BRIEF REPORTS

Perceived Discrimination in Health Care and Use of Preventive Health Services

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OBJECTIVE: To examine the relationship between perceived discrimination and preventive health care utilization.

DESIGN AND PARTICIPANTS: Cross-sectional analysis using the 2004 Behavioral Risk Factor Surveillance System "Reactions to Race" module (N = 28,839).

MEASUREMENTS: Outcomes were self-reported utilization of seven preventive health services. Predictors included perceived negative and positive racial discrimination (vs. none) while seeking health care in the past year. Multivariable models adjusted for additional patient characteristics.

MAIN RESULTS: In unadjusted models, negative discrimination was significantly associated with less utilization of mammogram, pap test, PSA test, blood stool test, and sigmoidoscopy/colonoscopy (ORs = 0.53–0.73, $p < .05$), but not flu or pneumococcal vaccines (ORs = 0.76 and 0.84). Positive discrimination was significantly associated with more utilization of all services (ORs = 1.29–1.58, $p < .05$) except pap test (OR = 0.94). In adjusted models, neither negative nor positive discrimination was predictive of utilization, except for PSA test (positive discrimination OR = 1.33, $p < .05$).

CONCLUSIONS: Perceived racial discrimination in health care does not independently predict preventive health care utilization.

KEY WORDS: perceived discrimination; preventive health; behavioral risk factor surveillance system; centers for disease control and prevention.

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INTRODUCTION

People who perceive racial discrimination are at greater risk for poor mental and physical health.¹ Mechanisms connecting perceived discrimination and health, however, are not yet well-understood. Proposed mechanisms are based primarily on the

biopsychosocial model of discrimination, in which discrimination negatively affects health by causing a physiological stress response in the body.^{2,3} This model explains biological underpinnings of the discrimination-health link, but it does not address the possibility that discrimination can also affect health by shaping health behaviors. For example, perceiving discrimination in health care settings may cause patients to avoid engaging the health care system, which could lead to sub-optimal care and poor health outcomes. To determine whether patient health behavior is a plausible mechanism by which discrimination affects health, it is important to examine the relationship between perceived discrimination in health care and health care utilization.

Although prior studies have demonstrated that perceived discrimination is associated with delays in seeking necessary medical care,^{4–6} delays in obtaining prescriptions, treatments, or tests,^{4,7} and substituting alternative medicine for conventional care,⁸ evidence regarding the relationship between discrimination and use of preventive health services such as vaccinations or recommended screenings has been mixed.^{6,9,10} Therefore, the purpose of the current study was to examine the association between perceived discrimination in health care and utilization of preventive health services. A unique feature of this study is that we examined the association of both negative and positive discriminatory experiences with utilization, whereas past studies have only focused on negative discriminatory experiences. That is, we examined utilization for patients who perceived they were treated better than members of other races as well as for patients who perceived worse treatment.

METHODS

Source of Data

The Behavioral Risk Factor Surveillance System (BRFSS), which we used for this analysis, is an annual telephone survey designed to monitor health conditions and risk behaviors of U.S. adults.¹¹ The current analyses included 2004 BRFSS data from states that administered the "Reactions to Race" module (i.e., Colorado, Delaware, Mississippi, Rhode Island, South Carolina, Wisconsin, and Washington, DC), which included a question regarding racial discrimination in health care.

Study Measures

The outcomes included self-reported utilization of seven preventive health services: 1) flu shot in the past year for

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people 65 or older, 2) pneumococcal vaccine for people 65 or older, 3) mammogram in the past 2 years for women 40 or older, 4) pap test in the past 3 years for women 18 or older, 5) PSA test in the past 2 years for men 50 or older, 6) blood stool test in the past 2 years for people 50 or older, and 7) either a sigmoidoscopy or colonoscopy in the past two years for people 50 or older.

The primary predictor was perceived racial discrimination in health care, assessed as follows: "Within the past 12 months when seeking health care, do you feel your experiences were worse than, the same as, or better than for people of other races?" The following were the response options: Worse than other races; The same as other races; Better than other races; Worse than some races, better than others; or, Only encountered people of the same race. The first three responses represented negative discrimination, no discrimination, and positive discrimination, respectively. The last two responses were excluded from analyses due to low prevalence (0.3% each).

The following patient characteristics were included as covariates to control for their potential relationships with health care utilization: race/ethnicity, sex, age, household income, education, health care coverage, affordability of medical care, self-reported health status, and state. Health care coverage was assessed with the item, "Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare? (Yes, No)." Affordability of medical care was assessed with the item, "Was there a time in the past 12 months when you needed to see a doctor but could not because of the cost? (Yes, No)."

Statistical Analyses

State-level data weights developed by BRFSS were applied prior to all analyses. We examined the bivariate association between perceived discrimination and each preventive measure. We then used multivariable logistic regression models to assess the association between perceived discrimination and each preventive measure, controlling for patient characteristics. Additional models tested for interactions between race/ethnicity and perceived discrimination, which were not significant and will not be discussed further.

Because race/ethnicity is closely related to perceived discrimination,¹² we avoided confounding race and perceived discrimination by re-running the multivariable models with all covariates except race/ethnicity. Given that omitting race/ethnicity did not change the relationship between perceived discrimination and any of the outcomes, we report the models that included race/ethnicity.

All analyses were done using STATA/SE 9.2 for Windows. This study was approved by the VA Pittsburgh Healthcare System Institutional Review Board.

RESULTS

Characteristics of the sample are provided in Table 1. Overall, 3.0% of the sample perceived negative racial discrimination while seeking health care in the past 12 months, 82.5% perceived no discrimination, and 14.5% perceived positive discrimination. For all but one preventive measure (pap test), utilization was lowest among people who perceived negative discrimination and highest among those who perceived posi-

Table 1. Characteristics of the Study Sample*

	Males	Females	Total
Unweighted n	6,666	22,173	28,839
Weighted n	2,789,916	8,252,728	11,042,644
Variable	Column percentage unless otherwise noted		
Perceived discrimination in health care			
Negative discrimination	2.8	3.1	3.0
No discrimination	80.4	83.2	82.5
Positive discrimination	16.9	13.7	14.5
Race/Ethnicity			
Non-Hispanic white	86.8	79.6	81.5
Non-Hispanic African American	10.1	15.1	13.8
Hispanic American	3.0	5.3	4.7
Sex			
Female	—	—	74.7
Male	—	—	25.3
Age (mean, standard deviation)	63.0(0.17)	46.5(0.18)	50.7(0.16)
Income			
<\$15 K	8.9	12.8	11.8
\$15 K–\$25 K	15.6	19.3	18.3
\$25 K–\$35 K	15.4	15.1	15.1
\$35 K–\$50 K	18.8	16.8	17.3
>\$50 K	41.3	36.0	37.4
Education			
Less than HS	11.5	10.3	10.6
HS graduate	30.2	32.8	32.1
Some college	22.3	27.8	26.4
College degree	36.1	29.1	30.9
Health care coverage			
Yes	91.6	87.1	88.3
No	8.4	12.9	11.7
Affordability of medical care: Was medical care cost-prohibitive in last 12 months?			
No	92.6	85.3	87.2
Yes	7.4	14.7	12.8
Health status			
Excellent, very good, or good	77.1	83.4	81.8
Fair or poor	22.9	16.6	18.2
State			
AK	13.0	12.1	12.4
CO	19.2	19.7	19.6
DE	3.9	3.8	3.8
DC	2.2	2.6	2.5
MS	12.4	13.2	13.0
RI	5.1	5.1	5.1
SC	18.7	18.8	18.8
WI	25.4	24.5	24.8

*Characteristics of the male and female samples are described separately because a) the sample included males aged 40 and older and females aged 18 and older, and b) most of the preventive measures are sex-specific

tive discrimination (Table 2). In unadjusted analyses (Table 2), utilization among those who perceived negative discrimination (vs. none) was significantly lower for mammogram, pap test, PSA test, blood stool test, and sigmoidoscopy/colonoscopy ($p < .05$), but not for flu shot or pneumococcal vaccine. In contrast, utilization was significantly higher among those who perceived positive discrimination (vs. none) for all preventive measures except pap test. In multivariable analyses adjusting for patient characteristics, however, neither negative nor positive discrimination significantly predicted utilization of any of the preventive measures, except PSA test (Table 2). Utilization of PSA was higher among those who perceived positive discrimination (vs. none; $p < .05$). Full details of the adjusted models are available in Appendices A, B and C.

Table 2. The Association Between Perceived Discrimination and Utilization of Preventive Measures

Preventive measure	Perceived discrimination	Obtained measure (%)	Crude OR (95% CI)	Adjusted OR (95% CI)†
Flu shot	Negative	65	0.76 (0.45,1.27)	0.98 (0.58,1.65)
	None	71	Reference	
	Positive	78	1.46 (1.18,1.80)*	1.12 (0.87,1.44)
Pneumococcal vaccine	Negative	61	0.84 (0.49,1.44)	0.99 (0.53,1.84)
	None	65	Reference	
	Positive	73	1.47 (1.20,1.80)*	1.23 (0.97,1.57)
Mammogram	Negative	62	0.62 (0.47,0.81)*	1.05 (0.76,1.45)
	None	73	Reference	
	Positive	78	1.36 (1.15,1.60)*	1.14 (0.94,1.37)
Pap test	Negative	80	0.53 (0.38,0.74)*	0.67 (0.45,1.00)
	None	88	Reference	
	Positive	87	0.94 (0.75,1.19)	0.87 (0.65,1.15)
PSA test	Negative	53	0.61 (0.39,0.97)*	0.93 (0.59,1.48)
	None	65	Reference	
	Positive	75	1.58 (1.24,2.02)*	1.33 (1.02,1.75)*
Blood stool test	Negative	19	0.65 (0.45,0.92)*	0.83 (0.56,1.24)
	None	27	Reference	
	Positive	32	1.29 (1.13,1.48)*	1.12 (0.96,1.30)
Sigmoidoscopy/ colonoscopy	Negative	45	0.73 (0.56,0.96)*	1.22 (0.88,1.68)
	None	53	Reference	
	Positive	62	1.42 (1.25,1.62)*	1.11 (0.96,1.29)

* $p < .05$

†Adjusted for race/ethnic group, sex, age, income, education, health care coverage, affordability of medical care, health status, and state

DISCUSSION

This work contributes to a growing body of literature that seeks to understand the complicated relationship between racial discrimination and health. We found that utilization of preventive health services was lower for people who perceived negative racial discrimination while seeking health care than for those who perceived no discrimination. These differences were not statistically significant, however, once other patient characteristics such as race/ethnicity, education, income, and health coverage were controlled. These findings suggest that, although perceived discrimination may be associated with health care utilization, it may not be as important as other factors in guiding patient behavior. For example, we found that patients with lower income or lack of health care coverage were less likely to utilize several of the cancer screenings, suggesting that utilization of these measures are driven by practical concerns such as whether one can afford them (see Appendices A, B and C). We also found that older patients and those with poorer health status were more likely to utilize several of the measures, indicating that health care utilization is driven to a large extent by the health needs of patients.

We also report the novel finding that perceptions of positive discrimination, that is, that one has been treated better than members of other races, was associated with more utilization of most of the preventive measures examined. This is the first study to demonstrate that perceiving race-based preferential treatment is associated with more health care utilization. However, after controlling for patient characteristics, positive discrimination was not a significant predictor of most preventive measures. Given that most existing measures of discrimination do not assess positive discrimination,^{13,14} the role of positive discrimination in health awaits further research.

The results of previous studies that examined the relationship between perceived discrimination and use of preventive health services are mixed. For instance, Trivedi et al.⁹ found that perceived discrimination in health care was associated

with lower likelihood of obtaining recommended cholesterol testing, A1c tests and foot exams (among patients with diabetes), and of receiving a flu vaccine. Similarly, Blanchard et al.⁶ found that patients with diabetes, heart disease, or hypertension were less likely to obtain recommended disease-appropriate screenings if they perceived racial discrimination in health care. In contrast, Blanchard et al.⁶ and Dailey et al.¹⁰ both found that there was no relationship between perceived discrimination and obtaining recommended cancer screenings. Trivedi et al.⁹ also found that perceived discrimination was not associated with PSA testing, nor with aspirin use in adults with high blood pressure or heart disease.

The emerging pattern across studies is that perceived discrimination is related to screenings that are part of managing a chronic disease, but not with receipt of cancer screenings.^{6,9,10} Our findings are consistent with this, as we found that screenings for breast, cervical, prostate, and colon cancer were unrelated to whether patients perceived negative discrimination in the health care setting, after controlling for patient characteristics.

Our lack of association between negative discrimination and receipt of flu shots is in contrast to one study that found flu shots to be less common among those who perceived discrimination.⁹ This could be due to differences in the samples utilized in the studies; Trivedi et al.⁹ used data from California, whereas our study included data from several other states. Although our study represents a broad, multi-state population, its results should be generalized only to the states that contributed data to the analyses.

There are important limitations to consider in interpreting our results. For instance, the data set documents retrospective, self-reported utilization of health services, which may not always be accurate. In addition, the retrospective time frame for some of the preventive measures (e.g., mammogram in past 2 years) exceeded the time frame encompassed by the perceived discrimination item (i.e., past 12 months). This mismatch may explain why perceived discrimination did not

predict utilization of the measures in adjusted analyses. The lack of association between discrimination and utilization may also be due to the fact that the BRFSS measures health care discrimination using a single item that assesses only the presence of discrimination rather than the frequency or severity of discriminatory experiences. However, a key strength of this item is that it measured both positive and negative discrimination, whereas existing multi-item validated measures of perceived discrimination focus only on negative discrimination.¹³⁻¹⁵

In conclusion, we found that there is no statistically significant independent relationship between negative discrimination and the utilization of standard preventive health services, nor is there an independent relationship between positive discrimination and utilization of most services. Future studies exploring the link between perceived discrimination and health outcomes should focus on biological mechanisms² or other health behaviors that may be shaped by perceived discrimination, such as following medical advice or treatment adherence.

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Conflict of Interest: None disclosed.

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APPENDIX A. Association of Perceived Discrimination with Obtaining Flu and Pneumococcal Vaccinations, Adjusted for Covariates

Predictors		Preventive measure	
		FLU	PNE
Perceived discrimination in health care	Omnibus p	0.66	0.22
	Worse	0.98 (0.58,1.65)	0.99 (0.53,1.84)
	Better	1.12 (0.87,1.44)	1.23 (0.97,1.57)
Race/Ethnicity	Omnibus p	0.005	<0.001
	Hispanic	0.96 (0.53,1.73)	0.86 (0.51,1.44)
	African American	0.62 (0.47,0.83)	0.45 (0.33,0.60)
Sex	Omnibus p	0.05	0.33
	Male	1.21 (1.00,1.48)	0.91 (0.75,1.10)
Age	Omnibus p	<0.001	<0.001
	(Continuous)	1.03 (1.02,1.05)	1.06 (1.05,1.08)
Income	Omnibus p	0.19	0.63
	Less than \$15 K	0.65 (0.45,0.94)	0.92 (0.65,1.30)
	\$15 K-\$25 K	0.81 (0.57,1.13)	0.94 (0.68,1.29)
	\$25 K-\$35 K	0.89 (0.63,1.26)	0.99 (0.72,1.35)
	\$35 K-\$50 K	0.88 (0.64,1.22)	1.17 (0.87,1.59)
Education	Omnibus p	0.50	0.52
	Less than HS	0.78 (0.55,1.11)	0.81 (0.58,1.13)
	HS graduate	0.93 (0.70,1.23)	0.97 (0.74,1.27)
	Some college	0.87 (0.65,1.17)	1.01 (0.76,1.34)
Healthcare coverage	Omnibus p	0.17	0.15
	No	0.67 (0.38,1.19)	0.66 (0.37,1.16)
Medical care cost prohibitive	Omnibus p	0.58	0.90
	Yes	0.89 (0.58,1.36)	1.03 (0.67,1.58)
Health status	Omnibus p	<0.001	<0.001
	Fair or poor	1.51 (1.21,1.87)	1.55 (1.26,1.92)
State	Omnibus p	0.007	0.21
	CO	1.62 (1.14,2.29)	1.43 (1.04,1.95)
	DE	0.93 (0.65,1.34)	1.22 (0.85,1.75)
	DC	0.73 (0.48,1.10)	1.18 (0.78,1.79)
	MS	0.92 (0.69,1.23)	1.37 (1.04,1.80)
	RI	1.09 (0.78,1.52)	1.27 (0.93,1.74)
	SC	1.25 (0.93,1.69)	1.49 (1.12,1.97)
	WI	1.00 (0.73,1.38)	1.32 (0.97,1.79)

Numbers shown are odds ratios and 95% confidence intervals, unless otherwise noted. FLU = flu shot, PNE = pneumococcal vaccine.

APPENDIX B. Association of Perceived Discrimination with Obtaining Screenings for Breast, Cervical, and Prostate Cancer, Adjusted for Covariates

Predictors		Preventive measure		
		MAM	PAP	PSA
Perceived discrimination in health care	Omnibus p	0.38	0.10	0.10
	Worse	1.05 (0.76,1.45)	0.67 (0.45,1.00)	0.93 (0.59,1.48)
	Better	1.14 (0.94,1.37)	0.87 (0.65,1.15)	1.33 (1.02,1.75)
Race/Ethnicity	Omnibus p	<0.001	<0.001	0.02
	Hispanic	1.12 (0.78,1.61)	1.76 (1.16,2.66)	0.70 (0.44,1.12)
	African American	1.60 (1.33,1.92)	1.85 (1.45,2.37)	1.51 (1.06,2.16)
Age	Omnibus p	<0.001	<0.001	<0.001
	(Continuous)	1.03 (1.02,1.04)	0.98 (0.97,0.99)	1.05 (1.03,1.06)
Income	Omnibus p	<0.001	<0.001	<0.001
	Less than \$15 K	0.31 (0.24,0.39)	0.36 (0.26,0.50)	0.51 (0.35,0.74)
	\$15 K-\$25 K	0.44 (0.36,0.53)	0.46 (0.35,0.61)	0.51 (0.37,0.70)
	\$25 K-\$35 K	0.63 (0.52,0.78)	0.61 (0.45,0.84)	0.64 (0.48,0.86)
Education	\$35 K-\$50 K	0.74 (0.61,0.89)	0.78 (0.57,1.06)	0.81 (0.62,1.05)
	Omnibus p	0.09	<0.001	<0.001
	Less than HS	0.75 (0.59,0.96)	0.35 (0.23,0.53)	0.43 (0.30,0.61)
	HS graduate	0.84 (0.71,1.00)	0.46 (0.36,0.60)	0.75 (0.58,0.96)
Healthcare coverage	Some college	0.92 (0.78,1.10)	0.75 (0.57,0.98)	0.89 (0.70,1.15)
	Omnibus p	0.002	0.05	<0.001
	No	0.72 (0.58,0.88)	0.78 (0.60,1.00)	0.51 (0.37,0.69)
Medical care cost prohibitive	Omnibus p	<0.001	<0.001	0.13
	Yes	0.63 (0.52,0.75)	0.61 (0.48,0.77)	0.77 (0.55,1.08)
Health status	Omnibus p	0.25	0.87	0.12
	Fair or poor	1.10 (0.94,1.29)	1.02 (0.82,1.27)	1.21 (0.95,1.54)
State	Omnibus p	<0.001	0.02	0.001
	CO	1.10 (0.89,1.35)	1.52 (1.12,2.05)	1.07 (0.79,1.45)
	DE	1.98 (1.51,2.60)	1.63 (1.13,2.35)	1.49 (1.05,2.14)
	DC	1.26 (0.94,1.69)	1.19 (0.82,1.72)	1.31 (0.85,1.99)
	MS	0.96 (0.80,1.16)	1.19 (0.91,1.56)	1.29 (0.96,1.73)
	RI	2.09 (1.65,2.66)	1.65 (1.19,2.29)	1.40 (1.01,1.95)
	SC	1.15 (0.95,1.39)	1.49 (1.13,1.98)	1.50 (1.13,1.99)
	WI	1.28 (1.04,1.58)	1.34 (1.00,1.78)	0.83 (0.62,1.11)

Numbers shown are odds ratios and 95% confidence intervals, unless otherwise noted. MAM = Mammogram, PAP = Pap test, PSA = PSA test

APPENDIX C. Association of Perceived Discrimination with Obtaining Screenings for Colon Cancer, Adjusted for Covariates

Predictors		Preventive measure	
		BST	SIG
Perceived discrimination in health care	Omnibus p	0.22	0.20
	Worse	0.83 (0.56,1.24)	1.22 (0.88,1.68)
	Better	1.12 (0.96,1.30)	1.11 (0.96,1.29)
Race/Ethnicity	Omnibus p	0.18	0.03
	Hispanic	0.72 (0.49,1.07)	0.95 (0.69,1.30)
	African American	1.07 (0.88,1.30)	0.80 (0.67,0.94)
Sex	Omnibus p	0.004	0.02
	Male	1.18 (1.05,1.33)	0.88 (0.79,0.97)
Age	Omnibus p	<0.001	<0.001
	(Continuous)	1.03 (1.03,1.04)	1.05 (1.04,1.06)
Income	Omnibus p	0.55	0.01
	Less than \$15 K	0.86 (0.69,1.08)	0.72 (0.59,0.89)
	\$15 K–\$25 K	0.91 (0.75,1.11)	0.76 (0.63,0.91)
	\$25 K–\$35 K	0.99 (0.82,1.19)	0.82 (0.69,0.98)
	\$35 K–\$50 K	1.04 (0.88,1.24)	0.91 (0.78,1.07)
Education	Omnibus p	0.002	<0.001
	Less than HS	0.62 (0.49,0.79)	0.49 (0.40,0.61)
	HS graduate	0.89 (0.76,1.04)	0.69 (0.60,0.80)
	Some college	0.92 (0.79,1.07)	0.81 (0.70,0.93)
Healthcare coverage	Omnibus p	0.14	<0.001
	No	0.84 (0.66,1.06)	0.59 (0.48,0.72)
Medical care cost prohibitive	Omnibus p	0.33	0.41
	Yes	0.89 (0.72,1.12)	0.92 (0.76,1.12)
Health status	Omnibus p	0.05	0.002
	Fair or poor	1.16 (1.00,1.34)	1.25 (1.08,1.43)
State	Omnibus p	<0.001	<0.001
	CO	1.50 (1.23,1.82)	1.04 (0.87,1.24)
	DE	1.12 (0.89,1.41)	1.73 (1.40,2.13)
	DC	2.00 (1.56,2.58)	2.28 (1.79,2.90)
	MS	0.88 (0.72,1.07)	1.14 (0.96,1.35)
	RI	1.72 (1.41,2.09)	1.71 (1.42,2.06)
	SC	1.11 (0.93,1.34)	1.56 (1.32,1.84)
	WI	1.10 (0.90,1.35)	1.45 (1.21,1.74)

Numbers shown are odds ratios and 95% confidence intervals, unless otherwise noted. BST = blood stool test, SIG = sigmoidoscopy or colonoscopy