PATIENT-PHYSICIAN RACE CONCORDANCE AND ITS RELATIONSHIP TO PERCEIVED HEALTH OUTCOMES

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Objectives: Race concordance occurs when the race of a patient matches the race of his/her physician and discordance occurs when races do not match. Previous research has suggested an association between race concordance and measures of patient satisfaction and health outcome. In this study, we examined the relationship between race concordance and perceived quality of care, self-reported general health, and the SF-12 measures of physical and mental health in a community-based sample of 2001 adults.

Design: Telephone interviews were conducted with randomly selected households sampled from commercial lists of phone numbers.

Analysis: The association of concordance with the outcomes was analyzed separately for African American (n=1,125) and White (n=876) respondents using bivariate analysis and multiple linear regression.

Results: After controlling for age, sex, income, education, insurance status, and type of insurance, we found that race concordance was only associated with general health for White respondents ($P<.006$). Whites with insurance were more likely to be concordant than Whites without insurance and African Americans without insurance were more likely to be concordant than African Americans with insurance.

Conclusions: Settings that employ a larger number of African American physicians in Nashville, Tennessee are places that people without insurance are more likely to seek health care. For health satisfaction and perceived health status, socioeconomic status and access to quality health care are likely more important than whether one's physician is of a similar or dissimilar race. (*Ethn Dis.*2009; 19:345–351)

Key Words: Health Disparities, Race Concordance, Perceived Health, Health Status, Access to Health Care, Health Insurance

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INTRODUCTION

In the United States minorities, especially African Americans, often exhibit much higher rates of illness and premature mortality than Whites.[1] Many factors contribute to health disparities including socioeconomic status, health insurance, geography, patient preferences, and culture.[2–4] While low socioeconomic status is a large component of health disparities, racism, discrimination, and racial segregation may also adversely impact access to quality health care.[4] Researchers have suggested that the concordance/discordance between a patient and physician on race and socioeconomic status may also be a factor contributing to health disparities.[5–7]

Racial concordance occurs when the race of the physician and the race of the patient are the same. Discordance occurs when the races of the physician and patient are different. Patients prefer physicians of similar race, and concordance has been associated with various ratings of quality of health care.[8–11] Many other studies have examined the effects of race and sex concordance on patient and physician communication, trust, and patient satisfaction with care.[6,12–14] Most research on the association of patient perceptions with racial concordance has been conducted on samples recruited from medical practices.[5–9,11–13] The work by LaVeist and colleagues using the 1994 Commonwealth Fund Minority Health Survey is a notable exception.[10,14] These studies developed multivariate models to predict race concordance and reported that patients whose race was similar to their physician's race reported higher levels of satisfaction with their health care.

The goal of our study was to examine the association between racial concordance/discordance and perceived quality of care and self-reported health in a community-based sample.

The goal of our study was to examine the association between racial concordance/discordance and perceived quality of care and self-reported health in a community-based sample. We hypothesized that race concordance would be associated with greater healthcare satisfaction, and better perceived health for both African Americans and Whites, even after controlling for base rate differences in socioeconomic status and insurance status.

METHODS

The Nashville Racial and Ethnic Approaches to Community Health (REACH 2010) project was a federally funded, community-driven effort to address, evaluate, and eventually eliminate health disparities.[15] Nashville, Tennessee was one of the communities selected to implement the REACH

2010 project, and received funding to address and eliminate health disparities among African Americans in the North Nashville community. Interventions for the Nashville REACH 2010 project involved an emphasis on community input, health and wellness promotion through diet and exercise, screening, tobacco use, and effecting changes in access to quality health care.[16,17]

To evaluate the REACH 2010 project, random telephone surveys were conducted.[18] A baseline community survey was conducted in 2001 in which 3081 phone interviews were completed. The 155-item survey aimed to provide information about access to health care, health practices, health status, socioeconomic status, and co-morbid illnesses. Survey items were derived from previous validated questionnaires such as the Behavioral Risk Factor Surveillance System (BRFSS),[19] SF-12,[20] the Eating Behavior Patterns Questionnaire,[21] and the Eating Styles Questionnaire.[22]

Randomly selected residential telephone numbers (N=16,200) were purchased from SDR Sampling Services, Inc (Atlanta, GA). Phone numbers were randomly sampled from the commercial telephone lists within North Nashville (n=9,000) and the Nashville/Davidson County (n=7,200) areas. The population of North Nashville is predominantly African American. Selected numbers were called up to 10 times by interviewers using a computer-assisted telephone interviewing system with a 32% response rate after accounting for disconnected numbers, fax numbers, non-private residences, ineligible participants, and those physically unable.[18,23]

Database Creation

Out of 3081 interviews, 2001 interviews were used to create a new dataset to analyze the effects of racial concordance between patients and their physicians. Only respondents who reported that they had a primary care physician along with the physician's race and sex were included. Those who cited "Don't Know" or did not report their age, race or sex were also dropped from the analysis. Individuals whose race was not African American or White, such as Asian, Hispanic, Native America, or other/mixed race, were also dropped from the sample.

Using participants' responses about their race and their primary care physicians' race, it was possible to determine racial concordance. A new variable was created and coded as one (1) for those who were race concordant (participant and physician are the same race) and zero (0) for those who were discordant (participant and physician are a different race).

The dependent outcome variables used to determine the effect of race concordance included the following:

1) For quality of care, participants were asked "How would you rate the health care that you received during the last 12 months?" Responses could be excellent, very good, good, fair or poor;
2) Self-reported general health was measured using the question "In general, would you say your health is rated as excellent, very good, good, fair, or poor?";
3) Physical health index was computed from the SF-12[20,24] with higher numbers representing better physical health;
4) Mental health index was computed from the SF-12[20,24] with higher numbers representing better mental health.

For quality of care and self-reported general health, higher scores represent lower quality of care or poorer health. For the SF-12 scales, higher scores represent better physical and mental health.

Statistical Analysis

A series of bivariate analyses using Chi-square and analyses of variance were conducted to examine the relationship between race-specific concordance and study variables. Multivariate, hierarchical regression models were constructed to test the association between race concordance and the five dependent variables. The models first controlled for individual differences that could contribute to differences in the dependent variables: race, age, sex, income, education, insurance status, and private insurance. After controlling for these covariates, the variable of racial concordance was added to the regression models to test whether racial concordance significantly improved the prediction of the outcome. A significance test for R^2 change was used to determine whether adding race concordance improved the prediction of each dependent variable. Additional models stratified by race were constructed to see if race concordance functions differently for African Americans and Whites in its relationship to the dependent variables.

RESULTS

Table 1 presents the characteristics of the sample by sex and race. Males had higher incomes and more education than females. White respondents reported higher incomes and more education than African Americans. There were no ethnic or sex differences in insurance status, with 96% of the sample reporting they had some kind of insurance coverage. Whites were more likely to be privately insured than African Americans, and females were more likely to be on Medicare or Medicaid (ie, Tenncare) than males.

Table 2 summarizes the analyses of the bivariate relationships between concordance for Whites and African Americans with other study variables. Race concordance between patient and physician was not associated with sex, age, education, and income. Insurance status was associated with race concordance for African American (P<.001) and White (P<.001) respondents. For African Americans, those with insurance

Table 1. Demographic characteristics of the study sample

	White				African American			
	Male		Female		Male		Female	
	Freq	Percent	Freq	Percent	Freq	Percent	Freq	Percent
Age*								
18–29	38	10.1%	44	8.8%	45	11.1%	78	10.8%
30–39	74	19.6%	65	13.0%	50	12.4%	92	12.8%
40–49	71	18.8%	97	19.4%	69	17.1%	104	14.4%
50–59	73	19.4%	86	17.2%	90	22.3%	132	18.3%
60–69	69	18.3%	79	15.8%	80	19.8%	129	17.9%
70–79	41	10.9%	94	18.8%	52	12.9%	134	18.6%
80+	11	2.9%	34	6.8%	18	4.5%	52	7.2%
Total	377	18.8%	499	24.9%	404	20.2%	721	36.0%
Income*†								
<$10k	14	3.7%	24	4.8%	24	5.9%	70	9.7%
$10–15k	5	1.3%	25	5.0%	16	4.0%	52	7.2%
$15–20k	13	3.4%	19	3.8%	25	6.2%	40	5.5%
$20–25k	31	8.2%	60	12.0%	58	14.4%	150	20.8%
$25–35k	49	13.0%	68	13.6%	59	14.6%	84	11.7%
$35–50k	80	21.2%	79	15.8%	77	19.1%	91	12.6%
$50–75k	66	17.5%	58	11.6%	42	10.4%	50	6.9%
>$75k	61	16.2%	53	10.6%	26	6.4%	21	2.9%
Unreported	58	15.4%	113	22.6%	77	19.1%	163	22.6%
Total	377	18.8%	499	24.9%	404	20.2%	721	36.0%
Education*†								
<8th grade	13	3.4%	25	5.0%	29	7.2%	41	5.7%
8–11 grade	30	8.0%	60	12.0%	31	7.7%	126	17.5%
High school grad	85	22.5%	159	31.9%	115	28.5%	218	30.2%
Some college	94	24.9%	115	23.0%	106	26.2%	172	23.9%
College grad	155	41.1%	140	28.1%	123	30.4%	164	22.7%
Total	377	18.8%	499	24.9%	404	20.2%	721	36.0%
Insurance								
yes	363	96.3%	482	96.6%	389	96.3%	694	96.3%
no	11	2.9%	17	3.4%	15	3.7%	23	3.2%
Unreported	3	0.8%	0	0.0%	0	0.0%	4	0.6%
Total	377	18.8%	499	24.9%	404	20.2%	721	36.0%
Insurance Type*†								
TennCare	22	5.8%	39	7.8%	39	9.7%	120	16.6%
Private	273	72.4%	323	64.7%	262	64.9%	390	54.1%
Medicare	61	16.2%	115	23.0%	76	18.8%	163	22.6%
Military	1	0.3%	0	0.0%	5	1.2%	7	1.0%
Unreported	20	5.3%	22	4.4%	22	5.4%	41	5.7%
Total	377	18.8%	499	24.9%	404	20.2%	721	36.0%

* Males and females differ, $P<.0001$.
† African Americans and Whites differ, $P<.0001$.

were more likely to be discordant (66.4%) than those without insurance (50.0%). For White respondents, those with insurance were more likely to be concordant (92.7%) than those without insurance (78.6%). There was also an association between type of insurance and doctor-patient race concordance for African American ($P<.0001$) and White ($P<.0001$) respondents. For African Americans, Tenncare (Tennessee's version of Medicaid) was associated with higher rates of race concordance (50.3%) than private insurance (30.4%) or Medicare (33.5%). Concordance for White respondents was higher for those with private insurance (94.3%) or Medicare (94.9%) than for those on Tenncare (68.9%).

Hierarchical linear regression analyses, stratified by race of the patient, were conducted for each of the four dependent variables (Table 3). First a model was created to control for patient's age,

Table 2. Relationship between patient-physician race concordance and participant characteristics

		White				African American			
		Discordant		Concordant		Discordant		Concordant	
		Freq	Percent	Freq	Percent	Freq	Percent	Freq	Percent
Sex	Male	28	7.4%	349	92.6%	276	68.3%	128	31.7%
	Female	40	8.0%	459	92.0%	466	64.6%	255	35.4%
	Total	68	7.8%	808	92.2%	742	66.0%	383	34.0%
Age	18–29	8	9.8%	74	90.2%	79	64.2%	44	35.8%
	30–39	13	9.4%	126	90.6%	98	69.0%	44	31.0%
	40–49	19	11.3%	149	88.7%	120	69.4%	53	30.6%
	50–59	14	8.8%	145	91.2%	142	64.0%	80	36.0%
	60–69	5	3.4%	143	96.6%	135	64.6%	74	35.4%
	70–79	8	5.9%	127	94.1%	125	67.2%	61	32.8%
	80+	1	2.2%	44	97.8%	43	61.4%	27	38.6%
	Total	68	7.8%	808	92.2%	742	66.0%	383	34.0%
Income	<$10k	4	10.5%	34	89.5%	56	59.6%	38	40.4%
	$10–15k	5	16.7%	25	83.3%	41	60.3%	27	39.7%
	$15–20k	1	3.1%	31	96.9%	40	61.5%	25	38.5%
	$20–25k	13	14.3%	78	85.7%	137	65.9%	71	34.1%
	$25–35k	6	5.1%	111	94.9%	101	70.6%	42	29.4%
	$35–50k	8	5.0%	151	95.0%	115	68.5%	53	31.5%
	$50–75k	12	9.7%	112	90.3%	58	63.0%	34	37.0%
	>$75k	6	5.3%	108	94.7%	35	74.5%	12	25.5%
	Unreported	13	7.6%	158	92.4%	159	66.3%	81	33.8%
	Total	68	7.8%	808	92.2%	742	66.0%	383	34.0%
Education	<8th grade	7	18.4%	31	81.6%	51	72.9%	19	27.1%
	8–11 grade	10	11.1%	80	88.9%	94	59.9%	63	40.1%
	High school grad	15	6.1%	229	93.9%	230	69.1%	103	30.9%
	Some college	14	6.7%	195	93.3%	187	67.3%	91	32.7%
	College grad	22	7.5%	273	92.5%	180	62.7%	107	37.3%
	Total	68	7.8%	808	92.2%	742	66.0%	383	34.0%
Insured	Yes	62	7.3%	783	92.7%	719	66.4%	364	33.6%
	No	6	21.4%	22	78.6%	19	50.0%	19	50.0%
	Unreported	0	0.0%	3	100.0%	4	100.0%	0	0.0%
	Total	68	7.8%	808	92.2%	742	66.0%	383	34.0%
Insurance Type	TennCare	19	31.1%	42	68.9%	79	49.7%	80	50.3%
	Private	34	5.7%	562	94.3%	454	69.6%	198	30.4%
	Medicare	9	5.1%	167	94.9%	159	66.5%	80	33.5%
	Military	0	0.0%	1	100.0%	9	75.0%	3	25.0%
	Unreported	6	14.3%	36	85.7%	41	65.1%	22	34.9%
	Total	68	7.8%	808	92.2%	742	66.0%	383	34.0%

sex, income, and education. Then, insurance status and insurance type were added as predictors at step two. Finally race-concordance was added as a predictor in the third step. Table 3 presents R^2 change and the results of an F-test for the significance of R^2 change for each step in each model.

After controlling for sex, age, income, education, insurance status, and insurance type, race concordance had no association with the perceived quality of health care for either African Americans and Whites. For Whites, income ($P<.05$), education ($P<.001$), and insurance status ($P<.05$) had a significant association with perceived quality of care. Those with higher incomes, more education and health insurance rated the quality of their health care as better. For African Americans, only education was a significant ($P<.003$) predictor of quality of health care, with higher satisfaction associated with more education

Race concordance did not add to the prediction of ratings of general health for African Americans. After controlling for demographics and insurance status, race concordance predicted general health care for White respondents ($P<.006$). Having a physician of the same race was associated with better general health ratings for White respondents. Better general health ratings for Whites were associated with being younger, more affluent, better educated, and having private insurance. Better general health for African Americans was associated with being younger, male, better educated, and more affluent.

Prediction of the physical health index from the SF-12 could not be

Table 3. Hierarchical regression models to predict perceived health

	Whites			African Americans		
	R2	R2-change	*P* less than	R2	R2-change	*P* less than
Perceived Quality of Care						
Age	0.001	0.001	0.348	0.007	0.000	0.811
Sex	0.001	0.000	0.700	0.026	0.001	0.410
Income	0.018	0.017	**0.049**	0.070	0.004	0.710
Education	0.060	0.041	**0.001**	0.134	0.013	**0.003**
Insurance status	0.064	0.005	**0.048**	0.134	0.000	0.811
Insurance type	0.065	0.001	0.813	0.139	0.001	0.737
Race concordance	0.066	0.001	0.345	0.139	0.000	0.709
General Health						
Age	0.040	0.040	**0.001**	0.056	0.056	**0.001**
Sex	0.041	0.001	0.310	0.066	0.010	**0.001**
Income	0.089	0.049	**0.001**	0.092	0.026	**0.001**
Education	0.121	0.032	**0.001**	0.100	0.008	**0.021**
Insurance status	0.122	0.000	0.530	0.100	0.000	0.919
Insurance type	0.143	0.022	**0.001**	0.105	0.005	0.114
Race concordance	0.151	0.008	**0.006**	0.105	0.001	0.376
SF-12 Physical Health						
Age	0.058	0.058	**0.001**	0.085	0.085	**0.001**
Sex	0.063	0.005	**0.027**	0.094	0.009	**0.001**
Income	0.117	0.054	**0.001**	0.138	0.044	**0.001**
Education	0.134	0.017	**0.001**	0.148	0.010	**0.004**
Insurance Status	0.134	0.000	0.686	0.148	0.000	0.634
Insurance Type	0.152	0.019	**0.001**	0.151	0.002	0.378
Race Concordance	0.156	0.004	0.058	0.152	0.002	0.154
SF-12 Mental Health						
Age	0.009	0.009	**0.006**	0.016	0.016	**0.001**
Sex	0.017	0.009	**0.005**	0.021	0.005	**0.017**
Income	0.038	0.020	**0.011**	0.037	0.017	**0.008**
Education	0.046	0.008	0.070	0.039	0.002	0.547
Insurance status	0.046	0.000	0.902	0.044	0.005	**0.016**
Insurance type	0.048	0.003	0.510	0.050	0.006	0.080
Race concordance	0.049	0.000	0.553	0.050	0.000	0.702

Bolded values are statistically significant.

improved by the addition of race concordance, although it approached significance ($P<.058$) for White participants. For the SF-12 Mental Health score, racial concordance was not a significant predictor after controlling for the other variables. For all respondents, better physical and mental health was associated with being younger, better educated, more affluent, and having health insurance.

DISCUSSION

The goal of this study was to evaluate the association of race concordance between patients and physicians and the perceived health outcomes of patients. Our study differed from many previous studies by using a community-based rather than clinic-based sample. The mismatch of race between a patient and his/her physician appeared to have little bearing on perceived health outcomes. Rather, race concordance or discordance appears to be largely a function of the medical setting. Settings that provide care to more uninsured patients have greater numbers of African American physicians. This leads to greater concordance for African Americans and greater discordance for White patients in these settings. Likewise, settings that provide care to those with insurance, particularly private insurance, have fewer minority physicians leading to greater discordance for African Americans and greater concordance for White respondents. Settings that provide care to those without insurance, or to people who received insurance through Medicaid (Tenncare), have more minority physicians leading to greater concordance for African American and more discordance for White respondents.

The mismatch of race between a patient and his/her physician appeared to have little bearing on perceived health outcomes.

Race concordance had no association with the perceived quality of health care for African Americans and Whites. Instead, higher income, more education, and health insurance were predictors of a better quality of health care. In addition, race concordance was uncorrelated with ratings of physical and mental health for African Americans. Instead, health insurance, higher income and more education were associated with better physical and mental health. The only association between race concordance and health was a positive association with self-reported general health among White respondents. However, race concordance accounted for <1% of the variance in general health, contributing less than education, income, age, and insurance type.

In analyses of geographic distribution of physicians, it has been found that African American physicians often practice in low-income settings and communities more populated with minorities.[25–28] Physicians of minority background are more likely to practice in areas with populations similar to their background.[25,26] It is also possible that physicians of minority backgrounds practice in settings where they are less likely to encounter professional discrimination.[25] Within these settings, it may also be possible that physicians have fewer resources to benefit their patients.[29] Due to the racial and socioeconomic separation of these communities, there is a greater chance that patients will be uninsured, and therefore will have less access to regular medical care than patients who do have some type of insurance coverage.[30] For example, Yoon et al reported that access to Spanish-speaking physicians in California was limited due to health insurance-related barriers to care. Although there were enough Spanish-speaking physicians, the socioeconomic status of Spanish-speaking patients limited their access to the physicians. [28] These conclusions seem to apply as well to our results derived through the REACH 2010 baseline survey.

Lack of insurance limits access to care and thus limits patients' power to choose their physicians. Consistent with previous research, the ability to choose a physician may have a direct effect on patient satisfaction, health status, and treatment adherence.[2,10,14] The ability to pay for health care results in greater choice on the part of the patient, which may contribute to better overall health outcomes. After controlling for insurance status, race concordance has minimal associations with patient-reported outcomes. While race is often considered a major contribution to health disparities, these results suggest that socioeconomic class may contribute to one's health status by limiting choice in medical care.

Previous research on race concordance has been primarily clinic-based studies. These studies created homogeneity in resources and patient populations and may have allowed race concordance to appear to be more important than it is. Data for our study came from a community-based survey, not from clinical samples. This allows for much greater variability in resources, populations, and medical care settings. The use of a representative community sample makes race concordance appear to be unimportant. One of the strengths of this study was the relatively large sample size ($n=2001$) of the randomly selected participants. While African American participants are often minorities in such samples, about 56% of participants in this dataset self-identified as African American.

There are limitations to this study. Previous studies in clinical settings have allowed collection of much more detailed and objective health outcome data. Some of these studies have also allowed the collection of actual data on patient-physician interactions. The health data used in this report, including the validated SF-12 measure, is based only on patient self report. It is possible that a community-based study that obtained access to medical records might yield different results. In order to create the sample used in this study, 1080 respondents were dropped due to the fact that they did not report having a primary care physician or their physician's race. Respondents were also dropped if they were not White or African American. As a result, it is difficult to know how dropping one third of the sample might have introduced biases into the dataset.

CONCLUSION

Settings that employ a larger number of African American physicians in Nashville, Tennessee are places that people without insurance are more likely to seek health care. White patients who receive care in these settings are more likely to be discordant in race with their physicians. African Americans with insurance seek health care in settings with more White physicians and are therefore more likely to be discordant in race with the physician. For health satisfaction and perceived health status, socioeconomic status and access to quality health care are likely more important than whether one's physician is of a similar or dissimilar race.

ACKNOWLEDGMENTS

This research was funded in part by: CDC REACH 2010 U50/CCU417280-0 and NIH Grant P01 DK 20593

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