

Health Care

Provider factors and patient-reported healthcare discrimination in the Diabetes Study of California (DISTANCE)

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ABSTRACT

Objective: We examined provider-level factors and reported discrimination in the healthcare setting. **Methods:** With data from the Diabetes Study of Northern California (DISTANCE) – a race-stratified survey of diabetes patients in Kaiser Permanente Northern California – we analyzed patient-reported racial/ethnic discrimination from providers. Primary exposures were characteristics of the primary care provider (PCP, who coordinates care in this system), including specialty/type, and patient–provider relationship variables, including racial concordance.

Results: Subjects ($n = 12,151$) included 20% black, 20% Latino, 23% Asian, 30% white, and 6% other patients, with 2–8% reporting discrimination by racial/ethnic group. Patients seeing nurse practitioners as their PCP (OR = 0.09; 95% CI: 0.01–0.67) and those rating their provider higher on communication (OR = 0.70; 95% CI: 0.66–0.74) were less likely to report discrimination, while those with more visits (OR = 1.10; 95% CI: 1.03–1.18) were more likely to report discrimination. Racial concordance was not significant once adjusting for patient race/ethnicity.

Conclusions: Among diverse diabetes patients in managed care, provider type and communication were significantly related to patient-reported discrimination.

Practice implications: Given potential negative impacts on patient satisfaction and treatment decisions, future studies should investigate which interpersonal aspects of the provider–patient relationship reduce patient perceptions of unfair treatment.

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1. Introduction

Discrimination from healthcare providers or systems can negatively influence the quality of healthcare and patient satisfaction. Specifically, provider stereotyping and bias, whether conscious or unconscious, may limit access to needed treatments for racial/ethnic minorities [1], and perceived discrimination and mistrust by patients can be related to poorer patient–provider communication during medical encounters [2], which may in turn reduce patient adherence with providers' recommendations. Reports of discrimination in the healthcare setting have been shown to be associated with patient reports of fewer hemoglobin

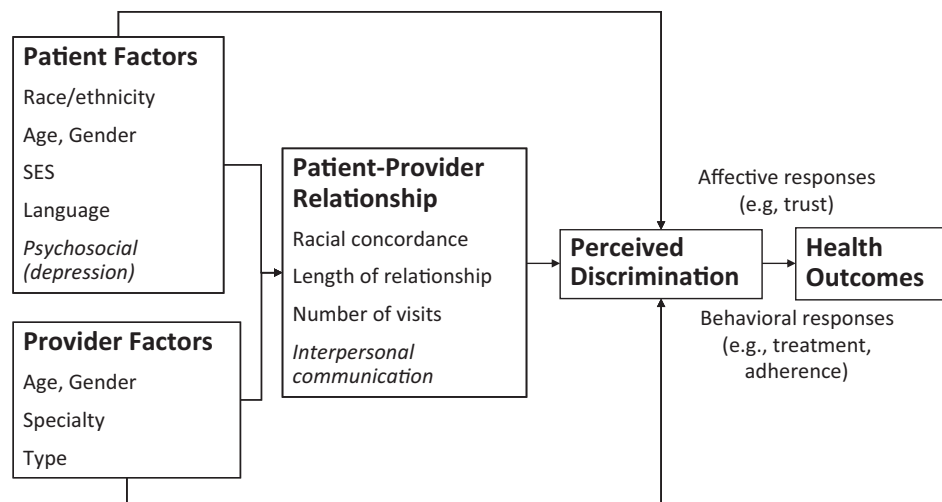
A1c tests, blood pressure tests, and foot exams [3–5], as well as worse glycemic control and physical functioning and increased symptom burden [6] among patients with diabetes.

Researchers have examined provider characteristics that might influence interpersonal communication between patients and providers, with potential direct or indirect pathways to perceptions of discrimination. For example, recent research focusing on the racial/ethnic similarity or concordance between patients and providers has found that it is associated with improved interpersonal aspects of care [7–9]. A few studies have suggested that concordance is associated with reduced reports of racial/ethnic discrimination in the healthcare setting, at least for some racial/ethnic groups [10–12]. Other research has suggested that provider factors such as gender and specialty, as well as the length of the patient–provider relationship, influence patient ratings of care [13–16].

We hypothesized that perceived discrimination would be influenced by provider and patient factors, and the quality of

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Note: Italics indicate potential bi-directionality between depression and interpersonal communication with patient-reported discrimination.

Fig. 1. Conceptual model.

the patient–provider relationship (Figure 1). The aim of our study was to investigate the association between the characteristics of the primary care provider (PCP) and patient-reported discrimination from any doctors or healthcare providers in the healthcare setting. We chose to examine the characteristics of the PCP because he or she manages all the patients' care within the primary care-centered system at Kaiser Permanente Northern California. Because we examined a diverse population of insured individuals, we were able to examine a variety of provider factors that were not available in previous research, such as provider specialty and type. In addition, our focus on diabetes patients is well suited for this study since the patient–provider relationship has been shown to be particularly important for patients with chronic conditions, given their high level of interaction with their PCP to maintain self-care behaviors and improve health outcomes [17–23].

2. Methods

We analyzed data from the Diabetes Study of Northern California (DISTANCE), a race-stratified, random sample of patients from the Kaiser Permanente Northern California Diabetes Registry. The Registry has been the basis for extensive epidemiological and health services research [24–27]. Because of the race-stratified survey design, DISTANCE had diverse patient representation across the largest racial/ethnic groups in Kaiser. The overall survey response rate (completed via written format or computer-assisted telephone interview in four languages) was 62% ($n = 20,188$) [28]. Further details regarding the survey methodology and sample representativeness have been published elsewhere [29].

The PCP of each survey respondent was identified in the year preceding the survey (i.e., 2004). We captured the PCP information (age, gender, race/ethnicity, etc.) from administrative databases. Almost every patient is assigned to a PCP within the Kaiser system, with only 0.2% ($n = 49$) of respondents having no identifiable PCP.

2.1. Measures

2.1.1. Healthcare provider discrimination

The single-item measure of healthcare provider discrimination was derived from a larger scale of experiences of discrimination in many domains of life [30,31]. Specifically, racial/ethnic discrimination was assessed by asking: "In the past 12 months, how often have you felt that doctors or healthcare providers at Kaiser have treated you poorly or made you feel inferior based on your race or

ethnicity?" The response categories of never, sometimes, usually, or often, were collapsed into binary variables (none vs. any). Although this measure was asked about all providers, we examined reported discrimination in relation to their PCP's characteristics, as this provider manages the care for patients within the integrated delivery system and is likely the relationship with the most continuity. We hypothesized that this would be the personal provider most often in mind when responding to this item. Moreover, because the measure asked about discrimination in the previous year – covering the majority of time from when we initially matched patients to their PCP – we included individuals who switched providers before they completed the survey to avoid excluding individuals who felt discriminated against and subsequently switched providers due to this perception of unfair treatment.

2.1.2. Provider characteristics

We examined PCP demographics of age and sex, as well as type, specialty, and clinic (collapsed into 10 regional facilities). Because not all providers had an assigned specialty, we created a single 4-category variable to assess specialty and type: primary care physicians, specialist physicians, nurse practitioners, and other providers (primarily doctors of osteopathy).

2.1.3. Provider–patient relationship variables

Provider race/ethnicity was self-reported in administrative records as white, black, Latino, Asian, or Native American. Using these categories, a racial concordance indicator was created to identify those being treated by a PCP of the same vs. different race/ethnicity. Patients indicating a race/ethnicity other than these five provider race/ethnicity categories were classified as race-discordant.

We also abstracted the number of years treated by their PCPs and number of primary care visits with the PCP in the year preceding the survey. These variables were expected to influence how patients rated their providers and their opportunity for exposure to experience discrimination.

2.1.4. Patient characteristics

The race/ethnic-stratified survey design enabled us to analyze five racial/ethnic groups within the patient population: white, black, Latino, Asian (including Chinese, Japanese, Vietnamese, and Korean), and Filipino. Filipinos were analyzed separately from the Asian respondents because of their large representation

Table 1

Racial concordance by patient and provider race/ethnicity.

n (Column %)	Patient White (n = 3578)	Patient Black (n = 2405)	Patient Latino (n = 2413)	Patient Asian (n = 3147)	Patient other race (n = 319)
PCP White (n = 4941)	1756 (49)	1051 (44)	907 (38)	1090 (35)	137 (43)
PCP Black (n = 526)	119 (3)	242 (10)	81 (3)	71 (2)	13 (4)
PCP Latino (n = 632)	158 (4)	89 (4)	287 (12)	81 (3)	17 (5)
PCP Asian (n = 5694)	1518 (42)	1012 (42)	1128 (47)	1886 (60)	150 (47)
PCP Native American (n = 69)	27 (0.8)	11 (0.5)	10 (0.4)	19 (0.2)	2 (0.1)

Note: These percentages reflect the patient sample, so providers are counted more than once if they see several patients in the sample. The total N is based on the DISTANCE respondents who answered the healthcare discrimination question (n = 12,151).

in the Kaiser diabetes population and their relative heterogeneity from other Asian subgroup populations [32,33]. Other racial/ethnic groups not mentioned above (including smaller Asian subgroups such as Pacific Islanders as well as Native Americans) were included in the Other category. We also examined patient-level characteristics of gender, age, education, language (binary variable indicating limited English proficiency, LEP), and depression (dichotomized into any depressive symptoms vs. none (i.e., score ≥ 5 vs. < 5) using the Patient Health Questionnaire [34]).

2.1.5. Provider communication

The survey included patient reports of provider communication, developed for the Consumer Assessment Healthcare Providers and Systems (CAHPS) [35–37]. Specifically, it assessed how often in last 12 months doctors or healthcare providers have: (1) listened carefully, (2) explained things well, (3) showed respect, and (4) spent enough time with you, scored continuously from 0 to 8. Ratings of interpersonal care have been shown to be associated with reported discrimination [6,11,38,39].

2.2. Statistical analyses

Descriptive analyses included evaluation of bivariate associations (Chi-square tests and unadjusted regression models) between reported healthcare discrimination and provider factors, relationship variables, and patient characteristics. We also examined reports of discrimination by both patient race/ethnicity and racial concordance.

We then modeled our primary outcome, any report of discrimination, using multilevel generalized estimating equations (GEE) regression models to account for clustering (correlation between patients seeing the same PCP) and weighted for the complex survey design and overall non-response bias [40,41]. These GEE models were specified with a binomial family, logit link, and an exchangeable correlation structure. Clinic was included as a fixed effect in all models to account for any facility-level differences. First, we examined the associations of provider characteristics and patient–provider relationship variables with patient-reported healthcare discrimination, controlling for patient demographics (Model 1). Then, in order to isolate the influence of racial concordance of reported discrimination, we added this variable in Model 2.

Next, we added patient LEP, depression, and the CAHPS provider communication score (Model 3). Given the cross-sectional nature of the data, we were unable to disentangle psychosocial factors such as depression or ratings of interpersonal communication as barriers in the patient–provider encounter leading to perceived racial/ethnic discrimination vs. the result(s) of perceived discrimination. Therefore, we specified models with and without these variables. Similarly, we also ran the model with and without LEP to isolate any associations of reported racial/ethnic discrimination from language barriers during the medical encounter. Our conceptual model (Figure 1) specifies the potential

bi-directionality for psychosocial factors and provider communication by displaying them in italics.

Finally, an interaction term between racial concordance and patient race/ethnicity tested if the effect of concordance differentially impacted reported healthcare discrimination among racial/ethnic groups.

3. Results

Overall, there were 12,151 respondents to the healthcare discrimination item, 5% of whom (n = 582) reported discrimination from healthcare providers (corresponding to 3% within the Diabetes Registry after accounting for over-sampling of racial/ethnic minorities). The patient sample was well represented across the major racial/ethnic groups: 30% white, 20% black, 20% Latino, 12% Asian, 11% Filipino, and 6% other race/ethnicity. Respondents not answering the discrimination question were more likely to report Latino, Asian, Filipino, or Other race/ethnicity, and be older, less educated, and LEP.

There were 1,401 PCPs treating these patients: 49% white, 38% Asian, 3% black, 4% Latino, and 0.8% Native American. Each PCP saw an average of 14 patients who were survey respondents (range 1–80), and 31% of PCPs had at least one of their patients report discrimination in the healthcare setting. The rates of concordance varied by patient race/ethnicity (Table 1): 60% of Asian respondents, 49% of white respondents, 12% of Latino respondents, and 10% of black respondents saw a PCP of the same race/ethnicity.

3.1. Unadjusted results

Table 2 reports the unadjusted associations with patient-reported healthcare discrimination. A higher proportion of those reporting discrimination had PCPs that were specialist physicians (18%) and a lower proportion saw nurse practitioners (1%), compared to those not reporting discrimination (14% and 2%, respectively). There were no other significant, unadjusted associations with PCP characteristics. When examining relationship variables, a higher proportion of patients reporting discrimination were in a racially discordant relationship (70%) compared to those not reporting discrimination (65%). In addition, patients reporting discrimination had seen their PCP for less time (on average) compared to patients not reporting discrimination, although the difference was not large (0.4 year difference). More negative reports of provider communication were also significantly related to reporting more discrimination. Finally, when examining patient factors, patients from a minority racial/ethnic group, younger individuals, and those with LEP and depressive symptoms were more likely to report healthcare discrimination in unadjusted analyses.

When specifically examining discrimination by both patient race/ethnicity and racial concordance (Figure 2), the association between racial concordance and decreased reports of discrimination did not hold up across any patient racial/ethnic group. Latino and Filipino patients in concordant relationships were less likely to

Table 2

Provider and patient characteristics by reported healthcare discrimination.

	Not reporting healthcare discrimination (n = 11,544)	Reporting healthcare discrimination (n = 580)	P-value
PCP characteristics			
Race/ethnicity (%)			0.33
White	4737 (42)	255 (45)	
Asian	5493 (48)	252 (44)	
Black	506 (4)	31 (5)	
Latino	605 (5)	30 (5)	
Native American	65 (1)	4 (1)	
Mean age (±s.d.)	46.7 (±8.8)	46.8 (±9.1)	0.83
Male (%)	4522 (40)	233 (40)	0.10
Specialty/type (%)			0.01*
Primary care physician	9301 (81)	454 (79)	
Specialist physician	1590 (14)	104 (18)	
Nurse practitioner	262 (2)	4 (1)	
Other	270 (2)	11 (2)	
Patient–provider relationship variables			
Racial concordance	4004 (35)	167 (30)	0.004**
Mean # Primary care visits in last 12 months	2.1 (±1.9)	2.4 (±2.2)	0.07
Mean # years in patient–provider relationship (±s.d.)	5.8 (±4.4)	5.4 (±4.3)	0.01*
Mean CAHPS interpersonal communication score (±s.d.)	6.3 (±2.1)	3.8 (±2.9)	<0.0001***
Patient characteristics			
Race/ethnicity (%)			<0.0001***
Black	2282 (20)	153 (27)	
Latino	2298 (20)	148 (26)	
White	3607 (31)	61 (11)	
Asian	1404 (12)	66 (12)	
Filipino	1219 (11)	102 (18)	
Other race/ethnicity	653 (6)	41 (7)	
Age (%)			<0.0001***
<50	2230 (20)	143 (25)	
50–64	5703 (51)	275 (49)	
≥65	3282 (29)	144 (26)	
Male (%)	5944 (51)	258 (44)	0.092
Education (%)			.60
High school or less	4775 (42)	240 (42)	
Some college	2955 (26)	166 (29)	
College graduate or more	3652 (32)	163 (29)	
Limited English proficient (%)	1992 (17)	219 (38)	<0.0001***
Any depression (%)	3643 (35)	307 (60)	<0.0001***

Note: N and means refer to sample, but p-values reflect survey weights. Due to some missing covariate information (up to 10% for depression), row values do not always add to the column totals. A 1-point change in the CAHPS score represents better provider communication. CAHPS, Consumer Assessment of Health care Providers and Systems. *p < 0.05. **p < 0.01. ***p < 0.001.

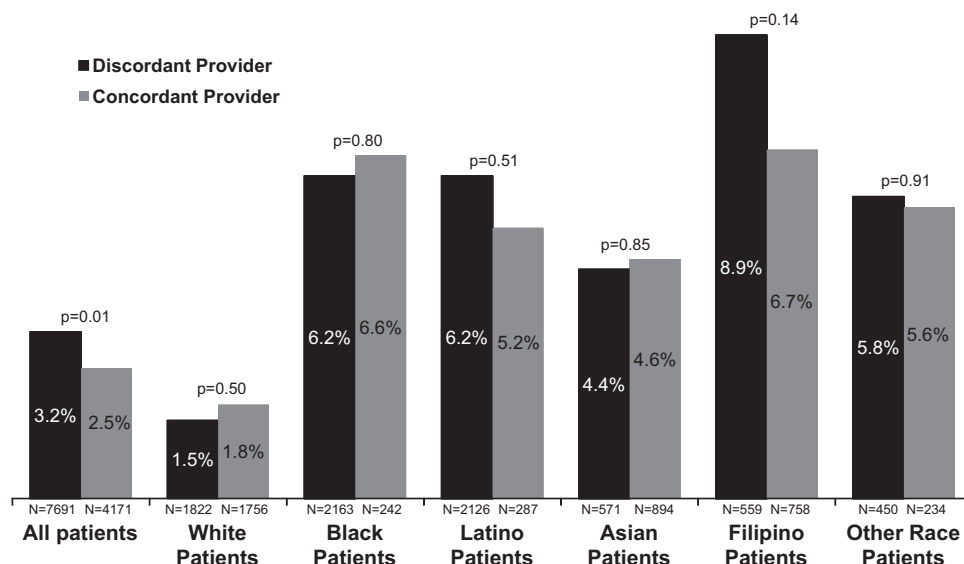
**Fig. 2.** Reports of healthcare discrimination, by patient race/ethnicity and concordance.

Table 3

Adjusted GEE models of patient-reported healthcare discrimination.

	Model 1	Model 2 (adding racial concordance)	Model 3 (adding depression, LEP, communication)
	Population-averaged OR (95% CI)	Population-averaged OR (95% CI)	Population-averaged OR (95% CI)
Provider factors			
Gender			
Female	0.97 (0.73, 1.28)	0.97 (0.74, 1.29)	0.96 (0.69, 1.33)
Male (ref)	1.0	1.0	1.0
Age (1-year change)	1.00 (0.99, 1.02)	1.00 (0.99, 1.02)	1.00 (0.98, 1.02)
Specialty/type			
Primary MD (ref)	1.0	1.0	1.0
Specialist MD	1.25 (0.85, 1.84)	1.26 (0.85, 1.85)	1.36 (0.87, 2.13)
Other	1.22 (0.44, 3.39)	1.22 (0.44, 3.40)	1.37 (0.55, 3.38)
NP	0.13 (0.03, 0.56)**	0.13 (0.03, 0.56)**	0.09 (0.01, 0.67)*
Provider–patient relationship variables			
Racial concordance			
Yes (ref)	–	1.0	1.0
No	–	1.07 (0.77, 1.50)	1.09 (0.75, 1.59)
# Primary care visits (1-visit change)	1.11 (1.06, 1.18)***	1.11 (1.05, 1.17)***	1.10 (1.03, 1.18)**
# Years with PCP (1-year change)	0.97 (0.94, 1.01)	0.97 (0.94, 1.01)	1.00 (0.96, 1.04)
CAHPS communication score (1-point change)	–	–	0.70 (0.66, 0.74)***
Patient factors			
Race/ethnicity			
White (ref)	1.0	1.0	1.0
Black	4.11 (2.75, 6.15)***	1.30 (1.02, 1.65)*	5.15 (3.29, 8.08)***
Latino	4.01 (2.55, 6.32)***	1.29 (0.98, 1.70)	3.45 (1.96, 6.05)***
Asian	3.89 (2.22, 6.81)***	1.29 (0.90, 1.86)	3.17 (1.56, 6.47)**
Filipino	5.05 (3.13, 8.17)***	1.67 (1.24, 2.26)**	6.04 (3.45, 10.6)***
Other	2.57 (1.43, 4.61)**	0.83 (0.57, 1.22)	2.46 (1.29, 4.68)**
Age			
<50	2.30 (1.58, 3.37)***	2.33 (1.59, 3.40)***	1.67 (1.09, 2.56)*
50–64	1.37 (1.01, 1.85)*	1.38 (1.02, 1.87)*	1.25 (0.88, 1.77)
≥65 (ref)	1.0	1.0	1.0
Gender			
Male	1.01 (0.78, 1.32)	1.01 (0.78, 1.32)	1.37 (1.00, 1.87)*
Female (ref)	1.0	1.0	1.0
Education			
≤HS	1.0	1.0	1.0
Some college	1.03 (0.76, 1.39)	1.03 (0.76, 1.39)	1.24 (0.86, 1.78)
≥College	0.85 (0.60, 1.21)	0.85 (0.60, 1.21)	1.01 (0.68, 1.52)
LEP			
No (ref)	–	–	1.0
Yes	–	–	1.93 (1.32, 2.82)**
Depression			
No (ref)	–	–	1.0
Yes	–	–	1.98 (1.43, 2.75)***

Note: GEE models specified a binomial family, logit link, and exchangeable correlation structures, as well as weighting. Clinic was included as a fixed effect. PCP, Primary care provider; CAHPS, Consumer Assessment of Healthcare Providers and Systems; LEP, Limited English proficiency. * $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

report discrimination, but the proportions of black, Asian, and white respondents reporting discrimination was slightly higher when in concordant relationships (although none of the chi-square tests was significant).

3.2. Adjusted models

The adjusted GEE regression results are shown in Table 3. Model 1 adjusted for provider characteristics (age, gender, and specialty), patient–provider relationship characteristics (length of relationship and number of primary care visits), and several patient demographics (race/ethnicity, education, age, gender). Patients seeing nurse practitioners as their PCP were substantially less likely to report discrimination than those seeing primary care physicians (OR = 0.13; 95% CI: 0.03–0.56), but there were no significant differences in patient-reported discrimination among those seeing specialists or other provider types. More frequent

primary care visits were also associated with an increase in reporting discrimination (OR = 1.11 for each additional visit; 95% CI: 1.06–1.18). PCP gender, age, and length of provider–patient relationship were not significantly associated with patient-reported discrimination.

When adding racial concordance (Model 2), patients in discordant relationships were no more likely to report discrimination than those in concordant relationships (OR = 1.07, 0.77–1.50). The associations between patient race/ethnicity and reported discrimination were significantly decreased in this stage of adjustment, likely due to the confounding between racial concordance and patient race/ethnicity.

Finally, additional patient characteristics of LEP and depression as well as the CAHPS communication score were added (Model 3). LEP (OR = 1.93; 95% CI: 1.32–2.82) and depression (OR = 1.98; 95% CI: 1.43–2.75) were associated with increased patient-reported discrimination, and a 1-point increase in the CAHPS score (i.e.,

better communication) was associated with a 30% decrease in reporting discrimination (OR = 0.70; 95% CI: 0.66–0.74). The lower patient-reported discrimination among those being treated by nurse practitioners (OR = 0.09; 95% CI: 0.01–0.67) and the higher patient-reported discrimination among those with more visits (OR = 1.10; 95% CI: 1.03–1.18) remained significant. The associations between patient race/ethnicity and reported discrimination were again highly significant (ORs comparing minorities to whites: 2.46–5.15).

3.3. Interaction between patient race/ethnicity and racial concordance

Finally, there were no significant interactions between patient race/ethnicity and racial concordance (data not shown), suggesting that racial concordance was not differentially influential for a specific racial/ethnic group in the sample.

4. Discussion and conclusion

4.1. Discussion

We examined reported racial/ethnic healthcare discrimination in a diverse population of insured diabetes patients in an integrated healthcare delivery system, focusing on characteristics of PCPs and their relationships with patients. Those seeing nurse practitioners and those with better provider communication ratings reported less discrimination, and there was a positive association between number of visits and patient-reported discrimination. The fully adjusted model controlled for variables that might influence how individuals perceive and/or report discrimination, such as patient ratings of provider communication, to attempt to reduce confounding among individuals who dislike their provider or consistently rate their healthcare experience poorly. Because all patients were insured with access to the same healthcare, there was likely less confounding due to insurance status compared to previous population-based studies.

While our population of individuals with chronic illness may be higher users of healthcare than the general population, reports of healthcare discrimination were uncommon (5% in our sample, and 3% when standardized to the racial/ethnic distribution of the Diabetes Registry). The sample facilitated examination of several racial/ethnic minority groups, and we were able to examine a number of provider-level characteristics not available in other studies [42]. Previous studies have suggested that female providers engage in more patient-centered care [14]; however, our findings suggested no association with discrimination, similar to a previous study from this same population examining provider gender and patient satisfaction [43]. In addition, we found no difference in reported discrimination comparing those seeing primary care vs. specialist physicians. Another study reported that providers with primary care training were rated as more participatory [15], and all providers in our sample provided primary care to diabetes patients regardless of specialty. Furthermore, we found that those with more primary care visits reported more discrimination. Although we originally hypothesized an association in the opposite direction, our findings suggest more exposure to the healthcare setting could be related to an increased opportunity to experience unfair treatment. While more visits could also indicate poorer health status, we ran a sensitivity model (results not shown) also adjusting for the physical functioning SF-8 score, and the association between visits and patient-reported discrimination persisted.

LEP, depression, and CAHPS provider communication were also all strong predictors of reported healthcare discrimination in this adjusted analysis. Based on our previous work examining patient

correlates of discrimination in this cohort [44], LEP as a measure of acculturation – as opposed to immigrant status, which has been shown to be influential in previous studies [45] – was the strongest predictor of perceived discrimination. Language-speaking ability may represent a clear obstacle to open communication between patients and providers, especially since English is not the first language for a growing population of patients. In addition, depression was a significant predictor of reported discrimination, consistent with the large body of literature on perceived discrimination [46,47]. Finally, the CAHPS provider communication score was related to patient reports of discrimination, which may be expected given that those who feel that they have experienced unfair treatment are then more likely to report that their provider did not listen carefully to them or explain things clearly (or vice versa). Disentangling causality among these factors and patient-reported discrimination in future studies would provide additional insight.

Our adjusted findings also did *not* suggest that longer patient–provider relationships were related to reported discrimination, contrary to previous work examining ratings of interpersonal care [16]. Longitudinal studies examining if and when patients switch providers due to perceptions of unfair treatment could help determine the causality of this relationship. Our post hoc examination of those who switched providers from the time they were matched to their PCP (i.e., 2004) until they completed the survey (i.e., 2005–2006) demonstrated a higher prevalence of reported discrimination: of the 2024 individuals who switched providers, 7.6% reported discrimination in the previous 12 months, compared to only 4.2% of 10,100 individuals who did not switch. While dropping these patients who switched did not change the associations found in our primary analyses, it reduced the magnitude of the relationships.

Racial concordance was also not associated with decreased patient-reported healthcare discrimination once the models were adjusted for patient race/ethnicity, and there were no significant interactions with patient race/ethnicity. Although we did not examine language concordance in this study, a previous study of this population found that LEP patients seeing a language-discordant provider reported poorer interactions with their provider, while LEP respondents seeing a language-concordant provider reported similar interactions as English-proficient respondents [48] – suggesting that language might be more influential in patient–provider interactions in this patient population.

Previous studies examining racial concordance in relation to reports of discrimination have also produced similar mixed and sometimes counterintuitive results. In a national patient survey, Asians were less likely to report being treated unfairly due to race/ethnicity in a concordant relationship, yet Latinos were *more* likely to report being treated with disrespect in a concordant relationship [10]. Another study using the same survey data reported that concordance decreased perceptions of racial bias in healthcare treatment among white respondents, but not among minority respondents [11]. Finally, analysis of another survey found that black patients in concordant relationships were more likely to report being treated with respect, while this was not significant for Hispanic patients in concordant relationships [49]. Furthermore, when examining outcomes beyond patient ratings of care, a recent review found inconsistent evidence between racial concordance and improved health and/or healthcare outcomes [42], and a study within the same population of diabetes patients at Kaiser Permanente found no relationship between racial concordance and medication intensification [50]. It is important to note that cultural competency training has been a mandatory component for continuing medical education at Kaiser for several years, ensuring that providers receive training and education on the topics of

diversity, language, and improved healthcare delivery. This training in a healthcare system that embraces cultural sensitivity could have influenced our null findings with racial concordance. In addition, the racial concordance category for Asians may be too crude. Because of the large amount of heterogeneity between Asian subgroups and inability to disaggregate the provider Asian category, our measure would have classified Chinese patients seeing an East Indian PCP as “concordant.” Additional studies are needed to examine Asian provider subgroups to explore these relationships further.

This is the first study to our knowledge that examined provider type in relation to reported discrimination, although it is consistent with previous literature on nurse practitioner care. A review found that patients were more satisfied with care from nurse practitioners compared to physicians, and that nurse practitioners had longer visits with more investigations [51]. In addition, black patients seeing nurse practitioners in another study had increased trust compared to those seeing physicians [38]. These findings also support previous evidence that nurse practitioners focus on listening and asking questions, participatory decision-making, and “whole-person care” in their practice [52,53]. In particular, patients could feel that the interpersonal elements of care were more satisfied when seeing a nurse practitioner.

This study has additional limitations to acknowledge. We were not able to account for patient preferences in choosing their provider, which may also influence how individuals perceive discrimination. Previous studies (including within this diabetes population) found that minority patients are more likely to choose a provider of the same race/ethnicity [54,55], and that black patients who reported a preference for a concordant physician were more likely to rate their physician as excellent [56]. Other research has suggested that patients who perceive discrimination in race-discordant relationships were more likely to prefer a provider of the same race [57]. Previous research has suggested that racial concordance is most important for this smaller group of patients that prefer a provider of the same race/ethnicity [58]. Thus, studies accounting for patient choice of provider might provide more insight into these relationships, especially if those who prefer a racially concordant provider have a heightened sensitivity to perceiving discrimination.

Moreover, our survey item captured discrimination from any provider at Kaiser and patients could have been reporting discrimination from a different provider (or even other staff interactions) rather than the PCP when responding to the questionnaire. Given that patients are likely to consider the full range of interactions with the healthcare providers rather than focusing only on those with the PCP, there is some potential misclassification in our analyses. However, it is possible that the experiences with the PCP, as the coordinating healthcare provider, may be psychologically buffering and potentially override experiences with other care providers. In addition, we used a single-item for capturing a personal experience with discrimination in the past year, which has been shown to underreport the true prevalence and variance in the population [31,59] – perhaps influencing our findings conservatively. Moreover, while a broader measure (assessing differential healthcare treatment for racial/ethnic minorities overall) might have resulted in a higher proportion of patients reporting discrimination [60], we were most interested in personal experiences with discrimination since we matched these reports to characteristics of the respondents’ PCPs.

Finally, there were missing survey data, primarily for the discrimination outcome. While the missing outcome data could bias the marginal estimates of self-reported discrimination in our population, it is unlikely to substantively impact the

associations [61], especially given that we controlled for variables associated with missingness in our adjusted regression models [62]. Additional examination of the survey response patterns revealed there was survey “fatigue” in answering the discrimination item, which was near the end of the 184-item questionnaire, but there were no other noticeable patterns suggesting a response bias compared to other, similar questions near the end of the survey.

4.2. Conclusion

Importantly, our study suggests that racial similarity between patients and their PCPs did not eliminate patient perceptions of racial/ethnic healthcare discrimination among diabetes patients within an integrated delivery system. More primary care visits, but not PCP gender or specialty, were also associated with patient-reported discrimination. Finally, interpersonal aspects of care, including better overall ratings of provider communication and nurse practitioner care (which could be linked to increased patient-centeredness), were related to decreased patient perceptions of healthcare discrimination.

4.3. Practice implications

These findings have several implications for clinicians and other practitioners in the healthcare setting. First, the results speak to the importance of communication during the medical encounter, as provider communication scores were strongly associated with how patients perceived and ultimately reported racial/ethnic discrimination from healthcare providers. Improvement in the interpersonal aspects of the provider–patient relationship are likely more critical among individuals with chronic diseases who have more intensive interactions with their provider to manage their illness. Furthermore, as racial/ethnic minority diabetes patients may face unique barriers to shared decision-making with their providers [63,64], additional provider training and/or education on interpersonal aspects of care may be influential in reducing patient perceptions of unfair treatment in the healthcare setting. This training would not be limited to cultural competency or diversity education, which is already a mandatory component of medical education for many healthcare settings including Kaiser, but more broadly focused on communications skills and patient-centered care. Finally, qualitative research would be particularly informative for understanding when and how patients perceive unfair treatment from providers, including the influence of provider type or race/ethnicity, as these patient reports of discrimination could represent particularly negative experiences that would impact healthcare treatment.

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Conflict of interest

The authors report no conflicts of interest.

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