Trust in Physicians and Racial Disparities in HIV Care

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Abstract

Mistrust among African Americans is often considered a potential source of racial disparities in HIV care. We sought to determine whether greater trust in one's provider among African-American patients mitigates racial disparities. We analyzed data from 1,104 African-American and 201 white patients participating in a cohort study at an urban, academic HIV clinic between 2005 and 2008. African Americans expressed lower levels of trust in their providers than did white patients (8.9 vs. 9.4 on a 0–10 scale; $p < 0.001$). African Americans were also less likely than whites to be receiving antiretroviral therapy (ART) when eligible (85% vs. 92%; $p = 0.02$), to report complete ART adherence over the prior 3 days (83% vs. 89%; $p = 0.005$), and to have a suppressed viral load (40% vs. 47%; $p = 0.04$). Trust in one's provider was not associated with receiving ART or with viral suppression but was significantly associated with adherence. African Americans who expressed less than complete trust in their providers (0–9 of 10) had lower ART adherence than did whites (adjusted OR, 0.40; 95% CI, 0.25–0.66). For African Americans who expressed complete trust in their providers (10 of 10), the racial disparity in adherence was less prominent but still substantial (adjusted OR, 0.59; 95% CI, 0.36–0.95). Trust did not affect disparities in receipt of ART or viral suppression. Our findings suggest that enhancing trust in patient–provider relationships for African-American patients may help reduce disparities in ART adherence and the outcomes associated with improved adherence.

Introduction

Racial disparities in HIV care are well documented.[1] African-American patients with HIV are less likely than are white patients to receive antiretroviral therapy (ART),[2,3] to be adherent to and persistent with ART,[4–6] and to achieve viral suppression.[6,7] The sources of these disparities are not clear, but they are generally not explained by differences in socioeconomic status and access to care. A recent study found that even with equal access to care and similar rates of ART initiation, African Americans were less likely than were whites to achieve viral suppression.[8] Whether this disparity resulted from racial differences in ART adherence or biologic factors was unclear.[8]

One potential source of disparities in initiating and adhering to ART is patient distrust. In the realm of HIV care, distrust runs high. Several surveys have revealed that many people, especially African Americans, endorse conspiracy beliefs about the origins of HIV and its treatment,[9–11] and that these beliefs influence patient behaviors. Specifically, people endorsing conspiracy beliefs are more likely to be tested for HIV[12] but less likely to adhere to ART.[13] African-American patients also express lower levels of trust in health care providers than do white patients.[14,15] Lower trust in health care providers is in turn associated with fewer HIV-related health care visits[16] and lower acceptance and use of ART.[16,17] It is plausible, then, that enhancing the degree to which African-American patients trust their health care providers might improve acceptance of and adherence to ART,[18] and thereby reduce associated racial disparities in HIV-related outcomes.

Studies to date, however, have not directly examined the potential for greater trust in providers to mitigate racial disparities in HIV care.

We sought to explore this possibility by determining whether African American and white HIV-infected patients express different levels of trust in their HIV-care providers; whether trust is associated with receipt of ART, adherence to ART, or viral suppression; and whether racial disparities in

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these processes and outcomes of HIV care differ according to the degree of trust that African-American patients express in their providers.

Methods

Participants and setting

This study took place within the context of the Johns Hopkins HIV Cohort Study,[19] which routinely interviews patients every 6 months by using an audio computer-assisted self-interviewing (ACASI) survey instrument. HIV-infected patients in the cohort were interviewed while awaiting or after completing an appointment with their primary care provider at a single urban clinic specializing in HIV care. During the ACASI survey, the patient sits at a computer with a headset and answers questions written on the screen and read aloud through the headset. A research assistant assists the patient in getting set up with the ACASI system, but the interview itself is conducted privately and confidentially. Data for this analysis were collected from October 2005 through February 2008. Recruitment and data-collection procedures were approved by the Johns Hopkins Institutional Review Board.

Measures

Patients self-reported their principal racial or ethnic groups. They reported trust in their HIV care provider by using a single item (0 to 10 scale), indicating their response to the question: "How much do you trust your physician, where '0' is 'not at all' and '10' is 'completely'?" Receipt of ART was measured by patient self-report and confirmed by chart review. Patients were considered to be receiving ART if they were following any regimen that met national guidelines for antiretroviral therapy relevant to that date.[20] For the patients receiving ART, adherence to ART was measured by using a validated survey[21] in which patients were considered adherent if they had not missed any doses in the past 3 days.[22] Serum HIV-1 RNA was measured by using the Roche Amplicor assay within 4 weeks of the patient interview. Patients with ≤50 copies per milliliter were considered to have undetectable serum HIV RNA (viral suppression).

Other survey items in our analyses included patient age, sex, sexual preference (homosexual or bisexual vs. heterosexual), injection drug–use history, and overall quality of life (measured with the Linear Analog Scale Assessment,[23] on which a higher score on a 0 to 100 scale indicates a better quality of life), a scale measuring patients' ratings of the quality of the patient–provider interaction, and years of enrollment at the clinic. The interaction rating scale included four items, each using a 4-point Likert scale, evaluating providers on listening, explaining information, engaging patients in decision making, and treating patients with dignity and respect (Cronbach alpha, 0.76). In addition, we measured time since enrollment into the HIV clinic by using administrative data, and abstracted CD4 lymphocyte counts (by flow cytometry) within 4 weeks of the patient interview, from medical records.

Statistical analysis

We restricted our analyses to African-American and white patients, because the numbers of patients from other racial

and ethnic groups was small ($n = 22$). For analyses of receiving ART, we restricted the sample to patients who were eligible for ART, as determined either by receiving ART or having a CD4 count of ≤350 cells/mm^3.[20] For analyses of viral suppression, we similarly restricted the sample to patients receiving ART or eligible for ART (CD4 count ≤350 cells/mm^3).[20] We included this latter group of patients eligible for ART in our viral-suppression analyses, because we hypothesized that patients' trust in their HIV provider might affect their outcomes by influencing not only their adherence to but also their acceptance of ART. For analyses of adherence, we analyzed data only for patients receiving ART.

For bivariate analyses, we used χ^2 tests and t tests, as appropriate, and for multivariate analyses, we used population-averaged, generalized estimating equation models, linear or logit-based as appropriate, with exchangeable correlation matrices, to account for multiple observations per patient. In each multivariate model, we adjusted for age, sex, sexual preference, injection-drug–use history, and overall quality of life. We first evaluated the association of race with trust, with interaction quality, and with each of our outcome variables. Next, we tested the association of trust with each outcome variable (receiving ART, adherence, and viral suppression). Finally, we examined the association of race with each outcome variable, comparing three strata: (a) whites, (b) African Americans who expressed "complete" trust in their providers (10 on 0–10 scale), and (c) African Americans who expressed lower levels of trust (<10). We chose this approach over a traditional mediation or moderation analysis[24] because we sought to address the question of whether targeted interventions to improve trust specifically among African Americans might mitigate racial disparities. We addressed this question by determining whether racial disparities in outcomes were less pronounced when African Americans felt complete trust in their providers. We dichotomized trust at the highest level because, at most visits (69%), patients expressed complete trust in their HIV providers. We also compared African Americans with complete versus incomplete trust, to determine the significance of any observed differences in outcomes across trust levels.

To address the possibility that our single-item trust measure performed as an overall provider rating scale rather than a measure of trust *per se*, we conducted two separate analyses. First, we examined whether the association of race with trust was similar in nature and magnitude to the association between race and ratings of patient–provider interaction quality. Second, we examined the association between race and trust with and without adjustment for interaction quality. We hypothesized that if our trust variable was simply capturing interaction quality, the association of race with interaction quality would be similar to the association of race with trust, and adjusting for interaction quality would reduce or eliminate any association between race and trust.

All analyses were conducted by using Stata SE/9.0 (College Station, TX).

Results

In total, 1,327 unique patients completed the survey at 3,083 visits. Of these, 1,104 (83%) were African American, and 201 (15%) were white. The average number of visits per patient during the study period was 2.3 (SD, 1.3), with a range from

one to seven visits. African Americans were more frequently female, heterosexual, and either current or former injection-drug users (Table 1). They reported higher overall quality of life than did whites, as well. African Americans and whites had been enrolled in the clinic for similar durations.

African Americans expressed lower levels of trust in their providers than did whites (Table 2). However, African Americans and whites rated their providers similarly in terms of the quality of interpersonal interactions. After adjusting for covariates, a significant association was found between patient race and trust (African American vs. white β, -0.66; 95% CI, -0.92 to -0.41). Adjusting for interaction quality did not alter this association (β -0.63; 95% CI, -0.88 to -0.39). Duration in care was not associated with trust in providers for either African Americans or whites (data not shown).

Overall, trust in one's provider was not associated with the likelihood of receiving ART or achieving viral suppression (Table 3). Trust was, however, associated with self-reported adherence to ART, such that after adjusting for covariates and accounting for multiple evaluations per patient, a 1-point increment in trust was associated with an 8% increase in the odds of adherence. The association of trust with outcomes did not differ significantly for African American versus white patients (data not shown).

African Americans were less likely than whites to be receiving ART, to adhere to ART, and to achieve viral suppression (Table 2). When we stratified African Americans according to their level of trust in their providers, we found that trust did not modify racial disparities in receipt of ART or viral suppression (Table 4). Compared with whites, African Americans were less likely be receiving ART, whether they expressed complete trust in their provider (86% vs. 92%; adjusted OR, 0.59; 95% CI, 0.37 to 0.94) or incomplete trust (83% vs. 92%; adjusted OR, 0.59; 95% CI, 0.36 to 0.96). Similarly, compared with whites, African Americans were less likely to have a suppressed viral load, whether they had complete trust in their provider (40% vs. 47%; adjusted OR, 0.77; 95% CI, 0.58 to 1.0) or not (38% vs. 47%; adjusted OR, 0.71; 95% CI, 0.52 to 0.97). No significant differences were noted in receiving ART or in viral suppression when comparing African Americans with complete vs. incomplete trust in their providers.

TABLE 1. PATIENT CHARACTERISTICS, BY RACE

	Patient race		
	African American (n = 1,104)	White (n = 201)	p Value
Age, mean (SD)	39.7 (9.1)	39.1 (9.1)	0.40
Male, n (%)	675 (61)	150 (75)	<0.001
Gay or bisexual, n (%)	197 (18)	94 (47)	<0.001
History of injection-drug use, n (%)	500 (45)	57 (28)	0 < 0.001
CD4 count, mean (SD)	397 (265)	442 (268)	0.05
Overall quality of life, mean (SD)[a]	80 (23)	75 (25)	0.005
Duration of enrollment in clinic, mean in years (SD)	7.6 (4.1)	7.3 (4.2)	0.11

[a]Scale from 0 to 100: 0, lowest score; 100, highest score.

TABLE 2. TRUST, PATIENT–PROVIDER INTERACTION QUALITY, AND HIV CARE AND OUTCOMES, BY PATIENT RACE

	Patient race		
	African American (n = 2,618 visits)	White (n = 412 visits)	p Value[a]
Trust (0–10 scale), mean (SD)[a]	8.9 (2.2)	9.4 (1.5)	<0.001
Interaction quality (1–4 scale), mean (SD)	3.85 (0.42)	3.86 (0.36)	0.21
Receiving ART,[b] n (%)	1,816 (85)	323 (92)	0.02
Complete 3-day adherence,[c] n (%)	1,512 (83)	287 (89)	0.005
Suppressed viral load,[b] n (%)	851 (40)	164 (47)	0.04

ART, antiretroviral therapy.
[a]The p values represent a comparison of African Americans and whites, by using generalized estimating equation models, adjusting for age, sex, sexual preference, history of injection-drug use, and overall quality of life.
[b]Among patients receiving antiretroviral treatment or with CD4 count ≤350 cells/mm³.
[c]Among patients receiving antiretroviral treatment.

The disparity between African Americans and whites in ART adherence was less substantial for African Americans with complete trust in their providers (86% vs. 89%; adjusted OR, 0.59; 95% CI, 0.36 to 0.95) than for African Americans with incomplete trust (79% vs. 89%; adjusted OR, 0.40; 95% CI, 0.25 to 0.66). African Americans expressing incomplete trust in their providers had significantly lower adherence than did African Americans with complete trust (79% vs. 86%; adjusted OR, 0.69; 95% CI, 0.52 to 0.91).

Discussion

In our study of >1,300 HIV-infected patients attending more than 3,000 ambulatory visits with their HIV care providers, we found that African Americans expressed, on average, lower levels of trust in their providers than did white patients. African Americans were also less likely than whites to be receiving ART, to adhere to ART, and to achieve viral suppression. These disparities in HIV care and outcomes were observed even when African Americans expressed complete trust in their health care providers.

Trust is thought to play a strong role in explaining racial disparities in HIV care. Studies have demonstrated that suspicions about HIV disease and antiviral treatments run high among African Americans in particular. In a national survey of African Americans conducted in 2002 through 2003,[10] 44% of respondents agreed with the statement, "People who take the new medicines for HIV are human guinea pigs for the government." Conversely, a minority of African Americans (38%) agreed, "The medicines used to treat HIV are saving lives in the black community." Given this level of skepticism about ART, it is not surprising that African Americans are less likely to use and adhere to ART. One might expect that providers who engender trust in their patients might be able to

Table 3. Association of Patients' Trust in Provider with HIV Care and Outcomes

	Unadjusted (OR, 95% CI)	Adjusted (OR, 95% CI)
Receiving ART[a]	1.04 (0.99–1.09)	1.00 (0.95–1.06)
Complete 3-day adherence[b]	1.11 (1.06–1.16)	1.08 (1.03–1.13)
Suppressed viral load[a]	1.02 (0.98–1.06)	1.00 (0.97–1.05)

OR, odds ratio; CI, confidence interval; ART, antiretroviral therapy.
Adjusted for age, sex, sexual preference, history of injection-drug use, and overall quality of life.
[a]Among patients receiving ART or with CD4 count $\leq$350 cells/mm^3.
[b]Among patients receiving ART.

mitigate this skepticism, improve acceptance and adherence to ART among African American patients, and thereby reduce racial disparities in HIV care and outcomes. Findings from the national HIV Cost, Services, and Utilization Study lent credence to this hypothesis by demonstrating that patients' distrust of their health care providers was associated with a lower likelihood of believing in the efficacy of ART, which was in turn associated with lower ART adherence.[25]

We also found that trust was associated with ART adherence and that disparities in adherence were of lower magnitude when African-American patients expressed complete trust in their providers. This finding suggests that enhancing trust among African American patients could serve as an avenue to reducing racial disparities in ART adherence and possibly in outcomes resulting from improved adherence, including avoidance of virologic failure and ART resistance, and long-term survival.

Our findings, however, also suggest that enhancing trust is not likely to be a panacea for racial disparities in HIV care. Trust in providers was not associated with receiving ART in our study. In prior studies, both Altice et al. and Whetten et al. found trust in providers to be associated with acceptance and use of ART, respectively.[16,17] The difference between our findings and those of these previous studies may relate to the use of different measures of trust, or to

differences in study populations. Our study took place in an Eastern, inner-city, academic health center, whereas these prior studies took place in prison clinics in the Northeast[17] and at infectious disease clinics across the Deep South.[16] The difference in findings across these varied settings may reflect the importance of context in studying trust and its effects on health care.

Trust also was not associated with viral suppression in our study, despite being associated with ART adherence. Our adherence measure was limited in that it was both self-reported and represented a single, 3-day snapshot of adherence just before the clinic visit. Although this method is commonly used in clinical research and has been validated in prior studies,[21,22] the lack of correlation between our findings for adherence and those for viral suppression may reflect limitations in this adherence measure. Prior studies found that patients overestimate their actual adherence[26,27] and are often more adherent to ART in the days just before a clinic visit.[28] This may help explain our relatively low rates of viral suppression despite high self-reported adherence in the 3 days before the clinic visit. It should also be noted that some patients in our viral-suppression analyses were not receiving ART and would not be expected to have suppressed viral load. Of the 1,799 visits in which patients were receiving ART and reported complete 3-day adherence, viral suppression ($\leq$50 HIV RNA copies/ml) was observed at 867 (48.2%). At a more-conservative threshold of 400 copies/ml, the number considered to have a suppressed viral load was 1,132 (62.9%), a rate identical to that found in a prior study among patients classified as having "consistently high" adherence by using the electronic Medication Event Monitoring System (MEMS).[29]

Several other aspects of our study limit our ability to draw firm conclusions about the role of trust in HIV care. First, our measure of trust consisted of a single, global rating, and it may be that multi-item scales would have more fully captured the concept of interpersonal trust. Our trust item was not pretested by using cognitive interviews or other methods to evaluate survey items. However, the fact that the item addresses trust in a simple and direct fashion, and the finding that trust scores varied in expected ways by race, that they were associated with ART adherence, and that they operated differently from ratings of the quality of patient–provider

Table 4. HIV Care and Outcomes among Whites vs. African Americans Stratified by Level of Trust in Provider

	Receiving ART[a]		Adherence[b]		Viral suppression[a]	
Patient race	n (%)	OR (95% CI)	n (%)	OR (95% CI)	n (%)	OR (95% CI)
Whites	323 (92)	—	287 (89)	—	164 (47)	—
African Americans, complete trust in provider	1,193 (86)	0.59 (0.37–0.94)	1,023 (86)	0.59 (0.36–0.95)	561 (40)	0.77 (0.58–1.0)
African Americans, incomplete trust in provider	619 (83)	0.59[c] (0.36–0.96)	487 (79)	0.40[d] (0.25–0.66)	287 (38)	0.71[c] (0.52–0.97)

ART, antiretroviral therapy; OR, odds ratio for comparison with whites; CI, confidence interval.
Adjusted for age, sex, sexual preference, history of injection drug use, and overall quality of life.
[a]Among patients receiving ART or with CD4 count $\leq$350 cells/mm^3.
[b]Among patients receiving ART.
[c]p = NS for comparison to African Americans with complete trust in provider.
[d]p = 0.009 (adjusted OR, 0.69; 95% CI, 0.52–0.91) for comparison with African Americans with complete trust in provider.

interactions, all suggest that this global item served as a reasonable measure of trust in one's provider.

Second, we measured only trust in providers. It may be that even when patients trust their providers, distrust of health care institutions or medications may influence their acceptance and use of ART.[16]

Third, although we directly measured patients' trust in their principal HIV care provider, we did not have data on provider continuity, the number of times the patient had seen that provider, or the number of other providers the patient had seen recently, all of which may have influenced either the patient's trust or adherence. Finally, as noted earlier, the relevance and impact of trust may vary across settings, and our findings may not be broadly generalizable.

The patient–provider relationship is a fundamental component of high-quality health care delivery, and interpersonal trust is the material on which these relationships are built. The consistent finding of lower trust in health care providers among African-American patients suggests that distrust may play a role in racial disparities in health care quality, and that enhancing trust among African Americans may be a path to reducing disparities. Our results suggest that greater trust is likely to be necessary but not sufficient to reduce disparities in HIV care. Engendering interpersonal trust may have its greatest role in improving ART adherence. It is important to recognize that African American distrust of health care providers in the United States is deeply rooted in the larger context of race and racial discrimination, both historic and current.[25,30] Enhancing patient trust—or more aptly, provider trustworthiness[31]—will require changing not only our attitudes and behaviors but also our institutions.[32] Doing so may help in accomplishing the large and pressing task of eliminating racial disparities in the quality and outcomes of HIV care.

Author Disclosure Statement

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