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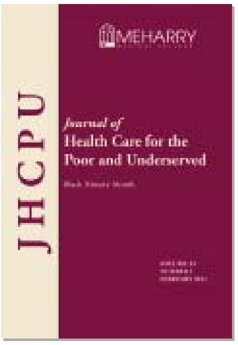

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Courtney R. Lyles, PhD
Andrew J. Karter, PhD
Bessie A. Young, MD, MPH
Clarence Spigner, DrPH
David Grembowski, PhD
Dean Schillinger, MD
Nancy E. Adler, PhD

Abstract: **Objectives**. We examined possible determinants of self-reported health care discrimination. **Methods**. We examined survey data from the Diabetes Study of Northern California (DISTANCE), a race-stratified sample of Kaiser diabetes patients. Respondents reported perceived discrimination, and regression models examined socioeconomic, acculturative, and psychosocial correlates. **Results**. Subjects (n=17,795) included 20% Blacks, 23% Latinos, 13% East Asians, 11% Filipinos, and 27% Whites. Three percent and 20% reported health care and general discrimination. Health care discrimination was more frequently reported by minorities (ORs ranging from 2.0 to 2.9 compared with Whites) and those with poorer health literacy (OR=1.10, 95% CI: 1.04–1.16), limited English proficiency (OR=1.91, 95% CI: 1.32–2.78), and depression (OR=1.53, 95% CI: 1.10–2.13). **Conclusions**. In addition to race/ethnicity, health literacy and English proficiency may be bases of discrimination. Evaluation is needed to determine whether patients are treated differently or more apt to perceive discrimination, and whether depression fosters and/or follows perceived discrimination.

Key words: Race/ethnicity, discrimination, diabetes care, managed care.

***DR. LYLES** is a post-doctoral fellow at the University of Washington in Seattle, WA. **DR. KARTER** is an investigator at the Kaiser Permanente Northern California Division of Research and an affiliate professor in the Department of Health Services at the University of Washington. **DR. YOUNG** is an associate professor in the Department of Nephrology at the University of Washington and an investigator at the Veterans Affairs Puget Sound Health Care System. **DR. SPIGNER** and **DR. GREMBOWSKI** are professors in the Department of Health Services at the University of Washington. **DR. SCHILLINGER** is a professor of Medicine at the University of California San Francisco and director of the Center for Vulnerable Populations at San Francisco General Hospital. **DR. ADLER** is a professor of Medical Psychology at the University of California San Francisco and director of the Center for Health and Community. Please address correspondence to Courtney Lyles, Department of Health Services, University of Washington School of Public Health, Box 359455, Seattle, WA 98195; (206) 685-0759; crees@u.washington.edu.*

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One of the explanations for the presence of racial/ethnic health disparities in the U.S. is discrimination, both in everyday life and within the health care system.[1,2] Understanding perceived discrimination in the health care setting is important to improve quality and satisfaction, as underscored by a recent study in which respondents reporting health care discrimination were more likely to report lower quality of care.[3] While a growing body of literature has explored perceived discrimination and health and/or treatment outcomes (including satisfaction),[4–7] fewer studies have examined individual-level characteristics that may influence self-reported discrimination.[8] Furthermore, previous research on discrimination within the health care system may be confounded by insurance status and access to care;[9] thus, studies in integrated health care systems could be particularly informative.

We characterized individuals who reported health care discrimination from their provider(s), focusing on measures of socioeconomic status (SES), acculturation, psychosocial, and health-related factors. In addition, we were interested in examining correlates of health care discrimination after adjusting for reports of discrimination in everyday life to assess if these domains were distinct. A broader understanding of how individual-level factors are associated with self-reported discrimination may provide insight into how and/or when individuals are exposed to discriminatory experiences, as well as how they perceive and ultimately report these experiences, which may have important implications for health-system interventions.

Methods

Study population. The study sampling frame was derived from a well-characterized population with diabetes in the Kaiser Permanente Northern California (n~225,000).[10] From May 2005 to December 2006, researchers conducted the baseline survey of the Diabetes Study of Northern California (DISTANCE) among a racially/ethnically-stratified, random sample of Diabetes Registry members aged 30–75, targeting 6,871 African American, 11,197 Asian, 4,233 Caucasian, 7,018 Latino and 11,417 members of unknown race/ethnicity, and achieving a 62% overall response rate (n=20,188).[11] Individuals were able to complete the survey in written, computer-assisted telephone interview, or Web formats in English, Spanish, Chinese, or Tagalog. Further details about the Registry[12–14] and the DISTANCE study methodology[15] have been published elsewhere.

A diabetes cohort provided a good model because (a) diabetes disproportionately affects racial/ethnic minorities,[16] (b) significant racial/ethnic disparities in diabetes processes and outcomes have been well-described,[17] (c) this chronic disease yields frequent patient-provider interactions, and (d) reports of discrimination are associated with poorer diabetes outcomes.[18]

Measures. The DISTANCE survey included 184 questions, covering a wide range of variables (the full survey instrument can be found at http://distancesurvey.org[19]). The domains of interest were demographic, socioeconomic, acculturative, psychosocial, and health-related characteristics outlined below.

Discrimination. The measures of discrimination were derived from previous studies.[20,21] First, individuals were asked about experiences of general discrimination in everyday life: “In the past 12 months, how often have you felt that people have treated you poorly or made you feel inferior based on your race or ethnicity?” Later in the survey, individuals were asked about experiences in the health care setting, where the word “people” was replaced with “doctors or health care providers at Kaiser.” While the question asked specifically about providers, responses might have concerned non-physician providers (such as nurses) and/or non-provider staff. Both questions had the response categories of *never*, *sometimes*, *usually*, or *often*, collapsed into never *vs.* any for the analyses.

Demographics. The most common self-reported racial/ethnic groups were examined: White, Black, Latino, Asian (including Chinese, Japanese, Vietnamese, and Korean), Filipino, and Other. Filipinos were analyzed separately from the Asian respondents because of their large representation in the Kaiser diabetes population and recognized difference from other Asian subgroup populations.[22] Other racial/ethnic groups not mentioned above (including smaller Asian subgroups) were included in the Other race/ethnicity category.

In addition, patient age (at baseline) and sex were pulled from administrative databases for each respondent. Age was collapsed into younger than 50, 50–64, and 65 years or older for the analyses.

Correlates of interest. Socioeconomic status was first captured by annual income (four quartiles of under $25,000, $25,000–$49,999, $50,000–$79,999, and $80,000 or more) and education (high school/GED or less, some college, or college graduate or more). Relative social position was measured with the MacArthur Scale of Subjective Social Status, asking individuals to rate themselves from 0 to 10 (*worst off* to *best off*) compared with other people in the U.S.[23] This measure has been linked to health outcomes even after for adjusting for presumably more objective measures of SES, such as education and income.[24] Finally, we included health literacy because it was strongly linked to other measures of SES and has been shown to be an important predictor among diverse individuals with diabetes.[25,26] Health literacy was assessed by three questions asking about difficulty in reading written information about medical conditions, confidence in filling out medical forms, and how often someone else helps in reading health plan materials. These measures have been previously validated,[27] and we scored responses from 1 to 15, with 15 representing the most problems with health literacy.

Because acculturation influences how individuals integrate into U.S. society and whether groups perceive events as discriminatory, it was of primary interest. First, we created a binary measure of immigrant status (yes *vs.* no) based on the respondents’ self-reported place of birth. Second, language was captured by limited English proficiency (LEP), categorized as always or often having problems speaking and/or understanding English.

The survey also included several validated psychosocial measures that were previously linked to a variety of health outcomes and also hypothesized to be related to how individuals self-report experiences with discrimination. Diabetes-specific locus of control[28] assessed how much control individuals feel that they have over their illness. Locus of control has been shown to be important for health outcomes, specifically outcomes such as health behaviors, information seeking, and treatment adherence.[29] A summary measure of external locus of control was examined in these analyses, scored from 1 to 5, with 5 representing the highest external locus (i.e., believing their health is due almost entirely to outside events and/or luck). A measure of perceived stress was also examined, as discrimination is thought to influence health outcomes through a variety of stress pathways.[8] Specifically, stress was assessed through a four-item scale that asked individuals to rate how well they handled problems in their lives, summed into a score from 1 to 20, with high scores representing higher stress levels.[30] The emotional instability (also called neuroticism) component of the Big Five personality measures was also examined.[31,32] This personality factor has been shown to be related to outcomes such as higher levels of anxiety and hostility.[33] On the survey, individuals were asked to agree or disagree with specific descriptions of their character (e.g., "I see myself as calm, emotionally stable"). The summary score went from 1 to 5, with 5 indicating the highest emotional instability.

Finally, there were three health-related factors of interest. First, we adjusted for depressive symptoms, as depression has been consistently shown to be associated with perceived discrimination[7] and varies by race/ethnicity in this population (Karter, personal communication). Ascertainment of depressive symptoms was based on the eight-item Patient Health Questionnaire scale,[34] where depressive symptoms were categorized into two levels: no depression (few to no symptoms with a score below 5) *vs*. mild, moderate, moderately severe, or severe symptoms (a score from 5–24). We also adjusted for self-reported physical health status, specifically the physical component score (PCS) of the SF-8,[35] standardized into a score from 0 to 100. In addition, we examined disability status, given the high rates of disability among people with diabetes[36] and racial/ethnic minorities,[37] as well as its own associated stigma. We included a dichotomous measure of inability to work due to illness or disability (yes *vs*. no), which may have captured more severe disability compared with other measures of broader physical functioning.

Statistical analyses. First, the unadjusted proportions of reporting both types of discrimination (health care and general) were calculated overall and by race/ethnicity, and the relationship between the two reports of discrimination was compared using a chi-squared test. In addition, bivariate analyses were conducted to evaluate relationships between the patient covariates and reports of health care discrimination, using unadjusted logistic regression models in SAS version 9.2, with weights to account for the survey design.

Next, adjusted logistic regression models were specified, examining binary reports of health care discrimination (also incorporating survey weighting). The regression models were completed in stages. First, SES variables were included, followed by acculturation, psychosocial, and health-related characteristics. Finally, reports of general discrimination were added to the fully adjusted model to try to account for any residual confounding by individual differences in the likelihood of reporting discriminatory experiences. All statistical models were also adjusted for demographic characteristics of age, gender, and race/ethnicity, given that they have been previously associated with reports of discrimination. Odds ratios and their associated 95% confidence intervals identified significant associations.

Results

Of the 17,795 respondents to the long version of survey that included the discrimination measures, there was a total of 16,463 respondents to the general discrimination question and 12,151 respondents to the health care discrimination question. Respondents to the health care discrimination question were well distributed across the major racial/ethnic groups of interest: 20% Black, 20% Latino, 12% Asian, 11% Filipino, and 30% White, with 6% reporting another race/ethnicity. Respondents not answering the discrimination questions were more likely to report Latino, Asian, Filipino, or Other race/ethnicity, and be older, less educated, lower income, not born in the U.S., with poor health literacy and LEP.

Descriptive analyses. The majority (66%) of respondents reported no general discrimination in the past year, and an overwhelming majority (95%) reported no discrimination from their health care provider in the past year (Figure 1). However, after accounting for non-proportional sampling fractions (specifically, the oversampling of minorities), the proportions reporting general and health care discrimination in the overall Kaiser Diabetes Registry population were 20% and 3%. Furthermore, the reports of discrimination were significantly related to one another—that is, individuals who reported general discrimination were more likely also to report health care provider discrimination (p<.01, Table 1).

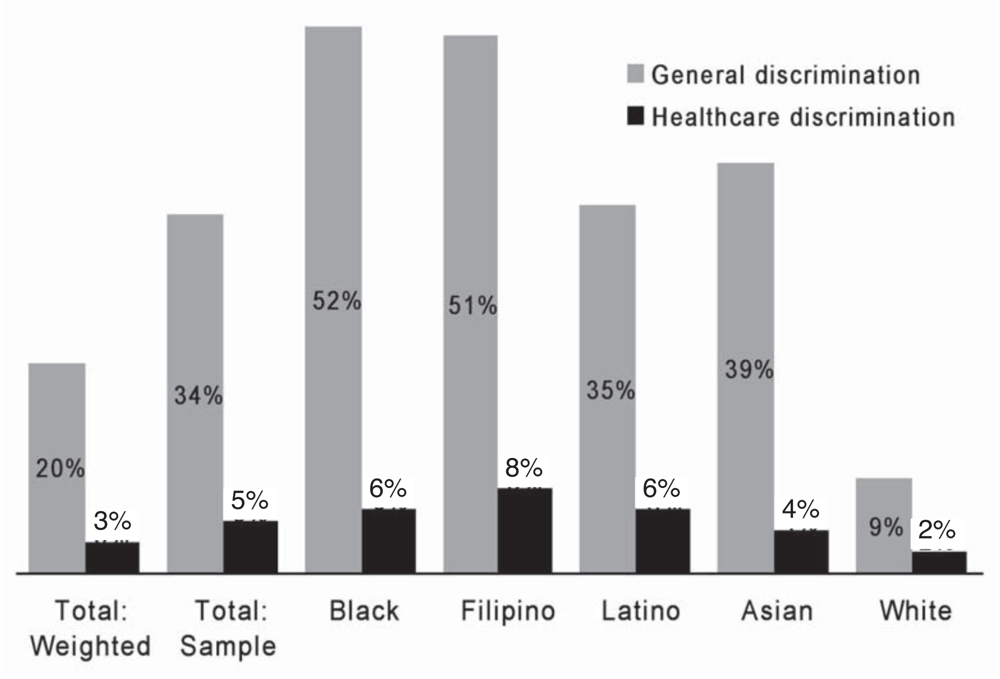

Figure 1. Reports of general and health care discrimination by patient race/ethnicity.

"Weighted" refers to proportions in overall Kaiser Diabetes Registry, "Sample" refers to DISTANCE survey respondents. Denominators are as follows: 16,463 respondents to general discrimination item: 3,180 Black, 1,821 Filipino, 3,730 Latino, 2,024 Asian, and 4.465 White; 12,151 respondents to health care discrimination item: 2,435 Black, 1,321 Filipino, 2,446 Latino, 1,470 Asian, and 3,668 White.

Table 1.

PATIENT REPORTS OF GENERAL DISCRIMINATION AND HEALTH CARE DISCRIMINATION

N=11,821		Health care discrimination	
	N (%)[a]	Yes	No
General Discrimination	Yes	370 (3.1)	3,597 (30.4)
	No	185 (1.6)	7,669 (64.9)
			p<.001

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[a] Percentages reflect the sample distributions, but p-value incorporates sampling weights. Total N reflects the number of respondents to both discrimination items.

Whites reported discrimination substantially less frequently than any racial/ethnic minority group (9% for general discrimination and 2% for health care discrimination). Blacks reported general discrimination most frequently (52%), and Filipinos reported health care provider discrimination most frequently (8%). Among the minority group respondents, Latinos reported general discrimination least frequently (35%), and Asians reported health care discrimination the least frequently (4%). Table 2 presents the unadjusted associations between the patient characteristics and reported health care discrimination. The majority of individual-level characteristics were significantly related to patient-reported health care discrimination in bivariate comparisons. Minority race/ethnicity, younger age, lower income, disability status, poorer health literacy, immigrant status, LEP, lower subjective social status, higher emotional instability, higher external locus of control, higher perceived stress, worse physical functioning, and depressive symptoms were significantly associated with higher reports of health care provider discrimination. However, gender and education were not significantly associated with health care discrimination in unadjusted analyses.

Adjusted analyses. Table 3 reports the adjusted logistic regression model results for health care discrimination, presenting the series of models across the columns. When only including demographic and socioeconomic variables in the first model, all racial/ethnic minority groups were more likely than Whites to report discrimination from their health care provider. Black, Latino, Asian, Filipino, and Other race/ethnicity respondents had 3.99 (95% CI: 2.78–5.73), 3.03 (95% CI: 2.02–4.53), 2.53 (95% CI: 1.61–3.98), 4.60 (2.96–7.14), and 3.15 (95% CI: 1.80–5.51) times the likelihood (respectively) of reporting health care discrimination as Whites. In addition, younger age (OR=1.85 comparing younger than 50 years *vs*. 65 years old or older; 95% CI: 1.28–2.69) and poorer health literacy (OR=1.16 for a 1-point change; 95% CI: 1.11–1.21) were associated with increased reports of discrimination. There were no significant, adjusted associations between income, education, or subjective social status with reported health care discrimination.

Table 2.

UNADJUSTED ASSOCIATIONS WITH REPORTS OF HEALTH CARE DISCRIMINATION[a]

		Health Care Provider Discrimination		
	Total (n=17,795)	No (n=11,569)	Yes (n=582)	P-value
Race/Ethnicity (%)				<.0001
Black	3,343 (20)	2,282 (20)	153 (27)	
Latino	3,680 (23)	2,298 (20)	148 (26)	
White	4,579 (27)	3,607 (31)	61 (11)	
Asian	2,168 (13)	1,404 (12)	66 (12)	
Filipino	1,956 (11)	1,219 (11)	102 (18)	
Other race/ethnicity	1,189 (7)	653 (6)	41 (7)	
Age (%) in years				<.0001
<50	3,605 (21)	2,230 (20)	143 (25)	
50–64	8,712 (50)	5,703 (51)	275 (49)	
≥65	4,970 (29)	3,282 (29)	144 (26)	
Male (%)	9,091 (51)	5,944 (51)	258 (44)	.092
Education (%)				.60
High school or less	8,103 (46)	4,775 (42)	240 (42)	
Some college	4,243 (24)	2,955 (26)	166 (29)	
College graduate or more	5,162 (29)	3,652 (32)	163 (29)	
Income categories (%) in $				<.0001
<25,000	2,916 (19)	1,707 (16)	143 (27)	
25–49,999	4,345 (29)	2,957 (28)	171 (33)	
50–79,999	3,753 (25)	2,736 (26)	109 (21)	
≥80,000	4,082 (27)	3,064 (29)	98 (19)	
Subjective social status (sd)	6.2 ± (2)	6.3 ± (2)	6.0 ± (2)	<.0001
Health Literacy (sd)	5.2 ± (2.6)	5.1 ± (2.9)	6.4 ± (3.1)	<.001
Disabled (%)	1,333 (8)	835 (7)	85 (15)	.0004
Immigrant (%)	6,339 (37)	3,652 (32)	282 (49)	<.0001
Limited English Proficient (%)	4,140 (23)	1,992 (17)	219 (38)	<.0001
Emotional Instability (sd)	2.3 ± (0.9)	2.2 ± (0.9)	2.6 ± (0.9)	<.0001
External Locus (sd)	2.1 ± (1)	2.0 ± (0.9)	2.4 ± (1)	<.0001
Perceived Stress (sd)	8.7 ± (3.1)	8.5 ± (3.1)	10.4 ± (3.0)	<.001
Any Depression (%)	4,601 (37)	3,643 (35)	307 (60)	<.001
Physical component score (sd)	5.2 ± (2.6)	5.1 ± (2.9)	6.4 ± (3.1)	<.001

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[a] Percentages reflect the sample distributions, but p-values incorporate sampling weights. Covariates have varying amounts of missing responses (i.e., do not always add up to total N for the column)

In the next stage, acculturation variables of immigrant status and LEP were added to the logistic regression model. Those with poor English skills were more likely than those without English limitations to report discrimination from their health care provider (OR=2.03, 95% CI: 1.42–2.91). In addition, younger age, poor health literacy, and minority race/ethnicity remained significantly associated with discrimination in this model.

Psychosocial scales of locus of control, emotional instability, and perceived stress were added next. Perceived stress (OR=1.11 for a 1-point increase, 95% CI: 1.06–1.15) and emotional instability (OR=1.18 for a 1-point increase, 95% CI: 1.00–1.39) were significant in the adjusted model. Depression, self-reported physical health, and disability status were added in the following stage. Depression was significantly associated with reporting health care provider discrimination (OR=1.67, 95% CI: 1.20–2.33), but neither the physical component score nor disability status reached significance. With the addition of these covariates, the associations of younger age and emotional instability with reporting health care discrimination became statistically insignificant, but poorer health literacy and LEP remained associated with reported health care discrimination.

Finally, the binary indicator of reporting general discrimination was added to the model. General discrimination was significantly associated with health care discrimination in this fully adjusted model (OR=2.42; 95% CI: 1.88, 3.12), and the associations of LEP (OR=1.91, 95% CI: 1.32–2.78), depression (OR=1.53, 95% CI: 1.10–2.13), and poorer health literacy (OR=1.10, 95% CI: 1.04–1.16) remained significantly related to reporting health care discrimination. Furthermore, minority race was significantly associated with reports of health care discrimination in all stages of adjustment. However, in this fully adjusted model, the odd ratios of reporting health care discrimination for Blacks, Latinos, Asians, Filipinos, and Other race/ethnicity decreased substantially to 2.86 (95% CI: 1.93–4.22), 2.17 (95% CI: 1.40–3.37), 1.95 (95% CI: 1.20–3.16), and 2.82 (95% CI: 1.72–4.62), and 2.42 (95% CI: 1.35–4.34) (respectively) compared with Whites—representing 36%, 22%, 24%, 32%, and 22% decreases in the ORs without adjustment for reports of general discrimination.

Discussion

This study identified significant correlates associated with self-reported racial/ethnic health care discrimination in a well-characterized population of insured diabetes patients receiving care within an integrated delivery system. As expected, all racial/ethnic minority groups were significantly more likely than Whites to report discrimination. There were also significantly lower rates of reporting health care provider discrimination (3%) than of general discrimination (20%), likely related to exposure, as general discrimination can occur at any time while discrimination from health care providers occurs within a more limited context. Individuals who reported health care discrimination in our study were likely to also report general discrimination, which has been found previously.[18] To examine this in more depth, we ran models examining health care discrimination as the outcome while simultaneously adjusting for reports of general discrimination. While the minority-White differences in reporting discrimination

Table 3.

SERIES OF ADJUSTED LOGISTIC REGRESSION MODELS EXAMINING REPORTED HEALTH CARE DISCRIMINATION[a,b]

	Model 1 OR (95% CI)	**Model 2 OR (95% CI)**	**Model 3 OR (95% CI)**	**Model 4 OR (95% CI)**	**Model 5 OR (95% CI)**
Race/Ethnicity					
White	Ref	Ref	Ref	Ref	Ref
Black	3.99 (2.78, 5.73)*	3.92 (2.72, 5.66)*	4.05 (2.79, 5.88)*	4.49 (3.02, 6.69)*	2.86 (1.93, 4.22)*
Latino	3.03 (2.02, 4.53)*	2.51 (1.65, 3.83)*	2.50 (1.64, 3.83)*	2.79 (1.75, 4.44)*	2.17 (1.40, 3.37)*
Asian	2.53 (1.61, 3.98)*	2.13 (1.35, 3.36)*	2.08 (1.31, 3.31)*	2.58 (1.55, 4.28)*	1.95 (1.20, 3.16)*
Filipino	4.60 (2.96, 7.14)*	4.16 (2.62, 6.60)*	3.94 (2.45, 6.35)*	4.13 (2.49, 6.85)*	2.82 (1.72, 4.62)*
Other	3.15 (1.80, 5.51)*	2.89 (1.64, 5.10)*	2.84 (1.61, 5.02)*	3.11 (1.72, 5.64)*	2.42 (1.35, 4.34)*
Income ($)					
<25,000	Ref	Ref	Ref	Ref	Ref
25,000–49,999	0.97 (0.69, 1.36)	1.00 (0.71, 1.41)	1.04 (0.73, 1.47)	1.19 (0.82, 1.71)	1.16 (0.80, 1.69)
50,000–79,999	0.78 (0.52, 1.16)	0.83 (0.56, 1.24)	0.94 (0.63, 1.41)	1.19 (0.79, 1.79)	1.20 (0.79, 1.82)
≥80,000	0.88 (0.55, 1.40)	0.95 (0.59, 1.52)	1.11 (0.69, 1.78)	1.51 (0.93, 2.44)	1.54 (0.93, 2.54)
Education					
≤High school	Ref	Ref	Ref	Ref	Ref
Some college	1.18 (0.86, 1.62)	1.21 (0.88, 1.66)	1.18 (0.85, 1.63)	1.29 (0.91, 1.82)	1.24 (0.87, 1.75)
≥College graduate	1.19 (0.82, 1.73)	1.20 (0.83, 1.75)	1.16 (0.78, 1.73)	1.33 (0.88, 2.00)	1.26 (0.83, 1.90)
Gender					
Female	Ref	Ref	Ref	Ref	Ref
Male	1.28 (0.99, 1.65)	1.27 (0.99, 1.64)	1.22 (0.94, 1.59)	1.10 (0.83, 1.47)	1.12 (0.84, 1.49)
Age (years)					
<50	1.85 (1.28, 2.69)*	1.80 (1.23, 2.63)*	1.61 (1.09, 2.36)*	1.44 (0.91, 2.27)	1.24 (0.78, 1.98)
50–64	1.19 (0.86, 1.66)	1.17 (0.85, 1.63)	1.10 (0.79, 1.55)	0.96 (0.67, 1.37)	0.86 (0.60, 1.25)
≥65	Ref	Ref	Ref	Ref	Ref

(Continued on p. 220)

Table 3. *(continued)*

	Model 1 OR (95% CI)	Model 2 OR (95% CI)	Model 3 OR (95% CI)	Model 4 OR (95% CI)	Model 5 OR (95% CI)
Higher subjective social status (1-point change)	0.96 (0.88, 1.04)	0.97 (0.89, 1.05)	1.00 (0.92, 1.09)	0.98 (0.90, 1.07)	0.99 (0.90, 1.08)
Problems with Health Literacy (1-point change)	1.16 (1.11, 1.21)*	1.13 (1.08, 1.19)*	1.09 (1.04, 1.15)*	1.10 (1.04, 1.16)*	1.10 (1.04, 1.16)*
Immigrant					
No		Ref	Ref	Ref	Ref
Yes		0.87 (0.62, 1.20)	0.90 (0.65, 1.24)	0.99 (0.71, 1.37)	0.92 (0.66, 1.29)
Limited English Proficiency					
No		Ref	Ref	Ref	Ref
Yes		2.03 (1.42, 2.91)*	1.94 (1.35, 2.79)*	1.98 (1.36, 2.87)*	1.91 (1.32, 2.78)*
Emotional Instability (1-point change)			1.18 (1.00, 1.39)*	1.10 (0.92, 1.31)	1.07 (0.90, 1.28)
External Locus of Control (1-point change)			1.04 (0.92, 1.19)	1.09 (0.95, 1.24)	1.10 (0.96, 1.26)
Perceived Stress (1-point change)			1.11 (1.06, 1.15)*	1.06 (1.01, 1.10)*	1.05 (0.99, 1.10)
Depression					
None				Ref	Ref
Mild or above				1.67 (1.20, 2.33)*	1.53 (1.10, 2.13)*
Disability					
No				Ref	Ref
Yes				1.30 (0.80, 2.11)	1.37 (0.83, 2.24)
Physical Component Score (1-point change)				0.99 (0.97, 1.00)	0.99 (0.97, 1.00)
General Discrimination					
None					Ref
Any					2.42 (1.88, 3.12)*

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*indicates significance of $p<.05$

[a] All models incorporated survey weighting

[b] Higher scores on subjective social status indicate higher perceived social position, and higher scores on health literacy indicate worse health literacy.

OR = Odd Ratios

CI = Confidence Interval

decreased in this model, the significant associations of health literacy, LEP, and depressive symptoms persisted. This suggests that the two domains of discrimination are distinct in that some personal characteristics that predict health care discrimination are separate from factors associated with broader reports of general discrimination, and individuals reporting experiences of health care discrimination may not simply be more likely to feel discriminated against in any situation.

Overall, the proportions of discrimination reported among these patients at Kaiser Permanente were substantially lower than those reported previously in comparable populations. After analysis of the publicly available 2005 California Health Interview Study dataset, a random sample of all Californians, we calculated that 40% of individuals with type 2 diabetes reported general discrimination in everyday life within the past year, and 6% reported health care provider discrimination (results not previously published), compared with our observations of 20% and 3%, respectively. Another study of individuals with diabetes within several health care systems found that 8% reported racial/ethnic health care discrimination in the previous year.[18] The higher reports of discrimination among Filipino than among other Asian respondents is also similar to previous research.[38,39]

Perceived stress and depressive symptoms were significantly associated with reports of health care discrimination in this study, which is consistent with the literature.[4–8] However, these cross-sectional analyses of the DISTANCE survey data precluded causal inferences that would be able to confirm that these factors are responses to, rather than predictors of, discrimination (or perhaps both causes and effects). Furthermore, the mixed results for acculturation (i.e., a positive association between LEP and discrimination, but a null association for immigrant status) provide support for the idea that lower levels of acculturation may increase reports of racial/ethnic health care discrimination.[40] It has also been hypothesized that a longer time in the U.S. could simultaneously reduce some types of discrimination (e.g., less unfair treatment due to language difficulties) but increase perceptions of more subtle types of discrimination.[41]

Lower SES (particularly income and subjective social status) was associated with increased reports of health care discrimination in unadjusted models. However, only the relationship of poorer health literacy remained significant in adjusted models, suggesting that it might mediate the association of SES with reporting health care discrimination. Inadequate health literacy impairs a provider's communication with patients and thus may be associated with reduced satisfaction on the part of the patient regarding the quality of their provider's communication,[26] potentially leading to perceptions/experiences of health care discrimination. Additionally, education was not related to reports of health care discrimination in any model, which was also found in another recent study.[40] Our SES findings are similar to previous work that reported somewhat mixed associations (i.e., positive, negative, and null) between SES and reports of discrimination.[8,42–45] Finally, younger age was associated with increased reports of discrimination, consistent with previous research, yet men were not more likely to report discrimination (as had been shown in prior studies).[42,45–47]

Limitations. Using single-item discrimination measures within a limited timeframe is likely to underreport the true prevalence and variance in the broader population,[21,48–49] suggesting our estimates may be conservative. We also were not able to distinguish between the reports of discrimination by physicians, other providers, or staff. Health care provider discrimination reports were relatively uncommon, which may have limited power to detect significant associations despite the large sample size. In addition, there were missing data, both for the discrimination outcomes and the covariates of interest (as racial/ethnic minority, less acculturated, and lower SES individuals were less likely to respond to the discrimination item). While examination of the survey response patterns revealed there was survey fatigue (particularly for health care discrimination, which was near the end of the questionnaire), there were no other noticeable patterns suggesting bias. Although the missing information for the discrimination measures likely influences the marginal estimates of self-reported discrimination in our population, it is unlikely to substantively affect the associations.[50] In addition, the survey mode (written *vs*. telephone interview) could have influenced the validity of responses if one mode was considered more anonymous. However, we performed multiple imputation sensitivity analyses for the missing covariates, which did not substantively change any findings (data not shown). Finally, because we were interested in literacy and language-speaking ability as primary covariates, we did not exclude individuals on this basis. Although most individuals were able to complete the survey with interviewer assistance in their primary language, problems with literacy and/or language could have affected both the interpretation of survey questions and the related responses.

Implications. The current study assessed perceptions of health care provider discrimination in a managed care organization, among those with chronic illness with a heightened level of interaction with and dependency on the health care system. Our findings suggest that perceived health care provider discrimination was uncommon, especially when compared with general discrimination, and that perceptions of discrimination were associated with greater barriers to receiving care such as health literacy and/or language-speaking ability, which both are related to communication. These barriers may increase the likelihood that patients misunderstand their providers' intentions or reduce providers' willingness to offer needed care. In addition, general and health care discrimination measures were significantly related to one another and shared several correlates, yet reports of health care discrimination were not completely explained by an individual likelihood to perceive discrimination in everyday life.

While we were only able to examine reported discrimination, these self-reports of discrimination among individuals with diabetes have been shown to be associated with receiving fewer hemoglobin A1c tests, blood pressure tests, and foot exams,[51–53] as well as have worse disease control, symptom burden, and physical functioning.[18] Public health practitioners and providers should be aware of the potential health and treatment implications for patients reporting discrimination, as perceptions or experiences of discrimination could affect health through several pathways. Importantly, patients who report health care discrimination may be unlikely to be satisfied with their health care. Thus, understanding perceptions of health care discrimination will be helpful in our attempt to lessen racial/ethnic disparities in patient satisfaction. Careful attention to factors with possible interventions in a health care setting–particularly those that may already have an associated stigma, such as limited health literacy and language barriers–may reduce such perceptions or experiences of health care discrimination.

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