ADHERENCE TO PAP TEST GUIDELINES: VARIATION AMONG ASIANS IN CALIFORNIA

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Objectives: To compare Pap screening in the previous 3 years among subgroups of Asian American women, aged 18 to 65 years.

Design: Analysis of data from the 2001 and 2003 California Health Interview Survey (CHIS), a cross-sectional population-based telephone survey.

Main Measures: The survey elicited information from major Asian subgroups, including Chinese, Filipina, Japanese, Korean, South Asian, and Vietnamese. Surveys were administered in several languages, including Mandarin, Cantonese, Korean, and Vietnamese. Employing the Andersen behavioral model of health services utilization, this study fits logistic regression models to identify correlates of Pap screening within and across Asian American subgroups. These analyses use time living in the United States and English proficiency as acculturation measures.

Results: There were different independent correlates of Pap test receipt for the six Asian subgroups. English proficiency and income were independently associated with Pap screening among only one subgroup; education, time in the US, and insurance among three; and age and usual source of care among four subgroups. Unmarried women were more likely to report not having a Pap test in the past three years across all six subgroups.

Conclusions: Based on these differences, programs and policies targeting the health of Asian American women should consider tailoring interventions to match the needs of different ethnic groups. Specifically, program materials should strive to be both culturally sensitive and linguistically appropriate for all target populations. (*Ethn Dis.* 2009;19:425–432)

Key Words: Asian Americans, Screening, Uterine Cervical Neoplasms, Vaginal Smears

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INTRODUCTION

To anticipate national healthcare needs over the next half-century, policymakers must appreciate changes in the racial/ethnic composition of the US population. According to recent projections,[1] within 30 years, the nation will resemble the present diversity of California. Thus, differences in care-seeking behaviors among various groups in California can inform discussion about managing the nation's health. The dynamics of healthcare utilization related to cervical cancer are worth examining because the condition disproportionately affects low-income women, is highly treatable if identified early, and can be detected with simple technologies. The US Preventive Services Task Force (USPSTF) guidelines recommend a Pap test at least once every three years for women without history of hysterectomy.[2] These guidelines are applicable three years after the onset of sexual activity, or age 21, whichever comes first, through age 65. In 2003, 79% of women in the United States had a Pap test in the preceding three years.[3]

Our study focuses on receipt of Pap tests by Asian American women living in California. In 2003, Asian American women reported the lowest Pap screening rate among a nationally representative sample, while other minorities had screening rates higher than non-Hispanic Whites.[3] Although research has examined barriers and facilitators to Pap screening, only a few studies have focused specifically on different Asian American ethnic groups.[4–11] Our study uses a large, population-based sample of Asian American women living in California during 2001 and/or 2003. Our primary objective was to assess whether Asian American women from different ethnic backgrounds have similar risk factors for non-adherence to the USPSTF guidelines for Pap screening.

To understand determinants of Pap screening, this study employs the Andersen behavioral model.[12] This model depicts health services utilization as a function of individuals' predisposition to use services, the characteristics and resources that enable (or impede) service use, and the perceived need for care. Of particular relevance to the present study, a woman's cultural background is an important predisposing factor that may affect whether she seeks preventive care such as Pap tests.[4] Accordingly, across different Asian American groups, Pap screening may be closely linked to ethnicity and acculturation.[5] Acculturation entails adoption of values, beliefs, and behaviors of the majority group with increasing contact. In this study, acculturation is measured as the time spent living in the United States, and English proficiency. For example, cancer screening may not be understood by immigrant women who did not experience such practices in their native country. Similarly, interactions with healthcare providers may not have resulted in accurate knowledge about preventive care due to language barriers and different attitudes about when to receive services – Asian American women may have a tendency to wait for physical symptoms before seeking care, and cervical cancer is often asymptomatic. Furthermore, women from non-Western cultures who perceive a need for healthcare may prefer alternative medical treatment and traditional healers.[12,13] These predisposing characteris-

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tics may affect both expectations and information exchange with providers.

Minority women may also have different enabling characteristics that directly affect the receipt of care. For instance, underutilization of recommended health services may be attributed to financial concerns stemming from unemployment or lack of health insurance. Recently immigrated Asian American women may also have difficulty finding healthcare providers who speak their language. In fact, Asian American women may lack a thorough record of their use of health services due to a lack of a usual source for their healthcare.[14]

METHODS

The California Health Interview Survey (CHIS) is a random-digit dial telephone survey of non-institutionalized Californians that has been conducted every other year since 2001. The CHIS uses a supplementary, surname-based list method to oversample certain Asian American subgroups. The interviews are administered in several languages besides English, including Chinese, Korean, and Vietnamese. Ethnic group is self-identified by survey respondents and then categorized as Chinese, Filipina, Japanese, Korean, South Asian, or Vietnamese. This analysis is restricted to women aged 18–65 years who have not had a hysterectomy. Due to sample size limitations, women who belonged to more than one ethnic group or self-identified as a Pacific Islander were excluded (n=219). The final sample of 3,787 respondents represents a weighted total of 2.41 million Asian American women living in California.

STATISTICAL ANALYSIS

The second release of CHIS data (February 2005) contains revised sampling weights based on updated US Census estimates, and were downloaded from the website www.chis.ucla.edu. One limitation of using the public files is that some women may be included in both years of the survey, and their responses are treated as independent. The overall response rate in 2001 was 37.7%, and in 2003, 33.5%. To increase statistical power for subgroup analysis, the 2001 and 2003 data were combined. Although Appendix 1 indicates increasing guideline adherence over time, Appendix 2 provides evidence that year is not a statistically significant predictor of adherence except among Filipinas, thus suggesting that it is acceptable to combine the two years of data. This pooling approach has also been employed by other researchers.[8]

To account for the CHIS's sampling design, the software SUDAAN 9.1 (Research Triangle Institute, Research Triangle Park, NC) was used. Multivariable analyses evaluated factors independently associated with Pap screening. Specifically, logistic regression analyses were conducted to model failure to receive a Pap test in the previous three years as a function of the perceived need, predisposing, and enabling characteristics available in the CHIS dataset. To assess the merits of ethnic group information, a pooled model including all Asian American women was contrasted with stratified models fit for each subgroup. The predisposing factors included acculturation measures (ie, time in the US and English proficiency) as well as age, marital status, employment, and education. The enabling characteristics included income, insurance, and having a usual source of care, while the measure of perceived need is self-rated health status.

RESULTS

Overall Adherence

Across all Asian American groups, 26% of women aged 18–65 years reported not having a Pap test in the previous 3 years (Table 1). Filipinas were most likely to report adherence to USPSTF guidelines, with only 14% failing to receive a recent Pap, in contrast to 34% of Korean and Vietnamese women. Japanese, South Asian, and Chinese women had intermediate levels of adherence, with 24%, 27%, and 30%, respectively, failing to receive screening.

Predisposing Factors

The groups varied considerably with respect to predisposing factors; focusing on acculturation, only 14% of Japanese women were recent arrivals compared to 42% of South Asian women. More than half (55%) of Vietnamese women were not English proficient, compared to only 3% of South Asians, 5% of Filipinas, and 6% of Japanese women. Only 29% of South Asian women reported less than four years of post-high school education, compared to 80% of Vietnamese women. Only 22% of Filipinas were unemployed, compared to 51% of Vietnamese women.

Enabling Characteristics

The groups also varied in enabling characteristics. Japanese women had the lowest percentage (16%) earning below 200% of the Federal Poverty Level (FPL) while Vietnamese women had the highest (58%). More than one-third (36%) of Korean women were not insured compared to only 8% of Japanese and South Asian women. Filipinas were least likely to report not

Table 1. Description, Asian American women, CHIS 2001 and 2003

	All APIA women	Chinese	Filipina	Japanese	Korean	South Asian	Vietnamese
Raw sample size:	**3,787**	**1,200**	**755**	**320**	**629**	**338**	**545**
Weighted sample size:	**2,412,972**	**769,372**	**669,371**	**173,140**	**263,684**	**232,369**	**305,036**
Predisposing factors							
Acculturation							
Living in United States, <10 years	27%	27%	20%	14%	30%	42%	34%
Not proficient in English	24%	31%	5%	6%	44%	3%	55%
Demographics							
Aged 18–34	40%	39%	38%	33%	40%	59%	41%
Aged 35–49	38%	39%	39%	40%	39%	32%	35%
Aged 50–65	22%	22%	24%	27%	21%	9%	24%
Not currently married	36%	36%	38%	43%	33%	28%	38%
Not currently employed	36%	37%	22%	31%	47%	46%	51%
Education<Bachelors Degree	49%	49%	43%	44%	47%	29%	80%
Enabling Characteristics							
Income <200% FPL	30%	30%	25%	16%	28%	20%	58%
Not currently insured	16%	17%	9%	8%	36%	8%	21%
No usual source of care	12%	14%	6%	11%	27%	14%	10%
Perceived Need							
Self-rated health=poor or fair	17%	14%	12%	6%	20%	8%	42%
Adherence to Pap screening recommendations							
No Pap test past 3 years	26%	30%	14%	24%	34%	27%	34%

having a usual source of healthcare (6%); Korean women were most likely (27%).

Perceived Need

The groups had wide variation in their self-rated health. Across the entire sample, 17% rated their health as poor or fair, with Japanese women (6%) reporting the best health, and Vietnamese women reporting the worst (42%).

Models

To examine factors associated with not receiving a recent Pap test, we employed multivariable logistic regression (Table 2). In general, the application of Andersen's behavioral model of health services utilization had good explanatory power. Stratified models for each group yielded pseudo *R*-squares ranging from 0.11 to 0.27, while a model that included all Asian Americans had a pseudo *R*-square of 0.19. Table 3 summarizes the statistically significant findings for each group.

Among predisposing factors, age was important for Chinese, Japanese, Korean, and Vietnamese women. Compared to women 18 to 34 years of age, older women were more likely to have received a recent Pap test. For all Asian American groups, marital status was a significant factor; unmarried women were more likely to report non-adherence to the USPSTF guidelines. Women in the US less than 10 years or with limited English proficiency were more likely to be non-adherent. Chinese, Filipina, and Korean women with less than four years of post-high school education were more likely to be non-adherent. Employment status was not associated with Pap screening for any group. For the two acculturation measures, longer time in the US was associated with recent Pap screening among Chinese, Filipino, and Vietnamese women, while English proficiency only increased odds of screening among Japanese women.

Among enabling characteristics and perceived need for healthcare, income was associated with Pap screening only among Vietnamese women; those who had a household income less than 200% of the FPL were more likely to be non-adherent. Insurance was associated with screening among Chinese, Korean, and South Asian women. Uninsured women from these groups were more likely to report non-adherence. Chinese, Korean, South Asian, and Vietnamese women who lacked a usual source of care were also less likely to have been screened.

For the perceived needs measure, self-rated health was statistically significant only for Korean women; those with poor or fair health were more adherent than Korean women with good or excellent health.

The pooled model for all APIA women revealed that age, marital status, time in the US, education, insurance, and usual source of care were significant independent correlates of failure to receive a Pap test. Although this model has good explanatory power, comparison of these results with those from the stratified models suggests that the latter

Table 2. Did not receive Pap screen in past 3 years (women 18–65 without a hysterectomy), CHIS 2001 and 2003

	Chinese		Filipina		Japanese		Korean		South Asian		Vietnamese		All APIA women	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Intercept	0.19‡	(0.12–0.30)	0.06‡	(0.02–0.16)	0.15†	(0.05–0.42)	0.18‡	(0.09–0.35)	0.08‡	(0.03–0.21)	0.12‡	(0.06–0.27)	0.15‡	(0.11–0.22)
Predisposing factors														
Acculturation														
In United State <10 years	2.01†	(1.28–3.14)	3.37†	(1.56–7.29)	3.65	(0.60–22.2)	1.82	(0.94–3.55)	2.11	(0.96–4.62)	2.18*	(1.18–4.03)	2.06‡	(1.55–2.73)
Not English proficient	1.07	(0.65–1.76)	0.88	(0.02–47.8)	6.37*	(1.40–29.1)	0.88	(0.48–1.61)	1.46	(0.21–10.3)	1.24	(0.60–2.53)	1.08	(0.76–1.55)
Demographics														
Aged 35–49	0.41‡	(0.25–0.67)	0.47	(0.20–1.08)	0.35*	(0.14–0.93)	0.46†	(0.26–0.82)	0.74	(0.39–1.40)	1.01	(0.56–1.81)	0.54‡	(0.41–0.70)
Aged 50–65	0.55*	(0.34–0.90)	0.82	(0.37–1.80)	0.37	(0.11–1.22)	0.77	(0.33–1.78)	1.04	(0.14–7.59)	0.35*	(0.15–0.84)	0.62†	(0.43–0.89)
Not married	2.09†	(1.36–3.20)	3.07†	(1.63–5.81)	3.13†	(1.48–6.62)	2.26†	(1.29–3.97)	6.07‡	(2.75–13.4)	6.29‡	(3.27–12.1)	3.02‡	(2.38–3.84)
Not employed	1.41	(0.92–2.14)	0.70	(0.31–1.56)	1.63	(0.49–5.37)	0.82	(0.45–1.50)	0.93	(0.42–2.05)	1.69	(0.89–3.24)	1.13	(0.88–1.45)
<Bachelors degree	1.83*	(1.17–2.87)	2.17*	(1.10–4.30)	1.64	(0.61–4.43)	3.15†	(1.76–5.65)	1.79	(0.77–4.13)	0.70	(0.32–1.52)	1.90‡	(1.47–2.46)
Enabling Characteristics														
Below 200% FPL	1.32	(0.86–2.03)	0.70	(0.33–1.49)	0.45	(0.09–2.26)	1.50	(0.81–2.75)	1.18	(0.41–3.39)	2.28*	(1.11–4.67)	1.23	(0.96–1.58)
Not insured	1.82*	(1.15–2.89)	1.17	(0.44–3.12)	2.36	(0.54–10.3)	2.33†	(1.29–4.20)	6.75‡	(2.13–21.4)	0.94	(0.48–1.86)	1.64‡	(1.27–2.11)
No usual source of care	1.66*	(1.09–2.54)	2.02	(0.57–7.16)	2.09	(0.52–8.42)	1.82*	(1.03–3.22)	6.06‡	(2.36–15.5)	2.08*	(1.05–4.13)	2.14‡	(1.61–2.86)
Perceived need														
Poor/fair health	0.94	(0.54–1.64)	1.26	(0.41–3.83)	0.36	(0.05–2.47)	0.41*	(0.18–0.93)	0.79	(0.27–2.30)	0.76	(0.37–1.56)	0.80	(0.54–1.17)
APIA subgroup														
Chinese (reference)													1	
Filipino													0.39‡	(0.26–0.57)
Japanese													0.82	(0.51–1.30)
Korean													1.05	(0.74–1.50)
South Asian													0.95	(0.64–1.41)
Vietnamese													0.96	(0.69–1.33)
Pseudo *R*-Squared	0.17		0.11		0.27		0.24		0.27		0.22		0.19	

* $P<.05$.
† $P<.01$.
‡ $P<.001$.

Table 3. Summary of factors significantly associated with Pap screening among Asian-American subgroups, CHIS 2001 and 2003

Chinese	Filipina	Japanese	Korean	South Asian	Vietnamese	All APIA women
Increased the odds of not having a Pap						
• United States <10 years • Not married • <Bachelors degree • Not insured • No usual source of care	• United States <10 years • Not married • <Bachelors degree	• Not English proficient • Not married	• Not married • <Bachelors degree • Not insured • No usual source of care	• Not married • Not insured • No usual source of care	• United States <10 years • Not married • Below 200% FPL • No usual source of care	• United States <10 years • Not married • <Bachelors Degree • Not insured • No usual source of care
Decreased the odds of not having a Pap						
• Aged 35–49 • Aged 50–65		• Aged 35–49	• Aged 35–49 • Poor/fair health		• Aged 50–65	• Aged 35–49 • Aged 50–65 • Filipina

provide valuable insights. This pertains not only to which factors were significant, but also to their importance. For instance, English proficiency is highly associated with Pap testing among Japanese women, who had more than six times the odds of not receiving a test if they were unable to speak English well. Similarly, examination of stratified models indicated that Chinese, Filipina, and Vietnamese women had higher odds of not being screened if they were recent arrivals, whereas time in the US was not significantly associated with screening for the other ethnic groups.

DISCUSSION

This study used a 2001 and 2003 population-based survey of California residents to ascertain adherence to US Preventive Services Task Force Pap screening guidelines. Focusing on Asian Americans, we found variation in screening among Chinese, Filipina, Japanese, Korean, South Asian, and Vietnamese American women.

Two measures of acculturation were included in this analysis: time in the US, and English proficiency. In accordance with positive assimilation experience, Chinese, Filipina, and Vietnamese women who lived in the United States for at least 10 years were more likely to receive a recent Pap test. English proficiency was associated with screening among Japanese women.

Thinking about how to increase timely Pap screening is important because Pap tests are underutilized among Asian American women[3] and cervical cancer is one of the leading causes of years of lost life. Early detection may reduce morbidity and mortality.[15,16] Despite FDA approval of a vaccine that targets the four most prevalent sub-types of the cervical cancer-causing human papillomavirus (HPV), the CDC recommends continuation of periodic Pap screening, as the current vaccine is not therapeutic for women already infected, is only effective against certain HPV sub-types, and access is currently limited.[16,17]

Disparities in Pap screening across Asian American groups is not surprising, given their different demographic and socioeconomic compositions.[18] It is noteworthy, however, that time in the US and English proficiency were not consistent predictors. Another study using the same data found that women who completed the survey in a non-English language had different screening rates than those who responded in English.[8] However, that analysis did not control for differences in the groups' enabling and predisposing characteristics. Echoing the advice given by researchers who compared pooled vs stratified models of cancer screening, it is important to disaggregate data on Asian and Pacific Islander women given their heterogeneity of risk.[19]

To increase adherence, public health efforts for Chinese American women should focus on older, unmarried women who lack insurance or a usual source of care. Given the relationship between time in the US and Pap screening, it may be useful to target areas where recent immigrants are concentrated.

That Korean American women with poor or fair health were more likely to receive a Pap test raises several concerns. Besides low levels of health insurance and lack of a usual care source, Korean American women who reported good or excellent health were less likely to be screened. Hence, a comprehensive strategy should incorporate education about the benefits of early cancer detection. In fact, given lower adherence to guidelines among Korean and Vietnamese women, and the common significant correlate of a usual source of care, it may be important to design screening campaigns in conjunction with a general health services infrastructure. This might entail not only delivering appropriate services through culturally sensitive providers, but also providing low-cost services, evening and weekend clinic hours, and linguistically and

culturally tailored materials to communicate the benefits of routine screenings.

While, overall, Filipinas were more likely to receive Pap screening compared to other Asian American women, Filipinas who were unmarried, recent immigrants, or had limited education were much less likely to be screened, suggesting that outreach efforts should focus on this subgroup.

Among Japanese women, unmarried young women with limited English proficiency were less likely to receive Pap screening. Policy makers should provide information in Japanese, again promoting the benefits of early detection.

Among South Asian women, being unmarried and lacking health insurance or a usual care source were risk factors for non-screening. Simply providing low-cost Pap screens may be insufficient — a comprehensive health services program that increases contact between South Asian women and healthcare professionals may be needed.

In addition to differences across Asian American groups, it is informative to consider common predictors. Having a usual source of healthcare significantly increased screening in four of the six groups. In Filipina and Japanese women, for whom it was non-significant, odds ratios were well above one. Across each group, unmarried women were less likely to receive Pap screening. Outreach efforts should target this group.[20] In contrast to another study,[21] income did not consistently predict Pap screening. This may be due to the inclusion of marital status and time in the United States as covariates in the current analysis, both of which are correlated with income. Also, the current analyses were stratified by ethnic group. Rather than ignore such relationships or model multiple interactions, stratified analysis provides evidence that such differences exist.

Having a usual source of healthcare significantly increased screening in four of the six groups.

To understand why women fail to receive cancer screening, previous studies have examined issues such as difficulty finding providers of the same ethnicity or gender, and screening behaviors of family and friends.[5,7,9] Unfortunately, a population-based survey such as the CHIS does not permit such fine-grained analyses. Only 12.8% of Asian Americans in this study reported a failure or delay in obtaining medical care during the past year, suggesting that women may be at the point of care, but unaware of Pap screening recommendations. These women's expectations and previous encounters with healthcare providers may be rooted in a culture that clashes with the system in which these guidelines were developed. Furthermore, they may make a decision to receive a Pap test only when the provider initiates the discussion.[7] Unfortunately, the information available in the CHIS does not permit insight into the patient-physician relationship.

The CHIS has other limitations, including a low response rate, and a lack of detailed health status, health insurance, and community information. People who fail to participate in the CHIS may be less likely to access healthcare, in which case the CHIS may overestimate adherence to Pap guidelines. However, the CHIS has similar response rates as other population-based telephone surveys such as the Behavioral Risk Factor Surveillance System. The CHIS also does not allow detailed comparisons of the health plans to which respondents belong, nor identify the co-pays, waiting times, or other access barriers that may influence Pap screening.[22]

Another CHIS limitation, as with all telephone surveys, is self-report accuracy. Respondents are asked to recall health services, and it is possible that they incorrectly remember which tests they had and/or when they had them. The risk factors in the analysis are also subject to recall bias and false reporting because the information is not verified.

Despite its drawbacks, the CHIS is a large-scale data collection effort that provides new information on Asian Americans, a group that has not been extensively studied. This study is especially salient given recent findings that Pap screening represents the third largest disparity among Asian Americans that policy makers must confront as they attempt to achieve the Healthy People 2010 objective aimed at eliminating health disparities among subpopulations in the United States.[23]

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AUTHOR CONTRIBUTIONS

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Data analysis and interpretation: Lin, Moskowitz, Kazinets, Ivey, Kim, McDonnell

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Appendix 1: Comparison of CHIS 2001 and 2003

	Combined	2001	2003	*P* value*
Predisposing factors				
Acculturation				
Living in United States for less than 10 years	27%	28%	26%	.411
Not proficient in English	24%	23%	24%	.495
Demographics				
Aged 18–34	40%	42%	39%	.122
Aged 35–49	38%	39%	37%	.363
Aged 50–65	22%	19%	24%	.004
Not currently married	36%	38%	35%	.287
Not currently employed	36%	37%	36%	.676
Education is less than a Bachelors Degree	49%	50%	47%	.171
Enabling characteristics				
Income is less than 200% FPL	30%	31%	29%	.468
Not currently insured	16%	17%	15%	.077
No usual source of care	12%	14%	11%	.008
Perceived Need				
Self-rated health=poor or fair	17%	15%	18%	.054
Non-adherence to Pap screening recommendations				
No Pap test in past 3 years	26%	28%	24%	.004
Chinese	30%	30.1%	30.4%	.995
Filipinas	14%	17.9%	9.7%	<.001
Japanese	24%	25.7%	23.1%	.515
Koreans	34%	35.2%	32.2%	.443
South Asians	27%	28.7%	26.3%	.663
Vietnamese	34%	39.3%	28.4%	.011

* *P* values based on Cochran-Mantel-Haenszel chi-square test of independence.

Appendix 2. Multivariate models for not having a Pap screening, include year dummy to control for change over time

	Chinese		Filipina		Japanese		Korean		South Asian		Vietnamese		All APIA Women	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Intercept	0.20	(0.12–0.33)	0.04	(0.01–0.13)	0.18	(0.05–0.62)	0.19	(0.08–0.42)	0.06	(0.02–0.21)	0.11	(0.04–0.26)	0.14	(0.10–0.21)
Predisposing factors														
Acculturation														
In United States <10 years	2.02	(1.29–3.17)	3.37	(1.56–7.28)	3.79	(0.60–23.86)	1.80	(0.91–3.58)	2.16	(0.99–4.71)	2.15	(1.17–3.93)	2.05	(1.55–2.72)
Not English proficient	1.06	(0.64–1.77)	0.85	(0.01–49.47)	6.38	(1.43–28.51)	0.88	(0.48–1.59)	1.39	(0.21–9.39)	1.25	(0.62–2.53)	1.09	(0.76–1.56)
Demographics														
Aged 35–49	0.41	(0.25–0.67)	0.46	(0.20–1.03)	0.34	(0.13–0.89)	0.45	(0.25–0.82)	0.75	(0.40–1.41)	1.03	(0.56–1.89)	0.54	(0.41–0.70)
Aged 50–65	0.54	(0.33–0.88)	0.80	(0.36–1.80)	0.33	(0.10–1.07)	0.77	(0.33–1.78)	1.07	(0.14–8.31)	0.36	(0.15–0.87)	0.63	(0.44–0.90)
Not married	2.08	(1.35–3.19)	2.99	(1.60–5.60)	3.09	(1.46–6.51)	2.25	(1.27–3.97)	6.61	(2.93–14.9)	6.28	(3.25–12.2)	3.03	(2.39–3.84)
Not employed	1.41	(0.92–2.16)	0.66	(0.29–1.49)	1.58	(0.48–5.15)	0.83	(0.45–1.51)	0.95	(0.42–2.17)	1.68	(0.88–3.22)	1.13	(0.88–1.45)
Less than bachelors degree	1.85	(1.18–2.90)	2.18	(1.09–4.36)	1.74	(0.68–4.47)	3.15	(1.75–5.65)	1.74	(0.76–4.00)	0.71	(0.33–1.52)	1.90	(1.47–2.45)
Enabling Characteristics														
Below 200% FPL	1.31	(0.86–2.01)	0.66	(0.32–1.39)	0.42	(0.07–2.50)	1.49	(0.81–2.76)	1.27	(0.44–3.61)	2.26	(1.11–4.60)	1.23	(0.96–1.58)
Not currently insured	1.83	(1.16–2.91)	1.20	(0.45–3.24)	2.23	(0.54–9.25)	2.35	(1.31–4.22)	6.99	(2.18–22.4)	0.94	(0.48–1.84)	1.63	(1.27–2.10)
No usual source of care	1.68	(1.10–2.57)	2.07	(0.60–7.18)	2.23	(0.53–9.41)	1.84	(1.03–3.30)	5.86	(2.37–14.5)	2.06	(1.03–4.13)	2.12	(1.59–2.84)
Perceived Need														
Poor/fair health	0.95	(0.54–1.67)	1.39	(0.44–4.39)	0.35	(0.05–2.35)	0.40	(0.17–0.94)	0.80	(0.30–2.17)	0.76	(0.37–1.57)	0.80	(0.55–1.17)
APIA Subgroup														
Chinese (reference)													1	
Filipina													0.39	(0.26–0.57)
Japanese													0.82	(0.51–1.30)
Korean													1.06	(0.75–1.51)
South Asian													0.96	(0.65–1.43)
Vietnamese													0.95	(0.68–1.33)
CHIS survey year														
2001	0.84	(0.58–1.23)	2.06	(1.04–4.08)	0.71	(0.26–1.96)	0.91	(0.53–1.57)	1.53	(0.72–3.24)	1.30	(0.71–2.37)	1.13	(0.89–1.45)
Pseudo *R*-squared	0.17		0.12		0.27		0.24		0.28		0.22		0.19	