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Race/Ethnic Discrimination and Preventive Service Utilization in a Sample of Whites, Blacks, Mexicans, and Puerto Ricans

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Background: Race/ethnic discrimination is associated with poorer mental and physical health, worse health behaviors, and increased mortality, in addition to overall race/ethnic disparities in health. More specifically, it has been suggested as a possible determinant of the significant race/ethnic differences in the quantity and quality of medical care received by individuals in the U.S. **Objectives:** The current study examines the association between three measures of racial/ethnic discrimination (Experiences of Discrimination, Everyday Discrimination Scale, and discrimination in health care) and six types of preventive services (mammogram, clinical breast exam, Pap smear, colonoscopy/sigmoidoscopy, blood pressure screening, and diabetes screening). **Research Design:** Frequencies and correlations are run within a population-based sample of 1,699 respondents from Chicago that includes Whites, African Americans, Mexicans, and Puerto Ricans. Adjusted logistic regression models are run separately by race/ethnicity. **Results:** Findings show that levels of **perceived** discrimination vary between all race/ethnic groups, with Blacks consistently reporting the highest levels and Whites the lowest. Discrimination is only inconsistently related to obtaining screenings for cancer, hypertension, and diabetes. The few significant relationships found differed both by measure of discrimination and the respondents' race and ethnicity. **Conclusions:** Given the growing diversity in the U.S. and the prevalence of discrimination, more research regarding its impact on health care utilization is needed. Only when all the factors influencing patient behaviors are better understood will policies and interventions designed to improve them be successful. These are important steps if we want to attain our national goals of eliminating race/ethnic disparities in health.

Key Words: discrimination, preventive health care, cancer screening, race, ethnicity, disparities

Discrimination, which can be defined as differential treatment on the basis of race or another inadequately justified factor that disadvantages members of a group,[1] is prevalent in the U.S., particularly for African Americans and certain Hispanic subgroups.[2,3] Given its potential role in increasing health disparities, a new line of research is examining the relationships between discrimination and various aspects of health care utilization. These studies show, for example, that discrimination is associated with a lower likelihood of having a routine physical within the past year, less adherence to doctor recommendations, greater delay or non-receipt of health care,[4-10] and less use of preventive services.[9,11-13]

Most fundamentally, discrimination is a stressor that can be expected to influence health behaviors, including the use of preventive health services, by decreasing social, emotional, and physical resources.[14-16] Numerous reviews have confirmed that discrimination leads to poorer mental and emotional health,[14,17-20] as well as worse physical health.[14,17,18,21] It is likely that these consequences of discrimination at least partially explain why discrimination has been found to be linked to reduced health care utilization.[22] Another pathway is that individuals who perceive discrimination may have less trust in authority figures, including health care providers, and/or a reduced willingness to interact with institutions, including health care organizations, in which racism may be experienced.[22-25] In support of this, studies have found that individuals who experience more discrimination in the health care setting have less trust in their providers,[22] are less satisfied with the care they receive,[22,25] report worse patient-provider communication,[26,27] and report lower quality of care,[26,28] all of which may reduce utilization of preventive services.

It is also possible that different types of discrimination work through different pathways to influence health care use. For example, general measures of discrimination may have a stronger impact on mental and physical health, while health care-specific discrimination may work through aspects of the patient-provider relationship. More work on this question is needed however, including studies like the current one that are able to compare and contrast the associations of multiple measures of discrimination with health care outcomes.

Specifically, the current study will examine the association between three measures of **perceived** racial/ethnic discrimination and six types of preventive health care within a population-based sample of 1,699 respondents from Chicago that includes Whites, African Americans, Mexicans, and Puerto Ricans. This study will add to the literature in three important ways: 1) it includes three measures of discrimination to determine which types are most relevant to preventive health care outcomes; 2) it examines relationships between discrimination and health for four race/ethnic groups, including two

Hispanic subgroups that have not been previously included in studies of these issues; and 3) it investigates a wide range of preventive services.

METHODS

Data

The data come from the *Sinai Improving Community Health Survey*, which was designed to document the health of six of Chicago's community areas.[29] The communities surveyed were selected to reflect the racial/ethnic diversity of Chicago, including a substantial number of non-Hispanic Blacks, Mexicans, Puerto Ricans, and non-Hispanic Whites. With the exception of the primarily White community studied, the remainder are socioeconomically disadvantaged areas with a higher percentage of uninsured, low educated, and low income individuals than Chicago as a whole.[30]

A stratified, three-stage probability sampling design was employed to obtain a representative sample from each community. Specifically, respondents were chosen by first selecting census blocks from each community area, then households from each block, then an adult from each household. Eligibility for the survey was determined by age (18-75 years), ability to speak English or Spanish, and ability to participate. Overall, 87% of those who screened as eligible completed the interview, resulting in a total of 1,699 participants. The survey included 469 questions on a wide variety of topics related to health and was offered in both English and Spanish. The instrument was translated into Spanish and modifications were made after cognitive interviews and pre-testing with interviewers who were native Spanish speakers from the community (both from Puerto Rican and Mexican heritage). Interviews were completed in-person by trained interviewers from each community at the respondent's home. A more detailed methodology of the survey and socio-demographic description of the communities is provided elsewhere.[29-31] All participants signed an informed consent form and the Sinai Health System IRB approved this study.

Measures

***Perceived** Discrimination.* It is important to investigate multiple measures of discrimination because certain types of discrimination may have a stronger influence on health care use or may influence different utilization outcomes. For example, one meta-analysis found that chronic discrimination tends to be more strongly associated with health behaviors than acute experiences.[14] Similarly, discrimination in the medical domain may have a different association than general discrimination.[6,8,32] To address these possibilities, three measures of race/ethnic discrimination are included in this study. All items were asked as part of a discrimination "module," in the same order for all respondents.

The first measure analyzed was the *Experiences of Discrimination (EOD) scale*.[33] Respondents were asked "How often have you experienced discrimination, been prevented from doing something, been hassled, or been made to feel inferior because of your race or ethnicity in each of the following situations?" The settings included: at school, getting a job, at work, getting housing, getting medical care, in a store, in public, and from the police. The response options ranged from never (0) to often (3). Importantly, this scale (with one additional setting) has been psychometrically tested for African American and Hispanic individuals and was found to have high validity and reliability.[33] The Cronbach's alpha (α) was .86 for the full sample, .76 for Whites, .85 for Blacks, .79 for Mexicans, and .86 for Puerto Ricans.

The second scale used was Williams' *Everyday Discrimination Scale* (EDS),[34] which attempts to measure chronic discrimination. The nine questions were prefaced with the following phrase: "In day to day life, how often have the following things happened to you because of your race or ethnicity?" As seen in the question wording, the one-stage attribution version of this scale was used.[35] Examples of specific items include the following: "You were treated with less respect?"; "People act as if they think you are not smart?"; and "You are called names or insulted?" Responses are coded from never (0) to a few times a month or more (3). For the full sample, α=.90 (.88 for Whites, .87 for Blacks, .87 for Mexicans, and .82 for Puerto Ricans). Like the EOD, the EDS has been extensively used in the literature[6] and has shown high levels of validity and reliability in diverse samples.[35]

Finally, a composite measure of discrimination in health care was created. First, respondents were asked if they felt they were treated better, worse, or the same compared to people of other races/ethnicities when they were getting health care during the last six months. The responses were dichotomized to distinguish those who reported they were treated worse from those who reported similar or better treatment. This was combined with one item from the EOD that asked respondents how often they had experienced discrimination while getting medical care. The EOD item was also dichotomized to reflect any level of discrimination versus none. Those who responded positively to either of these items were coded as a '1' while those reporting no discrimination were coded '0'.

Health Care Utilization. The measures of utilization include the following cancer screenings: *mammogram* (women ages 40 years and older, in the past 2 years), *breast exam* (women ages 20 years and older, in the past 2 years), *Pap smear* (women ages 21-65 years, in the past 3 years), and *sigmoidoscopy or colonoscopy* (individuals over 50 years of age, ever). In addition, *blood pressure screening* (all adults, in the past year) and *diabetes blood test* (all adults, ever) were measured.

Control Variables. Demographic covariates included age, gender, race/ethnicity, and nativity. The socioeconomic variables included education, income, employment, and health insurance. The health

controls included subjective health, depression, and stress. *Self-rated health* was measured with a question that asks individuals to rate their current health and was re-coded as excellent, very good, or good versus fair or poor. *Depression* was measured using the 10-item Center for Epidemiologic Studies Depression (CES-D) scale.[36] Respondents with four or more depressive symptoms were categorized as likely to be depressed. *Stress* was measured with a 4-item version of the perceived stress scale.[37] Three categories of responses (never, almost never, and sometimes or more frequently) were summed to create the scale. The Cronbach's alpha for this scale was .71.

Analysis

First, descriptive statistics are provided for all variables for the total sample and by race/ethnic group. Analysis of variance was used to assess differences by group. Then, correlations were examined to investigate relationships between health care outcomes, covariates, and the discrimination measures. Following this, adjusted logistic regression models were run to estimate the relationship between discrimination and preventive service utilization. Separate models for each measure of discrimination were run due to the high correlation between measures. To assess potential effect modification (by race/ethnicity), models were estimated separately for each race/ethnic group. All data were analyzed in SAS version 9.2. Weights and PROC SURVEY commands were used to account for the complex sampling design (SAS Institute Inc., Cary, NC). Individuals who were missing responses to the measures of discrimination or to the other variables of interest were excluded from the relevant analyses. Members of other race/ethnic groups (7.8% of sample) and those missing race/ethnicity information (<1%) were not shown in separate racial comparisons due to the small number, as well as to the difficulty of interpreting such findings.

TABLE 1 ABOUT HERE

RESULTS

Sample Characteristics

The characteristics of the sample are presented in Table 1 and the primary independent and dependent variables are discussed here. Approximately three-quarters of the sample reported having a mammogram or breast exam, while Pap smears were reported by 86% of women in the appropriate age range. In contrast, less than half of the sample had ever had a sigmoidoscopy or colonoscopy. Over three-quarters reported having a blood pressure screening in the past year and nearly two-thirds had had a diabetes screening. In general, Mexicans (who, as a group, had much lower levels of health insurance) reported fewer services than other groups. Both Mexicans and Puerto Ricans were less likely to report clinical

breast exams than the other groups and Mexicans were also less likely to report having a blood pressure screening, and diabetes tests compared to others. Whites were less likely to report Pap smears (compared to all other groups) and diabetes screenings (compared to Blacks and Puerto Ricans). Rates of cancer screenings in these communities were similar to U.S. averages.[30,38] Levels of experiences of discrimination (EOD) and everyday discrimination (EDS) similarly varied by race/ethnic group. Specifically, the average EOD and EDS scores were highest among Blacks, followed by Puerto Ricans, then Mexicans, then Whites. The same pattern was seen for discrimination in health care, which was reported by nearly one-quarter of the sample.

TABLE 2 ABOUT HERE

Correlations between Discrimination and Health Care Utilization

The EOD scale was strongly correlated with both the EDS and discrimination in health care (see Table 2). The correlation between the EDS and discrimination in health care was significant, but weaker. Few substantial correlations were seen between the different measures of discrimination and the use of preventive screenings. The exceptions were that unfair treatment, measured by the EDS, was negatively correlated with having a diabetes test and reporting discrimination in a health care setting was negatively correlated to having a breast exam.

More significant findings were seen for the demographic, socioeconomic, and health characteristics. Increasing age was associated with lower levels of everyday discrimination, as was being female. Discrimination was strongly correlated with race and ethnicity. Being Black was associated with reporting more discrimination, while being White or Mexican was associated with reporting less. Of the socioeconomic characteristics, positive associations with discrimination were seen for being foreign born, having at least a high school degree, earning less than $30,000, and not having health insurance. All three measures of discrimination were significantly correlated to poor subjective health, more depression, and higher levels of stress.

The analyses were also conducted separately for each race/ethnic group (not shown). Few differences were seen between groups. One exception was that significant correlations were seen between discrimination and diabetes tests for Mexicans (only). Specifically, the EOD and the EDS were both associated with decreased likelihood of reporting such a test among this group ($r=-.15$, $p<.01$; $r=-.24$, $p<.001$, respectively).

TABLES 3-5 ABOUT HERE

Regression Analyses

Adjusted associations between discrimination and preventive service use are shown in Tables 3-5. Overall, very few significant findings were seen. Slightly more significant relationships were seen among Whites, compared to the other race/ethnic groups. For example, the Experiences of Discrimination scale was related to the decreased use of breast exams, Pap smears, and sigmoidoscopy/colonoscopy within this group, while it was unrelated to any services among Blacks and Mexicans (seen in Table 3). For Puerto Ricans, this measure of discrimination was only associated with an increased odds of reporting a diabetes test.

Table 4 shows the relationships between Everyday Discrimination and the preventive service outcomes. This measure of unfair treatment was associated with lower odds of reporting a Pap smear for Whites and Mexicans, but increased odds of reporting a clinical breast exam for Blacks and Puerto Ricans. Discrimination in health care (Table 5) showed the fewest associations with preventive services once demographic, social, and health characteristics were included in the models. In fact, only one significant finding was seen, with Whites reporting discrimination in health care having much lower odds of reporting a clinical breast exam (O.R.=0.11, $p<.05$) than those not reporting such discrimination.

DISCUSSION

The current study tested the associations between multiple measures of discrimination and the use of six types of preventive services. The findings showed that discrimination was inconsistently related to the receipt of screenings for cancer and diabetes, and unrelated to screening for hypertension. The few significant relationships found differed both by measure of discrimination and the respondents' race and ethnicity. These findings mirror inconsistencies seen in this small, but growing area of the literature, and shed light on issues not addressed by previous studies.

The results of the current study fit in with prior research that shows that discrimination is sometimes,[9,11-13,39,41] but not always associated with preventive service use.[4,9,11,39-42] The inconsistencies in the findings are not simply due to measurement differences, since mixed findings have been reported within (and between) studies using the EOD, as well as those focused on discrimination in health care. Perhaps they vary by type of preventive service studied? Again, conflicting findings are seen for most outcomes. For example, discrimination was related to lower usage of Pap smears in one study,[41] while the

current study found inconsistent relationships and previous work found it to be unrelated.[9,40] Study populations also do not appear to be the source of the differences given the large and diverse samples used. However, only one other study was found that compared these relationships for different race/ethnic groups separately. This study found that discrimination did not predict the use of mammograms for either Whites or Blacks.[42]

One way to begin unraveling these complicated relationships is to consider the pathways that may explain them. It was expected that individuals' who perceive high levels of discrimination would be less likely to receive recommended preventive services due to poorer mental and physical health, less trust in authorities, and a reduced likelihood to engage in mainstream organizations. However, the current study was only able to include measures of physical and mental health status, and health did not appear to explain any relationships between discrimination and preventive service use. The lack of consistent results across the different preventive services confuses the issue even more. For example, if individuals who perceive more discrimination trust providers less and are less willing to participate in the health care system, why would some types of screenings be impacted but not others? Given these concerns, it is possible that the lack of a strong and consistent relationship with preventive service use is at least partially rooted in methodological issues.

To begin, the possibility of reverse causation must be considered due to the cross-sectional nature of the dataset. Individuals who use health care services more frequently (or, more broadly, those who are more active in society and more engaged with institutions) are also more likely to be exposed to racism. Thus, a negative impact of discrimination on health may be neutralized by a positive association between service use and exposure to discrimination. In fact, several positive relationships were seen in the current study, perhaps reflecting this issue. In addition, discrimination may not be found to be a significant predictor of the use of these preventive services because it is not measured adequately. Self-reported measures of discrimination are only indicative of what the respondent is both willing and able to report.[43] Individuals not recognizing discrimination or attributing it to another characteristic, for example, may dilute results in studies like the current one. In addition, the study is unable to examine other types of discrimination, such as institutional discrimination, which likely underestimates the degree of racism experienced by respondents. It is possible that better measures of discrimination would lead to stronger associations with the selected health care outcomes. However, the current study, with its use of three different measures of discrimination, offers a more extensive evaluation of this relationship than most of the previous studies looking at predictors of preventive service use.

The use of multiple measures of discrimination within one survey also allowed for the unique opportunity to compare how each was associated (or not) with preventive service outcomes. The findings revealed that general discrimination was more influential than discrimination in the health care setting. This finding supports previous studies in which discrimination in health care settings tended to matter less than general measures for predicting the delay or non-receipt of medical care[6,8] and mental health care.[8] In contrast, no clear differences were seen between the measures of chronic (EDS) and acute (EOD) measures, despite earlier evidence that chronic discrimination tends to be more strongly associated with health-related outcomes than acute experiences.[14,44,45]

Finally, it is important to examine race/ethnic differences in these relationships. Because discrimination is considered to work similarly to other stressors, it was expected to impact all individuals in a comparable manner, as was found previously.[6] However, in the current study, relationships were slightly more prevalent for Whites and weaker (or non-existent) for Blacks, Mexicans, and Puerto Ricans. The reasons for this are not clear, though it has been speculated that discrimination may have a stronger impact for Whites because it is not as common of an experience for those in this racial group.[6] It should also be noted that discrimination had a positive relationship with service use for Puerto Ricans (for diabetes tests and breast exams) and Blacks (for breast exams), but a negative relationship with service use for Whites (for breast exams, Pap smears, and sigmoidoscopy/colonoscopy) and Mexicans (for Pap smears). As noted above, the reasons for these disparate relationships need further explanation. It is apparent though, that given the Hispanic differences seen, future studies need to continue studying these groups separately.[39]

One limitation of the current study is that the data, while representative of the communities studied, are not necessarily representative of Chicago or the U.S. The data are also cross-sectional and all measures used are self-report, which may provide less accuracy. For example, cancer screenings are often over-reported, particularly by minorities.[46,47] The discrimination measures are also self-report; however, these measures are still valuable because the perception of a stressor is an important determinant of subsequent psychological (and physiological) responses in and of itself.[15,48,49] Having multiple measures of discrimination has its benefits, but may also result in inflated responses. Additional studies, including ones with randomized order and/or different groups getting different questions, would be needed to explore this potential issue. Larger sample sizes for certain race/ethnic groups would have allowed for more complete comparisons (and potentially more statistical significance), particularly for those outcomes limited by gender and age. Finally, it is likely that the data used here (from in-person interviews) resulted in underestimates of experienced discrimination compared to other modes of data collection.[50]

Despite these issues, the current study contributes to the literature in numerous ways. In addition to the multiple measures of discrimination, a wider range of preventive services were examined compared to existing research. For example, few (if any) previous studies on the influence of general race/ethnic discrimination on blood pressure screenings or breast exams were found. Moreover, the current study is one of the first to examine race/ethnic differences in these relationships. It is also one of the first to include Hispanic subgroups, which have previously not been studied in this context. Given the growing diversity in the U.S., along with the recognized significance (and prevalence) of discrimination, more research regarding its impact on health care utilization is greatly needed. Only when all the factors influencing patient behaviors are better understood will policies and interventions designed to improve them be successful. These are important steps if we want to attain our national goals of eliminating race/ethnic disparities in health.

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Table 1. Patient Characteristics for Total Sample and by Race/Ethnicity

		Proportions (or means)				
	Range	Overall	NH White	NH Black	Mexican	Puerto Rican
Sociodemographic Characteristics						
Age (mean, years)	18-75	40.59	42.22 [b]	43.69 [bc]	34.95 [acd]	39.78 [ab]
Female	0-1	.60	.52 [a]	.63 [bd]	.57 [a]	.67
US born	0-1	.73	.91 [abc]	.99 [bcd]	.12 [acd]	.50 [abd]
High school degree or more	0-1	.70	.92 [abc]	.77 [bcd]	.37 [acd]	.58 [abd]
Income less than $30,000	0-1	.57	.22 [abc]	.65 [bd]	.75 [ad]	.69 [d]
Unemployed	0-1	.44	.30 [abc]	.50 [bd]	.44 [ad]	.45 [d]
Health insurance	0-1	.69	.87 [abc]	.72 [bd]	.42 [acd]	.76 [d]
Health Characteristics						
Fair/poor self-rated health	0-1	.30	.13 [abc]	.29 [bcd]	.48 [ad]	.40 [ad]
Depression	0-1	.26	.17 [abc]	.27 [cd]	.28 [d]	.37 [ad]
Stress (mean)	0-12	7.97	7.62 [bc]	7.87 [bc]	8.25 [ad]	8.39 [ad]
Preventive Services [e]						
Mammogram	0-1	.78	.82	.81	.73	.70
Breast exam	0-1	.74	.83 [bc]	.81 [bc]	.52 [acd]	.65 [abd]
Pap smear	0-1	.86	.79 [ab]	.88 [d]	.87 [d]	.88
Sigmoidoscopy/colonoscopy	0-1	.41	.47	.43	.32	.35
Blood pressure screening	0-1	.78	.82 [b]	.85 [b]	.58 [acd]	.85 [abd]
Diabetes test	0-1	.64	.57 [ac]	.68 [bcd]	.57 [ac]	.81
Discrimination						
Experiences of Discrimination (mean)	0-24	5.09	1.86 [abc]	6.90 [bcd]	3.85 [acd]	5.41 [abd]
Everyday Discrimination Scale (mean)	0-27	7.43	4.56 [abc]	9.06 [bcd]	6.39 [ad]	6.58 [abd]
Discrimination in health care	0-1	.22	.04 [abc]	.31 [bd]	.23 [ad]	.25 [d]
N		1,699 [f]	327	755	363	113

Notes:
[a] Different from Black ($p<.05$)
[b] Different from Mexican ($p<.05$)
[c] Different from Puerto Rican ($p<.05$)
[d] Different from White ($p<.05$)
[e] Analyses limited to the appropriate gender, age range, and recommended time period
[f] The number of cases may vary due to missing data. Overall mean includes members of Other and Other Hispanic race/ethnic groups.

Table 2. Correlations between Health Care Utilization, Covariates, and Discrimination Measures

	Correlations		
	Experiences of Discrimination	**Everyday Discrimination Scale**	**Discrimination in Health Care**
Discrimination			
Experiences of Discrimination	1.00	--	--
Everyday Discrimination Scale	.65 ***	1.00	--
Discrimination in health care	.63 ***	.37 ***	1.00
Preventive Services			
Mammogram	-.02	-.05	-.05
Breast exam	.05	.04	-.07 *
Pap smear	.03	.02	.00
Sigmoidoscopy/colonoscopy	.03	-.05	-.00
Blood pressure screening	.02	-.02	.03
Diabetes test	.02	-.06 **	.02
Sociodemographic Characteristics			
Age	-.00	-.15 ***	.03
Female	-.10 ***	-.15 ***	-.04 +
Non-Hispanic White	-.30 ***	-.21 ***	-.22 ***
Non-Hispanic Black	.32 ***	.22 ***	.17 ***
Mexican	-.13 ***	-.07 **	.00
Puerto Rican	.02	-.03	.01
US born	.14 ***	.12 ***	.01
High school degree or more	.09 ***	.05 *	-.02
Income less than $30,000	.08 **	.06 *	.12 ***
Unemployed	-.00	-.05 *	.09 ***
Health insurance	-08 ***	-.10 ***	-.12 ***
Health Characteristics			
Fair/poor self-rated health	.07 **	.04 +	.12 ***
Depression	.18 ***	.22 ***	.20 ***
Stress	.17 ***	.25 ***	.16 ***

+ $p \leq .10$; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

Table 3. Results from Adjusted Regression Models Showing Associations between Experiences of Discrimination and Preventive Service Outcomes[a]

	NH White	NH Black	Mexican	Puerto Rican
Outcomes				
Mammogram	0.86	0.96	0.91	-- [b]
Clinical Breast Exam	0.88 +	1.04	0.98	1.08
Pap Smear	0.82 *	0.97	1.06	--
Sigmoidoscopy/Colonoscopy	0.74 *	1.00	1.68	--
Blood Pressure Screening	1.06	1.02	1.03	0.93
Diabetes Test	1.07	1.02	0.95	1.19 *

Notes:

[a] Logistic regression odds ratios. Each cell represents separate models for each preventive service. Sample sizes vary by outcome. Models include age, gender (when appropriate), nativity, education, income, health insurance, employment status, depression, stress, and self-rated health.

[b] Cell sizes too small to analyze

+ $p \leq .10$; * $p \leq .05$

Table 4. Results from Adjusted Regression Models Showing Associations between Everyday Discrimination Scale and Preventive Service Outcomes[a]

	NH White	NH Black	Mexican	Puerto Rican
Outcomes				
Mammogram	0.87	0.98	0.99	-- [b]
Clinical Breast Exam	0.99	1.05 *	1.00	1.21 *
Pap Smear	0.87 +	0.99	0.91 +	--
Sigmoidoscopy/Colonoscopy	0.93	0.99	0.98	--
Blood Pressure Screening	1.03	1.02	1.02	0.94
Diabetes Test	1.00	1.01	0.95	1.07

Notes:

[a] Logistic regression odds ratios. Each cell represents separate models for each preventive service. Sample sizes vary by outcome. Models include age, gender (when appropriate), nativity, education, income, health insurance, employment status, depression, stress, and self-rated health.

[b] Cell sizes too small to analyze

+ $p \leq .10$; * $p \leq .05$

Table 5. Results from Adjusted Regression Models Showing Associations between Discrimination in Health Care and Preventive Service Outcomes[a]

	NH White	NH Black	Hispanic[b]
Outcomes			
Mammogram	--[c]	0.73	1.13
Clinical Breast Exam	0.11 *	1.00	0.68
Pap Smear	0.18	0.64	1.10
Sigmoidoscopy/Colonoscopy	0.61	1.16	2.81
Blood Pressure Screening	3.00	0.97	1.26
Diabetes Test	1.17	1.04	0.83

Notes:

[a] Logistic regression odds ratios. Each cell represents separate models for each preventive service. Sample sizes vary by outcome. Models include age, gender (when appropriate), nativity, education, income, health insurance, employment status, depression, stress, and self-rated health.

[b] All Hispanic groups combined

[c] Cell sizes too small to analyze

* $p \leq .05$