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The Role of Doctor-Patient Race Concordance in U.S. Health Disparities

Master's Thesis

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Abstract

It has been established that much of the disparity in health outcomes between blacks and whites can be explained by accounting for education and income. Once education and income have been taken into consideration, research has found racial disparities in health outcomes for low-income populations are small, and in some cases no longer significant. For middle and upper income populations, however, a significant racial disparity in health outcomes persists even after accounting for education and income. Seeking to explain this variation, I analyze the literature concerning health disparities, race and class, the prevalence and distribution of black physicians, and issues and trends surrounding physician-patient communication and discrimination. I find that black physicians tend to be concentrated in low-income, minority-dense areas, therefore, the likelihood of a black middle or upper class person seeing a doctor of their same race may be less than that for lower class blacks. I hypothesize that doctor-patient racial concordance, and the associated possibility of diminished communication and cultural hurdles endured by black patients visiting a black doctor, may explain some of this variation in the magnitude of racial health disparities along the education/income spectrum, explaining the larger racial health disparities in middle and upper-income populations. Using data from the 2006 Commonwealth Fund Health Care Quality Survey (N=1591), I conducted bivariate (chi-sq/t-tests) and step-wise multivariate, logistic regression statistical tests to explore if doctor-patient racial concordance affects the self-rated health of American adults. This analysis showed concordance as a significant predictor of self-rated health in the unadjusted model, but not in the full model. Simply put, concordance is a significant predictor of self-rated health, but not independent of socioeconomic factors. My modeling is consistent with the literature in showing education and income as the most significant predictors of health status.

The Role of Minority Physicians in Class- and Race-Based Health Disparities in the United States

Since the passage of the Affordable Care Act in 2010, there has been significant public discussion surrounding healthcare – whether it should be a right or a privilege, who should pay the bill, and whether government should be involved in health care at all. Underlying this debate is a larger one on inequality. The over-representation of lower-income and minorities in the unhealthy and medically uninsured populations of the United States (Department of Health and Human Services, 2005) forces us to also confront the issues of disparities in healthcare utilization and health outcomes.

Throughout United States history there have persisted disparities in health between races and classes of people. Blacks and those of lower socioeconomic status have consistently seen higher rates of mortality and disease than their white, middle and upper class counterparts (CDC, 2011; Braveman, 2012). Significant research has been conducted assessing true differences in the prevalence of heart disease, diabetes, pre-term birth and other serious health indicators (Adler & Newman, 2002; Braveman, et al., 2010; Kawachi, et al., 2005; LaVeist, 2005; Saha, et al., 2003; Wenzlow, et al., 2004 (a & b); Williams & Rucker, 2000). Researchers have also completed significant work aiming to explain the root causes of these health disparities, assess whether the differences are the result of injustice, and recommend ways of addressing the issue (Adler & Rehkopf, 2008; Commonwealth Fund, 2002; Dressler, et al., 2005; Johnson, et al., 2004; Komaromy, et al., 1996; Nelson, 2002; Saha, et al., 1999; Williams & Collins, 2001; Williams & Jackson, 2005; Williams & Rucker, 2000). Health disparities in the United States have become so prevalent, in fact, that the United States Centers for Disease Control (CDC) released their first ever report on health disparities and inequalities in 2011, identifying and describing major issues

and offering potential solutions, such as working across programs to increase access to economic, educational, employment, and housing opportunities.

While many aspects of race and class are at play in the current state of health disparities in the United States, researchers have come to a puzzling conclusion: once education and income have been accounted for, racial disparities largely disappear in populations of lower socioeconomic status, but a portion still persists in populations of middle and higher status (Kawachi, Daniels, & Robinson, 2005; Wenzlow, Mullahy, & Wolfe, 2004). Why is it that middle and upper class blacks with similar education and income still lag behind their white counterparts, but blacks of lower status do not face the same issue?

A review of the literature pertaining to health disparities, race and class issues, the prevalence and distribution of black physicians, and issues and trends surrounding physician-patient communication and discrimination suggests a potential differentiating factor could be doctor-patient racial concordance. Black physicians are more likely to practice in areas with large concentrations of minorities and low-income individuals. Thus, the likelihood of a minority patient seeing a physician of their own race may be higher for minorities of lower socioeconomic status (Komaromy et al., 1996). Given this, doctor-patient racial concordance, and the associated possibility of diminished communication and cultural hurdles endured by black patients visiting a black doctor, may explain some of this variation in the magnitude of racial health disparities along the education/income spectrum, and the larger racial health disparities in middle and upper-income populations.

Literature Review

Health Disparities

A large body of research has sought to analyze and describe the nature of health disparities in the United States (Adler & Rehkopf, 2008; LaVeist, 2005; Williams & Jackson, 2005), including recent research from the CDC (2011) that shows large racial and income-based disparities in several standard indicators of health and well-being. For example, infants born to black women are one and a half to three times more likely to die as infants than those born to other races/ethnicities, blacks have double the preventable hospitalization rate than whites, and black men and women over the age of 20 have a higher prevalence of obesity than their white and Hispanic counterparts (44, 33 & 36%, respectively). Additionally, blacks and Hispanics have higher rates of hypertension, heart disease and stroke than their white counterparts (CDC, 2011).

As incomes decrease, rates of smoking and preventable hospitalizations increase; in 2009, those living below 100% of the poverty level were twice as likely to have diabetes, nine times as likely to have reported serious psychological distress in the last 30 days, almost half as likely to have had a mammogram in the last two years, and three times as likely to have visited an emergency room in the past 12 months as those with an income of 400% or more of the poverty level (National Center for Health Statistics, 2011).

These trends are not new. Historically, the health inequities that have persisted along racial and economic lines have fueled a large body of research looking to explain the driving force behind these differences and numerous recommendations; and policies and programs have been put into place in an attempt to address these disparities. Some of the most popular explanatory variables explored have been income and education; and in a number of cases, researchers have shown that both income and education are significant predictors of health

status, accounting for most (but not all) of the difference between racial categories (Adler & Rehkopf, 2008; Kawachi, et al., 2005; LaVeist, 2005; Wenzlow, et al., 2004 (a & b); Williams & Jackson, 2005).

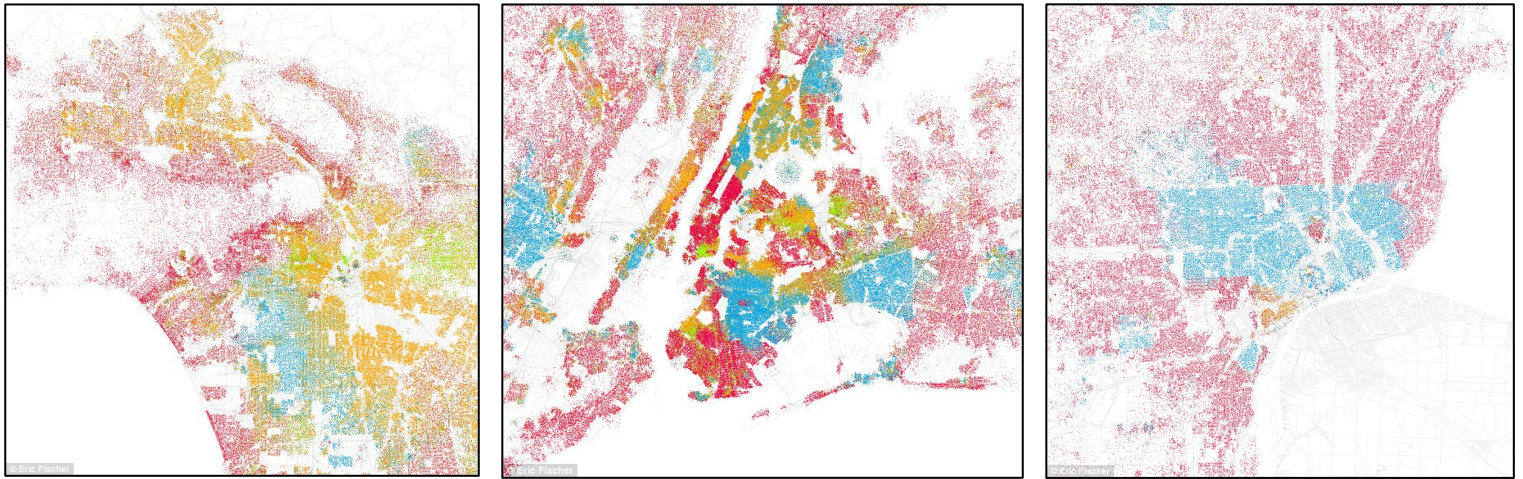
Other explanatory variables that have been hypothesized or tested are level of health insurance, genetic racial differences, wealth, discrimination on the part of the physician, class-based communication styles, neighborhood crime and other environmental hazards such as stress associated with social disadvantage, limited geographic access to health care services, limited physical activity and poor diet (Adler & Newman, 2002; Adler & Rehkopf, 2008; Dressler, Oths, & Gravlee, 2005; Williams & Jackson, 2005). While many of these are certain to play a role in health status, there is significant overlap and inter-relatedness between them. For instance, education is known to have a positive effect on income, which is then related to quality/availability of health insurance and likelihood of living in a safer, less stressful neighborhood. Higher-income neighborhoods tend to have easier access to health services and grocery stores. They have decreased levels of crime, and facilitate increased physical activity outside the workplace, all of which are positively correlated with desired health outcomes (Williams & Jackson, 2005).

Income appears to correlate with health status in both absolute and relative terms. Not only have researchers found that the higher ones income, the better their health (Braveman, Cubbin, Egerter, Williams, & Pamuk, 2010), they have also found that increasing income inequality is correlated with increased health disparities. Since minorities are disproportionately represented at the bottom of the income distribution, the increasing income inequality in the United States is expected to have had a disproportionately negative effect on minority health.

What all of this research has in common, is that the whole of these health disparities cannot be explained. Even when taking several factors into consideration, differences remain between blacks and whites of the same socioeconomic status. The greatest indicators seem to be education and income (Kawachi, Daniels, & Robinson, 2005; Wenzlow, Mullahy, & Wolfe, 2004). Researchers who have accounted for education and income have found that the magnitude of the racial disparity varies by socioeconomic status. For individuals of lower SES, racial health disparities are almost entirely explained by educational attainment and income. For people of middle and higher SES, however, a significant disparity remains even after accounting for education and income (Wenzlow, Mullahy, & Wolfe, 2004). Given this finding, it may be important to explore in depth a number of other potential factors that contribute to U.S. health disparities, such as: residential segregation, differing culture and communication styles, doctor-patient communication and discrimination, and minority physician representation – all of which are related in some way to doctor and patient race concordance.

Race and Class

Residential segregation. One such area that may help to explain health disparities by race is racial residential segregation, or the geographic concentration of single-race neighborhoods. Pursuant to 2010 U.S. Census data, there is persistent racial residential segregation in the United States. Figure 1 illustrates this continued trend of geographic segregation. Cartographer Eric Fischer (2011) mapped colored dots, each representing 25 people, onto maps of the largest cities in the United States. In the maps he produced, whites are represented by red dots, blacks by blue, Hispanics by orange, and Asians by green.

Figure 1.

Los Angeles

New York

Detroit

The distinct colors in these maps are a visual representation of racial residential segregation in the areas pictured. The racial lines indicated in these maps also tend to follow trends in income. Research has shown that patterns of racial (and largely economic) segregation such as these have implications for unequal access to health-related services like doctors' offices, health specialists, adequate pharmacies and healthy food options (Williams & Collins, 2001; Williams & Jackson, 2005). Limited access to one or more of these resources could negatively affect health, and the observed low-income isolation from them may help solidify the relationship between income and health.

Minority Physicians

Another potential factor that may contribute to U.S. health disparities, is that of doctor-patient racial concordance – in which the race of a person's regular doctor is the same as their own. When considering this potential contributor to health disparities, it is critical to more thoroughly explore the racialized make-up of the health care profession, specifically physicians. Black physicians are grossly underrepresented in the medical profession; while blacks account

for about 13% of the population, they account for only 3% of U.S. physicians (Lakhan & Laird, 2009). Black physicians, while few in number, are more likely to serve as primary care doctors (Lakhan & Laird, 2009). Additionally, they tend to practice in underserved, low-income, minority neighborhoods, and see a disproportionate number of minority patients and patients with health coverage through government assistance (Komaromy et al., 1996).

Consequently, black patients of lower socioeconomic status may be more likely to see a doctor of their own race than middle and upper class blacks. This is an important distinction, since a black patient who sees a black physician is “more likely to report receiving preventive care and necessary medical care” (Saha, Komaromy, Koepsell, Bindman, 1999) and patient satisfaction is highest when both doctor and patient are of the same race (LaVeist & Nuru-Jeter, 2002; Malat, 2001; Malat & Hamilton, 2006).

While black doctors are not plentiful enough to close the access gap between poor and affluent communities, they do ensure that poor, minority patients have easier access to doctors of their own race (Komaromy et al., 1996). On the other hand, middle and upper class blacks tend to live in areas with easier access to medical services and more white doctors, possibly decreasing the likelihood of seeing a doctor of their own race. When patient-physician concordance is present, communication, language, cultural, and discriminatory barriers may be reduced, which may lead to better care and better patient outcomes.

Patient/Physician Communication and Discrimination

A growing body of research points to the importance of doctor-patient communication on health outcomes (Johnson, et al., 2004; Saha, et al., 2003). Patients from racial and ethnic minority groups use fewer health care services and are less satisfied with their care than their white counterparts (Nelson, 2002). These disparities are partly attributable to racial and cultural

differences between patients and their physicians. Waitzkin (1984) finds social class differences to be an important factor in physician-patient communication, with both doctors and patients with higher socioeconomic backgrounds showing more robust communication skills.

Overwhelmingly, however, all patients are more satisfied with their physicians and the health care received from doctors of their own race (LaVeist & Nuru-Jeter, 2002; Malat, 2001; Malat & Hamilton, 2006; Saha, Komaromy, Koepsell, & Bindman, 1999). Additionally, research has shown that perceptions of racism and discrimination manifest themselves in poor health (Karlsen & Nazroo, 2002; Williams & Mohammend, 2009), perhaps supporting the notion that doctor-patient racial concordance could impact health outcomes.

Lareau (2002) expands on doctor-patient communication trends, noting cultural, rather than race-based, differences in communication styles with authority figures such as doctors. Adding to Lareau's observation, Saha, Komaromy, Koepsell, and Bindman (1999) find that "such barriers might arise from cultural or linguistic incongruity between patient and physician, from lack of mutual trust, or from racial discrimination." It is my belief that all three factors may be at play.

Indeed, while many would like to believe that racial discrimination does not factor into medical care, there is evidence to the contrary. Many sources – including health systems as a whole, health care providers, and health care plan managers – contribute to racial and ethnic disparities through stereotyping, biases, and uncertainty on the part of providers (Smedley, Stith, & Nelson, 2003). In Johnson, Roter, Powe, and Cooper's (2004) analysis of physician communication during medical visits, they found physicians to be significantly more verbally dominant and less patient-centered with black patients than white.

It is important to point out that the majority of these discriminatory acts are latent manifestations of stereotypes: “much contemporary discriminatory behavior is unconscious, unthinking and unintentional...biases based on racial stereotypes occur automatically and without conscious awareness even by persons who do not endorse racist beliefs” (Williams & Rucker, 79). While discriminatory physician communication tendencies and differences in the delivery of health services may not necessarily be overt, they do have ramifications in the form of racial health disparities. Clearly, both minimizing discrimination and maximizing opportunities for effective patient-physician communication is of utmost importance when seeking to minimize health disparities (Collins et al., 2002).

With these trends in mind, one can start to see how middle and upper-income blacks, with their potentially decreased likelihood of seeing a doctor of their own race, continue to experience significant health disparities when compared to their white counterparts, even after education and income have been taken into consideration. The present study examines the link between self-rated health and doctor-patient concordance. Several studies exploring disparities in health have used a measure of self-rated or self-assessed health as their outcome variable. In a review of 27 community studies, authors Benyamini and Idler (1999) concluded that this simple global assessment of health is highly valid and predictive for mortality, independent of other medical, behavioral, or psychosocial risk factors. Based on my review of the literature, I hypothesize that doctor-patient racial concordance, and the associated possibility of diminished communication and cultural hurdles endured by black patients visiting a black doctor, may help to explain this variation in the magnitude of racial health disparities along the education/income spectrum and the larger racial health disparities seen in middle and upper-income populations.

Methods

In order to examine the potential impact of the distribution of black physicians on race-based health disparities among middle and upper-socioeconomic groups, I conducted a secondary data analysis using The Commonwealth Fund's 2006 Health Care Quality Survey. This nationally representative telephone survey of adults living in the United States measures health care utilization and quality of care among a racially diverse sample of physicians and patients. In addition to sociodemographic characteristics, the information gathered includes self-reported health status, perceived discrimination in the healthcare setting, and patient health practices and preferences. The data also include information on the race of the respondent's regular doctor – allowing for analysis related to doctor-patient racial concordance and patient health outcomes.

Sample

The survey of 3,535 non-institutionalized U.S. adults was administered during the spring and fall of 2006. A stratified minority sample design was used to obtain a representative sample of minorities (Bellinger, et al., 2010). Twenty-six percent (942) of respondents self-identified as non-Hispanic white, 27% (972) non-Hispanic black, 28% (1007) Hispanic and 17% (614) other. All respondents were asked if they had a doctor whom they saw on a regular basis, 39% (1,388) of respondents did not. For the purposes of this analysis, those respondents who did not report having a regular doctor will be excluded from my final analytic sample. This is because the main independent variable, doctor-patient racial concordance, is contingent on the patient having a regular doctor with which to concord. Additionally, respondents who identified themselves as a race other than non-Hispanic white or non-Hispanic black were excluded from the sample. This is in keeping with much of the literature which focuses solely on black-white differences, as well as

to support a single-model approach to the analysis. As noted in prior research, trends in Hispanic health outcomes are paradoxical (Franzini, et al., 2001), and skew results when modeled with black and white populations. Future analysis will model race/ethnicity categories separately. The final analytic sample for this study consists of 1591 respondents, 51% of whom are white, 69% female, and 52% race concordant. Among the analytic sample, the median age is 45, median educational attainment is some college, and median income is 300-399% of the poverty level.

Variables

Dependent Variable. *Self-rated health (SRH).* To explore the impact of doctor-patient racial concordance on health outcomes, I use self-rated health as my primary dependent variable. Self-rated health has consistently been found to be a valid measure of an individual's overall health (Benyamini and Idler, 1999). To assess self-rated health, all respondents were asked, "In general, how would you describe your own health? Would you say it is excellent, very good, good, only fair, or poor?"

The operationalization of self-rated health is inconsistent in the literature, with some researchers using a dichotomized version and others using more than two categories of responses. I ran separate models operationalizing this variable in different ways in order to find the model of best fit. The different configurations were executed as follows:

1. SRH as a dichotomous variable with (1) excellent, very good, and good, and (0) fair and poor
2. SRH with (3) excellent and very good, (2) good, and (1) fair and poor
3. SRH with (4) excellent, (3) very good, (2) good, and (1) fair and poor
4. SRH with (5) excellent, (4) very good, (3) good, (2) fair, and (1) poor

Based on sensitivity analyses, the model of best fit is the first, dichotomous version, as it produced the highest Nagelkerke R-square value of all the models. Therefore, in the present analysis, I have dichotomized this variable into (1) excellent, very good, and good, and (0) fair and poor.

Independent Variables. *Doctor-patient racial concordance* is the key independent variable in my analysis. This variable was derived from the agreement of self-reported race of the respondent, and the reported race of the respondent's regular doctor. Respondents were first asked, "Do you have a regular doctor you usually go to when you are sick or need health care?" (coded as (1) "yes" and (0) "no"). Upon receiving a response in the affirmative, the interviewer followed-up by asking, "What is the race or ethnicity of this person?" (coded as (1) "white," (2) "black," and (0) "other"). Other independent variables included in the analysis are race, sex, age, marital status, community type, insurance status, educational attainment, income as a percentage of poverty, doctor-patient communication, and perceived discrimination. These were selected a-priori based on the robust body of literature which shows the strong association between these control variables and self-rated health.

Race has been coded as (1) "non-Hispanic white," and (2) "non-Hispanic black." Sex was recorded as (1) "male," and (2) "female." Age remains a scale variable, with responses ranging from 18-96. Responses were fairly normally distributed, with 80% of the respondents falling between the ages of 30 and 80. Marital status was coded as (1) "married," and (2) "unmarried." Respondents were asked their home address, and the information provided was used to categorize community type, based on census tract, by (1) "urban," (2) "suburban," and (3) "rural."

In order to assess insurance status, respondents were asked the following series of questions (continuing on to the next only in the case of a “no” response):

1. Are you now personally covered by private health insurance offered through an employer or union?
2. Are you now personally covered by a private health insurance plan that you bought yourself?
3. Are you now personally covered by Medicaid, Medi-Cal, or some other type of state medical assistance for low-income people?
4. Are you now personally covered by Medicare, the government program that pays health care bills for people over age 65 and for some disabled people?
5. Are you now personally covered by health insurance through any other source, including military or veteran’s coverage?
6. Does this mean that you personally have no health insurance now that would cover your doctor or hospital bills?

Responses were coded as (1) “private insurance,” (2) “public insurance,” and (3) “uninsured.”

Educational attainment was coded as (1) “less than high school,” (2) “high school education or equivalent,” (3) “some college but no degree,” and (4) “college degree or higher.”

Income has been operationalized as a percentage of poverty, with the categories (1) “below poverty,” (2) “100-199% of poverty level,” (3) “200-299% of poverty level,” (4) “300-399% of poverty level,” and (5) “400+% of poverty level.”

Perceived discrimination was assessed by asking the respondent, “Thinking about experiences you have had with visits in the last two years, have you felt that the doctor or medical staff treated you unfairly or with disrespect because of your race or ethnic background?”

Responses were coded into (1) “yes,” and (2) “no.” Lastly, doctor-patient communication was operationalized by combining like questions into a single variable. Respondents were asked a series of six questions on quality of communication and interaction with their doctor. Responses for all six were recorded as (1) “always,” (2) “often,” (3) “sometimes,” (4) “rarely,” and (5) “never.” Factor analysis indicated one construction for the six variables ($\alpha = 0.826$), supporting the validity and reliability of one combined variable, termed here, “doctor-patient communication.”

Analysis

Chi-square analysis was conducted to compare characteristics of respondents by self-rated health (excellent, very good, and good vs. fair and poor) and by race (black vs. white). These findings are summarized in tables one and two. The impact of doctor-patient racial concordance on self-rated health was tested using step-wise multi-variate regression models. Step-wise models allowed me to see how the main effect changed with the introduction of other possible explanatory or control variables. Analysis was conducted using SPSS version 20 (IBM Corp., New York). The regression findings are summarized in table three.

To further explore the nature of the relationship between race and concordance, I ran an interaction between these two variables. The interaction analysis produced insignificant results.

Results

Tables one and two illustrate the socio-demographic characteristics of those respondents included in my final analytic sample. These characteristics are broken down by self-rated health in table one and by race in table two. Among those who reported race concordance with their regular doctor, 74.5% are white (p-value 0.000) and 82.4% reported good, very good, or excellent health

(p-value 0.054). In contrast, those who reported racial discordance with their doctor are 25.1% white and 78.6% reported in good, very good, or excellent health. Overall, blacks reported worse health (p-value 0.003), lower rates of marriage, higher rates of urban living and public insurance, and lower levels of income and educational attainment (all p-values of 0.000) – all characteristics consistent with the literature and indicative of poor health outcomes. Those who reported good, very good, or excellent health are more concordant (p-value 0.054), white (p-value 0.003), married, insured, and educated than those reporting fair or poor health. Additionally, those reporting good, very good, or excellent health more often live in suburban areas and earn higher incomes (all p-values of 0.000).

Table three provides a summary of the step-wise regression model results. In the unadjusted model, doctor-patient racial concordance is significantly associated with an increased likelihood of reporting excellent, very good, or good health (OR=1.277, CI=0.996-1.638). Once race is added as a control variable, however, concordance no longer shows significance (OR=1.080, CI=0.811-1.437). In this second model, race is a significant predictor of self-rated health, with blacks less likely to report excellent, very good, or good health (OR=0.711, CI=0.533-0.947). Race continues to be a significant predictor of self-rated health through the addition of sex, age, marital status, community type, and doctor-patient communication and discrimination variables. Once education and, subsequently, income are accounted for, however, this race ceases to be a significant predictor (OR=0.809, CI=0.563-1.165). In the full model, concordance continues as an insignificant predictor of self-rated health (OR=1.108, CI=0.795-1.546).

**Table 1 • Summary of Respondent Characteristics
Good, VG, & Excellent SRH v Fair & Poor SRH [N(%)]**

	Good, Very Good, or Excellent	Fair or Poor	Total (column %)	P-Value
Total	1282 (80.2%)	309 (19.3%)	1591 (100%)	
Concordance				0.054
Concordant	684 (82.4%)	146 (17.6%)	830 (52.2%)	
Non-concordant	598 (78.6%)	163 (21.4%)	761 (47.8%)	
Race				0.003
Black	605 (77.6%)	175 (22.4%)	780 (49.0%)	
White	677 (83.5%)	134 (16.5%)	811 (51.0%)	
Sex				0.619
Female	894 (80.9%)	211 (19.1%)	1105 (69.5%)	
Male	388 (79.8%)	98 (20.2%)	486 (30.5%)	
Marital Status				0.000
Married	657 (84.2%)	123 (15.8%)	780 (49.2%)	
Unmarried	619 (76.9%)	186 (23.1%)	805 (50.8%)	
Community Type				0.000
Urban	575 (79.9%)	145 (20.1%)	720 (45.3%)	
Suburban	515 (85.0%)	91 (15.0%)	606 (38.1%)	
Rural	192 (72.5%)	73 (27.5%)	265 (16.7%)	
Insurance Status				0.000
Private insurance	775 (89.9%)	87 (10.1%)	862 (76.7%)	
Public Insurance	102 (58.0%)	74 (42.0%)	176 (15.7%)	
Uninsured	67 (77.9%)	19 (22.1%)	86 (7.7%)	
Educational Attainment				0.000
Less than High School	109 (54.5%)	91 (45.5%)	200 (12.6%)	
HS or Equivalent	382 (78.3%)	106 (21.7%)	488 (30.8%)	
Some College	376 (85.8%)	62 (14.2%)	438 (27.7%)	
College Grad	409 (89.3%)	49 (10.7%)	458 (28.9%)	
Income (as % of poverty)				0.000
Below Poverty	112 (63.3%)	65 (36.7%)	177 (13.1%)	
100-199% Poverty Level	168 (70.3%)	71 (29.7%)	239 (17.7%)	
200-299% Poverty Level	197 (80.4%)	48 (19.6%)	245 (18.2%)	
300-399% Poverty Level	197 (88.7%)	25 (11.3%)	222 (16.5%)	
400+% Poverty Level	418 (89.7%)	48 (10.3%)	466 (34.5%)	

Source: The Commonwealth Fund Health Care Quality Survey (2006) (N=1591)

Table 2 • Summary of Respondent Characteristics
White v Black [N(%)]

	White	Black	Total (column %)	P-Value
Total	811 (51.0%)	780 (49.0%)	1591 (100%)	
Concordance				0.000
Concordant	621 (74.5%)	212 (25.5%)	833 (52.2%)	
Non-concordant	192 (25.1%)	574 (74.9%)	766 (47.8%)	
Self-Rated Health				0.003
Good, VG, Excellent	677 (52.8%)	605 (47.2%)	1282 (80.6%)	
Fair & Poor	134 (43.4%)	175 (56.6%)	309 (19.4%)	
Sex				0.146
Female	552 (49.6%)	560 (50.4%)	1112 (69.5%)	
Male	261 (53.6%)	226 (46.4%)	487 (30.5%)	
Marital Status				0.000
Married	479 (61.3%)	302 (38.7%)	781 (49.2%)	
Unmarried	332 (40.9%)	479 (59.1%)	811 (50.8%)	
Community Type				0.000
Urban	265 (36.5%)	461 (63.5%)	726 (45.3%)	
Suburban	366 (60.2%)	242 (39.8%)	608 (38.1%)	
Rural	182 (68.7%)	83 (31.3%)	265 (16.7%)	
Insurance Status				0.000
Private insurance	442 (51.3%)	420 (48.7%)	862 (76.6%)	
Public Insurance	49 (27.7%)	128 (72.3%)	177 (15.7%)	
Uninsured	40 (46.5%)	46 (53.5%)	86 (7.6%)	
Educational Attainment				0.000
Less than High School	65 (32.3%)	136 (67.7%)	201 (12.6%)	
HS or Equivalent	237 (48.3%)	254 (51.7%)	491 (30.8%)	
Some College	235 (53.4%)	205 (46.6%)	440 (27.7%)	
College Grad	274 (59.7%)	185 (40.3%)	459 (28.9%)	
Income (as % of poverty)				0.000
Below Poverty	44 (24.6%)	135 (75.4%)	179 (13.1%)	
100-199% Poverty Level	104 (43.3%)	136 (56.7%)	240 (17.7%)	
200-299% Poverty Level	123 (50.0%)	123 (50.0%)	246 (18.2%)	
300-399% Poverty Level	117 (52.7%)	105 (47.3%)	222 (16.5%)	
400+% Poverty Level	295 (63.3%)	171 (36.7%)	466 (34.5%)	

Source: The Commonwealth Fund Health Care Quality Survey (2006) (N=1591)

Age is highly significant across all models, and further analysis is currently being conducted to explore this relationship in more detail. In the fully adjusted model, age shows an odds ratio of 0.959 and a confidence interval of 0.949-0.969. Preliminary analysis suggests respondents above age 65 report significantly worse health than their younger counterparts, independent of the control variables used here. Additionally, those public health insurance (OR=0.206, CI=0.131-0.323) and the uninsured (OR=0.375, CI=0.196-0.718) are significantly less likely to report excellent, very good, or good health, when compared to those with private insurance. Similarly, in the fully adjusted model, those with less than a high school education (OR=0.597, CI=0.393-0.906) are significantly less likely to report excellent, very good, or good health when compared with high school graduates. Compared to the same group, those with some college (OR=1.472, CI=1.001-2.165) or with a college degree or better (OR=1.507, CI=0.976-2.326) are significantly more likely to report excellent, very good, or good health.

Discussion

In general, the results of this analysis do not support the hypothesis that doctor-patient concordance is a significant predictor of health, independent of education and income. While concordance appears to serve as a significant predictor of self-rated health in the unadjusted model, this significance falls away when other control variables are added to the model. This is not entirely surprising, given the relatively small amount of remaining disparity after accounting for education and income.

Table 3 • Summary of Logistic Regression Analysis for Doc-Patient Racial Concordance Predicting Self-Rated Health

	Unadjusted		Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7	
	Exp(B)	CI	Exp(B)	CI	Exp(B)	CI	Exp(B)	CI	Exp(B)	CI	Exp (B)	CI	Exp(B)	CI	Exp(B)	CI
Concordance	1.277*	0.996-1.638	1.080	0.811-1.437	1.020	0.757-1.373	1.028	0.761-1.389	1.072	0.788-1.458	1.119	0.807-1.483	1.089	0.782-1.517	1.108	0.795-1.546
Race (white omitted)			0.711*	0.533-0.947	0.596***	0.438-0.811	0.563***	0.409-0.777	0.617**	0.444-0.859	0.686*	0.483-0.976	0.795	0.554-1.141	0.809	0.563-1.165
Sex (male omitted)					1.164	0.879-1.542	1.170	0.882-1.552	1.160	0.864-1.556	1.160	0.847-1.588	1.193	0.868-1.640	1.212	0.880-1.671
Age					0.968***	0.960-0.975	0.968***	0.961-0.976	0.953***	0.945-0.962	0.952***	0.942-0.961	0.958***	0.948-0.968	0.959***	0.949-0.969
Marital Status					1.356*	1.036-1.776	1.366*	1.041-1.793	1.055	0.790-1.408	1.096	0.807-1.489	1.036	0.759-1.414	1.003	0.732-1.375
Community type (urban omitted)																
Suburban							1.175	0.866-1.595	1.097	0.799-1.506	1.068	0.764-1.493	1.129	0.804-1.586	1.112	0.790-1.565
Rural							0.553***	0.389-0.786	0.571**	0.394-0.825	0.588**	0.398-0.867	0.691	0.464-1.030	0.692	0.463-1.034
Insurance status (private omitted)																
Public Insurance									0.147***	0.098-0.220	0.157***	0.104-0.238	0.190***	0.124-0.291	0.206***	0.131-0.323
None									0.357***	0.200-0.636	0.294***	0.157-0.551	0.354**	0.186-0.672	0.375**	0.196-0.718
Doctor-Patient Interaction																
Discrimination											0.775	0.377-1.592	0.703	0.341-1.448	0.691	0.335-1.427
Communication											1.042	0.829-1.310	1.036	0.821-1.306	1.025	0.811-1.294

	Unadjusted		Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7	
	Exp(B)	CI	Exp(B)	CI	Exp(B)	CI	Exp(B)	CI	Exp(B)	CI	Exp (B)	CI	Exp(B)	CI	Exp(B)	CI
Education (HS omitted)																
Less than HS													0.577**	0.383-0.870	0.597**	0.393-0.906
Some College													1.515*	1.034-2.220	1.472*	1.001-2.165
College Grad													1.598*	1.063-2.402	1.507†	0.976-2.326
Income (below poverty omitted)																
100-199% PL															0.951	0.634-1.427
200-299% PL															1.073	0.681-1.690
300-399% PL															1.377	0.793-2.392
400+% PL															1.182	0.732-1.908

*p<.05; **p<.01; ***p<.001

Consistent with the literature on health disparities, my analysis showed that overall, higher income and education levels indicate better health, and that socioeconomic status is the largest predictor of health (Adler & Rehkopf, 2008; Kawachi, et al., 2005; LaVeist, 2005; Wenzlow, et al., 2004 (a & b); Williams & Jackson, 2005). Similarly, my results indicate that at all levels of income and education, whites are outpacing their black counterparts in terms of health. However, also similar to previous research, racial disparities are not consistent along the income/education spectrum, with larger disparities for middle and higher income/education levels than for lower income/education levels (Kawachi, Daniels, & Robinson, 2005; Wenzlow, Mullahy, & Wolfe, 2004).

My results also show some inconsistencies with the literature. While, as in seen in the literature, blacks were more likely to report perceived discrimination and reported worse quality of communication (Waitzkin 1984; LaVeist & Nuru-Jeter, 2002; Malat & Hamilton, 2006; Saha, Komaromy, Koepsell, & Bindman, 1999; Williams & Mohammend, 2009), the model showed perceived discrimination and patient-rated communication to have no significant impact on SRH. This runs counter to findings suggesting that reduced communication, language, cultural, and discriminatory barriers may lead to better care and better patient outcomes (LaVeist & Nuru-Jeter, 2002; Malat, 2001; Malat & Hamilton, 2006; Saha, Komaromy, Koepsell, & Bindman, 1999, Karlsen & Nazroo, 2002; Williams & Mohammend, 2009). Additionally, my literature review showed both education and income to be strong predictors of health status (Adler & Rehkopf, 2008; Kawachi, et al., 2005; LaVeist, 2005; Wenzlow, et al., 2004 (a & b); Williams & Jackson, 2005), but in the full model of the present analysis, income was not shown to be a significant predictor of self-rated health. This may be due to the inclusion of insurance status, which correlates strongly with income.

Ultimately, it seems the jury is still out on this. Considering the mixed results in this analysis – and the literature suggesting first that lower-income/education minorities may be more likely than their middle and upper class counterparts to visit with physicians of their own race, and second that reduced communication barriers may contribute to better health outcomes – it is still plausible that doctor-patient concordance could have an impact on health outcomes, though likely a small impact. It is important to note that, however small that impact may be, doctor-patient concordance remains an important consideration insofar as people should be allowed the option of choosing a doctor that they are most comfortable with.

Limitations and Future Research

It is important to note that this analysis has a number of limitations. The present analysis includes information on black and white populations only. Future research should examine the nature of these relationships for other racial/ethnic groups. Additionally, even though they were given the option “other,” respondents may have felt limited by the example racial and ethnic categories mentioned in the administration of the survey (these included white, black or African American, Hispanic or Latino, Asian, Native Hawaiian or other Pacific Islander, and American Indian or Alaskan Native). The categories given here are insufficient to cover differences in culture that may exist within groups – potentially contributing to cultural hurdles even in the case of recorded “concordance.” Additionally, the data used in this analysis are cross-sectional in nature. A more thorough understanding of the relationship between doctor-patient concordance, socioeconomic status, and health may be gained with longitudinal information.

While self-rated health has been established as a strong indicator of overall health (Benyamini and Idler, 1999), it may also be useful to explore whether the relationships seen here

hold true with concrete health outcomes, such as number of comorbidities or prevalence of certain diseases.

As mentioned in the discussion, my analysis did not indicate that either perceived discrimination or the quality of doctor-patient communication have any significant impact on self-rated health, though there is literature to the contrary (LaVeist & Nuru-Jeter, 2002; Malat, 2001; Malat & Hamilton, 2006; Saha, Komaromy, Koepsell, & Bindman, 1999, Karlsen & Nazroo, 2002; Williams & Mohammend, 2009). More in-depth analysis should be conducted to try to uncover the nature and impact of doctor-patient communication and perceived discrimination in the health care setting on health outcomes.

Ultimately, my research question remains unanswered. Further research is needed to fully understand and work toward untangling the complex relationship between race and health, beyond socioeconomic status. There is no question that education and income inequality play the dominant role in shaping the extreme socioeconomic and racial health disparities seen in the United States. At the same time, it is important to gain an understanding of the additional factors at play in these disparities. A thorough understanding of these factors may help to better inform effective policy and practice. It is of interest to understand not only what causes racial disparities in health for certain levels of income, but why those disparities differ over the socioeconomic spectrum.

Potential Implications

While concordance was shown to be insignificant in the full model, significance in the unadjusted model alludes to its importance in the complex and nuanced relationship between race, class, and health. The overall positive impact on health of seeing a physician of the same

race in the unadjusted model, as well as the extreme shortage of black physicians (as demonstrated both in census data and by the dramatic difference between white and black concordance) suggests a need to increase recruitment of underrepresented minorities in medicine. A productive policy initiative could be one aimed at increasing the pool of underrepresented minority physicians to better reflect true race proportions in the population. This could be done through affirmative action measures aimed at recruiting minorities to medical programs and increased funding for minority students pursuing a medical degree. Minority med-student scholarship programs would not only help address the disproportionately low amount of minority doctors, it would encourage minority doctors to pursue careers as family physicians/general practitioners – increasing their accessibility for lower-income populations with limited insurance.

Concurrently, as indicated in my bivariate analysis, while there still exists a disproportionately large share of white doctors and most blacks see a doctor of a different race, it is important to educate physicians on indicators and effects of discrimination, as well as cultural differences that may serve as barriers to effective doctor-patient communication.

Finally, the point this analysis most clearly supports is that socioeconomic status is a very strong indicator of health. In general, a more egalitarian fiscal policy in combination with universal access to health services with an emphasis on health education and preventive medicine could largely cut down on the disparities in health that we see today.

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