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## Prior Experiences of Racial Discrimination and Racial Differences in Health Care System Distrust

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### Abstract

**Purpose**—Factors contributing to racial differences in health care system distrust (HCSD) are currently unknown. Proposed potential contributing factors are prior experiences of racial discrimination and racial residential segregation.

**Methods**—Random digit dialing survey of 762 African-American and 1267 White adults living in 40 US Metropolitan Statistical Areas (MSAs). Measures included the Revised Health Care System Distrust scale, the Experiences of Discrimination scale, metrics of access to care, sociodemographic characteristics, and the level of racial residential segregation in the city (using the isolation index).

**Results**—In unadjusted analyses, African Americans had higher levels of HCSD, particularly values distrust, and greater experiences of discrimination. Experience of discrimination was also strongly associated with HCSD. Adjusting for sociodemographic characteristics, health care access **and residential segregation** had little effect on the association between African-American race and overall HCSD or values distrust. In contrast, adjusting for experiences of racial discrimination reversed the association so that distrust was lower among African Americans than Whites (OR 0.53, 95% CI 0.33–0.85 for the overall measure). The Sobel test for mediation was strongly significant ( $p < 0.001$ ).

**Conclusions**—Higher HCSD among African Americans is explained by a greater burden of experiences of racial discrimination than Whites. Reasons for higher distrust among Whites after adjusting for experiences of racial discrimination are not known. Efforts to eliminate racial discrimination and restore trust given prior discrimination are needed.

### INTRODUCTION

Distrust related to the health care system is a potentially important cause of racial disparities in US health care. African Americans report higher levels of health care system distrust

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(HCSD) than Whites in the US, particularly for the values domain of health care system distrust that encompasses beliefs about the honesty, motives and equity of the health care system. African Americans also have been found to have higher levels of medical mistrust (another measure of health care system distrust that focuses on health care organizations) and lower levels of trust in their physicians.<sup>1-5</sup> Furthermore, health care related distrust is associated with lower rates of recommended disease prevention and treatment of acute and chronic illness, as well as worse health status.<sup>6-14</sup>

Understanding factors that may contribute to racial differences in health care related distrust has become of increasing importance. Prior studies suggest HCSD may be greatest among individuals without insurance, who have more comorbidities, or who are younger.<sup>1,3-5,9,12,14,15</sup> However, these associations have not explained racially based differences in distrust. Furthermore, most studies of HCSD have been conducted in single sites, limiting investigation of large area characteristics that may influence racial differences in distrust.

In this study, we investigate the contribution of self-reported experiences of racial discrimination to racial differences in HCSD. Experiences of racial discrimination may increase distrust among a racial group by increasing concerns about the motives of other racial groups, and social institutions associated with those racial groups. In addition, such experiences may increase the salience of past racial injustices, such as slavery and the Tuskegee experiment. This effect may be specific to an institution (e.g. discrimination experienced within the health care system increases distrust of the health care system) but may also generalize from experiences within one system to other social institutions (e.g. discrimination within the legal system increases distrust of the health care system). Experiences of racial discrimination are more common among African –Americans and have been linked to adverse health outcomes in several studies.<sup>16-18,19</sup> However, despite anecdotal evidence linking racial discrimination to health care related distrust among African Americans, to our knowledge, this hypothesis has not been tested empirically.<sup>20</sup>

## Methods

We conducted a random digit dialing survey of adults in 40 Metropolitan Statistical Areas (MSAs) in the US between June and December 2006 to assess determinants of racial differences in HCSD. We selected 40 MSAs to maximize power for comparison between MSAs within our sample size, focusing on the largest MSAs where 5% **or more** of the adult population was African American in the 1990 US Census. Due to Hurricane Katrina just prior to data collection, New Orleans, LA was replaced with Pittsburgh, PA.

## Study variables

**The dependent variable** was health care system distrust (HCSD) that was assessed using the 9 item Revised Health Care System Distrust scale (Cronbach's alpha 0.83 overall, 0.87 among Whites, 0.82 among African-Americans).<sup>21</sup> The scale includes two validated subscales: values distrust (5 items, Cronbach's alpha 0.73 overall, 0.77 among Whites, 0.73 among African Americans), and competence distrust (4 items, Cronbach's alpha 0.77 overall, 0.79 among Whites, 0.77 among African Americans). Values distrust encompasses beliefs about the honesty, motives and equity of the health care system and includes items such as "The health care system puts making money above patients' needs" and "The health care system covers up its mistakes." Competence distrust encompasses beliefs about the technical ability and performance of the health care system and includes items such as "The health care system does its best to make patients better," and the "The health care system makes too many mistakes."

**The primary independent variable of interest was experiences of racial discrimination** that was assessed using the 9 item Experiences of Discrimination scale.<sup>22</sup> This scale asks whether the respondent has “ever experienced discrimination, been prevented from doing something, or been hassled or made to feel inferior because of race, ethnicity or color” in nine different situations (at school; getting hired or getting a job; at work; getting housing; getting medical care; getting service in a store or restaurant; getting credit, bank loans, or a mortgage; on the street or in a public setting; or from the police or in the courts).

Control variables were selected because of their potential association with health care distrust or with experiences of racial discrimination. They included:

1. Measures of health care access were derived from the National Health Interview Survey (NHIS) and included current health insurance coverage, having a personal doctor, going without needed medical care in the past 12 months because of cost, and being contacted by a collection agency because of medical bills in the past 12 months.<sup>23</sup>
2. Sociodemographic characteristics, including race, ethnicity, educational level, and income were assessed using items from the NHIS. Whether the respondent lived with a partner was assessed using an item developed for this survey. Exact age was not collected in the survey. For 59% of the sample, age was determined from publicly available data using respondent name and address. For the remaining sample, age was imputed using a Markov Chain Monte Carlo method<sup>24</sup> based on sociodemographic characteristics, number of attempted phone contacts, and measures of distrust, experiences of racism and healthcare behavior. Age was categorized into six categories for analysis and reclassification across categories with imputations was minimal. Models with and without the imputed age variable yielded similar results.
3. Racial residential segregation (i.e. the degree to which racial groups are distributed evenly across a large area) **has been hypothesized to influence distrust by concentrating disadvantage and reducing interactions between racial groups.**<sup>25–28</sup> Segregation is traditionally measured at MSA level using indices that capture different dimensions of segregation.<sup>29</sup> For this study, the primary measure of segregation was the MSA isolation index, which measures the degree to which minority group members come into contact with same-group members. The isolation index has been linked to alienation of minority groups, which may lead to distrust. The isolation index ranges from zero (African-American population that is quite dispersed) to 100 (African Americans are entirely isolated from Whites). For African Americans it is calculated as the sum of  $[(aa_i/AA)(aa_i/t_i)]$ , where  $aa_i$  is the African-American population of a census tract;  $t_i$  is the total population of the MSA (e.g., African American + White);  $AA_i$  is the total African-American population of the MSA; and the summation is over all the census tracts of the MSA.

### Study sample

A random sample of telephone numbers was selected from the frame of all possible residential telephone numbers within the MSA. Up to twenty calls were placed for each number. Within eligible households, an adult was randomly selected from the total number of adult males and adult females as identified by the answering party. A total of 2,179 individuals completed the survey in the 40 MSAs, of whom 2,029 were African American or White.

## Data collection

Data were collected using a Computer Assisted Telephone Interview between June 3, 2006 and December 21, 2006. The interview completion rate (i.e. proportion of completed interviews among eligible respondents) was 64.5%, and the screener completion rate (i.e. proportion of known households in which race and age eligibility was determined) was 35.1%. The overall response rate was 31.1% using the AAPOR response rate 4 definition.<sup>30</sup>

## Statistical analysis

Characteristics of African-American and White respondents were compared using t-tests for continuous variables and chi-square tests for categorical variables. HCSD was analyzed as a continuous measure and a categorical measure, comparing the top quartile to the lower three quartiles. Experience of racial discrimination was analyzed as a continuous measure, a categorical measure (using previously established thresholds of none (0), moderate (1–2) and high (3+))<sup>22,31</sup>, individual item of discrimination in medical care, and summative score of discrimination outside of medical care. Linear and logistic regression were used to investigate the associations between the continuous and categorical measures of HCSD respectively and African-American race, as well as the effects of adjusting for specific variables, including discrimination, on the coefficient for race. Test for mediation was conducted using the approach of Baron and Kenny and the Sobel test for statistical significance.<sup>32,33</sup> Given that the results of the linear and logistic models were the same, we present the mediation analysis using linear regression but the final multivariate models using logistic regression for ease of interpretation. Final models were adjusted for the effect of clustering within the 40 MSAs and were run both with and without probability sampling weights. Sampling weights were the reciprocal of the probability of selection of the telephone number within each city, adjusted for non-response bias based upon the estimated proportion of eligible households among the unresolved numbers. Again results were similar, so the weighted results are presented. Similar models were constructed for the measure of values distrust and of competence distrust. The effect of inaccurate age measurement was assessed by testing for interactions between a variable indicating the source of age information and race and experiences of racial discrimination, in addition to conducting secondary analyses within the subgroup with publicly available age information. These analyses did not alter the results and are not shown. Final models were checked by examining generalized residuals.

## RESULTS

The characteristics of study respondents are shown in Table 1. African Americans were more likely to be male, younger, less educated, without a partner, lower income, and with more comorbidities than were Whites. African Americans also reported greater barriers to access to health care, including lack of health insurance, lack of a personal physician, inability to get care because of cost, and having been contacted by a collection agency for medical bills. African Americans had substantially higher scores on experiences of racial discrimination. Among African Americans, 80% reported at least one incident of racial discrimination compared to 34% of Whites; 60% of African Americans reported discrimination in three or more settings compared to 13% of Whites. In addition, African Americans lived in cities with somewhat higher levels of racial residential segregation. Overall, HCSD was higher among African Americans and this difference was greater for values distrust than competence distrust.

In the unadjusted model, African Americans were more likely than Whites to report HCSD levels in the top quartile (OR 1.47, 95% CI 1.22–1.78). This difference held after adjustment for sociodemographic and comorbidity differences (Model 1, OR 1.30, 95% CI 1.02–1.66)

and in measures of health care access (Model 2, OR 1.33, 95% CI 1.05–1.68). In contrast, adjustment for experiences of racial discrimination reversed the association between distrust and African-American race (Model 3, OR 0.53, 95% CI 0.33–0.85), with a greater odds of high distrust among Whites than African Americans. In addition, high HCSD was inversely associated with female gender, age over 60, lower educational attainment, and having a personal physician.

The inverse association between African-American race and high distrust was consistent across categories of racial discrimination experience (none, moderate, high) (p-value 0.8 for Mantel Haenszel test for homogeneity). The association between experiences of racial discrimination and distrust was not modified by the participant's educational or income level or gender (p-value for interactions >0.4). Adjusting for experience of racial discrimination in medical care (one of the situations in the discrimination index) had less effect on the association between African-American race and distrust (OR 1.06, 95% CI 0.81–1.39) than adjusting for experiences of racial discrimination outside of medical care (the other eight situations) (OR 0.51, 95% CI 0.32–0.79) or for the full measure of experiences of racial discrimination (Model 3).

Complementary results were found when examining the two domains of distrust: values distrust and competence distrust. After adjustment for sociodemographic and access to care variables, African-Americans had higher levels of values distrust (OR 1.48, 95% CI 1.22–1.81) but not competence distrust (OR 1.14, 95% CI 0.90–1.45). After further adjustment for experiences of racial discrimination, African Americans became less likely to have high values or high competence distrust (Table 3). Other significant covariates included gender, age, education, having a personal physician and having been contacted by a collection agency for medical bills (high values distrust) and an inability to receive medical care because of cost (high competence distrust).

Using the approach of Baron and Kenny to test whether discrimination mediates the relationship between race and distrust, the coefficient for the association between African-American race and distrust alone was 0.94, (SE 0.30, p=0.002), the coefficient for the association between experienced of discrimination and distrust was 0.86 (SE 0.05, p<0.001), and the coefficient for the association between African American race and experiences of discrimination was 2.89 (SE 0.10, p<0.001). Adjusting for discrimination, changed the coefficient for the association between African-American race and distrust to –2.17 (SE 0.33, p<0.001), completely reversing the association. The Sobel test was highly significant with a test statistic of 14.82, SE 0.17 and p <0.001.

## DISCUSSION

Racial differences in HCSD exist in many settings and are believed to contribute to racial disparities in health care.<sup>1</sup> In this study, prior experiences of racial discrimination are strongly associated with both HCSD and race, so that adjusting for discrimination completely explains the association between race and distrust. In fact, after adjustment for experiences of discrimination, African Americans are less likely to have high distrust than are Whites.

Many studies have documented racial differences in distrust but this difference has proven hard to explain with traditional measures of socioeconomic status, health status, and access to care. Racial discrimination has posited as a potential cause of distrust, but there are few empirical studies of this hypothesis. One prior study of residents of the Miami area also found that differences in perceptions of racism explained racial differences in medical mistrust.<sup>34</sup> Other small, single site studies, found correlations between perceived racism and

measures of trust among minority groups but were unable to test the contribution of perceived racism to racial differences in distrust.<sup>34–36</sup> Furthermore, while the greater level of HCSD among African Americans was found primarily with values distrust rather than competence distrust in this study (as previously seen in a sample from the Greater Philadelphia Region), the effect of racial discrimination on HCSD was seen with both values and competence distrust.<sup>1</sup> Interestingly, despite the importance of patient physician communication for trust in physicians, the impact of experiences of racial discrimination on HCSD was not limited to discrimination experienced within the health care system, but was actually greater for experiences outside of the health care system.<sup>37</sup>

Although a better understanding of the causes of racial difference in HCSD is of theoretical interest, its primary value arises if it can be translated into lower levels of distrust and fewer racial disparities in health care. These data give further support to the importance of reducing racial discrimination, and suggest that success in reducing discrimination in segments of society outside of health care may be as important in reducing distrust in the health care system. Within health care, efforts to reduce racial discrimination include increasing investments in diversity of the medical workforce<sup>38,39</sup>; training in communication and culturally appropriate interactions<sup>40–42</sup>; emphasizing professionalism in medical training, certification and credentialing<sup>43</sup>; increasing awareness of biases and heuristics in decision making<sup>39</sup>; and drawing public attention to and reporting of racial and ethnic disparities in health care.<sup>44,45</sup> While there are few data available to monitor the prevalence of racial discrimination in health care or in other areas of society, the persistence of racial disparities in care suggests that maximizing the success of these efforts and continuing to develop new strategies to reduce disparities will be necessary to achieve sustained improvements in discrimination and its adverse consequences.<sup>46–48</sup>

Interestingly, the current analysis suggests that HCSD is actually higher among Whites than African Americans after adjusting for prior experiences of racial discrimination. The potential reasons of this are unclear. It is possible that differences in cultural values may contribute, as some studies suggest that African Americans place greater emphasis on faith, religion and community than Whites.<sup>49,50</sup> Importantly, the observation that a fully adjusted model demonstrates that distrust is inversely associated with African-American race should not obscure the reality that the actual burden of HCSD in the US remains much higher among African Americans given the current pattern of experiences of racial discrimination.

This study has several limitations. Measuring experiences of racial discrimination is challenging, and it is clear that self-reported measures capture only one dimension.<sup>18,51</sup> Individuals report greater racial discrimination for their group than for themselves, suggesting that denial of rationalization may lead to an underreporting of individual experiences of racial discrimination.<sup>31</sup> Recent studies have found some evidence of differential item functioning in the EOD, although the differences were limited to three of the items and may be explained by true differences in experience rather than measurement concerns.<sup>22,52</sup> The survey had a relatively low response rate and non-responders may have differed from responders. While we were unable to test differences between responders and non-responders, the number of calls that it took to achieve a completed survey among the responders was not correlated with race, distrust or experiences of racial discrimination. As previously noted, we did not have a measure of self-reported age and thus used public and proxy information for a substantial proportion of the study population. However, it is unlikely that inaccuracy in the measurement of age would affect the primary results, and sensitivity analyses did not find any differences related to which age measure was used. The study is cross-sectional and cannot determine causality. Although it seems likely that prior experiences of racial discrimination lead to HCSD, rather than distrust leading to experiences of discrimination, the direction of this relationship cannot be determined from



these analyses. The study data were collected five years ago, but there is little evidence for substantial change in these domains over the last five years. The study population was predominantly female and women have been shown to have higher trust in the past.<sup>15</sup> However, the effect of discrimination on distrust did not differ by gender in the analyses. Finally, the study focused on 40 MSAs. While these cities include nearly two thirds of the US population, the findings may not generalize populations outside of these urban areas.

In summary, higher levels of HCSD among African Americans appear to be explained by differences in prior experiences of racial discrimination, both within and outside of the health care system. Given the growing body of evidence linking health care related distrust to racial disparities in health care, these results add further emphasis to the importance of efforts to address racial discrimination in and outside of the US health care system.

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Table 1

## Participant characteristics

	Overall N=2,179	African American N=762	White N=1,267	p-value
Male (%)	35.4	37.0	32.2	0.03
Age(%)				
18–30	2.8	3.2	1.9	<0.001
31–40	6.8	8.1	5.3	
41–50	24.2	29.8	19.3	
51–60	29.4	31.2	29.0	
61–70	20.6	18.7	22.9	
>70	16.1	9.1	21.6	
Education (%)				
High school or less	39.8	49.0	32.8	<0.001
Some college	29.1	29.7	29.2	
College or higher	30.8	21.0	37.9	
Partner (%)	58.5	48.7	63.6	<0.001
Annual Household Income (%)				
<\$20,000	19.8	25.9	15.0	<0.001
\$20,000–\$40,000	21.9	28.5	17.7	
\$40,001–\$60,000	19.5	18.9	19.6	
\$60,001–\$100,000	18.9	15.5	22.3	
>\$100,000	11.7	4.6	16.5	
Unknown	8.2	6.7	9.0	
Comorbidity (%)				
None	38.5	36.4	38.8	0.52
One	31.7	32.3	31.5	
Two or more	29.8	31.4	29.7	
Has health insurance (%)	87.3	84.9	90.7	<0.001
Has a personal physician (%)	83.9	81.8	87.7	<0.001
Unable to get medical care because of cost (%)	12.5	15.2	9.6	<0.001
Contacted by collection agency for medical bills (%)	19.9	29.0	14.0	<0.001
Racial discrimination				
Mean	1.93	3.73	0.84	<0.001
No discrimination (0) (%)	47.4	20.0	66.0	<0.001
Moderate discrimination (1–2) (%)	21.1	20.2	21.6	
High discrimination (3+) (%)	31.5	59.8	12.5	
Racial residential segregation (isolation index)	0.58	0.60	0.57	<0.001
Health care system distrust				
Mean	27.3	27.9	26.9	0.002

	Overall N=2,179	African American N=762	White N=1,267	p-value
High distrust (%)	22.8	28.0	19.8	<0.001
Mean values distrust	16.0	16.6	15.7	<0.001
High values distrust (%)	22.2	27.7	18.7	<0.001
Mean competence distrust	11.3	11.3	11.2	0.51
High competence distrust (%)	17.8	17.9	18.4	0.80

\* High distrust = top quartile of distrust score

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**Table 2**

Effects of Adjusting for Sociodemographic Factors, Access to Care, and Experiences of Racial Discrimination on Racial Differences in Health Care System Distrust (HCSD)

	Model 1 N= 2,024		Model 2 N=2,012		Model 3 (N=2,012)	
	OR	95% CI	OR	95% CI	OR	95% CI
African American (vs white)	1.30	1.02 1.66	1.33	1.05 1.68	0.53	0.33 0.85
Female (vs male)	0.81	0.60 1.09	0.72	0.52 1.01	0.66	0.46 0.94
Age						
18-30	1.00		1.00		1.00	
31-40	0.50	0.23 1.07	0.51	0.23 1.14	0.52	0.23 1.17
41-50	0.47	0.22 1.01	0.48	0.24 0.99	0.45	0.20 1.02
51-60	0.64	0.33 1.23	0.66	0.36 1.20	0.65	0.34 1.23
61-70	0.34	0.16 0.71	0.36	0.18 0.75	0.34	0.15 0.75
>70	0.24	0.10 0.59	0.31	0.12 0.81	0.35	0.13 0.97
Education						
High school or less	1.00		1.00		1.00	
Some college	1.71	1.27 2.30	1.69	1.23 2.33	1.52	1.07 2.18
College or higher	1.77	1.28 2.45	1.84	1.36 2.49	1.55	1.09 2.19
Partner (vs no partner)	1.05	0.73 1.51	1.04	0.72 1.52	1.11	0.77 1.61
Annual Household Income (\$)						
<20,000 (reference)	1.00		1.00		1.00	
20,000-40,000	1.20	0.73 1.97	1.30	0.81 2.10	1.56	0.93 2.62
40,001-60,000	0.81	0.55 1.19	1.00	0.66 1.53	1.14	0.76 1.73
60,001-100,000	0.93	0.56 1.57	1.19	0.69 2.05	1.24	0.66 2.32
>100,000	0.58	0.30 1.10	0.81	0.42 1.57	0.97	0.52 1.81
Unknown	1.04	0.53 2.05	1.28	0.60 2.72	1.25	0.57 2.77
Comorbidity						
None	1.00		1.00		1.00	
One	1.37	1.02 1.83	1.46	1.05 2.02	1.39	0.97 1.98

	Model 1 N=2,024		Model 2 N=2,012		Model 3 (N=2,012)	
	OR	95% CI	OR	95% CI	OR	95% CI
Two or more	1.47	1.10 1.97	1.62	1.13 2.33	1.44	0.94 2.22
Has health insurance			1.11	0.75 1.65	1.09	0.65 1.83
Has personal physician			0.50	0.32 0.78	0.42	0.25 0.73
Unable to get medical care because of cost			2.01	1.21 3.33	1.60	0.93 2.74
Contacted by collection agency for medical bills			1.35	0.99 1.85	1.12	0.81 1.55
Experiences of racial discrimination					1.34	1.23 1.46

Model 1 includes sociodemographic variables

Model 2 includes sociodemographic and health care access variables

Model 3 includes sociodemographic, health care access and racial discrimination variables

**Table 3**

Associations with Values and Competence Distrust

	Values distrust N=2,012		Competence distrust N=2,012	
	OR	95% CI	OR	95% CI
African American (vs. white)	0.65	0.44 0.97	0.40	0.27 0.59
Female (vs male)	0.77	0.51 1.17	0.69	0.49 0.95
Age				
18-30	1.00		1.00	
31-40	1.48	0.48 4.59	0.50	0.20 1.24
41-50	2.65	1.01 6.95	0.30	0.10 0.88
51-60	2.63	0.80 8.61	0.54	0.22 1.35
61-70	1.84	0.72 4.75	0.32	0.11 0.94
>70	1.89	0.65 5.48	0.42	0.15 1.17
Education				
High school or less	1.00		1.00	
Some college	1.63	1.20 2.21	1.26	0.82 1.95
College or higher	1.40	0.95 2.06	1.55	0.82 2.94
Partner (vs no partner)	0.94	0.65 1.36	1.19	0.78 1.83
Annual Household Income (\$)				
<20,000 (reference)	1.00		1.00	
20,000-40,000	1.97	1.10 3.54	1.18	0.64 2.18
40,001-60,000	1.46	0.86 2.49	0.96	0.56 1.66
60,001-100,000	1.36	0.84 2.22	1.00	0.52 1.91
>100,000	1.23	0.73 2.07	0.80	0.32 2.02
Unknown	0.99	0.45 2.16	0.82	0.38 1.80
Comorbidity				
None	1.00		1.00	
One	1.29	0.90 1.85	1.27	0.78 2.06
Two or more	1.18	0.72 1.92	1.73	1.11 2.70



	Values distrust N= 2,012		Competence distrust N=2,012	
	OR	95% CI	OR	95% CI
Has health insurance	1.03	0.62 1.71	1.11	0.68 1.80
Has personal physician	0.70	0.45 1.08	0.52	0.32 0.84
Unable to get medical care because of cost	1.32	0.78 2.24	1.92	1.10 3.36
Contacted by collection agency for medical bills	1.45	1.09 1.94	0.95	0.58 1.55
Experiences of racial discrimination	1.30	1.21 1.40	1.29	1.18 1.40