

Race, Medical Mistrust, and Segregation in Primary Care as Usual Source of Care: Findings from the Exploring Health Disparities in Integrated Communities Study

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ABSTRACT *Compared to White Americans, African-Americans are less likely to use primary care (PC) as their usual source of care. This is generally attributed to race differences in socioeconomic status and in access to primary care services. Little is known about the relationship between race differences in medical mistrust and the usual source of care disparity. Using data from the Exploring Health Disparities in Integrated Communities (EHDIC) study, we examined the role of medical mistrust in choosing usual source of care in 1408 black and white adults who were exposed to the same healthcare facilities and low-income racially integrated community. Multinomial logistic regression models were estimated to examine the relationship between race, medical mistrust, and usual source of care. After adjusting for demographic and health-related factors, African-Americans were more likely than whites to use the emergency department (ED) (relative risk ratio [RRR]=1.43 (95 % confidence interval (CI) [1.06–1.94])) and hospital outpatient department (RRR=1.50 (95 % CI [1.10–2.05])) versus primary care as a usual source of care. When medical mistrust was added to the model, the gap between African-Americans' and whites' risk of using the ED versus primary care as a usual source of care closed (RRR=1.29; 95 % CI [0.91–1.83]). However, race differences in the use of the hospital outpatient department remained even after accounting for medical mistrust (RRR=1.67; 95 % CI [1.16–2.40]). Accounting for medical mistrust eliminated the ED-as-usual-source of care disparity. This study highlights the importance of medical mistrust as an intervention point for decreasing ED use as a usual source of care by low-income, urban African-Americans.*

KEYWORDS *Primary care, Emergency department, Usual source of care, Medical mistrust, Healthcare utilization, Social context*

BACKGROUND

Racial Disparities in Usual Source of Care

Racial disparities have been established in primary care (PC) utilization at private offices and community health centers.^{1–4} African-Americans have historically used the emergency department (ED) and hospital outpatient departments at higher rates than their white counterparts.⁵ Conversely, African-Americans seek PC through a

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private physician's office at only two thirds the rate of whites (276.4 vs. 335.9 out of every 100 persons, respectively).⁶

African-Americans' preferential use of non-PC sites as a usual source of care (USOC) restricts their relative exposure to the potential preventive health benefits of PC experiences.⁷⁻⁹ Furthermore, preferential use of non-PC sites like the ED as a site of usual source of care correlates with poorer health outcomes across a variety of diseases, thus disadvantaging African-Americans relative to their white counterparts.¹

In addition to its public health implications, the use of non-PC sites as a usual source of care may compound the national economic burden of healthcare by sacrificing healthcare efficiency.⁸ Healthcare expense data from the US Department of Health and Human Services showed that in 2008, the average ED visit was two times more expensive than a hospital outpatient department visit and nearly five times more expensive than a PC office visit.^{8,9} The economic toll of ED use is especially concerning because much of the care sought was preventable.⁵ In a 2007 Centers for Disease Control and Prevention (CDC) report, at least 28.9 % of all visits to ED nationwide were for less than urgent or emergent conditions that could have been more appropriately treated in the ambulatory PC setting.⁵ These startling economic realities reinforce the imperative to explore how to increase appropriate use of PC as a usual source of care.

Relatively higher rates of ED and hospital outpatient use by African-Americans are partially explained by individual socioeconomic characteristics and access to healthcare, which are considered enabling factors in healthcare use.² Studies have measured these factors using income level and insurance status to represent socioeconomic status (SES) and access to healthcare, respectively.^{2,10} Household income and insured status also account for a significant amount of the racial disparity in usual source of care.^{10,11} However, even after accounting for individual-level socioeconomic factors, the disparity in usual source of care persists.^{10,11} Such a significant public health problem begs further exploration. Psychosocial factors, like medical mistrust and perceived discrimination, have been identified as determinants of healthcare utilization, yet few studies have examined the effect of psychosocial determinants like medical mistrust on usual source of care disparities.¹²⁻¹⁴

Medical Mistrust

Many studies have established racial disparities in medical mistrust—with African-Americans reporting greater mistrust than their white counterparts.¹⁴⁻¹⁶ For that reason, medical mistrust has been proposed as a potential explanation for and point of future exploration into the usual source of care disparity.¹²⁻¹⁷ Long-considered an explanation for African-Americans' reluctance to participate in medical research, medical mistrust has recently been correlated with higher rates of ED utilization, lower rates of preventive services, and fewer health-seeking behaviors.^{13,14,17} Emerging evidence suggests that residential segregation may confound the relationship between medical mistrust and healthcare utilization.¹⁸⁻²¹ To the best of our knowledge, no study explores the relationship between medical mistrust and usual source of care while controlling for confounding of race and residential segregation.

Residential Segregation

Residential segregation has been proffered as a moderator of the race-health relationship, exposing African-Americans and white Americans to disparate social and environmental factors-neighborhood characteristics that influence health behavior and outcomes.^{2,18-23} These exposures include physical proximity to healthcare facilities and professionals as well as the range of insurance types

accepted by a community's healthcare providers.²¹ The literature suggests that these exposures differentially disadvantage African-American neighborhoods that are highly segregated, relative to their less segregated and white counterparts.^{10,21-27} This differential exposure to health-related neighborhood characteristics is thought to account for a major share of PC utilization disparities.²¹ Accordingly, the racial pattern of environmental factors may be plausibly linked to observed disparities in usual source of care and must be considered in the field's research.

Conceptual Framework

As interest grows in the context of segregation in healthcare utilization studies, scholars have attempted to conceptualize its impact.¹⁸⁻²⁰ This study adapts a conceptual framework to test the effect of medical mistrust on usual source of care disparities while accounting for the confounding influence of residential segregation. We use White, Haas, and Williams's multilevel model, which postulates that segregation contributes to health disparities by creating disparate exposures to healthcare access and quality between African-American and white communities.¹⁸ These forces act at multiple ecological levels including the health system infrastructure, provider characteristics, neighborhood context, individual-level characteristics, and the measure of discrimination.¹⁹

Segregation differentially disadvantages highly segregated African-American communities by concentrating poverty and uninsured status.²³⁻²⁷ At the individual level, this leads to a dearth of the resources (private insurance, financial capital, and educational opportunities) that typically "predispose" and "enable" an individual to use PC.²⁵ Independent of individual factors, segregation interacts with race at the neighborhood level so that concentrated uninsured status leads to fewer PC physicians in highly segregated African-American communities relative to their less segregated and white counterparts.^{21,26,28} Kirby and Kaneda describe the concentrated socioeconomic disadvantage imposed by residential segregation as an "emergent characteristic" which decreases the likelihood of having a usual source of care, regardless of the number of physicians available.²⁹

Although segregation of healthcare was made illegal by the Civil Rights Act of 1964 and Medicare in 1965, de facto segregation of healthcare systems persists as a natural extension of residential segregation.³⁰ Residential segregation exerts its influence at the healthcare system level through its association with the type of healthcare facility present. Highly segregated African-American communities are less likely to have private and specialty physicians' offices but more likely to feature safety net facilities. The relationship between race, level of segregation, and type of healthcare facility may create a disparity in healthcare quality and patient satisfaction that diminishes PC use in segregated communities. Segregation may also influence medical mistrust as it predicts higher levels of distrust in highly segregated African-American and white communities.^{31,32} The relationship between segregation and determinants of healthcare utilization at multiple ecological levels demands that we account for residential segregation when examining racial disparities in usual source of care and medical mistrust.

METHODS

Exploring Health Disparities in Integrated Communities

Exploring Health Disparities in Integrated Communities (EHDIC) is an ongoing multisite study of race disparities within communities where African-Americans and

non-Hispanic whites live together and where there are no race differences in SES (as measured by median income). The first EHDIC study site was in Southwest Baltimore, MD (EHDIC-SWB).³³ EHDIC-SWB is a cross-sectional face-to-face survey of the adult population (age 18 and older) of two contiguous census tracts. In addition to being economically homogenous, the study site was also racially balanced and well integrated, with almost equal proportions of African-American and non-Hispanic white residents. In the two census tracts, the racial distribution was 51 % African-American and 44 % non-Hispanic white and the median income for the study area was \$24,002, with no race difference. The census tracts were block listed to identify every occupied dwelling in the study area. During block listing, we identified 2618 structures. Of those, 1636 structures were determined to be occupied residential housing units (excluding commercial and vacant residential structures). After at least five attempts, contact was made with an eligible adult in 1244 occupied residential housing units. Of that number, 65.8 % were enrolled in the study resulting in 1489 study participants (41.9 % of the 3555 adults living in these two census tracts recorded in the 2000 Census). Because our survey had similar coverage across each census block group in the study area, the bias to geographic locale and its relationship with SES should be minimal.³³

Comparisons to the 2000 Census for the study area indicated that the EHDIC-SWB sample included a higher proportion of blacks and women, but was otherwise similar with respect to other demographic and socioeconomic indicators.³³ For instance, our sample was 59.3 % African-American and 44.4 % male, whereas the 2000 Census data showed that the population was 51 % African-American and 49.7 % male. Age distributions in our sample and 2000 Census data were similar with the median age for both samples—35–44 years. The lack of race difference in median income in the census, \$23,500 (African-American) vs. \$24,100 (non-Hispanic whites) was replicated in EHDIC \$23,400 (African-American) vs. \$24,900 (non-Hispanic whites).

The survey was administered in person by a trained interviewer and consisted of a structured questionnaire, which included demographic and socioeconomic information, self-reported health behaviors and chronic conditions, and three blood pressure (BP) measurements. The interviewers were not race matched to the participants. The interviewers were undergraduate and master-level students and were formally trained by the project staff to administer the EHDIC-SWB survey. The interviewers were not trained in cultural competency. However, the principal investigator and project director held meetings with key stakeholders in the community and town hall meetings to inform the community about the study and what we planned to do with the results.

The EHDIC study has been described in greater detail elsewhere.³³ The study was approved by the Committee on Human Research at the Johns Hopkins Bloomberg School of Public Health.

Main Outcome

Our dependent variable was site of usual source of healthcare. Participants reported where they usually go when they are sick or need healthcare. A three-level nominal variable was created based on the following four responses: ED, private office or other private clinic, community health center or other public clinic, and hospital outpatient department. The private office and community health center responses were combined into one “primary care” category because care received in these

venues is more uniformly focused on PC than is care received at the ED and hospital outpatient departments.³⁴ This PC aggregate category was the reference category used to compare the site choices of ED and hospital outpatient department as usual source of care.

Main Independent Variables

Our independent variable was medical mistrust. Medical mistrust was determined by an index (the MMI) derived from EHDIC respondents' agreement with 17 statements regarding medical mistrust beliefs.¹⁴ To create the index, those 17 statements were reduced by principal component analysis to seven statements.¹⁴ Those seven statements include the following: (1) "You'd better be cautious when dealing with health care organizations"; (2) "Patients have sometimes been deceived or misled by health care organizations"; (3) "When health care organizations make mistakes they usually cover it up"; (4) "Health care organizations sometimes have done harmful experiments on patients without their knowledge"; (5) "Health care organizations don't always keep your information totally private"; (6) "Sometimes I wonder if health care organizations really know what they are doing"; (7) "Mistakes are common in health care organizations".¹⁴ The medical mistrust index ranged from 12 to 25 points with higher scores indicating greater medical mistrust³⁴, and it was previously validated by LaVeist, Isaac, and Williams.¹⁴ In this investigation, MMI measures an individual's mistrust in healthcare organizations—a category that may be interpreted broadly and includes institutions such as health clinics, hospitals, insurance companies, and public health departments.¹⁴ However, MMI is not used to directly measure the level of trust an individual has in a specific healthcare provider (commonly known as "provider trust").¹⁴ A growing body of literature finds that MMI and provider trust are inversely correlated, suggesting that dissatisfactory and perceived discriminatory experiences that individuals have with healthcare providers and other actors throughout the ecological levels of the healthcare system may contribute to mistrust of healthcare organizations broadly.^{12–17}

Few studies have empirically investigated African-Americans' mistrust of healthcare organizations at distinct ecological levels (i.e., health clinics, hospitals, insurance companies, and public health departments). Future investigations into such patterns of medical mistrust may be enlightening.

Covariates

Other covariates included demographic variables and health-related characteristics. Demographic variables included race, age, male sex, household income, educational attainment, and marital status. Race was based on self-identification, and we only included participants who reported being African-American or white ($N=1408$). Age and household were measured as continuous variables. Age was measured in years, and household income was measured in increments of \$10,000. Male sex was coded as a dichotomous variable. A dichotomous variable was also created to identify those who were married versus those who were not. A binary variable was created to identify those who had at least a high school diploma or GED versus those who did not.

Health-related characteristics included health insurance status, self-rated health, and number of chronic conditions. Each of these variables was represented by a set of binary variables. Health insurance status was coded as having insurance (either public or private) or not. Self-rated health was coded as a binary variable (fair and

poor self-rated health versus higher self-rated health—good, very good, and excellent). The presence of a chronic condition was determined by responses to whether a “doctor or healthcare professional” had informed the respondent if they had one of the following conditions: hypertension, stroke, asthma or other respiratory disease, heart attack or any other heart disease, obesity, cancer, diabetes, and depression or anxiety. Each variable was coded as a binary variable to indicate presence of disease or not. These eight variables were summed to create a variable representing the number of chronic conditions, which was then dichotomized as having two or more conditions compared to fewer than two.

We conducted chi-squared analysis and Student’s *t* test to estimate the differences in proportions and means across race. We used multinomial logistic regression to examine the association between race, medical mistrust, and site of usual source of healthcare. We computed relative risk ratios (RRR) for African-Americans compared to whites. This method calculated African-Americans’ relative risk of using an ED or a hospital outpatient department as a usual source of care over a PC site compared to Whites’ relative risk of using these sites of care, respectively, over a PC site. Multinomial logistic regression is useful for evaluating how individuals’ characteristics influence their choice of one option over other alternatives.³⁵ Because RRR assesses relative risk, it requires a baseline for comparison. For example, the RRR of ED use estimates the relative risk of an African-American person using the ED as a usual source of care over a PC site compared to whites who have the same choice set.³⁵ If the RRR is greater than one, increased risk over the baseline is implied: African-Americans are more likely than whites to use the ED instead of a PC site as a usual source of care. If the RRR is less than one, decreased risk under baseline is implied—African-Americans are less likely than whites to use the ED instead of a PC site as a usual source of care.

We estimated two models. The first included race, age, gender, income, education, insurance status, self-rated health, and number of chronic conditions. The second model included those variables and medical mistrust. All tests were two-sided, and a *p* value less than 0.05 was considered statistically significant. Statistical analysis was conducted using Stata11 statistical software.³⁶

RESULTS

The proportions, means, and standard deviations of the descriptive statistics for the EHDIC sample are displayed in Table 1. Compared to whites, African-Americans were younger than whites and reported lower household income. A larger proportion of African-Americans were male, had a high school education, were insured, reported greater than fair or poor self-rated health, and reported fewer than two chronic conditions.

The association between race, medical mistrust, and usual source of care is found in Table 2. Compared to whites, African-Americans were 1.43 times as likely to use the ED versus PC as a usual source of care, independent of covariates. However, after accounting for medical mistrust in the second model, there was no difference between African-Americans’ and whites’ risk of using an ED versus a PC site as a usual source of care (RRR = 1.29; the 95 % confidence interval (CI) was 0.91–1.83). Similarly, African-Americans were 1.50 times as likely as whites to use hospital outpatient departments versus PC as a usual source of care, independent of potential confounders in the first model (95 % CI was 1.10–2.05). However, when medical

TABLE 1 Distribution of select characteristics of 1408 EHDIC-SWB participants by race

Independent variable	Non-Hispanic blacks	Non-Hispanic whites
	(<i>n</i> = 835)	(<i>n</i> = 573)
Age	38.4 ± 0.46	43.9 ± 0.68*
Male sex (%)	45.6	43.1*
GED/high school diploma or higher (%)	58.0	44.3*
Household income (\$)	23,471 ± 32,486	24,817 ± 23,415*
Married/living as married	14.1	24.1*
Insurance (private or public) (%)	65.1	59.8*
Medical mistrust	19.0 ± 0.07	18.7 ± 0.08*
Fair or poor self-reported health (%)	28.2	37.4*
Two or more chronic conditions (%) ^a	26.1	39.3*
Emergency department as USOC (%)	22.5	20.3
Outpatient department as USOC (%)	19.3	15.3
Primary care as USOC (%)	57.4	63.0*

The values which are represented with ± are means ± SD. All binary variables are coded 1 and 0 where 1 represents the name of the variable

USOC usual source of care

**p* < 0.05; tests of significance are for differences in means for continuous variables (i.e., *t* test) and differences in proportions (i.e., chi-squared test) by race

^aChronic diseases include “high blood pressure”; “heart attack or any other heart disease”; “cancer”; “stroke”; “diabetes or sugar diabetes”; “anxiety or depression”; “obesity”; “breathing problem, such as asthma or emphysema”; and “any other health problems”

mistrust was accounted for in the second model, the hospital outpatient department coefficient remained statistically significant at 1.67 (the 95 % CI was 1.16–2.40).

DISCUSSION

This study aims to explore the relationship between race, medical mistrust, and usual source of care within an integrated sample of African-Americans and white Americans in Southwest Baltimore. We find that in a residentially integrated environment, the differential in medical mistrust accounts for the racial disparity in ED over PC as a site of usual source of care. However, medical mistrust does not account for the racial disparity in choice of hospital outpatient department versus PC as a site of usual source of care. These findings suggest that interventions that address medical mistrust may be effective at diminishing the racial disparity in ED use versus PC use for a usual source of care.

Emergency Department as a Usual Source of Care

Our study finds that in a racially integrated low-income urban environment, higher medical mistrust leads to greater likelihood of using the ED instead of PC as a site of usual source of care. When medical mistrust was controlled, race was no longer a significant predictor of the ED over PC as a site of usual source of care. The role medical mistrust plays in the usual source of care disparity may be explained by conceptualizing medical mistrust as a barrier to healthcare utilization.^{14,17,37} In general, perceived barriers to healthcare utilization predispose patients to use the ED as their site of usual source of care.³⁷ More specifically, studies have established that

TABLE 2 Relative risk ratios and 95 % confidence intervals for the association between race, medical mistrust, and type of usual site of healthcare among participants of the EHDIC-SWB study

	Model 1	Model 2
Primary care	1.00	1.00
Emergency department	1.43 (1.06–1.94)	1.29 (0.91–1.83)
Hospital outpatient	1.50 (1.10–2.05)	1.67 (1.16–2.40)

Model 1 included race, age, marital status, household income, education, insurance, self-rated health status, and number of chronic conditions. Model 2 included race, age, marital status, household income, education, insurance self-rated health status, and number of chronic conditions and medical mistrust index

high levels of medical mistrust predict lower utilization of preventive care services, which typically occurs in PC settings.^{14,17} It follows that less preventive care leads to higher occurrence of medical issues (urgent or non-urgent), which might have been prevented.⁸ In the absence of an established relationship with a PC facility, the ED offers the most immediate access to a medical professional. Eventually, the ED, rather than PC, often becomes the site of usual source of care.

Given medical mistrust's relationship with low-value healthcare utilization, its root causes are necessary targets for intervention. One community-based study of African-American men identified outcome expectations of mistreatment within the healthcare system as one explanation for high medical mistrust.³⁸ Other researchers have correlated medical mistrust with negative treatment expectations and perceptions: perceived discrimination in everyday life, patient dissatisfaction, and perceived racism in healthcare.^{16,38} However, the causal link between African-Americans' treatment expectations, perceptions, and medical mistrust has not been thoroughly explored. Interventions that aim to reduce African-Americans' relatively higher levels of medical mistrust should investigate the relationship between medical mistrust and improved healthcare treatment expectations and perceptions.

One opportunity to reduce African-Americans' medical mistrust lies in the socio-historical context of ethical breaches in the clinical research and medical treatment of African-Americans.³⁹ African-Americans' trust of healthcare organizations may be increased by modifying the perceived relationship between the institution of US healthcare and African-American communities. Grassroots-academic partnerships could develop truly culturally sensitive, long-lasting, and reciprocal relationships between institutions and African-American community members, thus reducing these communities' medical mistrust. A promising example includes University of California at Berkeley's Best Babies Zones, a perinatal educational collaboration between the university and communities across the USA.⁴⁰ Its early evaluations feature anecdotal observations of growing trust between university-based community educators and participating parents.⁴¹ However, there is a lack of empirical evidence measuring the effect of such collaborations on the medical mistrust of partnering communities.

Compared to in-person, place-based collaborations, innovative health information technologies (HIT) may offer more easily scalable opportunities to decrease African-American patients' mistrust in healthcare by framing their healthcare institution as an advocate.^{42–45} A growing body of evidence focuses on patient portals, text message interventions, and mobile applications that may improve patient satisfaction (a psychosocial correlate of medical mistrust)³⁴, improve self-

management of chronic diseases, and reduce non-urgent ED visits in urban populations.⁴²⁻⁴⁵ Yet, the impact of HIT on medical mistrust disparities has not been well studied.

Compared to HIT, medical education initiatives are more widely established. These initiatives have been implemented by academic medical institutions nationally and are designed to increase the cultural sensitivity and awareness of unconscious bias of healthcare professionals.^{46,47} Few cultural competency studies have documented improvements in patient satisfaction—a psychosocial correlate of medical mistrust.^{47,48}

However, while many such initiatives have documented improvements in provider knowledge and skill in cross-cultural interactions, to our knowledge, medical mistrust outcomes have not been recorded.

Hospital Outpatient Department as Usual Source of Care

Unlike the racial disparity in ED versus PC as usual source of care, the disparity in hospital outpatient department (HOD) versus PC as usual source of care was not explained by medical mistrust. The persistence of the HOD disparity is challenging to interpret because its significance is complicated by the wide variation in facilities categorized as HODs. Unlike PC, the HOD category includes a heterogeneous collection of sites with a variable focus on prevention.³⁴ Some HOD facilities may incorporate primary or secondary preventive care during visits (i.e., hospital-based specialty clinics), whereas other clinics are singularly treatment-oriented (i.e., comprehensive outpatient rehab facilities and outpatient surgical centers).³⁴ Generally, the literature does suggest that PC is favorable to HOD as a usual source of care because care delivered at HOD is generally more treatment-oriented and more costly relative to care delivered at private offices and community health centers.⁴⁹⁻⁵²

Further attention should be given to investigating the causes of the racial disparity in hospital outpatient departments and stratifying its impact on healthcare costs and health outcomes across specific types of HODs.

Limitations

The EHDIC study represents a new direction in health disparities research by accounting for unmeasured environmental heterogeneity that is associated with race but not controlled in most analyses. EHDIC-SWB also accounts for the confounding of race and SES that is present in national data. This is the first study to examine race differences in medical mistrust among individuals who have access to the same healthcare facilitates and who live in similar social and environmental conditions.

It is important to note that this study is based on cross-sectional data collection. Thus, causation cannot be inferred from the results of the data analysis. Furthermore, as the EHDIC-SWB data was accumulated from a lower-income, urban racially residentially integrated sample, these study results are not generalizable to non-urban, higher-income, or racially residentially segregated populations.

CONCLUSION

In this low-income, urban, racially integrated sample, medical mistrust accounted for the racial disparity in using an ED versus PC as a site of usual source of care but did not explain the disparity in using a hospital outpatient department versus PC as a usual source of care. Increased recognition of the role of residential segregation in

usual source of care disparities requires ongoing conceptualization and operationalization of its interaction with multilevel healthcare utilization factors.^{18,22,23,28} Future explorations should empirically measure the success of interventions such as cultural competence training, academic-community collaboration, and HIT interventions in reducing medical mistrust and increasing PC as usual source of care in urban African-American populations.

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