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Hispanic-Asian Immigrant Inequality in Perceived Medical Need and Access to Regular Physician Care

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Abstract

In the face of continuing large immigrant streams, Hispanic and Asian immigrants' human and social capital inequalities will heighten U.S. race/ethnic health and health care disparities. Using data from the 2004 and 2008 panels of the Survey of Income and Program Participation, this study assessed Hispanic-Asian immigrant disparity in access to health care, measured by perceived medical need and regular access to a physician. Logistic regression results indicated that Hispanics had lower perceived met medical need and were less likely to see a doctor regularly. These disparities were significantly attenuated by education and health insurance. Assimilation-related characteristics were significantly associated with a regular doctor visit and were not fully mediated by socioeconomic variables. Findings indicate the importance of education above and beyond insurance coverage for access to health care and suggest the potential for public health efforts to improve preventive care among immigrants.

Keywords

Health care access and utilization; Hispanic immigrants; Asian immigrants; Perceived medical need; Health care inequality

Introduction

Disparate abilities to obtain needed medical care in the U.S. are at the heart of health disparities across America's diverse population, with immigrants perhaps the most

disadvantaged. Notable social and economic diversity exists within the immigrant population, however, leading us to ask: How do perceived medical need and access to regular physician care compare for the largest immigrant groups in the U.S.? Together, Hispanics and Asians make up more than 80 % of the U.S. immigrant population [1], and in the face of continuing large immigrant streams, as well as relatively high Hispanic immigrant fertility [2], the health of the foreign-born and their offspring has important implications for overall public health. Specifically, extant race/ethnic health inequalities in the U.S. will be greatly affected by these two large and transformative immigrant groups.

Most past research on health and health care access focuses on majority–minority health differences, e.g., natives versus immigrants, whites versus blacks, or non-Hispanics versus Hispanics [3–10]. The current study compares Hispanic and Asian immigrants—immigrant streams that possess unequal levels of individual and family human and economic capital, notably in educational attainment and income. Given that these characteristics are key determinants of health care access [11], it is not surprising that Hispanic and Asian immigrants exhibit different patterns of morbidity and mortality [9]. Furthermore, while most prior studies analyze general physical health outcomes, we consider immigrant group inequalities in both perceived medical need and receipt of regular physician care.

Our study uses recent panels of the Survey of Income and Program Participation (SIPP) to address four main questions: (1) Do Hispanic and Asian immigrants differ with respect to perceived medical need and regular physician care? (2) Does socioeconomic status mediate immigrant group differences in perceived medical need and regular physician care? (3) How does immigrant assimilation relate to the immigrant group differences in perceived medical need and regular physician care? (4) Are the relationships between socioeconomic status and immigrant assimilation and the health care outcomes mediated by health insurance coverage disparities?

Background

Studies of health care access and utilization primarily draw on Andersen’s behavioral model [12], which delineates three determinants of using health care services: predisposing factors, enabling resources, and need. Predisposing factors include demographic traits (e.g., age, sex), social structure, or determinants of an individual’s social standing (e.g., education, ethnicity), and health beliefs. These factors influence the presence of enabling resources, which may be at the community (e.g., clinic availability) or personal (e.g., health insurance and income) level. To improve the relevance of Andersen’s model for Hispanics, Mejia and colleagues introduced immigrant-specific characteristics, such as years in the U.S. and acculturation generally, as enabling resources [13]. These characteristics fit with Andersen’s model well, whether one considers economic assimilation as an enabling resource aiding access to care, or as a predisposing socio-cultural characteristic that influences the social structure within which immigrants function or that influences their culturally directed health beliefs and behaviors. Andersen’s third component, need, captures the biological and social imperative that catalyzes individuals’ help seeking and consumption of health services [12].

Studying immigrants as a group may mask Hispanic and Asian immigrants' distinct socioeconomic profiles, with Asians, on average, having more enabling resources, such as more education and wealth, than Hispanics [14–18]. ACS 2010 figures indicated that only 53 % of Latin American immigrants (only 40 % of Mexican immigrants) had completed a high school degree or higher compared to nearly 84 % of Asian immigrants [18]. Similarly, immigrants from Latin America had a median family income of \$38,238 (\$35,254 for Mexican immigrants), approximately \$25,000 less than Asian immigrants, whose median family income was \$63,777 [18]. Importantly, higher educational attainment is associated with better income, and linked to a greater likelihood of having health insurance coverage. Indeed, almost a quarter of the poorest Americans with annual family incomes less than \$25,000 had no health insurance coverage in 2012, compared with just over 21 % of the next poorest income group with family incomes between 25,000 and 50,000, only 15 % of those with annual incomes between \$50,000 and \$75,000, and fewer than 8 % of the highest-income Americans [19].

In establishing the theoretical foundation for the connection between education and health, Ross and Wu [11] began by noting the well-researched and long-standing acceptance of the link, beginning with studies in the 1980s. The reason for the link, they explained, is that educational "...inequality sorts people into different positions that are associated with different risks and rewards" with different "...work and economic circumstances, social psychological resources, and lifestyle[s]..." (p. 720). These three aspects, in particular, they noted, explain why the socioeconomically advantaged tend to be healthier: the better educated are more likely to work; to work in psychologically and financially fulfilling jobs; to have self-perceptions of mastery and self-control, as well as good communications skills and problem-solving abilities; and to engage in healthier lifestyle behaviors, which include accessing preventive medical care.

In addition to socioeconomic disparities, socio-cultural differences also distinguish Hispanic and Asian immigrants, which may influence knowledge of and the perceived need for health care. For instance, as of 2010, 43 % of all Hispanics lived in Census tracts with a Hispanic majority compared to 11 % of all Asians who lived in Asian-majority Census tracts [20]. Living near more co-ethnics may abate the assimilation process by limiting immigrants' contact with natives or non-co-ethnics or may simply indicate less assimilation to mainstream behaviors. Less assimilation may be associated with reliance on traditional health remedies or low cultural recognition of a need for regular physician care [21]. Furthermore, more recently arrived—less assimilated—immigrants are at a double disadvantage in gaining health insurance coverage, an important proximate health care-enabling resource. Recent immigrants may not be as likely as established immigrants to gain coverage through employment and are ineligible for publicly provided assistance within the first 5 years of living in the U.S. in most states. Of course, segregated living among co-ethnics also has the potential to increase knowledge about and transportation resources for traveling to community health care facilities through the provision of social support from others who share language, cultural scripts for health behaviors, and a need for information to navigate an unfamiliar health care context. These competing interpretations of the role of assimilation add to the complexity of the link between assimilation and use of formal health care.

Further complicating this concept as an explanation for immigrant group differences is that the assimilation process, as articulated in its classic form [22, 23], is expected to function similarly for all recent immigrants. Nevertheless, observed differences in co-ethnic residential segregation and other work on the unique assimilation patterns of immigrants from diverse origin countries (e.g., [24, 25]) hint at possible differences in assimilation between these two immigrant groups, which may help to explain any Hispanic-Asian immigrant disparities in perceived or realized access to health care.

Given these socioeconomic and contextual differences, providing health care to Hispanic immigrants may present different challenges than it does for Asian immigrants. Consequently, Hispanic immigrants may experience lower levels of perceived met medical need and have fewer doctor visits than their Asian counterparts, which in the long run may lead to greater health problems among Hispanics. We expect that Asian immigrants, who tend to have higher educational attainment and income, on average, are better able to access health care services than Hispanic immigrants and thus, are more likely to have had their medical needs met and receive routine physician care. We therefore expect that education and income levels will mediate the Hispanic-Asian immigrant inequality in access to health care. Because immigrant assimilation is likely to elevate socioeconomic status, assimilation-related characteristics are expected to be related to access to health care. By this reasoning, any relationship between assimilation characteristics and our health outcomes is expected to be mediated by socioeconomic status. Health insurance coverage is a key enabling resource expected to increase access to health care. Because health insurance is provided primarily through employment—62.4 % of nonelderly Americans were covered by employer-sponsored insurance in 2006 [26], we anticipate that insurance coverage will mediate the relationship between socioeconomic status and access to health care. We also expect it to mediate the association of assimilation-related characteristics and health care access because of the relationships among assimilation, socioeconomic status and health insurance coverage.

Methods

Data

Data came from the 2004 and 2008 panels of the SIPP. The U.S. Census Bureau has conducted SIPP since 1984 to measure the effectiveness of existing government programs and to estimate the country's income distribution. Throughout the four-year study, interviewers collected monthly data every 4 months (wave) for all members of the sampled household. In addition to the core questionnaire, a topical module was administered at each wave to gather additional information. For the 2004 panel, the study variables came from the core questionnaire at Waves 3, 5, and 6 and the second, third, fifth, and sixth topical modules. For 2008, the corresponding sources are the core questionnaire at Waves 4 and 6 and the second, fourth, and sixth topical modules.

The analytic sample was restricted to Hispanic and Asian immigrants aged 19 and older who had a non-missing value on either dependent variable. The data were organized in long format, where each row represented a unique person-wave, in order to use as much of the original data as possible. The final individual-level sample included 15,331 person-waves,

contributed by 11,398 persons. Approximately 62 % (69 % weighted) of the individuals in the sample were Hispanic.

Study Variables

We analyzed two dichotomous measures of health care access/utilization in this study. A respondent (household) was considered to have “met need” if all household members had obtained needed health care services or did not perceive a need for health care in the past year [27]. Since this question applied to the entire household, we randomly selected one adult from each household to be included in the secondary dataset (additional details available from the author). Individuals’ perception of their health status and their relatives’ health status (potentially articulated by a physician) dictated whether and which health care services were needed.

In contrast, regular access to a doctor is a behavioral measure of whether respondents’ had had contact with a physician within the past year. Although guidelines for adult routine care differ by age, gender, and service (e.g., blood pressure check, mammogram), the benchmark of one doctor visit per year was used to indicate respondents’ regular access to health care. We expect that individuals who visit a doctor at least once a year are able to navigate the health care system and are more likely to sustain a relationship with, if not the same provider, medical providers, in general.

Our explanatory variables are shown in Table 1. Immigrant group distinguished non-Hispanic Asian immigrants from Hispanic immigrants of any race. Following previous literature, educational attainment and income were both operationalized as categorical variables. Income, or the ratio of family income to the federal poverty line (FPL), had four categories: below the poverty line (<100 % FPL), low income (100–200 % FPL), medium income (200–300 % FPL), and high income (more than 300 % FPL). Health insurance coverage was dichotomized as ever being uninsured versus having continuous insurance coverage during the past year. Age, most recent self-reported health status, marital status, and presence of children in the family were included as control variables. Pertaining exclusively to the immigrant experience, three assimilation-related characteristics were included: length of time in the U.S. (categorical), English language proficiency (dichotomous), and U.S. citizenship status (dichotomous).

Analytical Approach

Using SAS version 9, descriptive statistics were generated to summarize the study variables, and multivariate logistic regression was used to assess the association between the independent variables of interest and the two binary measures of health care access/utilization. For each outcome, we started with a bivariate model to determine if Hispanic-Asian immigrant inequality was present, and proceeded according to the research questions. Because social support is often noted as important for immigrant well-being, we included this variable in preliminary mediation analyses (not shown). However, finding that perceived social support did not play a role in explaining the immigrant group difference, we chose to exclude the indicator from our final models. Strata and cluster variables accounted for the complex sampling design and repeated measures for the same individual (SURVEY

prefix).¹ Person weights were used to accurately represent the U.S. non-institutionalized population. This study has been approved by the Penn State IRB.

Results

Descriptive Statistics

Table 1 presents descriptives for the total sample and for Hispanic and Asian immigrants separately. The person is the unit of analysis unless otherwise noted. Person-wave descriptives did not vary substantively from what is presented here. In terms of perceived medical need, 95.3 % of Asian immigrant households had met need (i.e., no unmet needs) compared to 88.8 % of Hispanic immigrant households. Similarly, Asians were more likely to have a doctor visit in the past year than Hispanics (67.4 vs. 50.4 %). Together, these findings suggest that Hispanic immigrants are at a greater disadvantage than Asian immigrants with respect to the formal health care system [28–30].

Hispanic immigrants were more likely to be younger, male, without a high school diploma or bachelor's degree, low or middle income (below 300 % FPL), ever uninsured in the past year, and of unknown length of time in the U.S. In contrast, Asian immigrants were more likely than Hispanic immigrants to be in excellent health, have a bachelor's degree, high income (300 % FPL or higher), speak English at home, and be a U.S. citizen.

There are important intra-group differences within the Hispanic and Asian immigrant samples. While the majority of Hispanics had income below 200 % FPL, almost 20 % had income greater than or equal to 300 % FPL. The reverse is true for Asian immigrants: 38.0 % of Asians had income below 200 % FPL while the majority had income in the high income category. For length of time in the U.S., most Hispanic and Asian immigrants (36.1 and 39.0 %, respectively) had lived in the country for more than 15 years. Yet, for both immigrant groups, a considerable portion had lived in the U.S. for a shorter period (38.7 % of Hispanic immigrants and 39.1 % of Asian immigrants had lived in the U.S. for five to 15 years).

Less than 5 % of both groups had lived in the U.S. for less than 5 years. Since these two groups do not vary greatly in their length of U.S. residency, this variable in particular may not explain much variation in our outcomes. Furthermore, the outcome variables will reflect primarily the experiences of immigrants who have been in the U.S. for longer periods of time.

Multivariate Logistic Regression Results

Table 2 shows regression results for models predicting perceived met medical need. In the base model, Asian immigrants had higher odds of reporting met need than Hispanic immigrants (Model 1 OR = 2.22). However, Hispanic-Asian inequality in subjective met need was attenuated to non-significance by the model covariates, namely education, income, and ever being uninsured in the past year.

¹Multiple (two) measures per individual were obtained for regular access to a doctor in the 2004 panel only.

As expected, educational attainment and income were key mediators of the relationship between immigrant group and met need. Comparing Models 1 and 2, the odds ratio for immigrant group was reduced by more than half (Model 2 OR = 1.45). In other words, if Hispanic immigrants attained the same education and income as Asian immigrants, Hispanic-Asian immigrant inequality in met need would be significantly ameliorated. Additionally, if Hispanic immigrants were as likely as Asian immigrants to be continuously insured, there would be no gap in met need between the two groups (Model 4 OR = 1.24).

The assimilation-related variables did not mediate the relationship between immigrant group and met need (Model 1 vs. Model 3). Only U.S. citizenship was significantly related to having met medical need; among U.S. citizens, the odds of reporting no unmet needs increased by almost 60 % (Model 3 OR = 1.59).

Health insurance coverage partially mediated the relationship between income and having met medical need (Model 2 vs. 4). The coefficients for the second and third income categories were no longer significant at the 5 % level when controlling for unstable health insurance. Likewise, health insurance coverage, in conjunction with education and income, attenuated the positive relationship between U.S. citizenship and met need (Model 3 vs. 5 and 6). U.S. citizenship confers greater access to health insurance (especially public varieties) which in turn reduces immigrants' likelihood of having unmet medical need. It is noteworthy that the positive association between education and perceived medical need remained significant in the full model. Controlling for the myriad covariates, having less than a high school degree decreased the odds of reporting met need by more than 40 % (Model 6 OR = 0.56).

Table 3 reports regression results for models predicting regular access to a doctor. Like for perceived medical need, in the base model, Asian immigrants had higher odds of at least one doctor visit in the past year than Hispanic immigrants (Model 1 OR = 1.75). Again, the model covariates attenuated Hispanic-Asian immigrant inequality. In the full model, Asians had *lower* odds of regular access to a medical provider than Hispanics, though not statistically significant at the 5 % level (Model 6 OR = 0.92).

Education and income mediated the relationship between immigrant group and regular access to a doctor. Controlling for education and income, in addition to the control variables, the odds of regularly visiting a doctor were only 15 % greater among Asian immigrants compared to Hispanic immigrants (Model 2 OR = 1.15). The assimilation-related variables are highly positively significantly associated with having a regular doctor visit, but they did not mediate the relationship between immigrant group and having a regular doctor visit (Model 1 vs. 3).

Even more so than for perceived medical need, health insurance coverage mediated the group difference in having a regular doctor visit, while partially mediating the associations between education, income, and the assimilation-related variables and having a regular doctor visit. However, in the full model, education, income, length of time in the U.S., English language interview, and U.S. citizenship retained significant relationships with having a regular doctor visit. Holding all other variables constant, speaking English at home

and being a U.S. citizen were associated with higher odds of visiting a doctor in the last year (Model 6 OR = 1.13 and 1.30, respectively).

Conclusion

In this study, we explored: (1) whether Hispanic and Asian immigrants exhibit different accessibility to health care, measured as their perceptions that their medical needs had been met and whether they had seen a physician in the past year; (2) whether the socioeconomic predisposing and enabling characteristics, educational attainment and income, mediate, or explain, the hypothesized immigrant group inequality; (3) whether other socio-cultural enabling factors—i.e., assimilation-related characteristics—play a role in explaining the relationship between immigrant group and our measures of health care access and utilization; and (4) whether these socioeconomic and socio-cultural factors work through health insurance coverage to increase access to health care.

Overall, for both perceived medical need and regular access to a physician, we found strong initial support for the group difference hypothesis. It is clear that Hispanic immigrants have greater difficulty accessing medical care than their Asian counterparts—they are more likely to believe that there were times they should have seen a doctor but were unable to do so, and they are less likely to report that they have seen a doctor in the past year.

Consistent with the logic of Andersen's (1995) behavioral model, key predisposing and enabling factors fully mediate the Hispanic-Asian immigrant inequality in perceived met medical need and regular access to a physician, although the process differs somewhat for each outcome. Educational attainment and income, as expected, proved to be key human and financial capital factors that explained much of the immigrant group differences in both measures of health care access, suggesting that educational and income equity would eliminate much of the health care access inequality between Hispanic and Asian immigrants. Furthermore, Andersen's proximate enabling factor health insurance coverage does not fully mediate the relationship of educational attainment with either health care access indicator. This result signifies that, although educational attainment is positively related to structural resources, its impact on how people feel about their ability to acquire needed health care and in promoting routine medical care goes beyond providing dollars for accessing care, but perhaps gives a certain sensibility about caring for oneself. Thus, our findings suggest an important potential for public health education efforts to promote preventive medical care among immigrants.

Of course, the importance of financial access to medical care provided by health insurance cannot be overlooked. In general, we found support for our research question regarding whether health insurance coverage mediates the relationships of income and assimilation-related characteristics. Furthermore, the disparity in health insurance coverage can completely explain the health care access differences between Asian and Hispanic immigrants. Since the majority of the study sample had been in the United States for more than 5 years, most of these immigrants would have had time to find a job with health benefits, if one were available. If not, in most states they would have met U.S. residency

requirements for access to federal and/or state health benefits in non-emergency situations. However, Hispanic immigrants were still much less likely to be insured.

Contrary to our hypothesis based on Mejia et al.'s expanded model for Hispanic (or immigrant) health care, assimilation indicators did not help to explain Hispanic-Asian immigrant health care access inequalities. However, our results did show that time in the U.S., English language ability, and U.S. citizenship are important determinants of access to regular physician care for both immigrant groups. As expected from past research [31–33], not speaking English at home—and by extension, poor English-speaking skills—is a particularly important barrier to seeing a doctor and this is a problem that can be solved [34], and has been addressed in many places by outreach and public policy efforts [35–37].

There are several limitations to this study. First, a number of probable determinants of immigrants' health care access were omitted: country of origin, legal status, and geographic context (traditional vs. new immigrant destination). Legal status, especially, differs considerably for Asian and Hispanic immigrant groups [38]. Although similar proportions of each group in our study sample have been in the United States for a relatively short period of time, recent Hispanic immigrants would be more likely than Asian immigrants to be undocumented. Both recent immigration and undocumented status are expected to compromise access to health insurance coverage. Nevertheless, by considering both time in the U.S. and health insurance coverage in our analysis, we capture the important mechanisms through which legal status is expected to operate. Another limitation is that the measure of perceived medical need was measured at the household rather than the individual level. However, even if the selected adult (from each household) did not forgo care personally, he or she was responsible for the health care utilization of those in the household.

Despite these limitations, our study makes an important contribution by using a nationally representative sample to consider how Hispanic and Asian immigrants differ in access to the formal health care system. Our results indicate that educational attainment and access to health insurance have critically important relationships with Hispanic-Asian immigrant health access inequalities, but that enhanced integration is also an important determinant of health care access for both groups. The policy implications of this research highlight not just immigrant access to health insurance but also the importance of education-related public health program initiatives for lower SES Hispanic immigrants.

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Table 1Characteristics of sample respondents^a

Variable (unweighted N = 11,398 persons)	Total %	Asian % (n = 4,278)	Hispanic % (n = 7,120)
No perceived medical need (vs. unmet need) ^b	90.8	95.3	88.8
Regular doctor visit (vs. no doctor visit)	55.6	67.4	50.3
Mean age (standard error)	42.0 (0.2)	45.0 (0.3)	40.7 (0.2)
Female (vs. male)	49.3	54.5	46.9
Marital status			
Married, spouse present	62.0	67.6	59.5
Married, spouse absent	3.5	3.1	3.7
Widowed	3.9	5.2	3.3
Divorced/separated	8.6	5.8	9.8
Never married	22.0	18.3	23.6
Kids in family (vs. no kids in family)	56.9	45.5	62.1
Self-reported health status			
Poor	3.3	3.2	3.3
Fair	9.5	8.0	10.2
Good	30.5	28.5	31.3
Very good	33.2	33.0	33.3
Excellent	23.6	27.3	21.9
Educational attainment			
Less than high school	32.2	9.8	42.2
High school graduate/some college	48.1	42.3	50.8
Bachelor's degree or higher	19.7	48.0	7.0
Income (as percentage of poverty line)			
Below poverty line: Less than 100 %	16.7	9.9	19.8
Low: 100–199 %	39.3	28.1	44.4
Medium: 200–299 %	15.9	13.1	17.2
High: 300 % or more	28.0	48.9	18.6
Ever uninsured (vs. never uninsured)	50.5	24.9	61.9
Length of time in U.S.			
Less than 5 years	3.7	4.5	3.3
5–15 years	38.9	39.1	38.7
More than 15 years	37.0	39.0	36.0
Unknown	20.5	17.4	21.9
English spoken at home (vs. other language)	22.5	29.4	19.4
U.S. citizen (vs. non-citizen)	41.7	57.6	34.6

Source Survey of Income and Program Participation, 2004 and 2008 panels

^a All variables were measured (and weighted) at the individual level, with the exception of household-level perceived medical need^b Unweighted N = 5,051 households (1,894 Asian households and 3,157 Hispanic households)

Table 2

Odds ratios for determinants (multivariate) of perceived met medical need

Variables	Logistic estimation					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Asian	2.22 ***	1.45 *	2.04 ***	1.24	1.47 **	1.20
Education						
Less than high school		0.42 ***		0.54 **		0.56 *
High school graduate/some college		0.52 **		0.63 *		0.62 *
Bachelor's degree or higher (reference)		–		–		–
Income as percentage of poverty line						
Below poverty line		0.40 ***		0.58 *		0.59 *
Low income		0.59 **		0.76		0.77
Medium income		0.57 **		0.68		0.68
High income (ref)		–		–		–
Years in the U.S.						
Unknown			1.06		1.14	1.14
0–4			1.00		1.14	1.10
5–15			1.05		1.14	1.14
20 and above (ref)			–		–	–
Speaks English at home			1.18		1.07	1.07
U.S. citizen			1.59 ***		1.32 *	1.25
Ever uninsured				0.34 ***	0.29 ***	0.33 ***
Female	0.97	0.97	0.92	0.93	0.90	0.91
Age	1.02 ***	1.02 ***	1.02 ***	1.01	1.01	1.01
Marital status						
Never married	0.89	0.98	0.91	0.99	0.97	0.99
Divorced/separated	0.87	0.94	0.87	0.93	0.91	0.93
Widowed	0.75	0.87	0.80	0.82	0.78	0.82
Married, spouse absent	0.53 *	0.60	0.57	0.72	0.72	0.73
Married, spouse present (ref)	–	–	–	–	–	–

Variables	Logistic estimation					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Kids in family	0.88	1.06	0.91	1.03	0.94	1.04
Self-reported health status						
Poor	0.23***	0.30***	0.24***	0.25***	0.22***	0.25***
Fair	0.40***	0.50**	0.41***	0.47***	0.42***	0.47***
Good	0.59***	0.66***	0.60**	0.69*	0.66*	0.69*
Very good	0.83	0.9	0.84	0.93	0.89	0.93
Excellent (ref)	–	–	–	–	–	–

* Significant at the 5 % level;
** significant at the 1 % level;
*** significant at the 0.1 % level

Table 3

Odds ratios for determinants (multivariate) of regular doctor visit

Variables	Logistic estimation					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Asian	1.75***	1.15**	1.61***	0.92	1.10	0.92
Education						
Less than high school		0.48***		0.63***		0.64***
High school graduate/some college		0.74***		0.86*		0.84**
Bachelor's degree or higher (reference)		—		—		—
Income as percentage of poverty line						
Below poverty line		0.43***		0.65***		0.68***
Low income		0.55***		0.73***		0.76***
Medium income		0.71***		0.86*		0.88
High income (ref)		—		—		—
Years in the U.S.						
Unknown			0.92		0.98	0.98
0–4			0.67***		0.77*	0.76*
5–15			0.74***		0.82***	0.81***
20 and above (ref)			—		—	—
Speaks English at home			1.27***		1.14*	1.13*
U.S. citizen			1.72***		1.39***	1.30***
Ever uninsured				0.28***	0.27***	0.30***
Female	2.24***	2.31***	2.12***	2.30***	2.20***	2.24***
Age	1.03***	1.03***	1.02***	1.02***	1.01***	1.01***
Marital status						
Never married	0.72***	0.81***	0.72***	0.84**	0.79***	0.83***
Divorced/separated	0.85*	0.93	0.82*	0.93	0.88	0.91
Widowed	0.76*	0.88	0.84*	0.87	0.86	0.92

Variables	Logistic estimation					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Married, spouse absent	0.42***	0.48***	0.48***	0.58***	0.58***	0.61***
Married, spouse present (ref)	–	–	–	–	–	–
Kids in family	0.91	1.02	0.90*	0.98	0.92	0.97
Self-reported health status						
Poor	7.74***	10.79***	8.60***	10.22***	9.23***	10.59***
Fair	3.01***	4.00***	3.17***	4.24***	3.73***	4.25***
Good	1.33***	1.54***	1.39***	1.68***	1.59***	1.69***
Very good	1.01	1.09	1.04	1.15*	1.12*	1.15*
Excellent (ref)	–	–	–	–	–	–

* Significant at the 5 % level;

** significant at the 1 % level;

*** significant at the 0.1 % level