satisfaction and trust [22]. This should not be surprising. Differences in cultural values and communication styles may impede the development of a close relationship between patient and provider. This does not necessarily mean that doctors and patients need to be culturally similar in order to have good relationships. Rather, it highlights the fact that cultural differences can create distance, and that efforts to bridge that distance have the potential to improve patient–provider interactions [35,36].

The finding that perceived cultural distance did not mediate racial/ethnic disparities in quality of care highlights the complexity of these disparities and the importance of not overemphasizing the role of culture in explaining them. While race and ethnicity undoubtedly influence individuals' cultural perspectives, and while cultural barriers may exist for minority patients, they are not the only, and probably not the most important, barriers minority patients face in interacting with their health care providers and systems [21].

In our study, patient race/ethnicity was not significantly associated with perceived cultural distance from one's provider. Because cultural norms, values, and communication styles tend to vary across racial/ethnic groups, and because most of the providers in our study identified as white or Caucasian, we anticipated that minority patients, who were mainly African American and Latino, would report greater cultural distance from their providers than white patients did. We found that cultural distance scores were slightly greater among nonwhite patients, but they were not statistically different from those reported by white patients. Several features of our study population may explain this lack of racial variation in patient-provider cultural distance. First, the patients in our study were all enrolled in allopathic HIV care. Minority patients who engage in the mainstream health care system may be more culturally similar to the majority population than those who do not. Second, the HIV epidemic in the United States has given rise to an HIV "community" that includes patients who share common experiences, as well as providers, patients, and advocates who share common interests in HIV prevention, treatment, and research. It may be that affiliation with this community resulted in shared cultural perspectives, both among patients – reducing cultural variation across racial/ethnic groups – and between patients and providers – reducing patient-provider cultural distance. Finally, we excluded patients who did not speak English, and we may have thereby selected a relatively acculturated and homogeneous patient population.

Our study had several other limitations. First, our cross-sectional design did not permit firm conclusions about the causal direction of our observed associations. Second, although the cultural distance scale we used has been validated in prior research [22], and in our study as a predictor of perceived quality and trust in providers, it is not a comprehensive measure of culture. Other dimensions of culture, such as religious and spiritual beliefs, individualist vs. collectivist orientation, and biomedical vs. non-biomedical orientations towards health may also influence the patient-provider relationship and may be fertile ground for future research. Third, although we measured patients' perceived cultural distance from their providers, we did not ask how important they considered that distance to be. It may be that there is a subset of patients for whom patient-provider cultural distance is particularly important, and that for those patients, cultural distance may help explain racial/ethnic disparities. Finally, we conducted our study in urban HIV clinics, and our results may not be generalizable to other settings.

4.2. Conclusion

We found that patients' perceived cultural distance from their providers was associated with patients' ratings of health care quality and trust in providers but did not influence other aspects of the quality of HIV care. In addition, patients' perceived cultural distance from providers did not vary by patient race/ethnicity. Consequently, perceived cultural distance did not explain racial/ethnic disparities in either interpersonal or technical aspects of HIV care.

4.3. Practice implications

We believe our findings have implications for efforts to reduce the potential contribution of patient–provider relationships to racial/ethnic disparities in healthcare delivery. These efforts typically involve training in what most educators refer to as “cultural competence”. Many programs that carry the cultural competence label cover a broad set of topics, including cultural barriers but also awareness of personal biases, social determinants of health, and patient-centered interviewing skills [37]. Other programs, however, are more narrowly focused on cultural differences. They emphasize bridging cultural distance between patients and providers by increasing providers' awareness of different ethnic traditions and beliefs across diverse patient populations [38]. These programs may help improve cross-cultural understanding and interpersonal interactions, which our results suggest may improve patients' satisfaction with care and trust in health care providers. But for many populations that experience unequal care (e.g., African Americans), cultural barriers are likely to be only a small part of the problem. Factors such as racial bias [39] and interracial anxiety [40] may be equally relevant. As such, training programs that focus narrowly on cultural barriers per se, without focusing on other issues related to discrimination and racism, may be of limited value in reducing healthcare disparities.

While bridging cultural distance between patients and providers may improve patient–provider relationships, it may or may not play a substantial role in reducing racial/ethnic disparities. Efforts to improve health care providers' ability to reduce disparities in health care quality will require interventions to address both cultural and non-cultural barriers in patient–provider relationships.

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Appendix A

Cultural distance scale:

1. The way my doctor and I speak is _.
2. The way my doctor and I reason about problems is _.
3. My doctor and I have _ styles of communication.
4. My doctor and I have _ general values in life.

Response options: very similar (1), moderately similar (2), slightly similar (3), slightly different (4), moderately different (5), very different (6).

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Table 1

Patient and provider characteristics, and patient outcomes, by level of patient-provider cultural distance (tertiles).

	Perceived cultural distance (tertile) ^a			p-Value [*]
	Low	Middle	High	
Patient characteristics				
N	177	139	111	
Age, mean (SD)	45.9 (9.6)	45.8 (10.1)	44.0 (8.4)	.20
Female, n (%)	63 (35.6)	41 (29.5)	39 (35.5)	.46
Race/ethnicity, n (%)				.04
White	55 (31.1)	25 (18.0)	20 (18.0)	
African American	94 (53.1)	82 (59.0)	68 (61.3)	
Latino	22 (12.4)	20 (14.4)	18 (16.2)	
Others	6 (3.4)	12 (8.6)	5 (4.5)	
Completed high school, n (%)	139 (78.5)	103 (74.1)	69 (62.2)	.009
Health literacy >9th grade level177, n (%)	131 (74.0)	93 (66.9)	71 (64.0)	.16
Married, n (%)	24 (13.6)	18 (13.0)	11 (9.9)	.64
Employed, n (%)	45 (25.4)	43 (31.2)	21 (18.9)	.09
Active substance abuse, n (%)	41 (23.2)	38 (27.3)	45 (40.5)	.006
CD4 count <350 cells/mm ³ , n (%)	63 (36.2)	56 (42.1)	49 (46.7)	.21
Quality of life score, mean (SD)	74.6 (24.8)	66.4 (27.2)	62.4 (26.3)	<.001
Depression score, mean (SD)	1.96 (.70)	2.20 (.56)	2.23 (.60)	<.001
Social support score, mean (SD)	3.08 (.69)	2.80 (.70)	2.71 (.68)	<.001
Provider characteristics				
Age, mean (SD)	45.0 (8.7)	43.7 (8.1)	44.3 (7.2)	.35
Female, n (%)	109 (61.6)	77 (55.4)	63 (56.8)	.50
Race/ethnicity, n (%)				.18
White	125 (70.6)	88 (63.3)	79 (71.2)	
Asian	28 (15.8)	37 (26.6)	23 (20.7)	
African American	12 (6.8)	8 (5.7)	4 (3.6)	
Latino	2 (1.1)	3 (2.2)	3 (2.7)	
Other	10 (5.7)	3 (2.2)	2 (1.8)	
Profession, n (%)				.15
Physician	120 (67.8)	101 (72.7)	87 (78.4)	
Non-physician ^b	57 (32.2)	38 (27.3)	24 (21.6)	
Patient outcomes				
Perceived quality (highest rating), n (%)	137 (77.4)	83 (59.7)	43 (38.7)	<.001
Trust in provider (>median), n (%)	113 (63.8)	63 (45.3)	34 (30.6)	<.001
On ART ^c , n (%)	140 (90.9)	110 (93.2)	78 (84.8)	.12
100% 3-day adherence ^d , n (%)	122 (87.1)	87 (79.1)	62 (79.5)	.18
HIV RNA <75 copies/mL ^c , n (%)	81 (52.6)	62 (53.5)	46 (50.0)	.88

ART, antiretroviral therapy.

^aPercent figures represent proportions within each column that have the given characteristic.

^bNurse practitioner or physician assistant.

^cAmong patients on ARV or eligible for ARV (CD4 count <350 cells/mm³).

^dAmong patients on ARV.

* *p*-Values represent results of testing for any differences in distributions (for categorical variables, using Pearson's chi-square test) or means (for continuous variables, using one-way analysis of variance), among cultural distance tertiles.

Table 2

Patient-provider cultural distance, by patient race/ethnicity.

Patient race/ethnicity	Perceived cultural distance, mean (SD)	Adjusted β (95% CI) ^a
White	1.96 (1.09)	-
African American	2.20 (1.12)	.23 (-.04, .49)
Latino	2.19 (.98)	.12 (-.24, .47)
Other	2.30 (1.10)	.31 (-.17, .79)

^aResults of linear regression analyses comparing perceived cultural distance scores for each nonwhite group to those for whites, adjusted for study site; patient age, sex, education level, literacy, quality of life, depressive symptoms; and provider race and profession.

Table 3Patient-provider cultural distance and outcomes, by patient race.^a

Outcome	All patients	Nonwhite patients	White patients
Perceived quality	.53 (.42–.65)	.52 (.41–.67)	.51 (.31–.84)
Trust	.57 (.46–.71)	.61 (.47–.79)	.46 (.25–.83) ^b
On ART	1.05 (.75–1.47)	.97 (.65–1.43)	
100% 3-day adherence	.98 (.73–1.30)	1.05 (.75–1.44)	.65 (.21–1.98)
Viral suppression	1.09 (.88–1.35)	1.01 (.79–1.30)	1.24 (.75–2.05)

ART: antiretroviral therapy.

^aResults represents odds ratios (95% confidence intervals) for association of perceived cultural distance with each outcome variable, adjusted for study site, patient age, sex, education level, employment, substance use, quality of life, depressive symptoms, and social support.

^bToo few white patients were eligible for but not on ART for this analysis.

Table 4

Patient race and outcomes.

Outcome	Patient race		Nonwhite:white OR (95% CI)		Adjusted for covariates ^a	Adjusted for covariates ^a + perceived cultural distance
	Nonwhite, n (%)	White, n (%)	Unadjusted	Adjusted for covariates ^a		
Perceived quality	200 (60.1)	68 (68.0)	.72 (.44–1.15)	.60 (.35–1.02)	.65 (.37–1.13)	
Trust	152 (45.8)	60 (60.0)	.56 (.36–.89)	.59 (.36–.98)	.66 (.39–1.11)	
On ART	253 (89.4)	80 (93.0)	.67 (.28–1.63)	.38 (.13–1.08)	.38 (.13–1.08)	
100% 3-day adherence	202 (79.8)	72 (90.0)	.42 (.19–.93)	.35 (.15–.84)	.35 (.14–.84)	
Viral suppression	137 (48.6)	55 (64.7)	.52 (.31–.86)	.49 (.27–.85)	.48 (.27–.84)	

ART: antiretroviral therapy.

^a Covariates include study site; patient age, sex, education level, literacy, quality of life, depressive symptoms; and provider race and profession.