Asian American Self-Reported Discrimination in Healthcare and Having a Usual Source of Care

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Abstract

Background Self-reported racial or ethnic discrimination in a healthcare setting has been linked to worse health outcomes and not having a usual source of care, but has been rarely examined among Asian ethnic subgroups.

Objective We examined the association between Asian ethnic subgroup and self-reported discrimination in a healthcare setting, and whether both factors were associated with not having a usual source of care.

Design Using the California Health Interview Survey (CHIS) 2015–2017, we used logistic regression models to assess associations among Asian ethnic subgroup, self-reported discrimination, and not having a usual source of care. Interactions between race and self-reported discrimination, foreign-born status, poverty level, and limited English proficiency were also analyzed.

Participants Respondents represented adults age 18 + residing in California who identified as White, Black, Hispanic, American Indian/Alaska Native, Asian (including Chinese, Filipino, Japanese, Korean, Vietnamese, and Other Asian), and Other.

Main Measures We examined two main outcomes: self-reported discrimination in a healthcare setting and having a usual source of care.

Key Results There were 62,965 respondents. After survey weighting, Asians (OR 1.78, 95% CI 1.19–2.66) as an aggregate group were more likely to report discrimination than non-Hispanic Whites. When Asians were disaggregated, Japanese (3.12, 1.36–7.13) and Koreans (2.42, 1.11–5.29) were more likely to report discrimination than non-Hispanic Whites. Self-reported discrimination was marginally associated with not having a usual source of care (1.25, 0.99–1.57). Koreans were the only group associated with not having a usual source of care (2.10, 1.23–3.60). Foreign-born Chinese (ROR 7.42, 95% CI 1.7–32.32) and foreign-born Japanese (ROR 4.15, 95% CI 0.82–20.95) were more associated with self-reported discrimination than being independently foreign-born and Chinese or Japanese.

Conclusions Differences in self-reported discrimination in a healthcare setting and not having a usual source of care were observed among Asian ethnic subgroups. Better understanding of these differences in their sociocultural contexts will guide interventions to ensure equitable access to healthcare.

Keywords Asian American · Discrimination · Health service access · CHIS · Healthcare access · Usual source of care · Asian

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Abbreviations

CHIS   California Health Interview Survey
AI/AN   American Indian/Alaskan Native
CI   Confidence interval
OR   Odds ratio
ROR   Ratio of odds ratios
SE   Standard error

Introduction

Racial or ethnic discrimination is a known social determinant of health, associated with poor health outcomes [1–3] and low health service utilization [4]. Discrimination in a healthcare setting has been reported to a greater degree by Black, Asian, Hispanic, and Native American patients than non-Hispanic White patients [5]. Experiences with discrimination vary across racial minority groups, especially among Asians Americans [6, 7].

Asian Americans comprise more than 50 ethnic subgroups and 100 languages [8]. The heterogeneity of this population makes examination of discrimination and health by Asian ethnic subgroups necessary. Disaggregating data by ethnic subgroup has the potential to reveal health disparities such as higher risks of cervical cancer among Vietnamese women [9] and hypertension among Filipinos [10], both compared to non-Hispanic Whites. However, studies examining discrimination have mostly analyzed Asian Americans as an aggregate [11].

Discrimination is of interest as it has been shown to lead to fewer health care-seeking behaviors such as having a usual source of care. However, the association between experiences of racism and health care-seeking behavior has not been thoroughly explored in the literature [2]. Furthermore, there is a lack of knowledge regarding self-reported discrimination and its effects on having a usual source of care across Asian American ethnic subgroups. Du et al. described a usual source of care as being a "provider or place a patient consults when sick or in need of medical advice" [12]. According to Xu, studying the presence of a usual source of care can be helpful since it "is similar to having health insurance in the sense that both [health insurance and having a usual source of care] facilitate timely and adequate receipt of needed medical care" [13]. Having a usual source of care has been associated with various health care quality indicators including greater provider trust and satisfaction and increased receipt of preventative services [14, 15], and has been implicated in reducing healthcare disparities [16].

In this study, we analyzed both the association of race on self-reported discrimination and the association of race and self-reported discrimination on having a usual source of care. We focused our analysis among six Asian ethnic groups: Chinese, Filipino, Japanese, Korean, Vietnamese,

and other Asian (which includes respondent self-identifying with two or more Asian ethnic groups). We hypothesized that differences in self-reported discrimination would be present among these different ethnic groups compared to non-Hispanic Whites. We further hypothesized that there would be an association between self-reported discrimination and not having a usual source of care, which would differ among Asian American ethnic subgroups [17].

Methods

Data Source

Data come from the California Health Interview Survey (CHIS), a dual-frame random-digit-dialed survey of California residents via cellphones and landlines, with ongoing collection every two years [18]. Survey interviews were conducted in six languages: English, Spanish, Chinese (Mandarin and Cantonese dialects), Vietnamese, Korean, and Tagalog. Data from the sampling years 2015–2017 were analyzed, as these data contained the most up-to-date information about discrimination in a healthcare setting. Missing values in CHIS data files were replaced through multiple imputation by CHIS staff before public access [19]. There were a total of 62,965 survey respondents, of which 277 responded through proxy.

Variables

Two models with different outcomes were created: one with an outcome of racial or ethnic discrimination in a healthcare setting, and another with an outcome of not having a usual source care. Racial or ethnic discrimination in a healthcare setting was assessed with the answer (Yes/No) to the question "Was there ever a time when you would have gotten better medical care if you had belonged to a different race or ethnic group?" Not having a usual source of care was assessed by respondents' response to the location of their usual source of care. In this study, respondents did not have a usual source of care if they reported their primary source of care was an emergency room, urgent care, or no usual source of care. This definition is similar to the definition used by the Centers for Disease Control [20]. While self-reported discrimination was the outcome in our first model, it was added as a predictor in the second model with an outcome of not having a usual source of care.

Each model was run with two sets of self-reported race variables. One set of race variables included Asian (in aggregate), non-Hispanic White, non-Hispanic African American or Black, Hispanic, American Indian/Alaskan Native (AIAN), and other race (where respondents indicated 2 or more races, where at most one of the identified groups is Asian). The other race set disaggregated Asian subgroups

and included Chinese, Filipino, Korean, Japanese, Vietnamese, and other Asian (which includes South Asian, Southeast Asian, and individuals who identify with 2 or more Asian subgroups).

Other variables were added in the multivariable analysis as covariates. These included self-reported gender, age (18–29, 30–39, 40–49, 50–59, 60–69, 70 +), citizenship (US-born citizen, naturalized, non-citizen), educational attainment (bachelor's degree or greater, some college, high school or vocational school, and less than high school), rural or urban location, income as % of poverty level (> 300% poverty level, 200–299% poverty level, 100–199% poverty level, 0–99% poverty level), and English proficiency (very well, well, not well, not at all). Insurance status was assessed through type of insurance (employment-based, privately purchased, Medicaid only, Medicare only, Medicare and Medicaid, Medicare and others, other public insurance, or uninsured). Respondents' health was assessed by their self-rated health status (excellent, very good, good, fair, poor), and whether they had a chronic condition. The chronic conditions assessed and available within the CHIS dataset included asthma, diabetes, heart disease, and hypertension.

Analysis

Multivariable logistic regression models were created in R version 4.0.1 (R Foundation for Statistical Computing, Vienna, Austria) using the *survey* package [21]. Jackknife replicate weights were used to estimate percentages and standard errors to reflect the underlying population distribution within California. Descriptive statistics were first calculated for each of the covariates included in both models, with Chi-squared tests assessing differences in proportions. The first logistic regression model assessed the log odds of self-reported discrimination in Asian as an aggregate and Asian separated into component groups. The second logistic regression model assessed the log odds of having a usual source of care in Asians as an aggregate and Asian separated into component subgroups. In this second model, self-reported discrimination was included as a covariate. Significance was assessed at alpha < 0.05.

Interaction

The interactive effect of race with self-reported discrimination on not having a usual source of care was examined in additional logistic regression models. Interaction was also assessed for race with limited English proficiency, foreign-born status, and poverty (with an outcome of self-reported discrimination and an outcome of not having a usual source of care). To improve power when assessing for interaction, the covariates of interest other than race were included as dichotomized variables. Limited English proficiency was

coded as any response other than "very well," foreign-born status as any response other than "US-born citizen," and poverty as response "0–99% federal poverty level." The global effect of these terms was assessed using a Wald test. American Indian and Alaskan Native respondents were excluded when examining foreign-born status. The main effects of these interaction models are reported as an odds ratio (OR), while interactive effects are reported as a ratio of odds ratios (ROR).

Results

Respondent characteristics by self-reported discrimination are reported in Table 1. Self-reported discrimination was the highest in Black respondents out of all racial groups (13.9%). Japanese reported the greatest discrimination (6.9%), while Filipinos reported the least discrimination (2.4%) among Asian ethnic subgroups. Koreans and American Indian/Alaskan Natives were the groups with the greatest percentage of not having a usual source of care (28.7% and 25.1% respectively).

Table 2 shows the odds ratio (OR), after adjusting for covariates, of the outcome of self-reported discrimination in a healthcare setting. While Asians in aggregate were more likely to report discrimination than non-Hispanic Whites (OR 1.78, 95% CI 1.19–2.66), disaggregation by Asian ethnic subgroups shows that Japanese (OR 3.12, 95% 1.36–7.13), Koreans (OR 2.42, 95% CI 1.11–5.29), and Other Asian (OR 2.44, 95% CI 1.28–4.64) were more likely to report discrimination compared to non-Hispanic Whites. Black (OR 5.41, 95% CI 3.48–8.41) and Hispanic (OR 2.03, 1.28–3.23) racial groups were also more likely to report discrimination than non-Hispanic Whites. Filipinos reported less discrimination, although this finding was not significant (OR 0.87, 95% CI 0.42–1.83).

Table 3 shows the odds ratio, after adjusting for covariates, of not having a usual source of care. Self-reported discrimination was associated with not having a usual source of care, although marginally significant (OR 1.25, 95% CI 0.99–1.57). When considering Asians in aggregate, no racial group was associated with not having a usual source of care. When Asian ethnic groups were analyzed in disaggregate, Koreans were the only group among all racial and ethnic groups compared to non-Hispanic Whites who were more likely to report not having a usual source of care (OR 2.10, 95% CI 1.23–3.60).

The only interactive effect found in these models between race with self-reported discrimination, limited English proficiency, foreign-born status, and poverty level was between race and foreign-born status with an outcome of self-reported discrimination in healthcare (p = 0.01, Table S1).

Table 4 shows the interaction terms for race with foreign-born status on an outcome of self-reported discrimination. Out of all the racial groups, foreign-born Chinese (ratio of

Table 1 General characteristics comparing reported discrimination in a healthcare setting (No/Yes): California Health Interview Survey 2015–2017 (N = 62,965 respondents) weighted estimates

Characteristic	n[a]	Outcome: Whether respondents would get better healthcare if they were of a different race	p value Chi-squared	Outcome: Not having a usual source of care	p value Chi-squared
		Yes		Yes	
		% (SE)[a]		% (SE)[a]	
Self-reported discrimination in a healthcare setting					<0.001
No	27,766,312	—		16.69 (0.39)	
Yes	1,455,661	—		23.08 (1.84)	
Not having a usual source of care					
No	24,251,906	—		—	
Yes	4,970,067	—		—	
Race			<0.001[b]		<0.001[b]
White	12,171,081	2.27 (0.26)		10.55 (0.42)	
Asian[b]	4,408,857	4.75 (0.68)		17.10 (1.20)	
Chinese	1,111,919	4.54 (1.41)		15.66 (2.19)	
Filipino	1,054,891	2.43 (0.78)		16.30 (2.22)	
Korean	406,467	6.70 (2.4)		28.72 (5.16)	
Japanese	231,574	6.86 (2.52)		11.35 (3.01)	
Vietnamese	535,884	5.09 (1.75)		20.69 (4.09)	
Other Asian race	1,068,123	5.88 (1.63)		14.40 (2.33)	
Black	1,636,440	13.85 (1.91)		14.88 (1.50)	
Hispanic	10,383,617	6.58 (0.52)		25.05 (0.81)	
AIAN	40,748	6.88 (5.93)		9.82 (4.43)	
Other race	581,231	9.83 (1.57)		14.35 (2.01)	
Sex			0.014		<0.001
Male	14,264,373	4.37 (0.32)		21.28 (0.55)	
Female	14,957,600	5.56 (0.4)		12.94 (0.47)	
Age			0.009		<0.001
18–29	6,465,933	5.26 (0.51)		27.58 (0.94)	
30–39	5,271,734	5.55 (0.67)		21.68 (1.16)	
40–49	5,050,598	5.81 (0.65)		18.32 (1.05)	
50–59	4,806,180	5.49 (0.58)		11.45 (0.76)	
60–69	4,142,427	4.36 (0.6)		8.48 (0.90)	
70+	3,485,102	2.44 (0.61)		6.23 (0.60)	
Citizenship			<0.001		<0.001
US-born citizen	19,482,019	4.39 (0.3)		14.01 (0.42)	
Naturalized	5,139,964	5.31 (0.59)		13.56 (0.98)	
Non-citizen	4,599,990	7.10 (0.8)		33.58 (1.35)	
Educational attainment			0.006		<0.001
Bachelor's degree or greater	11,138,381	3.92 (0.34)		11.99 (0.58)	
Some college	6,106,684	4.98 (0.81)		14.12 (0.74)	
High school or vocational school	7,064,560	5.30 (0.41)		19.20 (0.81)	
Less than high school	4,912,349	6.93 (0.73)		28.81 (1.38)	
Location			0.39		0.93
Urban	27,483,433	5.02 (0.29)		17.00 (0.38)	
Rural	1,738,540	4.36 (0.6)		17.11 (1.23)	
Income			<0.001		<0.001

Table 1 (continued)

Characteristic	n[a]	Outcome: Whether respondents would get better healthcare if they were of a different race	p value Chi-squared	Outcome: Not having a usual source of care	p value Chi-squared
		Yes		Yes	
		% (SE)[a]		% (SE)[a]	
> 300% Poverty level	14,957,125	2.88 (0.25)		11.04 (0.45)	
200–299% Poverty level	3,901,373	8.57 (0.83)		18.97 (1.25)	
100–199% Poverty level	5,403,445	6.84 (0.61)		22.15 (1.02)	
0–99% Poverty level	4,960,030	5.90 (0.72)		27.85 (1.21)	
Insurance type			< 0.001		< 0.001
Employment-based	12,291,804	3.35 (0.33)		10.62 (0.51)	
Privately purchased	2,034,457	4.15 (0.82)		17.21 (1.53)	
Medicaid	6,214,169	8.53 (0.73)		24.5 (0.99)	
Medicare only	535,489	3.48 (0.96)		12.13 (2.68)	
Medicare and Medicaid	1,600,792	7.52 (1.04)		11.47 (1.19)	
Medicare and others	3,377,319	2.59 (0.51)		3.62 (0.55)	
Other public	410,088	6.59 (2.66)		15.48 (2.88)	
Uninsured	2,757,856	6.38 (0.74)		49.23 (2.11)	
English proficiency			< 0.001		< 0.001
Very well	21,730,498	4.28 (0.30)		13.58 (0.39)	
Well	3,091,525	6.07 (0.75)		20.91 (1.34)	
Not well	2,826,183	8.09 (1.13)		29.95 (1.68)	
Not at all	1,573,767	6.95 (1.22)		33.43 (2.22)	
General self-rated health condition			< 0.001		< 0.001
Excellent	5,245,045	3.80 (0.60)		17.52 (1.06)	
Very good	8,823,141	3.25 (0.30)		14.30 (0.69)	
Good	9,004,827	4.93 (0.41)		17.82 (0.70)	
Fair	4,862,919	7.62 (0.76)		19.48 (1.00)	
Poor	1,286,041	12.03 (1.52)		18.47 (1.67)	
Chronic condition			0.007		< 0.001
No	16,641,220	4.42 (0.35)		20.81 (0.58)	
Yes	12,580,753	5.72 (0.37)		11.98 (0.50)	
Year			0.76		0.039
2015	9,646,288	4.72 (0.29)		17.08 (0.48)	
2016	9,758,950	5.14 (0.53)		18.11 (0.77)	
2017	9,816,735	5.08 (0.53)		15.83 (0.60)	

[a]n, %, and standard error are reported after survey weighting

[b]Asian category is an aggregation of the 6 Asian subgroups; Chi-squared p value calculated with the 6 Asian subgroups

SE = Standard error

odds ratios [ROR] 7.42, 95% CI 1.7–32.32) and foreign-born Japanese (ROR 4.15, 95% CI 0.82–20.95) were more associated with self-reported discrimination than being independently foreign-born and Chinese or Japanese. This change in mean percent predicted self-reported discrimination for different racial groups and foreign-born status is illustrated in Fig. 1.

Discussion

Different Asian ethnic subgroups, after adjusting for covariates, were associated with self-reported discrimination and not having a usual source of care. Among the ethnic subgroups, Korean and Japanese respondents were more likely to report discrimination in a healthcare setting. Koreans were

Table 2 Logistic regression of self-reported discrimination in a healthcare setting: California Health Interview Survey 2015–2017 (N=62,965) weighted estimates

	Outcome: Whether respondents would get better healthcare if they were of a different race (Yes/No)[a]			
	Model 1		Model 2	
	OR	95% CI	OR	95% CI
Race				
White	ref	—	ref	—
Asian[2]	**1.78**	**(1.19–2.66)**	—	—
Chinese	—	—	1.72	(0.84–3.49)
Filipino	—	—	0.87	(0.42–1.83)
Korean	—	—	**2.42**	**(1.11–5.29)**
Japanese	—	—	**3.12**	**(1.36–7.13)**
Vietnamese	—	—	1.57	(0.71–3.51)
Other Asian race	—	—	**2.44**	**(1.28–4.64)**
Black	**5.41**	**(3.48–8.41)**	**5.39**	**(3.46–8.38)**
Hispanic	**2.03**	**(1.28–3.23)**	**2.02**	**(1.27–3.21)**
AIAN	2.54	(0.36–7.81)	2.53	(0.36–17.76)
Other race	**3.39**	**(2.19–5.26)**	**3.37**	**(2.17–5.24)**
Gender				
Male	ref	—	ref	—
Female	**1.24**	**(1.01–1.52)**	**1.24**	**(1.01–1.52)**
Age				
18–29	ref	—	ref	—
30–39	1.05	(0.75–1.47)	1.05	(0.75–1.47)
40–49	1.07	(0.75–1.53)	1.07	(0.75–1.53)
50–59	1.00	(0.71–1.42)	1.01	(0.71–1.42)
60–69	0.71	(0.5–1)	0.72	(0.51–1.01)
70+	**0.35**	**(0.14–0.91)**	**0.36**	**(0.14–0.93)**
Citizenship				
US-born citizen	ref	—	ref	—
Naturalized	0.99	(0.69–1.43)	1.01	(0.70–1.46)
Non-citizen	1.05	(0.70–1.58)	1.05	(0.69–1.59)
Educational attainment				
Bachelor's degree or greater	ref	—	ref	—
Some college	0.84	(0.57–1.23)	0.85	(0.58–1.25)
High school or vocational school	0.77	(0.57–1.04)	0.78	(0.58–1.04)
Less than high school	0.64	(0.39–1.05)	0.64	(0.39–1.06)
Location				
Urban	ref	—	ref	—
Rural	0.99	(0.68–1.43)	0.99	(0.68–1.43)
Income				
>300% Poverty level	ref	—	ref	—
200–299% Poverty level	**1.62**	**(1.15–2.28)**	**1.63**	**(1.15–2.29)**
100–199% Poverty level	**1.57**	**(1.14–2.18)**	**1.58**	**(1.14–2.20)**
0–99% Poverty level	**1.71**	**(1.20–2.42)**	**1.72**	**(1.21–2.44)**
Insurance type				
Employment-based	ref	—	ref	—
Privately purchased	1.22	(0.79–1.89)	1.21	(0.78–1.86)
Medicaid	**1.58**	**(1.17–2.13)**	**1.58**	**(1.17–2.13)**
Medicare only	1.24	(0.59–2.63)	1.23	(0.58–2.60)
Medicare and Medicaid	**1.83**	**(1.06–3.18)**	**1.82**	**(1.05–3.16)**
Medicare and others	1.59	(0.90–2.83)	1.57	(0.88–2.80)
Other public	1.57	(0.61–4.04)	1.58	(0.61–4.12)

Table 2 (continued)

	Outcome: Whether respondents would get better healthcare if they were of a different race (Yes/No)[a]			
Uninsured	1.35	(0.94–1.93)	1.37	(0.96–1.95)
English proficiency				
Very well	ref	—	ref	—
Well	1.14	(0.76–1.70)	1.14	(0.76–1.70)
Not well	1.27	(0.81–1.99)	1.27	(0.81–1.98)
Not at all	0.97	(0.49–1.91)	0.97	(0.49–1.91)
General self-rated health condition				
Excellent	ref	—	ref	—
Very good	0.83	(0.59–1.17)	0.83	(0.59–1.18)
Good	1.03	(0.71–1.49)	1.03	(0.71–1.50)
Fair	1.42	(0.97–2.08)	1.42	(0.97–2.09)
Poor	**2.40**	**(1.46–3.93)**	**2.41**	**(1.46–3.97)**
Chronic condition				
No	ref	—	ref	—
Yes	1.22	(0.99–1.51)	1.24	(1.00–1.53)
Year				
2015	ref	—	ref	—
2016	1.11	(0.86–1.44)	1.12	(0.86–1.44)
2017	1.14	(0.89–1.46)	1.14	(0.89–1.46)

Bold represents significant associations

OR = Odds ratio; CI = confidence interval

Ref = reference category

the only ethnic subgroup associated with not having a usual source of care. Self-reported discrimination was associated with not having a usual source of care, although borderline insignificant. Finally, interaction analysis showed a significant interaction for Chinese or Japanese race with foreign-born status on an outcome of self-reported discrimination.

In this study, we found an association between Black and Hispanic groups and self-reported discrimination. Notably, Black respondents had the highest percentage of self-reported discrimination (~ 14%) and the greatest odds ratio of self-reported discrimination compared to non-Hispanic Whites (5.41) out of all racial groups. These findings corroborate previous findings of self-reported discrimination among Black, Hispanic, American Indian, and Alaskan Native populations [22–24]. An association between Asian Americans as an aggregated group and perceived discrimination was also found in this study and corroborates previous studies [25–27]. However, this study further advances the literature by identifying an association between greater perceived discrimination and specific Asian ethnic subgroups, particularly Koreans and Japanese.

Unique historical, geographic, and cultural factors may moderate the role of day-to-day exposure in creating experiences and opportunities for discrimination, heightening awareness of discrimination in a healthcare setting [28, 29]. For example, Japanese Americans are more likely to intermarry and be more assimilated compared to other Asian ethnic subgroups [30]. Furthermore, Japanese American communities are dispersed throughout American cities and towns [31], as evidenced by the loss of Japantowns in California [32]. This lack of centralized Japanese communities and loss of protective ethnic enclaves may contribute to more day-to-day interactions with other racial populations, and thus more chances for discrimination. Similarly, many Korean communities across America are decentralized like Japanese communities, which may result in greater discrimination [33]. Korean Americans are also predominantly small business owners and may have more day-to-day interactions with other racial populations [34]. Conversely, Filipino Americans come from a predominantly English-speaking country and are therefore more acculturated due in part to the Philippines' American colonialist history. In addition, the religious affiliation of most Filipinos is Catholic or Christian, which is more aligned with Christian ethics in the USA given historical roots in Spanish and American colonialism in the Philippines [35]. These factors may allow Filipinos to navigate more easily in American society, and thus identifying as Filipino may convey a protective effect against perceived discrimination in a healthcare setting as seen in this study. This benefit may be especially pronounced in a healthcare setting, since nearly a fifth of registered nurses in California are Filipino [36]. This discussion of historical,

Table 3 Logistic regression showing association with not having a usual source of care: California Health Interview Survey 2015–2017 (N = 62,965) weighted estimates

	Outcome: Not having a usual source of care (Yes/No)[a]			
	Model 1		Model 2	
	OR	95% CI	OR	95% CI
Discrimination				
No	ref	—	ref	—
Yes	1.25	(0.99–1.57)	1.25	(0.99–1.58)
Race				
White	ref	—	ref	—
Asian[2]	1.16	(0.93–1.45)	—	—
Chinese	—	—	1.07	(0.73–1.56)
Filipino	—	—	1.21	(0.85–1.72)
Korean	—	—	**2.10**	**(1.23–3.60)**
Japanese	—	—	0.90	(0.47–1.73)
Vietnamese	—	—	1.32	(0.75–2.30)
Other Asian race	—	—	0.91	(0.61–1.37)
Black	1.11	(0.84–1.46)	1.11	(0.84–1.47)
Hispanic	1.06	(0.90–1.26)	1.07	(0.90–1.27)
AIAN	0.87	(0.32–2.37)	0.87	(0.32–2.37)
Other race	1.00	(0.72–1.40)	1.01	(0.72–1.40)
Gender				
Male	ref	—	ref	—
Female	**0.55**	**(0.50–0.62)**	**0.55**	**(0.49–0.61)**
Age				
18–29	ref	—	ref	—
30–39	**0.64**	**(0.53–0.79)**	**0.65**	**(0.53–0.79)**
40–49	**0.54**	**(0.45–0.66)**	**0.54**	**(0.45–0.66)**
50–59	**0.35**	**(0.29–0.42)**	**0.35**	**(0.29–0.42)**
60–69	**0.34**	**(0.26–0.45)**	**0.34**	**(0.25–0.45)**
70+	**0.38**	**(0.27–0.55)**	**0.38**	**(0.26–0.55)**
Citizenship				
US-born citizen	ref	—	ref	—
Naturalized	0.87	(0.70–1.07)	0.87	(0.70–1.07)
Non-citizen	1.20	(0.90–1.61)	1.21	(0.90–1.62)
Educational attainment				
Bachelor's degree or greater	ref	—	ref	—
Some college	0.89	(0.73–1.08)	0.89	(0.73–1.07)
High school or vocational school	1.04	(0.88–1.22)	1.03	(0.88–1.22)
Less than high school	1.27	(0.97–1.67)	1.28	(0.98–1.67)
Location				
Urban	ref	—	ref	—
Rural	1.08	(0.87–1.33)	1.08	(0.88–1.34)
Income				
> 300% Poverty level	ref	—	ref	—
200–299% Poverty level	1.26	(1.04–1.54)	1.26	(1.03–1.53)
100–199% Poverty level	1.27	(1.08–1.49)	1.27	(1.08–1.49)
0–99% Poverty level	**1.46**	**(1.23–1.74)**	**1.46**	**(1.23–1.74)**

Table 3 (continued)

	Outcome: Not having a usual source of care (Yes/No)[a]			
	Model 1		Model 2	
	OR	95% CI	OR	95% CI
Insurance type				
Employment-based	ref	—	ref	—
Privately purchased	**1.75**	**(1.39–2.19)**	**1.73**	**(1.38–2.17)**
Medicaid	**1.81**	**(1.52–2.15)**	**1.79**	**(1.51–2.13)**
Medicare only	**1.90**	**(1.15–3.15)**	**1.90**	**(1.15–3.16)**
Medicare and Medicaid	**1.38**	**(1.00–1.90)**	1.37	(0.99–1.89)
Medicare and others	**0.68**	**(0.47–0.98)**	**0.68**	**(0.47–0.99)**
Other public	1.23	(0.80–1.88)	1.21	(0.79–1.86)
Uninsured	**5.10**	**(4.17–6.24)**	**5.07**	**(4.14–6.20)**
English proficiency				
Very well	ref	—	ref	—
Well	1.14	(0.92–1.42)	1.14	(0.91–1.42)
Not well	**1.39**	**(1.04–1.85)**	**1.36**	**(1.00–1.83)**
Not at all	**1.51**	**(1.07–2.12)**	**1.48**	**(1.05–2.10)**
General self-rated health condition				
Excellent	ref	—	ref	—
Very good	0.84	(0.68–1.04)	0.84	(0.68–1.04)
Good	0.87	(0.71–1.07)	0.87	(0.71–1.07)
Fair	0.85	(0.67–1.08)	0.85	(0.67–1.08)
Poor	1.07	(0.79–1.44)	1.06	(0.79–1.43)
Chronic condition				
No	ref	—	ref	—
Yes	0.68	(0.58–0.80)	0.69	(0.59–0.80)
Year				
2015	ref	—	ref	—
2016	1.10	(0.96–1.27)	1.11	(0.96–1.27)
2017	0.94	(0.81–1.08)	0.94	(0.81–1.08)

Bold represents significant associations

OR = Odds ratio; CI = confidence interval

Ref = reference category

geographic, and cultural factors also speaks to a limitation—this study does not capture racial or ethnic patient-provider concordance, which has been linked to increased healthcare utilization and access [37]. Racial or ethnic concordance may be a confounding factor in our model, as it has been shown that Asian Americans prefer providers who are of the same race or ethnicity as them [38, 39].

We found an interactive effect of race with foreign-born status on self-reported discrimination in a healthcare setting for Chinese respondents and Japanese respondents. Previous studies support the notion that generational acculturation plays an important role in reducing perceived discrimination. Complex historical, political, and economic contexts of migration may also modify the relationship between foreign-born status and discrimination [40, 41]. Chinese

Table 4 Logistic model showing interaction between race and foreign-born status with outcome self-reported discrimination in a healthcare setting: California Health Interview Survey 2015–2017 (N = 62,965) weighted estimates[a]

	Outcome: Whether respondents would get better healthcare if they were of a different race (Yes/No)	
	OR	95% CI
Race		
White	ref	—
Chinese	0.33	(0.11, 0.93)
Filipino	1.11	(0.36, 3.42)
Korean	0.80	(0.04, 16.55)
Japanese	1.91	(0.82, 4.44)
Vietnamese	0.25	(0.02, 3.65)
Other Asian race	2.08	(0.62, 6.94)
Black	5.56	(3.48, 8.88)
Hispanic	2.15	(1.36, 3.40)
Other race	3.24	(2.06, 5.08)
Foreign-born		
No	ref	—
Yes	0.97	(0.55, 1.71)
	ROR	95% CI
Interaction term		
Chinese:Foreign[b]	**7.42**	**(1.7, 32.32)**
Filipino:Foreign	0.70	(0.15, 3.20)
Korean:Foreign	3.95	(0.16, 100.64)
Japanese:Foreign[c]	**4.15**	**(0.82, 20.95)**
Vietnamese:Foreign	7.78	(0.43, 141.48)
Other Asian race:Foreign	1.32	(0.28, 6.29)
Black:Foreign	0.59	(0.17, 2.04)
Hispanic:Foreign	0.91	(0.48, 1.72)
Other race:Foreign	1.68	(0.21, 13.34)

[a]Control variables include gender, age, citizenship status, educational attainment, location, income, insurance type, English proficiency, general self-rated health condition, presence of a chronic condition, and survey sample year

[b]significant interactive effect

[c]marginally significant interact effect

OR = Odds ratio; ROR: ratio of odds ratios

CI = Confidence interval; Ref = reference category

respondents were the only group that showed a significant interactive effect, which may be due to the Chinese diaspora and unique factors affecting Chinese immigrants. However, a more practical explanation is that the Asian ethnic subgroup with the largest number of respondents was Chinese, allowing for sufficient power in our interaction analysis. As seen in Fig. 1, Korean, Japanese, and Vietnamese respondents had a visible difference in mean percent reported discrimination between foreign-born and not foreign-born respondents,

suggesting that an interactive effect may be detectable with a larger sample size. Conversely, Filipinos showed a decrease in mean percent reported discrimination between foreign-born and not foreign-born. This finding may be explained again by Filipino American acculturation, coming from a predominantly English-speaking country.

There was a positive association between discrimination and not having a usual source of care after controlling for covariates, although this finding was borderline insignificant. This finding corroborates other studies which show that self-reported discrimination was associated with other health utilization measures such as usage of preventative health services [42] and delaying/forgoing medical care and prescriptions [11]. In general, no race or ethnic subgroup in our study was associated with not having a usual source of care after adjusting for covariates. This finding follows previous analyses that social factors explain disparities with not having a usual a source of care, instead of racial or ethnic differences [43, 44]. However, these studies did not examine disaggregated data by Asian ethnic subgroup. Our analysis of disaggregated Asian ethnic subgroups found that Koreans were associated with not having a usual source of care after adjusting for insurance coverage and self-reported discrimination—a finding consistent with a previous study [17]. Koreans have unique cultural factors that may lead them to not have a usual source of care. These factors include a reliance on traditional medicine, specific beliefs about the value of healthcare in the USA, and, most importantly, the reliance on medical tourism for care instead of care in the USA [45, 46].

It is important to place our findings in the context of post-Affordable Care Act (ACA) expansion in California. While self-reported discrimination in a healthcare setting has decreased within the last decade [47], this study shows that significant disparities among different racial groups persist. Furthermore, comparisons between pre- and post-ACA expansion have shown uneven improvements in health service utilization and access [17, 48, 49], as evidenced in our study by Koreans reporting not having a usual source of care. Even though the ACA reduced uninsurance rates among Asian Americans [50], our findings show that health disparities remain for Asian Americans which need to be addressed post-expansion. Furthermore, this study also highlights the necessity of Asian American data disaggregation to understand differences across Asian ethnic subgroups. These subgroups may experience unique healthcare disparities given cultural and historical differences [8].

The association between self-reported discrimination and not having a usual source of care further reinforces the finding that self-reported experiences of discrimination lead to decreased healthcare access [2, 5]. Our findings can be used to help develop interventions that meet the specific needs of Asian ethnic subgroups in a post-ACA era. Interventions

Fig. 1 Interaction between race and foreign-born status on self-reported discrimination in a healthcare setting through mean % predicted reported discrimination: California Health Interview Survey 2015–2017 (N = 62,965) weighted estimates. *Depicts significant interactive effect between race and foreign-born status compared to non-Hispanic White, †Depicts marginally significant interactive effect between race and foreign-born status compared to non-Hispanic White
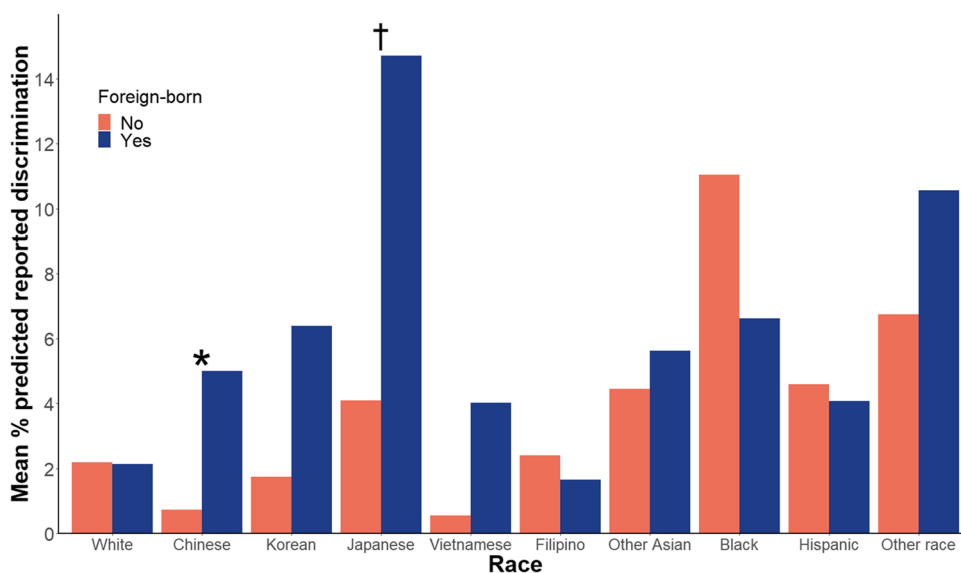
already in development to reduce the negative effects of discrimination on health include value affirmation programs, anti-racism counter-marketing campaigns, and forgiveness exercises [5]. In particular, community-based organizations will play an essential role in reducing health disparities among Asian Americans by providing culturally appropriate resources specific to Asian ethnic subgroups [51–54].

There are limitations in this study. It was difficult to interpret results within the "Other Asian" category, as this category includes many Asian American populations such as South Asians (including Bangladeshi, Bhutanese, Goanese, Indian, Pakistani, and Sri Lankan Americans), Southeast Asians (including Thai, Burmese, Hmong, Malaysian, Cambodian, Indonesian, and Laotian Americans), and individuals identifying as two or more Asian subgroups. Since South Asian data were available only in the 2015–2016 CHIS dataset, a sensitivity analysis was conducted with South Asians included. South Asians reported no difference compared to non-Hispanic Whites with an outcome of self-reported discrimination as well as with an outcome of not having a usual source of care. Furthermore, there was no significant interactive effect between South Asians and foreign-born status on self-reported discrimination. There was also no change in significance or direction for most findings with the incorporation of South Asians in the logistic regression models. Much like Filipinos, many South Asians come from an English-speaking country, which may confer a protective effect when considering day-to-day interactions and opportunities for internalizing discrimination in a healthcare setting.

Another limitation is the cross-sectional survey design, which makes temporality difficult to ascertain. This will be an area of future study, for example, whether discrimination primarily leads to not having a usual source of care or vice versa. The use of a single question in this survey to measure self-reported discrimination does not capture chronicity, recurrence, severity, or duration. Discrimination is not a yes or no response, but a continuum that may have varying effects in different contexts [55]. Furthermore, self-reported discrimination is subject to reporting bias, although it can be useful to study because it has been linked to negative health outcomes [56]. Better methodology to capture self-reported discrimination is an active area of future research.

Finally, this survey sample is from California, limiting generalizability to the wider US population. However, CHIS has been essential in studying differences between Asian American ethnic subgroups, as approximately 30% of Asian Americans in the USA live in California. Given smaller population sizes in states other than California, Asian Americans in other states may experience more discrimination in a healthcare setting and may not have a usual source of care because they have less ethnic community and community-based organization support. Furthermore, California has one of the most generous medical and social safety nets, and Asian Americans in other states (especially those foreign-born) may not have adequate healthcare access comparatively.

Conclusion

Our findings highlight the need to incorporate disaggregated Asian American ethnic subgroups in analyzing self-reported discrimination in a healthcare setting and not having a usual source of care. Differences between Asian American ethnic subgroups and foreign-born status in self-reported discrimination and not having a usual source of care may be explained by unique sociocultural, geographic, and historical

factors. Further studies are needed to better understand the differences between Asian American ethnic subgroups to ensure that all individuals in the USA have equitable access to healthcare.

Data Availability The California Health Interview Survey is publicly available from the UCLA Center for Health Policy Research.

Code Availability Not applicable.

Declarations

Ethics Approval IRB approval was not needed as a public dataset with non-identifiable data was used.

Consent to Participate Not applicable.

Consent for Publication Not applicable.

Conflicts of Interest/Competing Interests The authors have no conflicts of interest to report.

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