

From *AIDS and Behavior*

Does Patient-Provider Racial/Ethnic Concordance Influence Ratings of Trust in People with HIV Infection?

Nancy Lynn Sohler; Lisa K. Fitzpatrick; Rebecca G. Lindsay; Kathryn Anastos; Chinazo O. Cunningham

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Abstract and Introduction

Abstract

Despite widely available and effective treatments, there are racial/ethnic disparities in HIV-related mortality rates. The reason for inadequate HIV/AIDS management among minority populations is not fully understood, however recent research indicates that patients rate the quality of their health care higher if they are racially/ethnically concordant with their providers. As trust plays prominently on health care ratings, we examined whether racial/ethnicity concordance was associated with two dimensions of trust, trust in the provider and mistrust in the health care system, in 380 HIV infected people New York City. In this sample, concordance was associated with lower mistrust in the health care system, but not with trust in provider. We conclude that in this patient population and within the health care system available to them, racial/ethnic concordance might be more important for helping patients to understand and navigate the health care system rather than in interpersonal relationships with a single provider.

Introduction

Recent reports indicate that black and Hispanic people with HIV infection have higher mortality rates than whites in the United States. In 2002, age-adjusted HIV-related death rates per 100,000 population were 22.5 for blacks or African Americans, 5.8 for Hispanics or Latinos/as, and 2.6 for whites (National Center for Health Statistics, 2005). This pattern reflects the ongoing disparities in access to and quality of HIV/AIDS care. Researchers have documented that, compared with white patients, patients from ethnic/racial minority groups have longer delays in obtaining medical care after HIV infection (Turner et al., 2000), inadequate outpatient management as measured by having at least two visits with a provider in a six-month period (Shapiro et al., 1999), and are less likely to receive timely antiretroviral medication treatment (Gebo et al., 2005; Shapiro et al., 1999; Wong et al., 2004). Similar disparities have been observed throughout the health care system (Geiger, 2003) and mirror the longstanding history of social and economic inequities among racial/ethnic groups in the United States.

Recognizing these broad underlying social causes, the Institute of Medicine (Smedley, Stith, & Nelson, 2003) and others (Carlisle, Gardner, & Liu, 1998; Cohen, 2003; Laveist, Nickerson, & Bowie, 2003; Salsberg & Forte, 2002) have suggested that policy makers and service providers address the current shortage of medical providers from underserved/minority populations in their efforts to reduce racial/ethnic disparities in health care. Since minority providers are more likely to serve in communities that have a predominantly minority population (Cantor, Miles, Baker, & Barker, 1996; Komaromy et al., 1996), increasing the number of minority HIV providers would help to increase availability of HIV care in these communities. It might also increase the likelihood that patients with HIV from racial/ethnic minority populations will have a regular health care provider (Grey & Stoddard, 1997).

It is possible that addressing the shortage of medical providers from minority populations would help to address racial/ethnic differences in quality of HIV care as well as access to HIV care. Patients with racially/ethnically concordant physicians reported greater satisfaction with medical care than those with racially/ethnically discordant physicians both in a national U.S. sample (LaVeist & Nuru-Jeter, 2002) and in a sample of patients selected from urban primary care settings (Cooper et al., 2003). Other studies have shown that minority patients generally prefer providers of their own race/ethnicity (Malat & van Ryn, 2005; Saha, Taggart, Komaromy, & Bindman, 2000). Provider race/ethnicity appears to be associated with patient outcomes as well as patient ratings. For example, in nationally representative samples, having a racially/ethnically concordant provider was associated with greater use of needed medical services (LaVeist, Nuru-Jeter, & Jones, 2003; Saha, Komaromy, Koepsell, & Bindman, 1999), greater use of preventive services (Saha et al., 1999), and shorter time to receipt of protease inhibitors for African American patients with HIV infection (King, Wong, Shapiro, Landon, & Cunningham, 2004).

It is not completely understood why minority patients rate their health care quality higher or experience better health care when they have racially/ethnically concordant providers, but it is likely to be related to their ability to develop stronger patient/provider relationships with such providers. Research on patient-physician communication supports this hypothesis. For example, race/ethnicity concordance is associated with longer visits with their primary care provider, which facilitate fuller discussions of health problems and treatment decisions (Cooper et al., 2003), and with more participatory decision-making styles, which encourage the patient role in treatment decisions and may indicate stronger partnerships between patients and providers (Cooper et al., 2003; Cooper-Patrick et al., 1999). Language barriers are also commonly reported among Hispanic and Asian American patients and their providers (Morales, Cunningham, Brown, Liu, & Hays, 1999; Shi, 1999), obviously inhibiting productive patient-provider relationships.

Trust is another important aspect of the patient-provider relationship in which physician race might play a role. Trust is the belief that health care providers or medical institutions will act competently and with the best interests of patients in mind, and is influenced by providers' interpersonal skills, as well as their medical knowledge (Mechanic, 1998). Interpersonal competence incorporates both communication skills and empathy for the patient's experiences (Mechanic & Meyer, 2000). Race/ethnicity concordance, which may be a proxy for common identities between patients and their providers (Cooper, Beach, Johnson, & Inui, 2006), may facilitate these skills.

Patient trust in one's provider is associated with better health service utilization patterns in general (Doescher, Saver, Franks, & Fiscella, 2000), more frequent use of preventive care (O'Malley, Sheppard, Schwartz, & Mandelblatt, 2004; Parchman & Burge, 2004), greater satisfaction with care (Anderson & Dedrick, 1990; Hall et al., 2002; Safran, Taira, et al., 1998; Thom, Ribisl, Stewart, & Luke, 1999) and better adherence both to medication recommendations (Piette, Heisler, Krein, & Kerr, 2005; Schneider, Kaplan, Greenfield, Li, & Wilson, 2004; Thom et al., 1999) and physician advice (Safran, Taira, et al., 1998). While there are conflicting data about whether minority patients trust their providers less than white patients (e.g., Doescher et al., 2000; Hall et al., 2002), trust may be particularly salient for black patients in making decisions to comply with medical recommendations for invasive procedures (Collins, Clark, Petersen, & Kressin, 2002). Thus data indicate that helping providers develop trusting relationships with their minority patients would have an impact on treatment disparities and patient ratings of health care quality.

Patient ratings of health care and health care experiences may be influenced by social trust, meaning attitudes about health care institutions rather than individuals within the institution, in addition to interpersonal trust (Pearson & Raeke, 2000). Researchers have begun to develop measures to explore the importance of social trust for HIV care for minority patients. Most studies in this area focus on "mistrust" in medical institutions, and, using measures that incorporate beliefs about loss of confidentiality of medical information, involuntary involvement in research experiments, deception, and bias, show that minority patients have greater mistrust in the health care system than white patients (Altice, Mostashari, & Friedland, 2001; LaVeist et al., 2000; Ross, Essien, & Torres, 2006). Mistrust in the motives of health care institutions is likely to arise from the familiar legacy of racial discrimination in medicine, and may create an important barrier to appropriate health care for minority patients. Two recent studies examine such beliefs, and report that mistrust is associated with lower use of antiretroviral medications (Altice et al., 2001) and HIV prevention strategies (Bogart & Thorburn, 2005). Since the physician is often the link between patients and other parts of the medical system, the physician is likely to influence minority patients' mistrust in the medical system. It is possible that patients and providers who share the same racial/ethnic background find it easier to discuss these issues than patients and providers with different cultural backgrounds, however this has not yet been explored.

In this study, we tested two hypotheses: (1) racial/ethnic concordance between patients and their HIV providers is associated with greater trust in the HIV provider, and (2) racial/ethnic concordance between patients and their HIV providers is associated with lower mistrust in the HIV-related medical system as a whole. We tested these hypotheses in a sample of marginally housed people with HIV infection. This population is at great risk of sub-optimal HIV care, and therefore a better understanding of their relationship with their providers may be important in improving their health care (Arno et al., 1996; Smith et al., 2000).

Methods

Participants

Participants for this study were recruited from 14 single room occupancy (SRO) hotels in the Bronx and Manhattan, New York. These hotels provide transitional emergency housing for people with HIV-infection and are served by a collaborative medical outreach program co-sponsored by Montefiore Medical Center, a large urban health care provider in New York City, and CitiWide Harm Reduction, a community based organization that offers both health and social services to drug users. Eligibility criteria for the study included HIV-infected by self-report, age greater than or equal to 18 years, English or Spanish speaking, and able and willing to give informed consent. Additionally, SRO hotel residents who were acutely intoxicated at the time of recruitment were not eligible. The Institutional Review Boards at Montefiore Medical Center and the Centers for Disease Control and Prevention reviewed and approved this study.

Measures

Trust in One's HIV Provider

Outcome variables were trust in one's HIV provider and mistrust in the HIV-related health care system. Trust in one's provider was measured by a eight-item scale from the Primary Care Assessment Survey (Safran, Kosinski, et al., 1998). Seven of eight statements regarding issues of trust in one's provider were rated using a five-point scale (strongly agree = 5 to strongly disagree = 1). We recoded items so that higher scores indicate greater trust. Items included: I can tell my provider anything, my provider pretends to know things when s/he is not really sure (reverse coded); I completely trust my provider's judgments; my provider cares more about holding down costs than doing what is needed for my health (reverse coded); my provider would always tell me the truth; my provider cares as much as I do about my health; and my provider would hide a mistake in

my treatment from me (reverse coded). The last statement asked respondents to rate their overall trust in their provider on an 11-point scale (highest rating = 10 to lowest rating = 0). This rating was recoded to a five-point scale based on an algorithm developed by the authors of the scale. There were very few missing data points, which were imputed using the mean rating of the completed items for that participant. One participant was missing ratings for more than 50% of the items on the scale and was dropped from analyses. Ratings for all eight items were added and transformed to a 0-100 scale to comprise an overall summary trust in provider score in which 100 is the highest trust in provider score and 0 is the lowest possible score. Reliability of this scale has been previously reported to be good (Cronbach's alpha = 0.86) (Safran, Kosinski, et al., 1998). In our sample, reliability was also good (Cronbach's alpha = 0.78).

Mistrust in the HIV-Related Health Care System

Mistrust in the health care system was measured by a seven-item scale developed by Altice and colleagues (Altice et al., 2001). Statements regarding issues of mistrust related to hospitals, scientists, and the pharmaceutical industry were rated using a five-point scale (strongly agree = 5 to strongly disagree = 1). As with items on the previous scale, there were only a few missing data points, which were imputed using the mean rating of the completed items for that participant. One participant was missing ratings for more than 50% of the items on the scale and was dropped from analyses. All items were added and transformed to a 0-100 scale to comprise an overall summary mistrust score in which a higher score indicates more mistrust in the health care system. Items included: I think I have been experimented on in hospitals without being told; I think drug companies don't tell all the bad things that can happen with a medication; I think there is a cure for AIDS, but the government is keeping it from me; I think HIV was made in a laboratory; I suspect my blood/urine is being tested for things I'm not told about; scientists know more about HIV than they are letting on, and hospitals are more concerned about making money than healing me. A previous study reported good reliability (Cronbach's alpha = 0.78) (Altice et al., 2001). In the present study sample, reliability was excellent (Cronbach's alpha = 0.93).

Race/ethnicity Concordance

The main independent variable in this analysis was race/ethnicity concordance between participants and their regular HIV providers. This measure was derived from participant reports. Participants were first asked if they had a regular provider for HIV care, which was described to them as being the "health care provider that you think of as your HIV provider who checks how you are doing, who talks with you about your T-cell counts, viral load, and treatment, and who helps you with referrals to other doctors if you need to see a specialist." Participants were then asked to name the provider and respond to a series of questions about him/her.

Questions about race and ethnicity followed the format of the 2000 Census (U.S. Census Bureau, 2001). Participants were first asked to report if they considered themselves to be Hispanic or Latino/a and to report their race. They were then asked the same questions regarding their regular HIV provider. As there has been much debate in the literature about how best to categorize race/ethnicity based on these questions (Comstock, Castillo, & Lindsay, 2004; Hirschman, Alba, & Farley, 2000; Sondik, Lucas, Madans, & Smith, 2000), we tested a number of alternate approaches. The findings were robust to different approaches and we report the approach that has been most commonly used in the medical literature. We recoded the responses to these two questions into four race/ethnicity categories: Hispanic, non-Hispanic black, non-Hispanic white, and other. A variable indicating race/ethnicity "concordance" was constructed based on our recodes of the reports of participant and provider race/ethnicity.

Participant Characteristics

Participant sociodemographic information included participant's age, gender, race/ethnicity, primary language (English or Spanish), country of birth (mainland U.S. or other), highest educational level completed (at least GED/high school graduate or less than high school), and insurance status (Medicaid/Medicare and uninsured).

Health-related information included current health status (excellent, very good, or good versus fair or poor), length of time infected with HIV, current drug use (heroin or cocaine use in the past 30 days versus no cocaine or heroin use), and recent frequent alcohol use (frequent alcohol use in the past 30 days versus no frequent alcohol use). Drug and alcohol use data were collected using a modified version of the Addiction Severity Index (McLellan et al., 1992), which asked, "How many days within the past 30 days did you use..." for a number of types of illicit drugs and alcohol. For drug use, we created a summary variable that indicated any recent use of either cocaine or heroin, the two most frequently reported illicit drugs in the study sample. This variable allowed us to identify participants who might have different recent experiences with or expectations about their provider or health care system because of their drug use than participants who did not recently use drugs. For alcohol use, we created a summary variable using the previous item and an additional item from the Addiction Severity Index, "How often did you usually use alcohol during the last 6 months." Response categories included: never, once, 2-3 times, once per month, once every two weeks, once per week, 2-3 times per week, 4-5 times per week, almost every day, and everyday. Following a previous study of HIV infected people (Bing et al., 2001), we created a summary variable that indicated any alcohol use in the past 30 days and usual use of at least 4-5 times per week in the past six months. We wanted to identify participants with recent problem alcohol use, as, similar to participants with recent drug use, they might have different recent experiences with or expectations about their provider or health care system than others.

Regular HIV Provider Characteristics

Information about the participant's regular HIV provider was obtained from participant reports and included race/ethnicity, gender, place of care (private office versus other setting), and degree (physician or non-physician).

Procedures

Two research interviewers (one white woman who spoke English and Spanish and one black man who spoke English) knocked on every door in each of the target SRO hotels and invited eligible residents to participate. The interviewers returned to each hotel for at least three consecutive days to locate and invite participation from as many hotel residents as possible. Those residents who were interested in the study were told about the interview procedures and administered written informed consent. Participants received a \$15 honorarium for their time.

Interviews were administered in participants' SRO hotel rooms using a laptop computer with Audio Computer-Assisted Self-Interview (ACASI) technology. The ACASI system displays each interview question on a computer monitor while simultaneously playing an audio recording of the question through headphones. Participants enter their responses to the questions directly on a computer using a touch screen. Since this method allows for direct entry of data into the computer by the study participants, it may result in participants' reporting higher rates of sensitive behavior than other survey methods (Katz, Cumming, Wallace, & Abrams, 2005; Newman et al., 2002; Perlis, Des Jarlais, Friedman, Arasteh, & Turner, 2004). The ACASI interview was comprised of a series of questions taken from standardized questionnaires and was available to respondents in either English or Spanish. It took approximately 45 minutes to complete.

Data Analysis

Participants who reported having a regular HIV provider and who had complete data on their own and their provider's race/ethnicity were included in the present study. Of the 611 people approached for the study 533 (87%) agreed to participate, and 524 (86%) completed the interview. A total of 455 reported having a regular provider for their HIV care and were eligible for this study. Fifty-six participants were dropped from analyses because race/ethnicity data were incomplete (30 due to a computer programming error that forced them to skip the questions about their regular provider's race/ethnicity and 26 due to incomplete interviews). Finally, 19 participants whose race/ethnicity was categorized as "other" were dropped from analyses because this category included many different race/ethnicities and each involved too few participants for meaningful evaluation. Thus, analyses were conducted in the 380 participants who reported their own race/ethnicity to be Hispanic, non-Hispanic black or non-Hispanic white and their regular provider's race/ethnicity to be Hispanic, non-Hispanic black, non-Hispanic white, or other.

We conducted descriptive analyses of this sample with regard to trust in provider, mistrust in the health care system, and participant and provider characteristics. Mean trust in provider and mistrust in the health care system scale scores were compared using *t*-tests or *F*-tests for each category of selected participant and provider characteristics, including participant age, gender, race/ethnicity, education, insurance status, primary language, place of birth, drug use, alcohol use, length of time HIV infected, and health status, and provider gender, race, ability to speak Spanish, office setting and professional degree. (The construction of these variables is described above.) Characteristics that were associated with either outcome at a conservative level of $P < 0.20$ were included in multivariable analyses of that outcome.

We then tested whether race/ethnicity concordance was associated with trust in provider and mistrust in the health care system in three steps. Separate linear regression analyses were conducted for each of these outcome variables. First, we entered concordance into each linear regression model to evaluate the bivariate association between race/ethnicity concordance and each outcome. Then, we added participant race/ethnicity to the models to examine whether it explained the observed association between race/ethnicity concordance and each outcome. We repeated this step using provider race/ethnicity. We tested for interaction effects for concordance and participant race/ethnicity and for concordance and provider race/ethnicity. No significant interaction effects were observed probably due to insufficient power in this sample, and they are not reported. Finally, we added variables to each model that measured the other participant and provider characteristics that were associated with the outcomes in bivariate analyses. We report unstandardized beta coefficients and their standard errors.

Results

Study Sample Description

Table 1 shows the sociodemographic characteristics of the study sample. The sample includes 273 (71.8%) men, 97 (25.5%) women, and 10 (2.6%) transgender participants; most of the participants were Hispanic ($N = 124$, 32.6%) or non-Hispanic black ($N = 226$, 59.5%); the average age was 44.5 years (s.d. = 7.7); 149 (39.7%) had less than a high school education; most ($N = 325$, 85.5%) had Medicaid insurance (two people had Medicare only, two received AIDS Drug Assistance Program benefits only, one had private insurance, and the rest had no insurance); 43 (11.1%) spoke primarily Spanish rather than English; and 322 (84.7%) were born in mainland U.S. (the majority of the rest were born in Puerto Rico). Additionally, these participants were infected with HIV for an average of 10.9 years (s.d. = 5.7); 138 (36.4%) reported fair or poor health status; 202 (55.3%)

reported any cocaine or heroin use in the past 30 days; and 40 (10.8%) reported frequent alcohol use in the past 30 days. Participants reported their providers to be mostly medical doctors that worked in outpatient clinics; 220 of the providers (57.9%) were male; 179 (47.1%) were non-Hispanic white; and 43 (11.3%) spoke Spanish as well as English. The average trust in provider scale score for this study sample was 71.2 (s.d. = 21.0) and the average mistrust in the health care system score was 56.3 (s.d. = 26.4). Table 1 shows the average trust in provider and mistrust in health care system scores by participant and provider characteristics.

Table 1. Patient and Provider Characteristics and Average Trust Ratings for 380 HIV Infected Patients

	Sample distribution		Trust in provider				Mistrust in health care system			
	N	%	Mean	SD	Statistical test		Mean	SD	Statistical test	
					t-test, F-test	df			t-test, F-test	df
Patient characteristics										
Age (mean ± s.d.)	(44.5 ± 7.7)	-	-		-	-	-		-	
< 45 years	196	51.6	71.3	22.1	t = 0.1	377	57.7	26.0	t = 1.1	377
≥ 45 years	184	48.6	71.0	19.7			54.8	26.8		
Gender										
Male	273	71.8	71.0	20.8	F = 0.8	2, 376	56.4	26.3	F = 0.3	2, 376
Female	97	25.5	70.7	21.3			56.8	27.3		
Transgender	10	2.6	79.4	23.6			49.9	23.1		
Race/ethnicity										
Black	226	59.5	74.2	20.2	F = 5.9**	2, 376	56.4	26.2	F = 4.2*	2, 376
Hispanic	124	32.6	66.6	21.1*			59.2	24.9*		
White	30	7.9	67.1	22.1			43.8	31.4*		
Education										
< High school	149	39.7	71.2	21.2	t = 0.9	372	57.5	24.9	t = 0.7	372
≥ High school	226	60.3	71.5	21.0			55.6	27.2		
Insurance										
Medicaid	325	85.5	71.6	20.5	t = 1.1	377	56.2	26.3	t = -0.1	377
Other/no insurance	55	14.5	68.4	23.4			56.7	27.5		
Primary language										
English	337	88.7	72.2	20.9	t = 2.8**	377	55.7	26.2	t = -1.2	377
Spanish	43	11.3	62.8	19.3*			61.0	27.5		
Place of birth										
Mainland U.S.	322	84.7	71.7	20.9	t = 1.2	377	57.1	27.0	t = 1.4#	377
Other than U.S.	58	15.3	68.0	21.4			51.7	22.9		
Heroin/cocaine use										
Any in past 30 days	202	55.3	70.1	20.1	t = -1.3#	362	57.4	26.0	t = 0.9	363
None in past 30 days	163	44.7	73.1	21.7#			54.9	26.7		
Frequent alcohol use										
Yes in past 30 days	40	10.8	73.6	18.1	t = 0.7	369	58.4	30.2	t = 0.5	370
No in past 30 days	332	89.2	71.2	21.1			56.1	25.7		
Years HIV + (mean ± s.d.)	(10.9 ± 5.7)	-	-		-	-	-		-	
< 10 years	174	46.5	71.6	21.5	t = 0.3	371	55.2	26.8	t = -0.8	372
≥ 10 years	200	53.5	71.0	20.2			57.4	25.6		
Health status										
Fair/poor	138	36.4	66.5	21.6	t = -3.4**	376	61.0	26.6	t = 2.7**	376
Good/very good/excellent	241	63.6	73.9	20.2			53.4	25.9		
Provider characteristics										
Gender										
Male	220	57.9	69.3	21.8	t = -2.1*	377	56.0	26.7	t = -0.3	377
Female	160	42.1	73.8	19.5#			56.8	26.2		
Race/ethnicity										
Black	84	22.1	70.1	20.9	F = 2.4#	3, 375	55.6	26.9	F = 0.5	3, 375
Hispanic	49	12.9	65.2	19.5#			60.2	25.2		
White	179	47.1	73.7	20.6#			55.4	27.1		
Other	68	17.9	69.9	22.3			56.8	25.2		
Speaks Spanish										
Yes	43	11.3	62.2	23.0	t = -3.0**	377	59.9	28.9	t = 0.9	377
No	337	88.7	72.2	20.4#			55.9	26.1		
Office setting										
Private office	27	7.2	66.5	16.1	t = -1.3#	372	51.7	32.2	t = -0.9	373
Clinic-based	348	92.8	71.8	21.1#			56.6	26.0		
Degree										
MD	329	86.8	71.3	20.9	t = 0.3	376	56.7	26.2	t = 0.9	376
Non-MD provider	50	13.2	70.4	21.4			53.0	27.8		
Race/ethnicity concordance										
Concordant	96	25.3	68.7	21.1	t = -1.3#	377	49.5	28.0	t = -2.9**	377

Discordant	284	74.4	72.0	20.9#			58.6	25.5**		
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* $P < 0.05$ ** $P < 0.01$ *** $P < 0.001$ # $P < 0.20$, for selection in multivariable models)**Table 1. Patient and Provider Characteristics and Average Trust Ratings for 380 HIV Infected Patients**

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Hispanic	49	12.9	65.2	19.5\#			60.2	25.2			
White	179	47.1	73.7	20.6\#			55.4	27.1			
Other	68	17.9	69.9	22.3			56.8	25.2			
Speaks Spanish											
Yes	43	11.3	62.2	23.0	$t = -3.0^{**}$	377	59.9	28.9	$t = 0.9$	377	
No	337	88.7	72.2	20.4\#			55.9	26.1			
Office setting											
Private office	27	7.2	66.5	16.1	$t = -1.3\#$	372	51.7	32.2	$t = -0.9$	373	
Clinic-based	348	92.8	71.8	21.1\#			56.6	26.0			
Degree											
MD	329	86.8	71.3	20.9	$t = 0.3$	376	56.7	26.2	$t = 0.9$	376	
Non-MD provider	50	13.2	70.4	21.4			53.0	27.8			

Race/ethnicity concordance										
Concordant	96	25.3	68.7	21.1	$t = -1.3\#$	377	49.5	28.0	$t = -2.9^{**}$	377
Discordant	284	74.4	72.0	20.9\#			58.6	25.5 ^{**}		

* $P < 0.05$ ** $P < 0.01$ *** $P < 0.001$ # $P < 0.20$, for selection in multivariable models)

Race/ethnicity Concordance and Trust in One's HIV Provider

A total of 96 participants (25.3%) reported the same race/ethnicity category for themselves and their providers, and were therefore considered racially/ethnically concordant. The average unadjusted trust in provider score was 68.7 (s.d. = 21.1) for the concordant group and 72.0 (s.d. = 20.9) for the discordant group ($t = -1.3$, d.f. = 377, $P > 0.05$). Seventy (73.7%) participants in the concordant group endorsed trusting their provider on at least half of the items on the scale, and 225 (79.2%) participants in the discordant group endorsed trusting their provider on at least half of the items on the scale.

We first tested the association between race/ethnicity concordance and trust in provider and found no evidence of an association in bivariate analyses. This did not change when participant race/ethnicity was entered into the model. Neither concordance nor participant race/ethnicity were associated with trust in the fully adjusted model, which included covariates selected from preliminary bivariate analyses (participant's primary language, health status, and heroin or cocaine use, and provider gender, Spanish-speaking, and office setting).

We repeated this process, entering variables representing provider race/ethnicity into the models. Concordance was not associated with trust, but participants who had Hispanic providers reported significantly lower trust than those with white providers (beta = -9.3, s.e. = 3.8, $P < 0.05$). We entered each of the other covariates selected in preliminary bivariate analyses into the model one at a time. The variable that indicated the participant had a provider that spoke Spanish was the only variable that substantially diminished the observed association between having a Hispanic (versus white) provider and trust. In the final model that included concordance, provider race/ethnicity, and all covariates, having better health status and having a female provider were significantly associated with greater trust in provider. Table 2 summarizes these findings.

Table 2. Trust in Provider, Race/ethnicity Concordance, and Other Patient and Provider Characteristics (N = 361)

	Model 1		Model 2		Model 3		Model 4		Model 5	
	Beta	s.e.	Beta	s.e.	Beta	s.e.	Beta	s.e.	Beta	s.e.
Race/ethnicity concordance	-3.3	2.5	-3.9	2.5	-2.1	3.4	-2.8	2.5	-0.9	3.3
Patient race/ethnicity										
Hispanic versus white			-1.2	4.3			1.3	4.5		
Black versus white			-6.8	4.1			-5.6	4.0		
Provider race/ethnicity										
Hispanic versus white					-9.3*	3.8			-6.8	3.9
Black versus white					-2.1	3.6			-3.6	3.6
Other versus white					-5.3	3.0			-5.3	3.0
Covariates										
Primary language Spanish							-4.1	4.0	-6.3	3.6
Health status fair/poor							-6.9 ^{**}	2.3	-7.4 ^{**}	2.2
Heroin/cocaine in past 30 days							-2.5	2.2	-2.5	2.2
Provider female							5.4*	2.2	5.5*	2.2
Provider speaks Spanish							-6.2	3.7	-5.7	4.0
Provider in private office							-5.2	4.2	-5.4	4.2

* $P < 0.05$ ** $P < 0.01$ *** $P < 0.001$

Race/ethnicity Concordance and Mistrust in the HIV-Related Health Care System

We then tested the association between race/ethnicity concordance and mistrust in the health care system. The average unadjusted mistrust in the health care system score was 49.5 (s.d. = 28.0) for the concordant group and 58.6 (s.d. = 25.5) for the discordant group ($t = -2.9$, d.f. = 377, $P < 0.01$, Cohen's $d = 0.34$). A total of 73 (76.0%) participants in the concordant group endorsed mistrust in the health care system on at least one item on the scale; 37 (38.5%) participants endorsed mistrust on at least half of the items on the scale (four of seven items). Two hundred thirty-nine (84.2%) participants in the discordant group endorsed mistrust in the health care system on at least one item on the scale; 151 (53.2%) participants endorsed mistrust on at least half of the items on the scale (four of seven items).

Race/ethnicity concordance was consistently associated with mistrust in the health care system in all of our models (see Table 3). Participants with race/ethnicity concordant providers reported significantly lower average mistrust scores than those with race/ethnicity discordant providers. When participant race/ethnicity was entered into models, Hispanic and black participants both reported significantly greater mistrust than white participants, and concordance remained significantly associated with mistrust. In additional analyses, we found that Hispanic and black race/ethnicity did not significantly differ from each other (in models that included concordance, the beta for Hispanic versus black = 1.7, s.e. = 2.9, $P > 0.05$). Both concordance and participant race/ethnicity remained significantly associated with trust after including other covariates in the model that were selected in preliminary bivariate analyses (participant health status and having been born in mainland U.S.).

Table 3. Mistrust in the Healthcare System, Race/ethnicity Concordance, and Patient and Provider Characteristics (N = 379)

	Model 1		Model 2		Model 3		Model 4		Model 5	
	Beta	s.e.	Beta	s.e.	Beta	s.e.	Beta	s.e.	Beta	s.e.
Race/ethnicity concordance	-9.6 ^{**}	3.1	-8.7 ^{**}	3.1	-17.8 ^{***}	4.1	-9.0 ^{***}	3.1	-18.3 ^{***}	4.1
Patient race/ethnicity										
Hispanic versus white			13.1*	5.3			15.7 ^{**}	5.4		
Black versus white			11.5*	5.1			11.7*	5.0		
Provider race/ethnicity										
Hispanic versus white					10.9*	4.5			11.6 ^{**}	4.5
Black versus white					11.9 ^{**}	4.4			12.2 ^{**}	4.3
Other versus white					0.2	3.7			1.1	3.7
Covariates										
Health status fair/poor							7.6 ^{**}	2.7	7.9 ^{**}	2.7
Birthplace in mainland U.S.							8.5 ^{**}	4.1	6.0	3.7

* $P < 0.05$ ** $P < 0.01$ *** $P < 0.001$

We repeated these analyses using provider race/ethnicity. Although provider race/ethnicity was not significantly associated with mistrust in the health care system in bivariate analyses, in multivariable analyses, both concordance and provider race/ethnicity measures were significantly associated with mistrust. In these models, race/ethnicity concordance was associated with lower mistrust, and, after adjusting for concordance, participants with Hispanic or black providers had greater mistrust than participants with white providers. Other covariates that were significantly associated with mistrust in the health care system included having poorer self-reported health status and being born in the mainland U.S. versus outside of the U.S. Table 3 summarizes these findings.

Table 3. Mistrust in the Healthcare System, Race/ethnicity Concordance, and Patient and Provider Characteristics (N = 379)

	Model 1		Model 2		Model 3		Model 4		Model 5	
	Beta	s.e.	Beta	s.e.	Beta	s.e.	Beta	s.e.	Beta	s.e.
Race/ethnicity concordance	-9.6**	3.1	-8.7**	3.1	-17.8***	4.1	-9.0***	3.1	-18.3***	4.1
Patient race/ethnicity										
Hispanic versus white			13.1*	5.3			15.7**	5.4		
Black versus white			11.5*	5.1			11.7*	5.0		
Provider race/ethnicity										
Hispanic versus white					10.9*	4.5			11.6**	4.5
Black versus white					11.9**	4.4			12.2**	4.3
Other versus white					0.2	3.7			1.1	3.7
Covariates										
Health status fair/poor							7.6**	2.7	7.9**	2.7
Birthplace in mainland U.S.							8.5**	4.1	6.0	3.7

* $P < 0.05$ ** $P < 0.01$ *** $P < 0.001$

We were surprised to find that participants reported greater mistrust when they had either Hispanic or black providers than when they had white providers. As our sample sizes were too small to detect significant interactions in regression models, we explored this pattern in more detail in a post-hoc analysis using a 3 × 4 table that showed the distribution of mistrust in the health care system by the three categories of participant race/ethnicity and the four categories of provider race/ethnicity (see Table 4). Even though the sample sizes in most cells were too small for meaningful statistical significance tests, patterns revealed that both black and Hispanic participants reported lower mistrust when they had concordant providers. Among those with discordant providers, black participants with white providers reported lower mistrust than those who had Hispanic providers, and Hispanic participants with white providers reported lower mistrust than those who had black providers.

Table 4. Trust in Provider and Mistrust in the Healthcare System by Patient and Provider Race

	Patient race/ethnicity								
	Black			Hispanic			White		
	N	Mean	s.d.	N	Mean	s.d.	N	Mean	s.d.
Trust in provider									
Provider race/ethnicity									
Black	61	71.2	20.4	19	69.3	21.2	4	58.6	28.5
Hispanic	25	69.8	19.2	22	59.6	19.2	1	75.0	— ^a
White	108	75.7	20.1	59	70.3	20.5	12	72.7	24.9
Other	32	78.3	20.2	23	61.5	22.9	13	63.9	18.3
Mistrust in health care system									
Provider race/ethnicity									
Black	61	51.5	27.1	19	64.1	23.0	4	76.8	26.8
Hispanic	25	66.7	21.0	23	54.1	28.2	1	39.3	— ^a
White	107	56.0	27.1	59	59.3	24.9	12	30.6	27.1
Other	32	58.8	23.3	23	59.9	23.5	13	46.1	31.4

^a As only one person was in these categories, standard deviation (s.d.) could not be computed

Discussion

Racial disparities in HIV care have been widely documented (Gebo et al., 2005; Shapiro et al., 1999; Turner et al., 2000; Wong et al., 2004). Previous studies suggest that racial concordance between minority patients and their physicians influences the quality of the physician-patient relationship and, in turn, might influence health outcomes as well (Cooper-Patrick et al., 1999; Kaplan, Gandek, Greenfield, Rogers, & Ware, 1995; Laveist & Nuru-Jeter, 2002; Saha et al., 1999). In a severely disadvantaged population of predominantly black and Hispanic people with HIV infection, we tested whether having a racially/ethnically concordant provider was associated with patient ratings of trust in their HIV provider and mistrust in the HIV-related health care system, two factors that are likely to contribute to health care quality ratings for HIV infected patients. In this sample, patient-physician race/ethnicity concordance was associated with lower mistrust in the health care system, but was not associated with trust in provider.

We examined mistrust in the health care system scale by measuring beliefs about potential deception and mistreatment specifically related to people with HIV infection. Since medical mistrust is commonly reported in minorities (e.g., Bogart & Thorburn, 2005; Boulware, Cooper, Ratner, LaVeist, & Powe, 2003; LaVeist et al., 2000; Ross et al., 2006), it is not surprising that a significant proportion of our study sample, which is comprised largely of black and Hispanic men and women, endorsed one or more of the items on the mistrust scale. Overall, 82% of the sample either somewhat or strongly agreed with at least one of the seven items and 50% of the sample agreed with at least four of the seven items. Similar to other studies, we found race/ethnicity differences in patient ratings of mistrust in health care system (Altice et al., 2001; LaVeist et al., 2000). Specifically, black and Hispanic patients reported greater mistrust than white patients. Our contribution to the literature, however, is that we also found that patient-provider racial/ethnic concordance with one's HIV provider may facilitate patients' having more positive expectations of the health care system, as we observed concordance was associated with lower mistrust in the health care system.

Mistrust in the health care system is a measure of "social trust" and might be influenced by a range of external forces like the media, knowledge of others' experiences of discrimination, and general attitudes toward all social institutions. Our study found that it might be influenced by the race/ethnicity of an individual provider as well. It is possible that patients believe that providers' who are racially/ethnically concordant can understand and discuss fears of being mistreated by others in the health care system, and this empowers patients to address these fears with a member of the health care system. The importance of feeling "involved" in an institution in order to overcome negative attitudes was shown in a recent examination of conspiracy theories about the U.S. government's behaviors toward black Americans, which found that respondents who took part in the political process were less likely to endorse such negative beliefs (Parsons, Simmons, Shinhoster, & Kilburn, 1999). An alternative explanation for our finding is that people who mistrust the health care system are less engaged in their health care, and therefore are less likely to actively seek a provider with specific, desired characteristics, such as a

specific racial/ethnic background. Prospective studies will be necessary to determine directionality in this association.

The finding that participants reported lower mistrust in the health care system if they reported having a white physician versus a non-white physician was initially counterintuitive. Closer examination of the distribution of mistrust ratings by patient-physician race/ethnicity pairings showed that both black and Hispanic participants reported lower mistrust if they had providers of their own race/ethnicity, but if they had a race/ethnicity discordant provider, they reported lower mistrust when this provider was white. It is unclear why black provider-Hispanic participant and Hispanic provider-black participant pairings resulted in the greater patient mistrust of the health care system than when either black or Hispanic participants were paired with white providers. It will be important to investigate this in larger samples drawn from multiethnic patient and provider populations.

It was somewhat surprising to find that patient-provider racial/ethnic concordance was not associated with trust in provider, as this is inconsistent with previous research findings that showed concordance was associated with other patient ratings of their provider (e.g., Cooper-Patrick et al., 1999; Laveist & Nuru-Jeter, 2002; Saha et al., 1999). However, our study population was comprised of socially marginalized people with HIV infection whose demographic and health characteristics may differ dramatically from these other study samples (Cunningham et al., in press). Specifically, the men and women in our sample are difficult to engage and retain in regular HIV care because of a number of factors, such as complex social situations, substance abuse, and/or psychiatric disorders. Providers who reach out to this population may be particularly sensitive to issues that jeopardize retention in health care. Thus, it is possible that we did not observe an association between patient-provider racial/ethnic concordance and trust in provider because the providers treating the patients in our sample were particularly attuned to factors that might mediate an association between race/ethnicity concordance and interpersonal trust in a provider, such as cultural competency, language competency, and a general understanding of patient beliefs, attitudes, values, preferences and roles. This is supported by the relatively high average ratings of trust in provider in all race/ethnic groups in this sample, and the lack of differences among these groups.

While we hope that the lack of association between trust in provider and race/ethnicity concordance indicates improvement in cross cultural patient-provider relationships, the observed association between mistrust in the health care system and race/ethnicity concordance indicates that providers are not fully meeting the health care needs of patients from social/cultural backgrounds different from their own. While matching patients and providers on race/ethnicity is clearly not a desirable goal, we believe that increasing the number of providers from underserved racial/ethnic populations might be helpful in addressing minority patients' mistrust of the health care system in several ways. First, it would improve opportunities for minority patients who choose to be treated by racially/ethnically concordant providers to do so, perhaps allowing them to address concerns related to the broader health care system more readily. Second, building a health care work force that more closely mirrors the race/ethnicity distribution of the general population might make the health care system less threatening to minority patients. Finally, increasing diversity in the health care workforce will facilitate the health care system's ability to understand and address the needs of its patients. These goals, which might help patients develop positive expectations and attitudes toward the health care system, are particularly crucial for people with HIV, who require lifelong involvement with this health care system.

There are several limitations that should be noted when interpreting our results. First, our sample produced relatively few race/ethnicity concordant provider-participant pairs, too few for examination of an association of concordance and trust within strata of participant race/ethnicity. With regard to measurement, our outcome measures-trust in provider and mistrust in the health care system -- have been used previously and have demonstrated psychometric properties. Although our examination of these scales in preliminary analyses of this study showed similar internal consistency reliability to those previously reported, these scales have not been fully validated in a population similar to our study population. It is possible that trust and mistrust are conceptualized differently by people from different backgrounds. Additional evaluations of this and related measures across racial/ethnic groups are needed.

Furthermore, to more fully understand how race/ethnicity concordance influences trust, more detailed models are necessary. Inclusion of components of the patient-provider relationship other than trust, such as communication styles, is particularly crucial, as are measures of negative experiences. Similarly, while previous literature suggests the association between concordance and trust might explain disparities, we were unable to explore this hypothesis in our data.

Our measure of racial/ethnicity concordance also deserves consideration. Patients' reports of their own race/ethnicity and their providers' race/ethnicity is not a precise measure of "perceived same-ness". Future studies might ask patients directly, "Do you consider your provider to have the same racial/ethnic background as you?"

Finally, our cross-sectional design assumes that participants with physicians of the same and of different race/ethnicities should be similar with regard to all factors other than race/ethnicity discordance. Even though we adjusted for a number of potential confounding factors, there may still be unmeasured differences between these groups. Future studies might apply a more rigorous test of this hypothesis by examining changes in level of trust within individual patients as they move from a racially/ethnically concordant to a racially/ethnically discordant physician, or to compare relationships between patients and several of their providers, who are of different racial/ethnic backgrounds. Similarly, differences in provider behaviors associated with patient race may exist, but there were not enough physicians in the sample who cared for more than one patient to conduct within-physician analyses.

Despite these limitations, our results have important implications for policy that aims to address health and health care disparities for people with HIV. In our sample of predominantly minority people with HIV infection who face many social and economic disadvantages, patient-provider race/ethnicity concordance was not associated with interpersonal trust in one's provider but was associated with mistrust in the health care system. This may mean that strategies are needed to help this population understand and navigate the health care system. Increasing the number of minority providers is a possible solution. Researchers and provider organizations should continue to explore other ways to improve cross-cultural health care delivery in the United States as well (Smedley et al., 2003).

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Authors and Disclosures

Nancy Lynn Sohler,¹ Lisa K. Fitzpatrick,² Rebecca G. Lindsay,³ Kathryn Anastos,⁴ Chinazo O. Cunningham⁵

¹Sophie Davis Medical School, City University of New York, 138th Street and Convent Avenue, City College Campus, New York, NY 10031

²Centers for Disease Control and Prevention, Atlanta, GA

³Department of Family and Social Medicine, Montefiore/Albert Einstein College of Medicine, Bronx, NY

⁴Department of Epidemiology and Population Health, Montefiore/Albert Einstein College of Medicine, Bronx, NY

⁵Division of General Internal Medicine, Montefiore/Albert Einstein College of Medicine, Bronx, NY

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Reprint Address

Nancy Lynn Sohler; E-mail: nls9@columbia.edu .

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