Mistrust in physicians does not explain black-white disparities in primary care and emergency department utilization: the importance of socialization during the Jim Crow era

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1. INTRODUCTION

Compared to whites, blacks in the United States utilize emergency department (ED) services at a relatively higher rate, which can be five times more expensive than primary care (PC) services and limit exposure to preventive health benefits. [1] Blacks also underutilize PC services. [1] Differential health service utilization is often attributed to predisposing (e.g., race, sex, age, education), need (e.g., health status), and enabling (e.g., income, insurance, access) factors.[2, 3] Emerging evidence suggests that an additional factor, medical mistrust, largely accounts for unexplained black-white differences.[4, 5] Lack of trust is associated with failure to take medical advice, schedule follow-up appointments, and fill prescriptions. [6] Blacks, on average, have less trust in physicians than whites.[7, 8] This is commonly attributed to the legacy of Tuskegee.[9] However, most studies of medical mistrust are site specific. [10–14] Virtually no research has examined the influence of medical mistrust in ED and PC utilization disparities using a nationally representative sample.

Additionally, life course factors that potentially moderate racial differences in health care utilization remain largely unexplored.[10] Sociological scholarship has long noted that race issues cannot be fully understood when disjoined from sociohistorical contexts, and the life course perspective emphasizes the role that the time and place in which one was raised plays in shaping life outcomes. [15, 16] For example, blacks socialized in the U.S. south during the Jim Crow era experienced a unique social and political climate compared to blacks raised

elsewhere. Socialization shapes attitudes toward health care, and thus has a lasting effect on utilization[17]. For example, public facilities in the south, including health care institutions, were racially segregated by law until after the 1964 Civil Rights Act.[18] Therefore, blacks who are currently middle-age and older and who were raised in the south may utilize PC services less, and ED services more, as this group was socialized in a formally segregated environment. We therefore use a nationally representative sample to examine whether trust in physicians and socialization under racially segregated health care further explains black-white differences in PC and ED utilization.

2. METHODS

2.1 Data

Data for this original research came from the 2002 wave of the Americans' Changing Lives (ACL) study, which is one of the only nationally representative data sets that include measures for both trust in physicians and health care utilization. The current study is limited to the 2002 wave, because it is the only wave that includes a medical mistrust measure. The ACL is a longitudinal panel survey supported by the National Institute on Aging that began in 1986 with a multi-stage probability sample of U.S. residents aged twenty-five and older. Therefore, all respondents were forty-years old or older at time of measurement. The analytic sample includes community dwelling non-Hispanic whites and blacks born in the U.S. Missing data (8%) were listwise deleted, and the sample size is 1,578.

2.2 Measures

2.2.1 Dependent Variable(s)—PC and ED utilization are count variables that are respectively measured by the two following questions: "During the past 12 months, about how many times did you go to see a medical doctor, nurse practitioner, or physician's assistant about your own health? Do not count health care providers seen while you were an overnight patient in a hospital, a resident in a nursing home or long-term care facility, or while in an emergency room." "During the past 12 months, how many times did you receive care in an emergency room?"

2.2.2 Independent Variables—*Predisposing factors* include race (0 = white, 1 = black), sex (0 = male, 1 = female), education (0 = at least a high school education, 1 = less than a high school education), and age. Age is measured in years, and is interacted with race to account for blacks' cumulative inequality across the life course. *Need factors* include self-rated health (1 = poor to 5 = excellent), functional limitations (1 = no impairment to 4 = severe impairment), and a health conditions index that ranges from 0 to 9 (i.e., hypertension, diabetes, lung disease, heart disease, stroke, cancer, broken bone, arthritis, and incontinence). Need factors are interacted with race to account for potential racial differences in self-reports of overall health, functional limitations, and health conditions. *Enabling factors* include employment status (0 = not employed, 1 = currently working for pay), family income (ten categories ranging in approximately $5,000 increments), health insurance (0 = not insured, 1 = insured), marital status (0 = not married, 1 = married), and rural (0 = resides in a metropolitan statistical area, 1 = lives in a small town or the country). Indicator variables are used to respectively denote whether a respondent utilized ED or PC

services in the past year. *Trust in physicians* is measured by the question "In general, how much would you say you trust doctors to be able to help you with your medical problems?" Scores range from 1 (trust very much) to 4 (don't trust at all). This measure is interacted with race to determine whether blacks are more or less likely to utilize PC or ED services than whites with equivalent levels of mistrust. *Life course factors* include a series of indicator variables that denote whether a respondent (a) never resided in the south, (b) currently resides in the south but was raised elsewhere, (c) was raised in the south but currently resides elsewhere. Thus, the reference group includes those who were raised and currently reside in the south. These indicators are interacted with race to account for the unique experience of being black and raised, and/or currently, in the south.

2.2.3 Analytic Approach—Descriptive statistics are computed for both blacks and whites, with the appropriate t-test and chi-square test of independence. Poisson regression is used to model PC utilization, and zero-inflated Poisson regression is used to model ED utilization—with StataSE 14. A stepped modeling approach is used to sequentially adjust for the unique series of factors expected to influence PC and ED utilization outlined by the behavioral model of health services use.[3] Baseline models include predisposing factors, then need factors, and enabling factors are added. Next, the amount of variation in service utilization explained by medical mistrust net of predisposing, need, and enabling factors is examined. Finally, life course factors are added to (a) examine racial differences due to sociohistorical contexts, and (b) to see if these contexts moderate the relationship between service utilization and medical mistrust. Poisson regression results are reported as relative risk ratios (RRR), with the base being whites' net of respective controls.

3. RESULTS

3.1 Descriptive statistics

Table 1 contains the descriptive statistics for the analytic sample. In terms of predisposing factors, blacks are more likely to be female, younger, and have less than a high school education compared to whites. In terms of need factors, blacks have worse self-rated health and report more functional limitations and health conditions compared to whites. In terms of enabling factors, blacks have lower family income, are less likely to be married, less likely to be a rural inhabitant, and more likely to have used ED services in the past twelve months. Blacks and whites do not differ in terms of trust in physicians. In terms of life course factors, blacks' past and current place of residence differs substantially from whites ($\chi^2 = 211.72$, p < .001). Blacks are less likely to have never lived in the south or moved to the south, and are more likely to have left the south after age sixteen compared to whites. There is no bivariate black-white difference in PC utilization, however, blacks use ED services more frequently than whites.

3.2. Primary Care Utilization

The baseline model shown in Table 2 indicates that blacks utilize PC services at the same rate as whites (RRR = 1.04, 95% CI = 0.99–1.09). When age-race differences are adjusted for in model 2, blacks are shown to utilize PC more frequently than whites (RRR = 1.28, 95% CI = 1.02–1.61). However, this is fully attenuated in model 3 after adjusting for need

factors (RRR = 0.92, 95% CI = 0.73–1.16), and it reverses in model 4 given racial differences in need factors (RRR = 0.62, 95% CI = 0.46–0.85). Enabling factors in model 5 fully account for racial differences in PC utilization (RRR = 0.76, 95% CI = 0.55–1.04), but model 6 shows that ED use confounds black-white differences (RRR = 0.68, 95% CI = 0.50–0.94). Medical mistrust is negatively associated with PC utilization in model 7 (RRR = 0.93, 95% CI = 0.90–0.97), but it does not explain black-white disparities in PC utilization (RRR = 0.70, 95% CI = 0.51–0.96). Model 8 shows that blacks and whites with equivalent levels of medical mistrust do not differ in PC utilization (RRR = 1.02, 95% CI = 0.94–1.10). Life course factors in model 9 explain black-white differences (RRR = 0.69, 95% CI = 0.47–1.02). However, blacks were found to underutilize PC services compared to whites when racial differences in life course factors are adjusted for in the fully conditional model (RRR = 0.60, 95% CI = 0.40–0.88). Most everyone utilizes PC more frequently than those who were raised and currently reside in the south, and this is especially true for blacks. Finally, medical mistrust is not confounded with life course factors.

3.3. Emergency Department Utilization

The baseline model shown in Table 3 indicates that blacks utilize ED services more frequently than whites (RRR = 1.29, 95% CI = 1.07–1.57), and this increases by more than a factor of five in model 2 when age-race differences are adjusted for (RRR = 6.57, 95% CI = 2.73–15.83). Racial differences in ED utilization were partially explained by need factors in model 3 (RRR = 5.35, 95% CI = 2.18–13.09) and racial differences in need factors in model 4 (RRR = 4.32, 95% CI = 1.36–13.73). Enabling factors in model 5 slightly explained racial disparities in ED utilization (RRR = 3.59, 95% CI = 1.14–11.33). Model 6 shows that those who utilized PC services in the last twelve months frequent the ED more often (RRR = 2.70, 95% CI = 1.14–6.42). Medical mistrust does not explain ED utilization in model 7 (RRR = 1.05, 95% CI = 0.93–1.20), nor does it operate differently for blacks compared to whites, as shown in model 8 (RRR = 0.87, 95% CI = 0.66–1.15). The fully conditional model shows that blacks overutilize ED services compared to whites (RRR = 10.42, 95% CI = 2.61–41.66). Whites who do not currently reside in the south utilize ED services more frequently, but the inverse is true for blacks—at least among those who were not also raised in the south (RRR = 0.68, 95% CI = 0.44–1.06).

4. CONCLUSION

This study aims to develop a deeper understanding of black-white disparities in PC and ED utilization, and it builds on an emerging medical mistrust literature by incorporating life course factors with a nationally representative sample of middle-age and older adults in the U.S. The results indicate that mistrust in physicians is associated with less frequent PC utilization, but not ED utilization. However, this mistrust does not operate differently between blacks and whites, and it does not explain racial disparities in PC or ED utilization. Life course factors indicate that both current and previous place of residence are important for determining PC utilization. However, ED utilization is driven by current place of residence for whites, but not blacks. Findings suggest that PC utilization is modifiable among vulnerable populations.

This study highlights the need to expand research on the determinants of medical mistrust. Extant medical mistrust research generally focuses on racial disparities or within-group differences among blacks, often with the assumption that the Tuskegee legacy has a lasting impact on blacks' trust in physicians.[4,5] However, this study finds that mistrust does not explain racial disparities in PC or ED utilization. Other factors, such as previous negative encounters with physicians, may better explain why some individuals are less likely to trust physicians than others.[19] Thus, patient-centered communication may help prevent mistrust in physicians and subsequent PC underutilization. For example, an analysis of physician-patient audio tapes shows that physicians who spend more time listening to patients are more trusted.[19]

Blacks who were raised in the south and/or continue to reside in the south are at especially high risk for ED overutilization. This indicates that life course factors are important predisposing characteristics that may determine utilization patterns at an early age. Community Health Workers (CHW) may be key to addressing racial disparities; they are culturally competent individuals who reside in the community and act as connectors between providers and consumers. CHWs identify barriers patients face to PC utilization and tailor an intervention that best suits the client's needs, and they have been found effective in reducing repeat ED visits.[20,21] Specifically, CHWs may be attuned to address the sociohistorical influences that blacks who were raised under racially segregated health care continue to endure, and possibly pass on to their children. It is clear that "Jim Crow era effects" are persistent over time, and their intergenerational transfer, especially in terms of health care socialization, need further attention.

This study is the first to provide nationally representative evidence on trust in physicians and black-white disparities in PC and ED utilization, which adds much needed scope to this burgeoning literature. However, findings are limited to middle-age and older adults. Thus, future studies should include a broader age range, and examine multiple generations and/or cohort and period patterns. The use of cross-sectional data limits the ability to address temporal patterns and causal pathways (e.g., selection effects among movers). Additionally, specific PC and ED utilization dates were unavailable, thus, it is not possible to determine if ED utilization leads to PC follow up—which, given current results, may be a common route to PC services for blacks who were raised in the south but now reside elsewhere and those that moved to the south. Finally, the medical mistrust measure is limited to trust in physicians, which does not reflect mistrust in the health care system as a whole. Measures such as the Medical Mistrust Index (MMI) are better suited to assess mistrust in various types of health care providers and organizations.

5. IMPLICATIONS

The current study reiterates the need to further examine racial disparities in PC and ED utilization, and the importance of examining contexts in terms of both time and place (e.g., from a life course perspective). Although medical mistrust is important for understanding health care utilization, trust in physicians appears to not be a driving factor in determining black-white disparities. Previous research is generally limited to single-site studies, and locale is an important factor that contributes to health care utilization. However, site-specific

studies generally deemphasize the role that sociohistorical context plays in shaping racial differences. Thus, sociohistorical factors, such as being raised in the south during the Jim Crow era, require further attention if black-white disparities in PC and ED utilization are to be more fully understood.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1

Descriptive statistics of the analytic sample

	Non-Hispanic blacks	**Non-Hispanic whites**	**Black vs White**
	(n = 393; 24.90%)	**(n = 1,185; 75.10%)**	**χ^2/t**
Predisposing Factors			
Female	0.69	0.61	−2.77[**]
Age	59.53 (12.83)	61.60 (14.64)	2.50[**]
Less than High School	0.34	0.16	−7.88[***]
Need Factors			
Self-Rated Health	3.22 (1.03)	3.53 (1.01)	5.31[***]
Functional Limitations	1.56 (1.03)	1.41 (0.87)	−2.74[**]
Health Conditions Index	1.46 (1.30)	1.35 (1.24)	−1.58[†]
Enabling Factors			
Employed	0.73	0.69	−1.18
Income	4.19 (2.60)	5.73 (2.40)	10.84[***]
Insured	0.94	0.96	1.21
Married	0.46	0.70	8.79[***]
Rural	0.22	0.35	5.04[***]
ED Used	0.32	0.24	−2.98[***]
PC Used	0.88	0.91	1.55
Trust in Physicians			
Mistrust	1.44	1.49	1.29
Life Course Factors			211.72[***]
South-Never	0.28	0.64	12.79[***]
South-After 16	0.03	0.08	3.14[***]
South-Left After 16	0.17	0.04	−8.84[***]
Health Care Utilization			
PC Utilization	5.65 (8.99)	5.41 (8.89)	−0.46
ED Utilization	0.59 (1.13)	0.40 (1.08)	−2.90[**]

Note:

[†]p 0.10;

[*]p 0.05;

[**]p 0.01;

[***]p 0.001

Table 2

PC utilization: Relative risk ratios from Poisson regression N=1,578

Variables	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10
Predisposing Factors										
Black	1.04	1.28 *	0.92	0.62 **	0.76	0.68 *	0.70 *	0.67 *	0.69	0.60 **
Female	1.28 ***	1.27 ***	1.11 ***	1.11 ***	1.16 ***	1.17 ***	1.17 ***	1.17 ***	1.17 ***	1.16 ***
Age	1.01 ***	1.01 ***	0.99 ***	0.99 **	0.99 **	0.99 *	0.99 **	0.99 **	0.99 **	0.99 **
Age × Black		0.99	1.00	0.99	0.99 *	0.99	0.99	0.99	0.99	1.00
Less than HS	1.05	1.05	0.83 ***	0.83 ***	0.93 **	0.92 **	0.92 **	0.92 **	0.93 *	0.94 *
Need Factors										
SRH			0.77 ***	0.75 ***	0.74 ***	0.75 ***	0.74 ***	0.74 ***	0.74 ***	0.74 ***
Functional Limit.			1.19 ***	1.18 ***	1.18 ***	1.17 ***	1.17 ***	1.17 ***	1.18 ***	1.18 ***
Health Conditions			1.18 ***	1.15 ***	1.14 ***	1.13 ***	1.13 ***	1.13 ***	1.13 ***	1.13 ***
SRH × Black				1.10 ***	1.07 *	1.07 *	1.06 *	1.06 *	1.06 *	1.04
Func. Lim. × Black				1.02	1.03	1.04	1.03	1.03	1.02	1.03
Health Con. × Black				1.10 ***	1.10 ***	1.10 ***	1.10 ***	1.10 ***	1.10 ***	1.10 ***
Enabling Factors										
Employed					1.01	1.02	1.02	1.02	1.03	1.02
Income					1.04 ***	1.04 ***	1.04 ***	1.04 ***	1.04 ***	1.04 ***
Insured					2.08 ***	2.09 ***	2.05 ***	2.05 ***	2.02 ***	1.95 ***
Married					0.94 *	0.95 *	0.94 *	0.94 *	0.96	0.96
Rural					0.89 ***	0.89 ***	0.89 ***	0.89 ***	0.91 ***	0.91 ***
ED Use						1.21 ***	1.21 ***	1.21 ***	1.21 ***	1.21 ***
Trust in Physicians										
Mistrust							0.93 ***	0.93 ***	0.93 ***	0.93 ***
Mistrust × Black								1.02	1.00	0.97
Life Course Factors										
South-Never									1.15 ***	1.07 *

Variables	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10
South-After 16									1.39 ***	1.17 **
South-Left After 16									0.97	0.87
South-Never × Black										1.25 ***
South-After 16 × Black										2.25 ***
South-Left After 16 × Black										1.26 **

Note: 95% CIs provided in supplementary table 3;

†
p 0.10;

*
p 0.05;

**
p 0.01;

***
p 0.001

Table 3

ED utilization: Relative risk ratios from zero-inflated Poisson regression N=1,578

Variables	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10
Predisposing Factors										
Black	1.29 **	6.57 ***	5.35 ***	4.32 **	3.59 *	4.62 **	4.61 **	6.63 **	8.04 **	10.42 ***
Female	1.14	1.10	0.85	0.83 *	0.74 ***	0.71 ***	0.71 ***	0.72 ***	0.70 ***	0.70 ***
Age	1.00	1.01 **	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Age × Black		0.97 ***	0.98 ***	0.97 ***	0.97 ***	0.97 ***	0.97 ***	0.97 ***	0.97 ***	0.97 ***
Less than HS	1.64 ***	1.69 ***	1.32 ***	1.35 ***	1.29 **	1.26 *	1.27 *	1.27 **	1.27 **	1.27 **
Need Factors										
SRH			0.88 ***	0.83 ***	0.84 ***	0.85 ***	0.85 **	0.86 **	0.86 **	0.86 **
Functional Limit.			1.36 ***	1.47 ***	1.43 ***	1.43 ***	1.42 ***	1.42 ***	1.43 ***	1.44 ***
Health Conditions			1.22 ***	1.17 ***	1.17 ***	1.17 ***	1.17 ***	1.17 ***	1.17 ***	1.17 ***
SRH × Black				1.22 *	1.21 †	1.15	1.16	1.14	1.12	1.11
Func. Lim. × Black				0.82 *	0.83 *	0.83 *	0.84 *	0.84 *	0.83 *	0.87 *
Health Con. × Black				1.14 †	1.14 †	1.11	1.11	1.11	1.11	1.11
Enabling Factors										
Employed					0.80 *	0.78 *	0.78 *	0.78	0.77 **	0.75 **
Income					0.97	0.96 †	0.96 †	0.96 †	0.96 †	0.97
Insured					1.54 †	1.46 †	1.48 †	1.45 †	1.36	1.40
Married					0.89	0.91	0.91	0.91	0.92	0.93
Rural					0.96	0.96	0.96	0.96	1.02	1.01
PC Use						2.70 *	2.87 *	2.69 *	2.96 **	2.82 *
Trust in Physicians										
Mistrust							1.05	1.10	1.12	1.13
Mistrust × Black								0.87	0.86	0.84
Life Course Factors										
South-Never									1.17	1.34 *
South-After 16									0.91	0.86

Variables	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10
South-Left After 16									1.61***	2.22***
South-Never × Black										0.68[†]
South-After 16 × Black										1.61
South-Left After 16 × Black										0.60

Note: 95% CIs provided in supplementary table 2;

[†] p 0.10;

[*] p 0.05;

[**] p 0.01;

[***] p 0.001