

Effect of Acculturation on Variations in Having a Usual Source of Care Among Asian Americans and Non-Hispanic Whites in California

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The percentage of Asian Americans having a primary care provider has been persistently lower than that of Whites (68.4% vs 76.7%, respectively, in 2009).¹ This disparity is important because having a usual source of care (USC) has consistently been associated with increased utilization of primary care services and better health outcomes.²⁻⁵ Asian Americans are disproportionately burdened because of their increased risks of easily preventable and chronic diseases.⁶ Because Asian Americans are the fastest growing minority population in the United States,⁷ understanding their health care access is important for improving health and health care outcomes of Asian Americans.

The literature has revealed persistent disparities in access to care, specifically having a USC, between Asian Americans and non-Hispanic Whites.^{8,9} However, few studies have explored what factors influence this disparity. Variation in behavior to access health care among immigrants has been attributed to linguistic barriers and the lack of familiarity and comfort with the US health care system.¹⁰⁻¹⁴ Given the high percentage of immigrants among Asian Americans (66% in 2012¹⁵), studies of Asian Americans should consider the cultural and psychological effects of immigration and acculturation.^{12,13,16-19} Commonly used measures of acculturation are English language proficiency and length of residence.^{11,20,21} Both measures have been found to significantly influence access to care and are often included in survey data studies.^{11,13,20,22,23} Conceptualizations of acculturation also recognize the importance of understanding how communities might affect health and access to care.^{20,24-26} Ethnic neighborhoods (communities with high proportions of ethnic minorities) provide cultural goods and social ties that may alter adaptation to a new culture and may serve as a primary resource of

Objectives. We examined variations in having a usual source of care (USC) among non-Hispanic White and Asian American adults in California.

Methods. Data were from the 2005 and 2009 California Health Interview Survey. Using a modified Anderson model, we used multiple logistic regression to compare odds of having a USC between non-Hispanic White ($n = 38\,554$) and Asian American adults ($n = 7\,566$) and to examine associations with acculturation factors (English proficiency, length of residence, residence in a racially concordant neighborhood) and key enabling (employment, income, insurance) and predisposing (education) factors.

Results. Race-related disparities between Asian Americans and non-Hispanic Whites in having a USC were no longer significant after accounting for acculturation factors. Limited English proficiency and short time in the United States (< 5 years) were significantly associated with not having a USC for both races. Increasing levels of education and insurance were not associated with better access among Asian Americans.

Conclusions. Key differences exist in how Asian American and non-Hispanic White adults access care. Acculturation factors are key drivers of disparities and should be included in access-to-care models with Asians. Insurance and education are differentially significant for Asian Americans and non-Hispanic Whites. (*Am J Public Health.* 2015;105:398-407. doi:10.2105/AJPH.2014.301950)

health knowledge for immigrants and less-acculturated individuals.^{20,25,27}

The Andersen health behavioral model is the most widely used model to study access to health services.²⁸⁻³⁰ For the general population, an individual's propensity (predisposing characteristics), means (enabling resources), and need for health care services are all associated with having a USC.³⁰⁻³⁴ In the general population, earlier studies have found the following predisposing characteristics to be positively associated with having a USC: older age, female gender, married, and more education.³²⁻³⁵ Among enabling resources and need, having health insurance, employment, higher household income, and higher health need have been positively associated with access to care.^{4,32,33,35,36} Although modified Andersen models that include acculturation have been proposed, these models have not been standardized and generally include a mix of

predisposing and enabling factors that are specific to the minority population studied.^{11,18,37-41} Many studies have found longer length of residence to be positively associated with access to care,^{12,18,42,43} but findings for English proficiency have been mixed, and population-level research on the impact of ethnic neighborhoods on access among Asian Americans is lacking.^{11,23,26,37,42,44} Additionally, relationships among commonly used predisposing and enabling factors and having a USC are not well established in Asian Americans.^{29,30} Although, on average, Asian Americans have high socioeconomic status, they also have higher rates of poverty, unemployment, and lack of insurance than non-Hispanic Whites.⁴⁵⁻⁴⁷ Although health insurance significantly influences access among all Asian Americans,⁴⁸⁻⁵¹ associations among access to care and education, income, and employment for Asian Americans are unclear.^{11,48-53}

The lack of research on and clarity regarding access to care for Asian American adults suggests that a better understanding of the associations among having a USC, acculturation factors, and predisposing and enabling factors for Asian Americans is needed. In this study, we aimed to (1) determine whether Asian American adults are less likely to have a USC than non-Hispanic White adults and (2) examine how acculturation and key predisposing and enabling factors differentially influence having a USC in non-Hispanic White and Asian American adults. Although previous research has largely focused on personal acculturation measures, we also included environmental influences to more fully understand the effect of acculturation on having a USC.

METHODS

Data are from the 2005 and 2009 California Health Interview Survey, a biennial, cross-sectional, random-digit-dialed telephone survey representing the noninstitutionalized population in California. We aggregated 2 years of data to ensure statistical power and excluded the 2007 survey because of concerns about differences in phrasing before the question regarding having a USC (California Health Interview Survey Data Access Center, written communication, March 19, 2012). The California Health Interview Survey uses a multistage sample design, with oversampling of smaller ethnic groups. Interviews were conducted in English, Spanish, Chinese (Mandarin and Cantonese), Korean, and Vietnamese to increase sample representativeness.⁵⁴⁻⁵⁶

Comparable with other surveys in California, response rates were 26.9% and 15.6% in 2005 and 2009, respectively.^{57,58} Most study variables had less than 3% missing, except for income, which had more than 20%. The California Health Interview Survey imputed missing data using model-based hot deck imputation or valid replacement values when possible.^{54,55} The study sample was restricted to non-Hispanic White and Asian American adults (aged 18–64 years). The unweighted sample included 46 121 adults (38 555 non-Hispanic Whites and 7566 Asian Americans).

Measures

The dependent variable was whether the respondent currently had a USC other than the

emergency department. We coded those with a USC as 1 and those without a USC or who identified the emergency department as their USC as 0.

The main independent variable was self-reported race (non-Hispanic White or Asian American). The key predisposing characteristic was educational attainment (less than high school; high school graduate or General Educational Development; some college, an associate of arts, or vocational school; college graduate; or graduate school).

Key enabling resources were household income, employment status, and health insurance status. We adjusted annual household income by household size and categorized it as less than 100% of federal poverty level (FPL), 100% to 199%, 200% to 299%, or 300% or more; this was based on US Census Bureau's poverty thresholds. Current employment status was divided into employee, self-employed, unemployed, or not in the labor force. Current health insurance status was categorized as employment based, other private, Medicaid (Medi-Cal), other public insurance, and uninsured.

We assessed acculturation using English language proficiency, length of residence, and residence in a race-concordant neighborhood. Self-reported English proficiency was dichotomized as high (English only, very well, well) and limited (not well or not at all). Length of residence combined nativity and years in the United States and categorized respondents as US-born, recent immigrant (< 5 years), mid-tenure immigrant (5–14 years), or long-tenure immigrant (≥ 15 years). Residence in a race-concordant neighborhood was constructed by linking survey respondents' census tract to 2010 US Census Summary File 1 to determine the percentage of same-race residents in the tract. We coded respondents with 40% or more race concordance as living in high race-concordant neighborhoods and those with less than 40% race concordance as living in low race-concordant neighborhoods.⁵⁹ All models were adjusted for age, gender, marital status, household size, health status, and survey year.

Statistical Analyses

We used the χ^2 test to test differences between non-Hispanic Whites and Asian Americans. Multiple logistic regression models

were used to examine the independent associations of key predisposing, enabling, and acculturation factors on having a USC.

We constructed 2 sets of models to examine variations across and within race. The first set included the total sample, and the second set stratified the data by race. Within each set, we built 3 models to assess how systematic inclusion of factors changed associations. Model 1 included the predisposing characteristic—educational attainment—and demographic factors. Model 2 added the enabling resources—employment status, insurance, and income. Model 3 added the acculturation factors—language proficiency, length of residence, and residence in a racially concordant neighborhood. We used the adjusted Wald test to test whether the inclusion of new factors improved model fit.

Survey weights were used to adjust for the complex survey design. Analyses were conducted with Stata version 12.0 (StataCorp LP, College Station, TX).

RESULTS

We found statistically significant associations between Asian American and non-Hispanic White adults in California for most descriptive characteristics and key predisposing, enabling, and acculturation factors (Tables 1 and 2). The Asian American sample was more female, younger, and of poorer health and had larger household sizes than the non-Hispanic White sample. We observed no difference in marital status.

Asian Americans had both higher and lower observed levels of educational attainment; approximately 54% had at least a college degree and 8% had less than a high school diploma compared with 44% and 4%, respectively, among non-Hispanic Whites. Although non-Hispanic Whites and Asian Americans had similar percentages of total employment (75% vs 73%, respectively), more Asian Americans were uninsured (16% vs 11%) and were below 200% FPL (27% vs 15%). Regarding acculturation, 18% of Asian Americans had limited English proficiency and 72% were immigrants. A substantially higher proportion of non-Hispanic Whites lived in race-concordant neighborhoods than Asian Americans (76% vs 28%). More non-Hispanic Whites than Asian Americans had a USC (88% vs 83%).

TABLE 1—Descriptive Characteristics of Non-Hispanic White and Asian American Adults Aged 18–64 Years: California Health Interview Survey, 2005 and 2009

Characteristic	Non-Hispanic White, No. or % (95% CI)	Asian American, No. or % (95% CI)	<i>P</i> ^a
Unweighted study population	38 555	7566	
2005	19 765	3545	
2009	18 790	4021	
Gender			< .01
Male	50.1 (50.1, 50.1)	47.1 (46.6, 47.6)	
Female	49.9 (49.9, 49.9)	52.9 (52.4, 53.4)	
Age, y			< .01
18–24	12.3 (11.7, 12.9)	17.6 (16.1, 19.3)	
25–34	17.3 (16.6, 18.1)	24.5 (22.7, 26.4)	
35–44	22.5 (21.8, 23.1)	24.8 (23.2, 26.5)	
45–54	25.9 (25.3, 26.5)	20.3 (18.9, 21.7)	
55–64	22.0 (21.6, 22.4)	12.8 (11.8, 13.8)	
Marital status			.61
Married	58.2 (57.4, 59.0)	58.8 (56.7, 60.8)	
Not married	41.8 (41.0, 42.6)	41.2 (39.2, 43.3)	
Health status			< .01
Excellent, very good, or good	89.7 (89.2, 90.2)	85.0 (83.5, 86.3)	
Fair or poor	10.3 (9.8, 10.8)	15.0 (13.7, 16.5)	
Household size			< .01
1 person	12.8 (12.3, 13.3)	6.8 (5.9, 7.8)	
2 persons	31.5 (30.8, 32.3)	19.9 (18.2, 21.7)	
3 persons	21.5 (20.8, 22.3)	23.3 (21.6, 25.1)	
4 persons	21.0 (20.3, 21.6)	26.3 (24.6, 28.1)	
≥ 5 persons	13.1 (12.5, 13.8)	23.8 (21.7, 25.9)	

Note. CI = confidence interval. Sample sizes are unweighted. All percentages are weighted and might not add to 100 because of rounding.

^a χ^2 test of the overall association between race and each characteristic.

Disparities in Having a Usual Source of Care by Race

Associations between race and having a USC from the full-sample regression models revealed that Asian Americans had lower odds of having a USC than non-Hispanic Whites across all models, and the Wald test results indicated that each group of added factors significantly improved model fit (Table 3). We observed this disparity in the crude model, and it persisted across the predisposing and enabling factors (models 1 and 2) but was no longer significant after inclusion of acculturation factors (model 3). The magnitude of the disparity also decreased as more explanatory factors were included. In the crude model, the odds of having a USC were 37% lower for Asian Americans than for non-Hispanic Whites ($P < .001$). In models 1 and 2, the odds of

having a USC were 31% and 24% lower for Asian Americans, respectively ($P < .001$ and $P = .003$). Finally, in model 3, Asian Americans had 23% lower odds of having a USC, but this association was no longer statistically significant ($P = .06$).

Associations With Predisposing and Enabling Factors

The magnitude and significance of the associations between key predisposing and enabling factors and having a USC varied in stratified analyses for non-Hispanic White and Asian American adults (Table 4). Initially, almost all levels of educational attainment were significantly associated with having a USC for both races (model 1). After adjusting for key enabling resources (model 2), only non-Hispanic Whites with less than a high school

diploma had lower odds of having a USC than non-Hispanic Whites with some graduate school (adjusted odds ratio [AOR] = 0.74; $P < .05$). Among Asian American adults, all educational levels except those with less than a high school diploma had 41% to 51% lower odds of having a USC than those with some graduate school. Addition of enabling resources revealed more significant differences in associations (model 2). Compared with employees within their respective races, non-Hispanic Whites not in the labor force had 25% greater odds of having a USC, and self-employed Asian Americans had 108% greater odds. Compared with adults with employment-based health insurance, non-Hispanic Whites with other private, Medicaid, and no insurance had lower odds of having a USC (AOR = 0.64, 0.50, and 0.11, respectively; all P s < .01); Asian Americans with other private (AOR = 0.59; $P < .05$) and no insurance (AOR = 0.14; $P < .01$) had significantly lower odds. Compared with adults with household incomes 300% FPL or more, non-Hispanic Whites with incomes less than 100% FPL and 100% to 199% FPL had 39% and 34%, respectively, lower odds of having a USC, whereas only Asian Americans with an income between 100% to 199% FPL had lower odds (AOR = 0.70; $P < .05$).

Associations With Acculturation Factors

Addition of acculturation factors exposed more similarities and differences in the models (model 3). For both non-Hispanic Whites and Asian Americans, adults with limited English proficiency had 53% and 42% lower odds, respectively, of having a USC compared with proficient adults. Recent non-Hispanic White and Asian American immigrants also had significantly lower odds of having a USC than US-born adults. Residence in a race-concordant neighborhood was not significantly associated with having a USC for either race.

Small but notable changes in the statistical significance of enabling resources occurred in the Asian American model after inclusion of acculturation factors. Asian American adults with other private insurance and incomes between 100% and 199% FPL were no longer significantly different than their respective reference categories. Thus, we observed no differences in having a USC by income among

TABLE 2—Predisposing, Enabling, and Acculturation Characteristics of Non-Hispanic White and Asian American Adults Aged 18–64 Years: California Health Interview Survey, 2005 and 2009

Characteristic	Non-Hispanic White, % (95% CI)	Asian American, % (95% CI)	<i>P</i> ^a
Predisposing characteristics			
Educational attainment			< .01
Some graduate school	17.9 (17.3, 18.4)	19.7 (18.3, 21.1)	
College degree	26.9 (26.2, 27.6)	34.6 (32.7, 36.6)	
Some college	27.6 (26.8, 28.4)	18.2 (16.6, 19.9)	
High school graduate or GED	23.6 (23.1, 24.2)	19.9 (18.4, 21.4)	
< high school	4.0 (3.6, 4.3)	7.6 (6.3, 9.1)	
Enabling resources			
Employment status			< .01
Employee	61.8 (61.0, 62.6)	64.1 (62.1, 66.1)	
Self-employed	13.9 (13.3, 14.5)	9.2 (7.9, 10.5)	
Unemployed	5.1 (4.5, 5.8)	6.2 (5.1, 7.6)	
Not in labor force	19.2 (18.6, 19.8)	20.5 (19.1, 21.9)	
Insurance status			< .01
Employment based	69.1 (68.3, 70.0)	64.0 (61.7, 66.3)	
Other private	10.0 (9.4, 10.6)	9.2 (7.9, 10.6)	
Medicaid (Medi-Cal)	5.8 (5.4, 6.2)	8.1 (7.2, 9.2)	
Other public	3.7 (3.4, 4.0)	2.7 (2.0, 3.5)	
Uninsured	11.4 (10.7, 12.2)	16.0 (14.4, 17.8)	
Household income			< .01
≥ 300% FPL	73.1 (72.3, 74.0)	60.4 (58.2, 62.5)	
200%–299% FPL	11.4 (10.8, 12.1)	13.1 (11.7, 14.6)	
100%–199% FPL	9.5 (9.0, 10.1)	15.5 (14.0, 17.2)	
< 100% FPL	5.9 (5.3, 6.5)	11.0 (9.5, 12.8)	
Acculturation factors			
English proficiency ^b			< .01
High	99.7 (99.7, 99.8)	82.1 (80.7, 83.4)	
Limited	0.3 (0.2, 0.3)	17.9 (16.6, 19.3)	
Length of residence in the United States ^c			< .01
US-born	90.9 (90.2, 91.4)	28.4 (26.5, 30.4)	
Recent immigrant	0.9 (0.7, 1.2)	8.0 (6.8, 9.2)	
Mid-tenure immigrant	2.0 (1.8, 2.3)	21.5 (19.7, 23.4)	
Long-tenure immigrant	6.2 (5.7, 6.7)	42.1 (40.0, 44.2)	
Lives in race-concordant neighborhood ^d			< .01
No	24.1 (23.3, 24.9)	71.6 (69.4, 73.7)	
Yes	75.9 (75.1, 76.7)	28.4 (26.3, 30.6)	
Having a usual source of care other than ED			< .01
No	11.8 (11.1, 12.5)	17.5 (15.7, 19.5)	
Yes	88.2 (87.5, 88.9)	82.5 (80.5, 84.3)	

Note. CI = confidence interval; ED = emergency department; FPL = federal poverty level (according to US Census Bureau); GED = General Educational Development. All percentages are weighted and might not add to 100 because of rounding. ^a χ^2 test of the overall association between race and each characteristic.

^bHigh English proficiency responses included English only, very well, or well, and limited English proficiency responses included not well or poor.

^cRecent immigrants have been in the United States for < 5 years, mid-tenure immigrants have been in the United States for 5–14 years, and long-tenure immigrants have been in the United States for ≥ 15 years.

^dNeighborhoods were classified as race concordant if the percentage of the corresponding race within the resident census tract was ≥ 40%.

Asian Americans, and lower income non-Hispanic Whites still had significantly lower odds than the highest income group. Similarly, only uninsured Asian Americans had significantly lower odds of having a USC, and all insurance categories, except for other public, were significant among non-Hispanic Whites.

DISCUSSION

Using a large, population-based survey, we examined having a USC among Asian American and non-Hispanic White adults and made 2 important findings. First, acculturation factors are key drivers of the persistent disparity in having a USC. After adjusting for English proficiency, length of residence, and residence in a racially concordant neighborhood, Asian American adults were no longer significantly different than non-Hispanic White adults in having a USC. Second, different acculturation factors and key predisposing and enabling factors significantly influence whether non-Hispanic Whites and Asian Americans have a USC. We found key differences among the categories of educational attainment, insurance status, employment status, and household income. Limited English proficiency and recent immigration were associated with significantly lower odds of having a USC for both races.

We found that inclusion of acculturation factors helps explain differences in having a USC between Asian Americans and non-Hispanic Whites. Similarly, Kandula et al.⁶⁰ found that after adjusting for acculturation factors (nativity, years in the United States, speaking a language other than English at home), most Asian American ethnic subgroups were no longer significantly different than non-Hispanic Whites in likelihood of having a cancer screening. As have other studies examining how acculturation affects access to care,^{23,61} we found that adults with limited English proficiency and shorter duration in the United States have worse access. Frisbie et al.¹² and Nguyen⁶² found that Asians residing in the United States for less than 10 years had lower odds of having a USC than did US-born Asian Americans, and Leclere et al.¹⁸ found a similar association with physician contacts. Likewise, Ponce et al.²³ observed that older adults with limited English proficiency had significantly

TABLE 3—Association Between Race and Having a Usual Source of Care Other Than the Emergency Department: California Health Interview Survey, 2005 and 2009

Characteristic	Model 1, No. or AOR (95% CI)	Model 2, No. or AOR (95% CI)	Model 3, No. or AOR (95% CI)
No. (unweighted)	46 121	46 121	46 120
No. (weighted)	26 852 663	26 852 663	26 851 420
Race			
Non-Hispanic White (Ref)	1.00	1.00	1.00
Asian American	0.69** (0.58, 0.81)	0.76** (0.64, 0.91)	0.77 (0.59, 1.01)
Predisposing characteristics			
Educational attainment			
Some graduate school (Ref)	1.00	1.00	1.00
College degree	0.68** (0.56, 0.82)	0.77** (0.63, 0.94)	0.77** (0.63, 0.93)
Some college, AA, or vocational school	0.67** (0.56, 0.81)	0.98 (0.81, 1.18)	0.96 (0.80, 1.16)
High school graduate or GED	0.49** (0.41, 0.59)	0.81* (0.67, 0.97)	0.80* (0.66, 0.96)
< high school	0.39** (0.29, 0.53)	0.84 (0.60, 1.17)	0.86 (0.62, 1.19)
Enabling resources			
Employment status			
Employee (Ref)		1.00	1.00
Self-employed		1.04 (0.85, 1.26)	1.04 (0.85, 1.26)
Unemployed		0.89 (0.68, 1.17)	0.91 (0.69, 1.18)
Not in labor force		1.12 (0.95, 1.32)	1.16 (0.99, 1.36)
Insurance			
Employment-based (Ref)		1.00	1.00
Other private		0.63** (0.51, 0.77)	0.64** (0.53, 0.79)
Medicaid (Medi-Cal)		0.56** (0.42, 0.74)	0.58** (0.44, 0.77)
Other public		0.93 (0.67, 1.29)	0.93 (0.67, 1.29)
Uninsured		0.12** (0.10, 0.14)	0.12** (0.11, 0.15)
Household income			
≥ 300% FPL (Ref)		1.00	1.00
200%–299% FPL		0.90 (0.76, 1.07)	0.91 (0.77, 1.09)
100%–199% FPL		0.68** (0.56, 0.82)	0.69** (0.57, 0.84)
< 100% FPL		0.69** (0.53, 0.91)	0.72* (0.55, 0.95)
Acculturation factors			
English proficiency^a			
High (Ref)			1.00
Limited			0.71 (0.50, 1.01)
Length of residence in the United States^b			
US-born (Ref)			1.00
Recent immigrant			0.48** (0.34, 0.69)
Mid-tenure immigrant			1.12 (0.82, 1.54)
Long-tenure immigrant			1.24 (0.92, 1.67)
Residence in a racially concordant neighborhood^c			
No (Ref)			1.00
Yes			0.94 (0.80, 1.11)

Continued

access to preventive services than longer staying or US-born Mexican Americans.⁶⁵

English proficiency and length of residence are often linked because English proficiency generally improves with more time spent in the United States, yet the findings suggest that these variables represent 2 distinct barriers to health care access. Language barriers suggest underlying difficulties in communication and information seeking, and length of residence likely represents knowledge of the health care system and other cultural norms.^{11,60}

Language barriers may persist for some immigrants regardless of time in the United States, whereas other recent immigrants arrive fluent in English. Recent immigrants are especially vulnerable because 5 years must elapse for coverage eligibility for some health programs (i.e., Medicaid) and for US citizenship.^{12,66}

Differences in these barriers suggest that unique policy interventions are necessary to address disparities in access to care.

Contrary to expectations, we did not find living in a racially concordant neighborhood to be significantly associated with having a USC. Although research using Latino and Black populations has found significant associations between neighborhood concordance and access to care,^{26,59,67} the association with having a USC using a general Asian race composition indicator may be attenuated because multiple Asian American ethnic subgroups living in the same neighborhood lack cultural and language concordance. Previous research on Asian Americans found that the influences of living in an ethnic neighborhood vary by Asian American ethnic subgroup.^{68,69} More research is needed to better measure and understand the concept and effects of ethnic neighborhoods on health care access in Asian Americans.

Although our null hypothesis was that predisposing and enabling factors were associated similarly in Asian American and non-Hispanic White adults, we were able to identify notable differences in how education, insurance, employment, and income related to having a USC. For example, we observed a regressive, but largely nonsignificant, gradient in educational attainment among non-Hispanic Whites but not among Asian Americans. Instead, lower odds of having a USC persisted across almost all the education levels in Asian Americans,

higher odds of lacking a USC than proficient older adults. Other research has found that Spanish-speaking Hispanic adults have much

lower rates of having a personal doctor or USC than English-speaking Hispanic adults^{63,64} and that recent Mexican immigrants have less

TABLE 3—Continued

	Demographic factors		
Age, y,			
18-24 (Ref)	1.00	1.00	1.00
25-34	0.80* (0.65, 0.98)	0.88 (0.70, 1.12)	0.87 (0.68, 1.11)
35-44	1.42** (1.14, 1.78)	1.64** (1.27, 2.11)	1.57** (1.22, 2.03)
45-54	1.73** (1.39, 2.17)	1.92** (1.53, 2.40)	1.85** (1.47, 2.34)
55-64	2.84** (2.21, 3.64)	3.02** (2.30, 3.98)	2.85** (2.14, 3.79)
Gender			
Male (Ref)	1.00	1.00	1.00
Female	1.96** (1.73, 2.21)	1.87** (1.62, 2.16)	1.91** (1.66, 2.20)
Marital status			
Married (Ref)	1.00	1.00	1.00
Not married	0.42** (0.35, 0.49)	0.61** (0.51, 0.74)	0.58** (0.48, 0.69)
Household size			
1 person (Ref)	1.00	1.00	1.00
2 persons	1.02 (0.83, 1.25)	1.05 (0.85, 1.31)	1.04 (0.84, 1.28)
3 persons	0.94 (0.76, 1.17)	0.99 (0.78, 1.25)	0.96 (0.77, 1.21)
4 persons	1.22 (0.97, 1.54)	1.32* (1.02, 1.69)	1.27 (1.00, 1.61)
≥ 5 persons	0.88 (0.67, 1.15)	0.96 (0.72, 1.29)	0.94 (0.70, 1.26)
Health status			
Excellent, very good, or good (Ref)	1.00	1.00	1.00
Fair or poor	0.82** (0.70, 0.95)	1.01 (0.83, 1.23)	1.02 (0.85, 1.24)
Survey year			
2005	1.00	1.00	1.00
2009	0.75** (0.66, 0.85)	0.79** (0.69, 0.91)	0.78** (0.68, 0.89)
	Modeling statistics		
Adjusted Wald test	$F(4, 156) = 17.89^{**}$	$F(10, 15) = 83.11^{**}$	$F(5, 155) = 6.62^{**}$

Note. AA = Associate in Arts degree; AOR = adjusted odds ratio; CI = confidence interval; ED = emergency department; FPL = federal poverty level (according to US Census Bureau); GED = General Educational Development. For the crude model, unweighted $n = 46\ 121$, weighted $n = 26\ 852\ 663$. Asian Americans had lower crude odds than non-Hispanic White (OR = 0.63; 95% CI = 0.54, 0.73).

^aHigh English proficiency responses included English only, very well, or well, and limited English proficiency responses included not well or poor.

^bRecent immigrants have been in the United States for < 5 years, mid-tenure immigrants have been in the United States for 5-14 years, and long-tenure immigrants have been in the United States for ≥ 15 years.

^cNeighborhoods were classified as race concordant if the percentage of the corresponding race within the resident census tract was ≥ 40%.

* $P < .05$; ** $P < .01$.

suggesting that higher levels of educational attainment do not eliminate or reduce barriers to access for Asian Americans as they do for non-Hispanic Whites. Asian Americans without high school diplomas may have similar access as those with some graduate school because they may be recipients of public programs or interventions (70% of Asian American adults without high school diplomas had an income of less than 200% FPL vs 43% of comparable non-Hispanic Whites; data not shown).

Although previous studies clearly showed that having any insurance is a significant factor

in access for Asian Americans,^{11,48-50,70} we used more nuanced categorization and found insurance played a different role in having a USC for non-Hispanic Whites than Asian Americans. Compared to those with employment-based insurance, only uninsured Asian American adults had significantly lower odds of having a USC, whereas non-Hispanic Whites in almost all categories of insurance had significantly lower odds of having a USC. Our finding that self-employed Asian Americans had better access diverges from those of other studies^{48,49,71} but suggests that they value

health care access. Furthermore, Perry and Rosen⁷² observed that self-employed adults have the same rates of utilization as wage earners despite having less health insurance, possibly because of more flexible schedules and lower opportunity costs of time (i.e., foregone wages) associated with accessing care.

Finally, the lack of significance in household income among Asian Americans compared with the expected pattern of lower odds among those with lower incomes found among non-Hispanic Whites also reinforces the differences between the groups. Other studies observed this lack of significance among Asian Americans,^{49,62,68} and Choi⁶⁸ suggested that other factors, such as government policies targeting low-income groups, may alter the association between income and access for Asian Americans. In-depth assessment of education, income, employment, and insurance determined that distinct differences exist in how these factors affect having a USC in non-Hispanic Whites compared with Asian Americans, but further research is needed to establish the relationships. Because of heterogeneous cultures, histories, and languages among Asian ethnicities, how Asian American ethnic subgroups vary by key predisposing and enabling factors should also be examined to better understand the effect of diverse values and beliefs on differential patterns in access to health care.^{11,49,60,70}

Given the significant role of health insurance we found in this study, the expansion of insurance under the Patient Protection and Affordable Care Act⁷³ should help reduce the persistent disparities in accessing a USC among Asian Americans.¹⁵ In particular, the higher odds of USC among self-employed Asian Americans we observed suggest that their participation rates in the health insurance marketplaces could be strong. However, given enrollment difficulties among minority groups, targeted outreach and enrollment efforts may be needed to ensure access to health insurance coverage and having a USC.⁷⁴⁻⁷⁶ In particular, linguistically and culturally appropriate services, as recommended by the National Standards for Culturally and Linguistically Appropriate Services in Health and Health Care, can help make health care more accessible and understandable for recent immigrants and adults with limited English proficiency.⁷⁷

TABLE 4—Associations Between Predisposing, Enabling, and Acculturation Resources With Having a Usual Source of Care Other Than the Emergency Department: California Health Interview Survey, 2005 and 2009

Characteristic	Model 1, No. or AOR (95% CI)		Model 2, No. or AOR (95% CI)		Model 3, No. or AOR (95% CI)	
	Non-Hispanic White	Asian American	Non-Hispanic White	Asian American	Non-Hispanic White	Asian American
No. (unweighted)	38 555	7566	38 555	7566	38 554	7566
No. (weighted)	20 583 758	6 268 905	20 583 758	6 268 905	20 582 515	6 268 905
Predisposing characteristics						
Educational attainment						
Some graduate school (Ref)	1.00	1.00	1.00	1.00	1.00	1.00
College degree	0.80* (0.65, 0.98)	0.49** (0.31, 0.76)	0.87 (0.71, 1.06)	0.56* (0.35, 0.89)	0.86 (0.70, 1.05)	0.56* (0.35, 0.88)
Some college, AA, or vocational school	0.82 (0.65, 1.03)	0.40** (0.27, 0.58)	1.24 (0.99, 1.55)	0.49** (0.32, 0.74)	1.20 (0.96, 1.50)	0.47** (0.31, 0.72)
High school graduate or GED	0.56** (0.46, 0.70)	0.37** (0.24, 0.59)	0.92 (0.74, 1.15)	0.59* (0.37, 0.95)	0.89 (0.72, 1.11)	0.59* (0.36, 0.96)
< high school	0.40** (0.29, 0.53)	0.39** (0.21, 0.72)	0.74* (0.56, 0.98)	0.94 (0.47, 1.90)	0.72* (0.55, 0.95)	1.07 (0.52, 2.21)
Enabling resources						
Employment status						
Employee (Ref)			1.00	1.00	1.00	1.00
Self-employed			0.89 (0.73, 1.09)	2.08* (1.19, 3.64)	0.90 (0.73, 1.09)	2.12* (1.18, 3.81)
Unemployed			0.99 (0.72, 1.36)	0.62 (0.37, 1.06)	1.00 (0.73, 1.38)	0.66 (0.38, 1.12)
Not in labor force			1.25** (1.06, 1.47)	0.90 (0.64, 1.28)	1.26** (1.07, 1.49)	1.01 (0.71, 1.44)
Insurance						
Employment-based (Ref)			1.00	1.00	1.00	1.00
Other private			0.64** (0.52, 0.78)	0.59* (0.36, 0.96)	0.64** (0.52, 0.79)	0.63 (0.39, 1.03)
Medicaid (Medi-Cal)			0.50** (0.38, 0.67)	0.71 (0.42, 1.19)	0.51** (0.38, 0.67)	0.82 (0.48, 1.40)
Other public			0.90 (0.66, 1.24)	0.91 (0.37, 2.20)	0.91 (0.66, 1.25)	0.92 (0.38, 2.27)
Uninsured			0.11** (0.09, 0.13)	0.14** (0.10, 0.19)	0.11** (0.09, 0.13)	0.15** (0.11, 0.21)
Household income						
≥ 300% FPL (Ref)			1.00	1.00	1.00	1.00
200%–299% FPL			0.85 (0.68, 1.06)	0.96 (0.70, 1.31)	0.86 (0.69, 1.07)	1.01 (0.73, 1.41)
100%–199% FPL			0.66** (0.52, 0.84)	0.70* (0.51, 0.96)	0.66** (0.52, 0.84)	0.77 (0.55, 1.07)
< 100% FPL			0.61** (0.45, 0.81)	0.83 (0.51, 1.34)	0.60** (0.45, 0.81)	0.96 (0.58, 1.57)
Acculturation factors						
English proficiency ^a						
High (Ref)					1.00	1.00
Limited					0.47* (0.22, 0.98)	0.58** (0.38, 0.87)
Length of residence in the United States ^b						
US-born (Ref)					1.00	1.00
Recent immigrant					0.32** (0.20, 0.50)	0.57* (0.35, 0.95)
Mid-tenure immigrant					0.97 (0.67, 1.41)	1.22 (0.77, 1.91)
Long-tenure immigrant					1.24 (0.85, 1.82)	1.37 (0.88, 2.13)
Residence in a racially concordant neighborhood ^c						
No (Ref)					1.00	1.00
Yes					0.91 (0.77, 1.09)	1.00 (0.68, 1.46)

Continued

This study has several limitations. First, these findings may not be generalizable to all Asians in the United States. California has the highest

proportion of Asian American residents (13.1% in California vs 4.8% in the United States),⁷⁸ and its health care system may be

better adapted to serve this population. However, percentages of Asian American and non-Hispanic White adults having a USC in this

TABLE 4—Continued

	Demographic factors					
Age, y						
18-24 (Ref)	1.00	1.00	1.00	1.00	1.00	1.00
25-34	0.85 (0.67, 1.06)	0.69 (0.44, 1.08)	0.98 (0.77, 1.25)	0.63 (0.39, 1.01)	0.98 (0.77, 1.25)	0.61 (0.37, 1.02)
35-44	1.46** (1.15, 1.85)	1.32 (0.84, 2.08)	1.77** (1.39, 2.25)	1.17 (0.69, 1.98)	1.72** (1.35, 2.19)	1.07 (0.63, 1.83)
45-54	1.90** (1.47, 2.44)	1.44 (0.94, 2.20)	2.18** (1.69, 2.81)	1.26 (0.80, 1.97)	2.10** (1.63, 2.70)	1.19 (0.74, 1.91)
55-64	3.04** (2.30, 4.01)	2.41** (1.51, 3.86)	3.31** (2.50, 4.38)	2.23** (1.36, 3.66)	3.13** (2.36, 4.16)	1.94* (1.10, 3.42)
Gender						
Male (Ref)	1.00	1.00	1.00	1.00	1.00	1.00
Female	2.00** (1.77, 2.27)	1.90** (1.47, 2.46)	1.88** (1.63, 2.16)	1.92** (1.44, 2.57)	1.90** (1.65, 2.18)	2.05** (1.54, 2.74)
Marital status						
Married (Ref)	1.00	1.00	1.00	1.00	1.00	1.00
Not married	0.36** (0.31, 0.42)	0.58** (0.41, 0.82)	0.61** (0.53, 0.71)	0.65** (0.43, 0.97)	0.60** (0.51, 0.69)	0.56** (0.37, 0.85)
Household size						
1 person (Ref)	1.00	1.00	1.00	1.00	1.00	1.00
2 persons	1.02 (0.82, 1.26)	0.91 (0.51, 1.65)	1.10 (0.87, 1.39)	0.81 (0.47, 1.41)	1.10 (0.88, 1.39)	0.76 (0.44, 1.28)
3 persons	0.96 (0.77, 1.19)	0.83 (0.43, 1.58)	0.98 (0.77, 1.23)	0.87 (0.46, 1.64)	0.97 (0.77, 1.22)	0.79 (0.43, 1.46)
4 persons	1.21 (0.95, 1.55)	1.12 (0.60, 2.07)	1.31* (1.01, 1.69)	1.14 (0.61, 2.11)	1.28 (1.00, 1.65)	1.02 (0.56, 1.83)
≥ 5 persons	0.95 (0.73, 1.24)	0.74 (0.36, 1.51)	1.15 (0.88, 1.51)	0.66 (0.32, 1.33)	1.13 (0.86, 1.48)	0.60 (0.30, 1.20)
Health status						
Excellent, very good, or good (Ref)	1.00	1.00	1.00	1.00	1.00	1.00
Fair or poor	0.91 (0.75, 1.09)	0.70* (0.52, 0.94)	1.13 (0.88, 1.45)	0.83 (0.61, 1.14)	1.12 (0.88, 1.43)	0.90 (0.64, 1.27)
Survey year						
2005 (Ref)	1.00	1.00	1.00	1.00	1.00	1.00
2009	0.78** (0.68, 0.90)	0.65** (0.50, 0.84)	0.88 (0.76, 1.02)	0.62** (0.47, 0.81)	0.87 (0.75, 1.01)	0.60** (0.45, 0.79)
	Model statistics					
Adjusted Wald test	$F(4, 156) = 12.98^{**}$	$F(4, 156) = 6.31^{**}$	$F(10, 150) = 77.86^{**}$	$F(10, 150) = 19.03^{**}$	$F(5, 155) = 7.84^{**}$	$F(5, 155) = 4.57^{**}$

Note. AA = Associate in Arts degree; AOR = adjusted odds ratio; CI = confidence interval; FPL = federal poverty level; GED = General Educational Development.

^aHigh English proficiency responses included English only, very well, or well, and limited English proficiency responses included not well or poor.

^bRecent immigrants have been in the United States for < 5 years, mid-tenure immigrants have been in the United States for 5–14 years, and long-tenure immigrants have been in the United States for ≥ 15 years.

^cNeighborhoods were classified as race concordant if the percentage of the corresponding race within the resident census tract was ≥ 40%.

* $P < .05$; ** $P < .01$.

study (82.5% and 88.2%, respectively) are similar to published national percentages (83% and 86%).⁷⁹ Second, CHIS is not available in all native Asian languages (e.g., Tagalog). Respondents from ethnicities for which there are no translated surveys may be more educated and proficient in English. Third, response rates were likely very low among illegal immigrants. Despite these limitations, CHIS is the best available survey to examine Asian Americans because it oversamples Asian American populations and provides the survey in multiple native Asian languages.

The major contribution of this study was the assessment of how the disparity in having a USC between Asian American and

non-Hispanic White adults was affected by the systematic inclusion of acculturation factors and key predisposing and enabling factors. We found the racial disparity in having a USC to be statistically nonsignificant after adding acculturation factors. These findings suggest that studies assessing access to care among Asian Americans should incorporate acculturation factors because they may explain some observed disparities. We also determined that educational attainment and insurance status have very different associations with having a USC in Asian Americans compared with non-Hispanic Whites. In fact, higher educational attainment was not associated with better access and, among insurance types, only lack

of insurance was significantly associated with lack of having a USC among Asian Americans. Policymakers should be cautious with assumptions about Asian Americans based on conclusions drawn from other populations; highly educated Asian Americans may have poor access to care because individuals educated outside of the United States may not be able to find comparable work and employment-based insurance in the United States.

This study confirms the importance of including acculturation factors when assessing access to care and verifies that key factors of access to care differ between Asian American and non-Hispanic White adults in California. ■

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This article was accepted February 12, 2014.

Contributors

E. Chang conceptualized and designed the study, analyzed the data, and drafted the article. K. S. Chan conceptualized and designed the study. E. Chang, K. S. Chan, and H.-R. Han contributed to the interpretation of study findings and revised and contributed to the final draft.

Acknowledgments

This research was supported in part by an Agency for Healthcare Research and Quality dissertation grant (R36HS021684-01) to E. Chang.

The findings in this article were presented at the 2013 American Public Health Association Annual Meeting, Boston, MA, and the 2014 AcademyHealth Annual Research Meeting, San Diego, CA.

The authors thank the University of California, Los Angeles, Center for Health Policy Research for providing access to the California Health Interview Survey confidential data.

Human Participant Protection

This study was an analysis of secondary data and received an exemption from the Johns Hopkins Bloomberg School of Public Health institutional review board.

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