

Determinants of Trust in Health Care in an Older Population

Natalie Guerrero, BA,* Carlos F. Mendes de Leon, PhD,[†] Denis A. Evans, MD,^{‡§}
and Elizabeth A. Jacobs, MD, MPP^{||#}

OBJECTIVES: To explore differences in sociodemographic and psychological correlates of institutional trust in health care in an aging population of African Americans and non-Hispanic whites.

DESIGN: Cross-sectional survey data from the longitudinal Chicago Health and Aging Project.

SETTING: Population-based study of three communities in the Chicago area.

PARTICIPANTS: African Americans (n = 2,284) and non-Hispanic whites (1,354) with a mean age of 79.3.

MEASUREMENTS: Demographic factors, socioeconomic status (SES), healthcare access, cynical hostility, perceived discrimination, depression, and institutional trust in health care.

RESULTS: African Americans reported substantially lower healthcare trust than non-Hispanic whites ($P < .001$). After adjustment for demographic variables and SES, only race ($P < .001$) and age ($P = .008$) were significantly associated with healthcare trust scores. The association between race and healthcare trust was slightly attenuated after adjusting for cynical hostility, depressive symptoms, and perceived discrimination ($P < .001$). Each of these variables was negatively associated with healthcare trust, and together these accounted for approximately 15% of racial differences in healthcare trust.

CONCLUSION: Psychological factors, not demographic characteristics, SES, or healthcare factors, appear to contribute the most to disparities in healthcare trust between older African Americans and non-Hispanic whites. *J Am Geriatr Soc* 63:553–557, 2015.

Key words: trust; disparities; discrimination; hostility; depression

Racial disparities in health are observed throughout the life course. They exist at birth,¹ continue through childhood,² and persist into adulthood.^{3,4} Minority populations have higher prevalence of many diseases,^{5–8} an important determinant of racial disparities in disability and other forms of poor physical health in late life. In addition, prevention and control of these conditions tends to be lower in racial minorities and contribute to health disparities in older adults.⁹ Effective prevention and control depends in part on trust in the healthcare system and the healthcare providers responsible for the screening, diagnosis, and treatment of chronic health conditions.

African Americans and Hispanics have less trust in the healthcare system and its providers than non-Hispanic whites, which probably contributes to disparities.^{10–12} Lower trust in physicians and healthcare organizations is associated with worse self-reported health;¹⁰ underuse of health services and vaccinations;^{12–14} lower adherence;¹¹ delayed care-seeking,¹⁵ diagnosis, and treatment;¹⁶ and disregard of physicians' opinions.¹⁷

Given the potential role of lower trust in healthcare disparities, it is important to understand the range of conditions and experiences that may lead to lower healthcare trust levels in minority populations. Little is known about the relative contributions of the complex set of factors that may contribute to racial differences in healthcare trust. For example, persons with lower education, income, and access to care are less trustful of healthcare providers and institutions, which may account for at least part of the racial difference in healthcare trust. Finally, social disadvantage is disproportionately more common in minorities and may manifest itself in a range of negative emotions and experiences, such as depression, hostility, and perceived discrimination that may also lead to lower trust.¹⁸

The aims of this study are to describe differences in healthcare trust between African Americans and non-Hispanic whites from an urban population of older adults and

From the *School of Medicine and Public Health, University of Wisconsin, Madison, Wisconsin; [†]Department of Social Epidemiology, University of Michigan, Ann Arbor, Michigan; [‡]Department of Medicine; [§]Rush Institute for Aging, Rush University Medical School, Chicago, Illinois; ^{||}Division of General Internal Medicine, Department of Medicine; and [#]Department of Population Health Sciences, University of Wisconsin, Madison, Wisconsin.

Address correspondence to Elizabeth A. Jacobs, Vice Chair for Health Services Research, Department of Medicine, Associate Professor, Departments of Medicine and Population Health Sciences, University of Wisconsin-Madison, 800 University Bay Drive, Suite 210, MC 9445, Madison, WI 53705. E-mail: eajacobs@medicine.wisc.edu

DOI: 10.1111/jgs.13316

examine the degree to which socioeconomic status (SES), factors related to healthcare access and use, and psychosocial factors account for these differences. Although older adults tend to have uniform healthcare insurance through Medicare, there still may be differences according to race in rates of access to and use of care. It was hypothesized that healthcare trust levels would be lower in African Americans than non-Hispanic whites and that differences in SES, healthcare use, and negative emotions account for at least part of the lower level of healthcare trust in older African Americans.

METHODS

Study Design and Population

Data came from an epidemiological study of older adults, the Chicago Health and Aging Project (CHAP), a longitudinal study of a geographically defined, urban community population of older African Americans and non-Hispanic whites. Details of the study have been described previously.⁶ Briefly, the study population included all residents aged 65 and older who resided in three adjacent community areas on the south side of Chicago. Data collection started in 1993 and continued for six cycles (2009–11), each taking an average of 3 years to complete. In the third cycle (2000–02), additional age-eligible participants from the original community areas and another adjacent community area were identified and enrolled. Interviews included standardized questions on demographic, socioeconomic, behavioral, psychological, and health history–related variables and several brief performance tests of physical and cognitive function. Data on healthcare trust, healthcare use, and medication adherence were added during the sixth interview cycle and form the basis of the present analysis. The institutional review boards of four academic medical centers approved the study and this analysis. All participants provided written informed consent.

Study Variables

Healthcare Trust

The healthcare trust variable came from an abbreviated version of the Health Care Trust Survey Instrument. The original instrument consists of 36 items, clustered in seven factors (discrimination, equity, hidden agenda, insurance, positive physician expectations, negative physician expectations, system welcoming), and was developed to assess trust in health care.¹⁹ The original instrument had good reliability in African–American ($\alpha = 0.93$) and non-Hispanic white populations ($\alpha = 0.95$) and convergent validity; less trust on the measure was significantly correlated with lower levels of institutional trust and reporting having a negative experience in health care in the last 5 years in both groups.¹⁹ Because the trust measure was being integrated into an ongoing, large epidemiological study, it was necessary to be sensitive to response burden and include a smaller number of items. The item that had the highest correlation with the overall trust score was chosen from each factor except the two physician-related factors.

Because they had the largest number of items, the two items that had the highest correlation were chosen. Respondents were instructed when answering to “think about things that have happened to you or people you know. These experiences may be recent or in the past.” Individual items were scored on a Likert scale ranging from never true (0) to always true (4). The healthcare trust summary score was computed by adding individual scores after reverse coding items framed in the direction of distrust, yielding a potential range from 0 to 36.

Other Measures

Demographic variables included age, race and ethnicity, and marital status. Race and ethnicity was self-reported and classified according to the 1990 U.S. Census categories. The majority of the population was African American and non-Hispanic white; all others (<1%) were dropped from this analysis. Marital status at the time of interview was classified as married versus nonmarried. Information on SES was based on years of formal schooling completed and income. Household income was reported in one of 10 categories (range <\$5,000 to >\$75,000/year).

Access to health care was based on a question adopted from the Stanford Disease Self-Management Study²⁰ that assesses whether the participant has a particular doctor’s office, clinic, health center, or other place where they usually go if they are sick or need advice about their health. Use of care was assessed based on a question about the frequency of visits to the usual place of care during the last 6 months (0, 1, 2, 3, ≥ 4).²¹

Psychosocial measures included depressive symptoms, cynical hostility, and perceived discrimination. Depressive symptoms were assessed using the 10-item version of the Center of Epidemiologic Studies—Depression Scale (CES-D), a short form that reduces participant burden in older adults;²² scores range from 0 to 10, with higher scores indicating more depressive symptomatology. Hostility was measured using the 8-item Cynical Distrust Scale;²³ scores range from 0 to 8, with higher scores reflecting greater cynical distrust. Perceived discrimination was measured using the nine-item Perceived Discrimination Scale,²⁴ which assesses experiences of discrimination regardless of attribution to a specific personal characteristic, such as race, sex, or age. Scores range from 0 to 9, with higher scores indicating greater perceived discrimination.

Analysis

Descriptive statistics are provided as means and standard deviations for continuous variables and frequency distributions of categorical variables. The primary analysis consisted of a series of four linear regression models to test for racial differences in healthcare trust, ranging from a simple unadjusted model to a fully adjusted model. The first model included only a term for race. The next three models sequentially add covariates for basic demographic and socioeconomic variables, healthcare access (having a usual doctor or place of care) and use (frequency of visits to usual place of care during last 6 months), and psychosocial characteristics (hostility, depressive symptoms, perceived discrimination).

Data from the 220 (5.7%) participants (5.5% of blacks; 6.1% of non-Hispanic whites) who had missing data on all nine healthcare trust items were excluded. For the remaining 3,638 participants, a multiple imputation procedure (PROC MI, SAS Institute, Inc., Cary, NC) was used to account for missing data in subsets of the healthcare trust items and other variables (e.g., income, hostility, CES-D). For the primary analysis, 15 imputed complete-data files were computed to fit the linear regression models, using data from all the variables included in this analysis, as well as a number of other health-related and psychosocial status variables available in the CHAP database. In sensitivity analyses, these regression models were repeated using 35 imputed complete data files to correspond to the proportion of missing data in the primary variables.²⁵ The regression models were also rerun using imputation for all missing data ($n = 3,858$) and without imputation for the subset with complete data on all variables ($n = 2,355$).

RESULTS

Exclusion of 220 participants left a total of 3,638 participants in the analysis (2,284 (63%) African Americans, 1,354 non-Hispanic whites (27%)). Descriptive information of the sample and study variables is provided in Table 1. The mean age of the sample was 79.3, 66% of the participants were female, and 40% were married. On average, participants had completed 13.1 years of education; 12% had a yearly income of less than \$15,000, 37% an income between \$15,000 and \$30,000, and 51% an income greater than \$30,000. Five percent of the participants lacked a source of regular care; participants with a source of care reported an average of 1.9 visits to this source of care during the last 6 months. Participants had a mean depressive symptoms score of 1.6 ± 2.1 , a mean hostility score of 2.8 ± 2.1 , and a perceived discrimination score of 0.9 ± 1.5 . The average healthcare trust score in the total sample was 23.5 ± 5.2 .

On average, African Americans tended to be slightly younger than whites and less likely to be married, had a lower level of education and lower income, and were more likely to have a regular source of care. They also had a slightly higher average number of visits to their regular source of care during the last 6 months and reported substantially higher levels of depressive symptoms, hostility, and perceived discrimination than whites. African Americans also tended to report lower levels of healthcare trust (22.1 ± 5.1) than whites (25.5 ± 4.9).

Race and Healthcare Trust

Results of the primary analyses are presented in Table 2. There was a significant unadjusted association between race and healthcare trust ($\beta = -3.507$, $P < .001$), indicating that, on average, African Americans reported healthcare trust levels that were approximately two-thirds of a standard deviation (3.5/5.3) lower than those of whites. These differences were slightly less ($\beta = -3.208$, $P < .001$) after adjustment for demographic variables and SES (Model 2). Age was the only demographic variable significantly associated with healthcare trust scores ($\beta = 0.034$,

$P = .008$), with older participants reporting higher trust levels.

Further adjustment for healthcare-related variables (Model 3) slightly increased the association between race and ethnicity and healthcare trust ($\beta = -3.271$, $P < .001$). The small percentage of participants without a regular physician reported significantly lower healthcare trust levels ($\beta = -1.521$, $P < .001$) than those who did. In the final regression model (Model 4), the association between race and healthcare trust was somewhat attenuated, but remained statistically significant ($\beta = -2.813$, $P < .001$). All three additional variables had an independent negative association with healthcare trust, including hostility ($\beta = -0.185$, $P < .001$), depressive symptoms ($\beta = -0.358$, $P < .001$), and perceived discrimination ($\beta = -0.147$, $P < .01$). Adjustment for these three psychosocial variables accounted for approximately 15% of the racial differences in healthcare trust. The individual variables of hostility, depressive symptoms, and perceived discrimination accounted for 5.9%, 8.5%, and 3.5% of the racial differences in healthcare trust, respectively.

Sensitivity Analysis

Results from the sensitivity analyses showed the same pattern of findings as those obtained in the primary analyses. When the analysis was restricted to the subset of participants with complete data, the unadjusted association for race was -3.468 ($P < .001$), and the fully adjusted association was -2.694 ($P < .001$).

DISCUSSION

As hypothesized, significantly lower levels of healthcare trust were found in older African Americans than in older whites. The observed racial difference of approximately 3.5 on the healthcare trust scale amounts to an effect size of approximately 0.66 (3.5/5.3, the pooled SD), which ranges between medium and large.²⁶ The black-white difference in healthcare trust was less than 10% different after adjustment for SES and healthcare-related factors. Psychosocial factors including hostility, depressive symptoms, and perceived discrimination accounted for an additional 15% of the racial difference in healthcare trust, and the relationship between race and ethnicity and trust remained substantial in size and significant.

An interesting aspect of the findings was that SES was not associated with institutional trust in health care, nor did it account for the observed disparity in trust. Previous studies have found mixed results with regard to SES and institutional trust. Some have found that trust is lower in those with higher educational attainment and SES,²⁷ whereas others have found the opposite.^{12,27} These mixed results are the same in studies comparing contributors to trust in African Americans with those in other populations.^{28,29} It is likely that this is because African Americans are not a monolithic population, and there are differences in populations according to geography and age cohort.

The current study findings suggest that racial differences in trust in older age are more related to psychosocial determinants than to SES. The psychological orientation of participants, including overall distrust of the environment

Table 1. Descriptive Characteristics of the Study Population

Characteristic	Total Study Population, N = 3,638	Black, n = 2,284	White, n = 1,354	P
Age, mean ± SD	79.3 ± 6.8	78.6 ± 6.4	80.3 ± 7.4	<.001
Female, n (%)	2,401 (66)	1,533 (67)	868 (64)	.06
Black, n (%)	2,292 (63)	N/A	N/A	
Married, n (%)	1,455 (40)	845 (37)	610 (45)	<.001
Education, years, mean ± SD	13.1 ± 3.3	12.3 ± 3.1	14.6 ± 3.1	<.001
Annual income, \$, n (%)				
<15,000	435 (12)	366 (16)	69 (5)	<.001
15,000–30,000	1,350 (37)	1,070 (47)	280 (21)	
>30,000	1,838 (51)	628 (27)	1,008 (74)	
Lack of regular source of care, n (%)	5,183 (0)	3.87 (9)	7.96 (0)	<.001
Number of visits to regular source of care in last 6 months, mean ± SD	1.9 ± 1.2	2.1 ± 1.2	1.7 ± 1.2	<.001
Cynical Hostility score, mean ± SD	2.8 ± 2.1	3.2 ± 2.1	2.0 ± 1.8	<.001
Center for Epidemiologic Studies Depression Scale score, mean ± SD	1.6 ± 2.1	2.0 ± 2.3	1.0 ± 1.4	<.001
Perceived Discrimination Scale score, mean ± SD	0.9 ± 1.5	1.1 ± 1.7	0.6 ± 1.1	<.001
Health Care Trust score, mean ± SD	23.5 ± 5.3	22.2 ± 5.1	25.6 ± 4.9	<.001

SD = standard deviation.

Table 2. Relationship Between Participant Characteristics and Trust Scores

Characteristic	Model 1	Model 2	Model 3	Model 4
	β (Standard Error)			
Race	−3.506 (0.17) ^a	−3.208 (0.19) ^a	−3.271 (0.19) ^a	−2.813 (0.20) ^a
Age	N/A	0.034 (0.013) ^b	0.038 (0.01) ^b	0.037 (0.01) ^b
Sex	N/A	−0.006 (0.18)	−0.014 (0.18)	−0.011 (0.18)
Marital status	N/A	0.057 (0.20)	0.045 (0.20)	−0.035 (0.19)
Education	N/A	0.042 (0.03)	0.042 (0.03)	0.005 (0.03)
Income	N/A	0.077 (0.04)	0.066 (0.04)	0.026 (0.04)
No source of care	N/A	N/A	−1.531 (0.40) ^a	−1.273 (0.40) ^b
Number of visits/month	N/A	N/A	−0.005 (0.07)	0.098 (0.07)
Hostility	N/A	N/A	N/A	−0.185 (0.04) ^a
Depressive symptoms	N/A	N/A	N/A	−0.358 (0.04) ^a
Perceived discrimination	N/A	N/A	N/A	−0.147 (0.06) ^c

P < ^a.001, ^b.01, ^c.05.

and social interactions, measured according to cynical hostility, depressive symptoms, and perceived discrimination, were found to be significantly related to lower trust. Previous studies have documented a relationship between depressive symptoms^{28,30} and perceived racial discrimination²⁸ and trust in health care. The current study examined these factors together, along with cynical hostility, and demonstrated how they independently contributed to racial differences in healthcare trust.

This study was not without limitations. It was conducted in a single geographic area and in an older cohort; it may not be generalizable to other regions or younger populations, but studying an older cohort is an important contribution because the U.S. population is rapidly aging, and understanding determinants of trust in this population that engages the most in health care is important. The measure of trust was an abbreviated version of a validated measure, and only it and its determinants could be measured, not whether it influenced behavior with regard to engagement with health care. Previous work has docu-

mented the relationship between healthcare mistrust and healthcare use, outcomes, and disparities.²⁹ An important next step is to understand how these differences contribute to healthcare disparities, particularly in older populations.

These findings have implications for understanding how to increase trust in older African-American populations. Recognizing and treating depression in this population could increase trust, as could altering staff and physician practices that could potentially be perceived as racist. Understanding the determinants of racial disparities in distrust provides the knowledge needed to address and reduce them.

ACKNOWLEDGMENTS

The authors thank Ms. Jennifer Tarpey at Rush Institute for Healthy Aging, Rush University Medical School for coordination of data collection, Mr. George Dombrowski at Rush Institute for Healthy Aging, Rush University Medical School for data management, Mr. Todd Beck at Rush

Institute for Healthy Aging, Rush University Medical School for data analysis, and Ms. Rebecca Schwei at the University of Wisconsin School of Medicine and Public Health for assisting in the preparation of the manuscript.

This research was supported by Grants AG11101, AG032247, and AG033172 from the National Institute on Aging.

Conflict of Interest: The authors have no conflict of interest to report.

Author Contributions: Guerrero: data interpretation, drafting and revising the article, final approval. Mendes de Leon: study conception and design, data acquisition and interpretation, revising the manuscript, final approval. Evans: data acquisition and interpretation, revising the manuscript, final approval. Jacobs: study conception and design, acquisition of data, interpretation of analysis, drafting and revising the article, final approval.

Sponsor's Role: The sponsor played no role in the design, methods, subject recruitment, data collection, analysis, or preparation of the paper.

REFERENCES

- Hauck FR, Tanabe KO, Moon RY. Racial and ethnic disparities in infant mortality. *Semin Perinatol* 2011;35:209–220.
- McManus BM, Robert S, Albanese A et al. Racial disparities in health-related quality of life in a cohort of very-low-birth-weight 2- and 3-year-olds with and without asthma. *Epidemiol Community Health* 2012;66:579–585.
- Delgado J, Jacobs EA, Lackland DT et al. Differences in blood pressure control in a large population-based sample of older African Americans and non-Hispanic whites. *J Gerontol A Biol Sci Med Sci* 2012;67A:1253–1258.
- Levine RS, Foster JE, Fullilove RE et al. Black-white inequalities in mortality and life expectancy, 1933–1999: Implications for healthy people 2010. *Public Health Rep* 2001;116:474–483.
- Davey Smith G, Neaton JD, Wentworth D et al. Mortality differences between black and white men in the USA: Contribution of income and other risk factors among men screened for the MRFIT. MRFIT Research Group. Multiple Risk Factor Intervention Trial. *Lancet* 1998;351:934–939.
- Mendes de Leon CF, Barnes LL, Bienias JL et al. Racial disparities in disability: Recent evidence from self-reported and performance-based disability measures in a population-based study of older adults. *J Gerontol B Psychol Sci Soc Sci* 2005;60B:S263–S271.
- Geronimus AT, Bound J, Waidmann TA. Poverty, time, and place: Variation in excess mortality across selected US populations, 1980–1990. *J Epidemiol Community Health* 1999;53:325–334.
- Kirk JK, Bell RA, Bertoni AG et al. Ethnic disparities: Control of glycemia, blood pressure, and LDL cholesterol among US adults with type 2 diabetes. *Ann Pharmacother* 2005;39:1489–1501.
- Kirby JB, Taliaferro G, Zuvekas SH. Explaining racial and ethnic disparities in health care. *Med Care* 2006;44:164–172.
- Armstrong K, Rose A, Peters N et al. Distrust of the health care system and self-reported health in the United States. *J Gen Intern Med* 2006;21:292–297.
- Saha S, Jacobs EA, Moore RD et al. Trust in physicians and racial disparities in HIV care. *AIDS Patient Care STDS* 2010;24:415–420.
- Thompson HS, Valdimarsdottir HB, Winkel G et al. The Group-Based Medical Mistrust Scale: Psychometric properties and association with breast cancer screening. *Prev Med* 2004;38:209–218.
- Fikretoglu D, Guay S, Pedlar D et al. Twelve month use of mental health services in a nationally representative, active military sample. *Med Care* 2008;46:217–223.
- Gullion JS, Henry L, Gullion G. Deciding to opt out of childhood vaccination mandates. *Public Health Nurs* 2008;25:401–408.
- Keating F, Robertson D. Fear, black people and mental illness: A vicious circle? *Health Soc Care Community* 2004;12:439–447.
- Chin AL, Negash S, Hamilton R. Diversity and disparity in dementia: The impact of ethnoracial differences in Alzheimer disease. *Alzheimer Dis Assoc Disord* 2011;25:187–195.
- Balkrishnan R, Dugan E, Camacho FT et al. Trust and satisfaction with physicians, insurers, and the medical profession. *Med Care* 2003;41:1058–1064.
- Penner LA, Dovidio JF, Edmondson D et al. The experience of discrimination and black-white health disparities in medical care. *J Black Psychol* 2009;35:180–203.
- Schwei RJ, Rathouz P, Choi SW et al. A valid measure of health-related trust for use in diverse populations [abstract]. In: Abstracts of the 36th annual meeting of the society of general internal medicine. April 24–27, 2013. Denver, Colorado. *J Gen Intern Med* 2013;28(Suppl 1):S1–S489.
- Lorig K. Outcome Measures for Health Education and Other Health Care Interventions. Thousand Oaks, CA: Sage Publications, 1996.
- Medical Expenditure Panel Survey. Rockville, MD: Agency for Healthcare Research and Quality, 2013.
- Albert M, Smith LA, Scherr PA et al. Use of brief cognitive tests to identify individuals in the community with clinically diagnosed Alzheimer's disease. *Int J Neurosci* 1991;57:167–178.
- Cook WW, Medley DM. Proposed hostility and pharisaic-virtue scales for the MMPI. *J Appl Psychol* 1954;38:414–418.
- Williams DR, Yan Y, Jackson JS et al. Racial differences in physical and mental health: Socio-economic status, stress and discrimination. *J Health Psychol* 1997;2:335–351.
- White IR, Royston P, Wood AM. Multiple imputation using chained equations: Issues and guidance for practice. *Stat Med* 2011;30:377–399.
- Cohen J. *Statistical Power Analysis for the Behavioral Sciences*, 2nd Ed. Hillsdale, NJ: Erlbaum, 1988.
- Rajakumar K, Thomas SB, Musa D et al. Racial differences in parents' distrust of medicine and research. *Arch Pediatr Adolesc Med* 2009;163:108–114.
- Hammond WP. Psychosocial correlates of medical mistrust among African American men. *Am J Community Psychol* 2010;45:87–106.
- Watkins YJ, Bonner GJ, Wang E et al. Relationship among trust in physicians, demographics, and end-of-life treatment decisions made by African American dementia caregivers. *J Hosp Palliat Nurs* 2012;14:238–243.
- Cunningham CO, Sohler NL, Korin L et al. HIV status, trust in health care providers, and distrust in the health care system among Bronx women. *Aids Care* 2007;19:226–234.