Acculturation and Chronic Conditions among Latino and Asian Americans*

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INTRODUCTION

Is becoming more "American" always harmful to immigrants' health? The literature suggests that foreign-born immigrants are more likely to have better health outcomes than their native-born counterparts (Antecol and Bedard 2006; Cho, Frisbie, and Rogers 2004; Cho and Hummer 2001; Frisbie, Cho, and Hummer 2001; Singh and Siahpush 2001; Singh and Siahpush 2002). The results imply that the more immigrants adopt and become acculturated to American culture, the worse their health outcomes will be. Based on the acculturation hypothesis, acculturation has a negative effect on immigrants' health outcomes because of unhealthy lifestyles. However, little attention has been paid to other possible immigration-related mediators of the association between acculturation and health outcomes. A higher degree of acculturation is associated with a lower degree of racial discrimination (Gee, Ryan, Laflamme et al. 2006; Moradi 2006), and experiences of racial discrimination are related to worse health outcomes (Gee 2008; Gee and Ponce 2010; Gee et al. 2006; Williams 1999; Williams, Neighbors, and Jackson 2008). Therefore, it is likely that discrimination may buffer some effects of acculturation on health.

In this paper, using the National Latino and Asian American Study, I examine the mechanisms between acculturation and health by considering both the effects of health behaviors (lifestyles) and discrimination among Latino and Asian Americans. The following questions are addressed: (1a) What is the relationship between acculturation and health for Latino and Asian American adults? (1b) Is it a positive association or a negative association? (2a) How does acculturation affect health outcomes for Latino and

Asian American adults? (2b) Do health behaviors and racial discrimination mediate the effect?

BACKGROUND

Previous studies have found that foreign-born immigrants are healthier than their native-born counterparts in terms of self-rated health (Antecol and Bedard 2006; Frisbie et al. 2001), disability (Cho and Hummer 2001), activity limitation (Antecol and Bedard 2006; Cho et al. 2004), and mortality (Hummer, Rogers, Nam et al. 1999; Singh and Siahpush 2001). Moreover, immigrants' health advantages decrease as the number of years they stay in the United States increases. For example, Cho and Hummer (2001) found that immigrants who were in the United States for a short duration have a lower risk of disability than immigrants who have stayed longer. Overall, the duration in the United States and the convergence of health outcomes toward US levels "eventually erases all or most of the initial health advantage for all immigrants" (Antecol and Bedard 2006:347).

Acculturation is the main explanation for the nativity differences in health outcomes. Previous studies have shown that, compared to immigrants, US-born persons are more likely to have some risk factors such as smoking and obesity, and the likelihood increases along with their duration in the United States (Abraído-Lanza, Chao, and Flórez 2005; Bate, Acevedo-Garcia, Alegria et al. 2008; Singh and Siahpush 2002). For example, Antecol and Bedard (2006) found that foreign-born immigrant women, on average, have 2% lower body mass index (BMI) than their native counterparts but that their BMI would adjust to the native standard within 10 years. Immigrants' diets may also change if they

acculturate to the American culture/diet (Akresh 2007; Dixon, Sundquist, and Winkleby 2000; Neuhouser, Thompson, Coronado et al. 2004; Singh and Siahpush 2002). For example, Neuhouser, Thompson, Coronado et al. (2004) found that higher fat intake and lower fruit and vegetable intake are associated with greater acculturation among Mexicans living in Washington state. Nativity differences in health behaviors suggest that, compared to American culture, other cultures (at least Hispanic cultures) may have norms and values that proscribe unhealthy lifestyles. That is, the more an immigrant becomes acculturated to US culture, the more likely s/he will have an unhealthy lifestyle, which will lead to worse health outcomes or even higher mortality.

However, little attention has been paid to other possible immigration-related mediators of the association between acculturation and health outcomes. Discrimination is one such mediator. It is very possible that as immigrants become acculturated to American culture (e.g., speaking more fluent English), they become more like "Americans", and thus may experience less discrimination. For example, Yoo, Gee, and Takeuchi (2009) found that more recent immigrants, who had stayed in the United States less than 10 years, experienced discrimination due to English fluency during health care visits more than immigrants who had lived in the United States more than 10 years did, whereas none of the US-born individuals experienced discrimination due to English fluency. Moreover, daily experiences of discrimination due to race/ethnicity or language fluency are stressful and harmful to immigrants' mental (Gee 2008; Gee et al. 2006; Gee, Spencer, Chen et al. 2007a; Williams et al. 2008) and physical well-being (Gee 2008; Gee and Ponce 2010; Gee, Spencer, Chen et al. 2007b; Williams 1999; Williams et al. 2008).

For example, Gee, Spencer, Chen et al. (2007b) found that everyday perceived discrimination is related to indicators of heart disease, pain, and respiratory illnesses. On a scale of 1 to 6, an increase of one point in the discrimination level is associated with a 69% higher chance of developing cardiovascular conditions. Therefore, one who is acculturated to American culture would experience less discrimination and thus have better health. In this way, acculturation may be positively related to health in that it reduces the level of racial discrimination.

Overall, acculturation may negatively affect immigrants' health by increasing unhealthy behaviors and positively affect their health by reducing discrimination. Using the National Latino and Asian American Study (2002–2003), I examine the mechanisms between acculturation and health by considering effects of both health behaviors (lifestyles) and discrimination among Latino and Asian Americans. I hypothesize the following: 1) acculturation will exhibit a negative relationship to health among Latino and Asian American adults; 2) health behaviors mediate some of the effects of acculturation on health, meaning that people who are more acculturated are more likely to have unhealthy behaviors, which have a negative effect on health; and 3) discrimination mediates some of the effects of acculturation on health, meaning that people who are more acculturated are less likely to experience racial discrimination, and lower levels of experienced racial discrimination have a positive effect on health.

DATA, MEASURES, AND METHODS

Data

The data used in this study are taken from the National Latino American and Asian American Study (NLAAS), which was part of the Collaborative Psychiatric Epidemiology Studies (Pennell, Bowers, Carr et al. 2004). It was administered between May 2002 and November 2003 to a sample of non-institutionalized Latino and Asian American adults aged 18 or older residing in households located in the contiguous United States. The final sample consisted of 4,649 respondents—2,554 Latinos and 2,095 Asian Americans. The interviews were mostly conducted face to face by fully bilingual interviewers (English, Spanish, Chinese, Vietnamese, or Tagalog). Sample weights are used in the analysis due to the oversampling of specific groups, which occurred as a result of the study design.

NLAAS is one of the most up-to-date, comprehensive studies of Latino and Asian Americans, and it can provide important information when assessing health disparities in the United States (US Department of Health and Human Services 2000). In addition, one of the advantages of NLAAS is that, with bilingual interviewers, information is available from Asian immigrants who are not fluent in English, which may not be the case for surveys conducted in English or Spanish only.

Measures

I focused on the health of working-age (25 to 64 years old) Latino and Asian Americans, which yielded a sample size of 3,572. I used chronic conditions as indicators of participants' general health. "Chronic conditions" is a dichotomous variable. Respondents are asked whether they have or have ever been diagnosed with arthritis or

rheumatism, chronic back or neck problems, frequent or severe headaches, any other chronic pain, seasonal allergies, stroke, heart attack, heart disease, high blood pressure, asthma, chronic lung disease, diabetes or high blood sugar, ulcer in stomach, epilepsy, or cancer. “Chronic conditions” is coded as 1 if respondents have one or more chronic conditions and 0 if respondents have no chronic conditions.

English proficiency, dialectical proficiency, and English usage are proxy measures of acculturation. English proficiency and dialectical proficiency are measured by two sets of parallel questions. Respondents were asked, “How well do you speak English/Spanish or Asian dialects?”; “How well do you read English/Spanish or Asian dialects?”; and “How well do you write English/Spanish or Asian dialects?” Possible responses were poor, fair, good, and excellent. The point range for each question was from 1 to 4. Therefore, the English proficiency and dialectical proficiency scales have a range from 3 to 12; the higher the score is, the more proficient the participant is in English or the dialects. If the response to a variable was “refuse (to answer)” or “don’t know,” that response was coded as missing. The Cronbach’s alpha, a test of reliability, for English proficiency (.96) and dialectical proficiency (.92) is fairly good. Scores showing that a participant was more proficient in English and less proficient in dialects indicate more acculturation to the US culture.

English usage is measured by three questions: “What language do you speak with most of your friends?”; “What language do you speak with most of your family?”; and “In what language do you think?” Possible responses are “Spanish or Asian dialects all the time,” “Spanish or Asian dialects most of the time,” “Spanish or Asian dialects and

English equally," "English most of the time," and "English all the time." The point range for each question is from 1 to 5. Therefore, the English usage scale has a range from 3 to 15, where 15 indicates English use all the time while speaking and thinking, and 3 indicates dialects use all the time while speaking and thinking. The higher the score is, the more frequently English is used in speaking and thinking. The Cronbach's alpha for English usage is .90. More use of English in speaking and thinking indicates more acculturation to the US culture.

Self-reported racial discrimination is a dichotomous variable measured by two questions: "How often do people dislike you because you are [specific Latino American or Asian American ethnicity]—often, sometimes, rarely, or never?" and "How often do people treat you unfairly because you are because you are [specific Latino American or Asian American ethnicity]—often, sometimes, rarely, or never?" Self-reported racial discrimination is coded as 0 if the respondent has never been disliked or treated unfairly due to race or ethnicity and coded as 1 if the respondent has been disliked or treated unfairly due to race or ethnicity.

Health behavior indicators were smoking behavior and body weight. Smoking behavior was coded as current smoker, former smoker, never smoked, or smoked only a few times. In the structural equation modeling, current smoker is coded as 1.0, former smoker is coded as 0.5, and never smoked or smoked only a few times are coded as 0. That is, a higher number of points correlates to a greater likelihood to smoke. Body weight is measured using BMI, which is calculated as weight in kilograms divided by the square of height in meters, based on self-reported height and weight.

Education is a categorical variable determined by the question, “What is the highest grade of school or year of college you completed?” This was converted to the number of years spent obtaining a formal education. The possible responses range from 0 to 17, and sometimes more. The responses were coded into four categories, which are 0 to 11 years, 12 years, 13 to 15 years, and 16 or more years.

Work status was divided into three categories: employed, unemployed, and not in the labor force, with unemployed people as the reference group. “Employed” and “not in the labor force” are dichotomous measures in the structural equation modeling. Household income was measured as annual household income in increments of US$1,000.

Demographic variables include age, gender, marital status, race and ethnicity, and generational status. Age is measured as a continuous variable, while gender and marital status are measured as dummy variables, with “female” and “married or cohabiting” as reference categories. Race/ethnicity is a dummy variable in the regression analysis, with Asian as the reference category.

Nativity is a dichotomous variable with two categories: foreign-born and US-born. Nativity is a dummy variable in the regression analysis, with foreign-born as a reference category.

Methods

My analysis involves three phases. First, descriptive analyses are used to determine whether chronic conditions, language proficiency and preference, discrimination, and health behaviors vary by generational status. Second, since “chronic conditions” is a dichotomous variable, logistic regressions are used to examine whether chronic

conditions among Latino and Asian Americans are influenced by the degree of acculturation. I use a series of regression models for chronic conditions:

- Model 1 includes language proficiency and preference, generational status, and basic demographic variables.
- In Model 2, a control for self-reported racial discrimination is added to Model 1.
- Model 3 adds health behaviors as controls to Model 1.
- Model 2 and Model 3 are designed to determine whether the effects of language proficiency and preference on chronic conditions are mediated by discrimination or health behaviors.
- Model 4 adds both racial discrimination and health behaviors to Model 1.
- Finally, Model 5, which is also the full model, adds controls for socioeconomic status and social support.

Third, to examine whether the mechanisms for the effects of language proficiency and preference on chronic conditions are different for Latino Americans and Asian Americans, I use four logistic regressions for Latino Americans and Asian American, respectively. Four of the same models are used, excluding only the race (Latino) variable.

RESULTS

Table 1 contains the descriptive statistics of the sample and shows whether foreign-born immigrants and their US-born counterparts have the same distribution or mean for each variable. Compared to foreign-born respondents, more US-born respondents have one or more chronic conditions, which corresponds to findings of previous studies that foreign-born immigrants have better health than US-born immigrants (Cho and Hummer 2001; Frisbie et al. 2001; Hummer, Rogers, Amir et al. 2000; Hummer et al. 1999; Singh and Siahpush 2001).

[Table 1 about here]

The descriptive statistics in Table 1 also show that US-born immigrants are more acculturated than foreign-born immigrants. US-born respondents are more proficient in English, are less proficient in dialects, and prefer to use English to think and speak more than the foreign-born respondents.

The percentages of people who have experienced racial discrimination do not differ according to nativity. About 57% of the total respondents have experienced at least one episode of racial discrimination. The results are not consistent with those of previous studies (e.g. Yoo et al. 2009), but this may be because different variables were used to measure discrimination.

Compared to foreign-born respondents, US-born respondents have more unhealthy behaviors. The foreign-born respondents group has a higher percentage of people who have never smoked, and the US-born respondents group has a higher percentage of smokers. In terms of BMI, almost two times as many US-born immigrants are obese

compared to foreign-born immigrants. Also, a higher number of foreign-born immigrants are underweight or have normal BMI. The results correspond to previous research that shows that foreign-born immigrants have fewer risky health behaviors than their US-born counterparts (Abraído-Lanza et al. 2005; Bate et al. 2008; Singh and Siahpush 2002).

However, US-born respondents have higher socioeconomic status than foreign-born respondents in terms of education, employment status, and household income. Also, US-born respondents have more family support and friend support than foreign-born respondents. One thing worth noting is that the US-born respondents were mostly Latino Americans.

Table 2 presents odds ratios derived from a series of logistic regression analyses estimating the association between acculturation-related variables (language proficiency and preference) and chronic conditions.

[Table 2 about here]

To test the hypothesis that acculturation is negatively related to health, Model 1 estimates the effects of English and dialectical proficiency, English usage, and nativity on chronic conditions, controlling for age, gender, marital status, and race. The findings reveal that people who are more proficient in dialects are less likely to have chronic conditions. An increase of one unit in dialectical proficiency is associated with a 5% decrease in the likelihood of having chronic conditions. Also, the more often the respondent uses English to speak and think, the more likely it is that s/he has a chronic condition. An increase of one unit in the frequency of English usage is associated with a 3% increase in the likelihood of having chronic conditions. However, the coefficient of

nativity is not significant. That is, the level of acculturation, not the nativity status, is associated with one's chronic conditions. The first hypothesis that acculturation is negatively related to health is supported. Being less proficient in dialects and using English more increases the likelihood of having chronic conditions.

To examine the hypothesis that the effect of acculturation on the likelihood of having a chronic condition is mediated by discrimination, Model 2 adds controls for racial discrimination. Self-reported racial discrimination is strongly related to chronic conditions. Respondents who have experienced racial discrimination are 45% more likely to have chronic conditions. However, the coefficients of dialectical proficiency and English usage remain the same after controlling for racial discrimination, which indicates that the effects of dialectical proficiency and English usage on chronic conditions are not mediated by racial discrimination.

The hypothesis that the effect of acculturation on chronic conditions is mediated by health behaviors is tested by Model 3. Former smokers have a 38% higher chance of having chronic conditions than people who have never smoked or have smoked only a few times. People who are overweight or obese are 22% and 70% more likely, respectively, to have chronic conditions than people who have normal BMI. After controlling for smoking behaviors and BMI, the coefficient of dialectical proficiency increases, which indicates that the advantages related to being less acculturated in terms of having a lower likelihood of chronic conditions are decreased. Moreover, the coefficient of English usage becomes insignificant after controlling for health behaviors, which also indicates that the effect of English usage is mediated by health behaviors. The

changes in the coefficients of dialectical proficiency and English usage in Model 3 suggest that the effect of acculturation is mediated by smoking behaviors and BMI. The hypothesis that the effect of acculturation on chronic conditions is mediated by health behaviors is supported by the results in Model 3.

Model 4 adds both discrimination and health behaviors to Model 1 and shows that self-reported racial discrimination is still strongly related to chronic conditions. Other coefficients are similar to those in the results of Model 3. Model 5 is the full model, and it considers the effect of socioeconomic status and social support. Education and social support are not related to chronic conditions with other variables controlled. In addition, people who are not in the labor force are 53% more likely to have chronic conditions; this correlation may exist because they are too sick to work. The effects of discrimination, being a former smoker, and obesity on chronic conditions are still significant. The effect of being overweight becomes insignificant. The coefficients of dialectical proficiency and English usage are the same as they are in the results of Model 3 and Model 4. The results of Model 5 indicate that even when controlling for discrimination, health behaviors, social support, and socioeconomic status, people who are more proficient in dialects are less likely to have chronic conditions; likewise, the more often the respondents use English to speak and think, the more likely it is that they have chronic conditions.

To explore further whether the mechanisms of the effect of acculturation on chronic conditions are different between Latino and Asian Americans, I use four logistic regressions for Latino Americans and Asian American, respectively. The same four models are used, excluding only the race (Latino) variable. Results for Latino Americans

and Asian Americans are presented in Table 3 and Table 4, respectively.

[Table 3 about here]

Table 3 presents odds ratios derived from a series of logistic regression analyses estimating the association between acculturation-related variables (language proficiency and preference) and chronic conditions for Latino Americans only. Model 1 estimates the effect of language proficiency and preference on chronic conditions, net of nativity status and other demographic characteristics. For Latino Americans, English usage is related to chronic conditions, while English proficiency, dialectical proficiency, and nativity status are not. An increase of one unit in English usage is associated with a 6% increased likelihood of having chronic conditions. After controlling for self-reported racial discrimination in Model 2, the coefficient of English usage becomes smaller and less significant. This indicates that racial discrimination mediates some of the effects of English usage on chronic conditions for Latino Americans. Those who have experienced racial discrimination are 47% more likely to have chronic conditions.

Model 3 in Table 3 adds controls for health behaviors to Model 1. The coefficient of English usage is the same as it is in result of Model 1, which suggests that the health behaviors do not mediate the effects of English usage on chronic conditions. Latino Americans, former smokers, and overweight and obese people have higher chances of having chronic conditions. Model 4 considers the effects of both discrimination and health behaviors on chronic conditions. Compared to the results in Model 3, the coefficient of English usage is smaller and less significant in the results in Model 4, which indicates that self-discrimination does mediate some effects of English usage on

chronic conditions, even controlling for health behaviors.

Model 5 in Table 3 adds controls for socioeconomic status and social support. People who are not in the labor force are two times more likely to have chronic conditions than employed people. This correlation may exist because these people are not working because they are too sick to work. The coefficient of English usage becomes significant and 1% bigger than it is in the result of Model 4.

[Table 4 about here]

Table 4 presents odds ratios derived from a series of logistic regression analyses estimating the association between acculturation-related variables (language proficiency and preference) and chronic conditions for Asian Americans only. The results in Model 1 show that Asian Americans who are more proficient in dialects are less likely to have chronic conditions. US-born Asians are more than two times as likely to have chronic conditions as their foreign-born counterparts.

Model 2 and Model 3 add controls for self-reported racial discrimination and health behaviors to the original Model 1, respectively. Although self-reported racial discrimination is significantly related to chronic conditions in the result of Model 2, the size and significance of the coefficients of dialectical proficiency and nativity do not change when discrimination is controlled. The results suggest that, for Asian Americans, the effects of dialectical proficiency and nativity status on chronic conditions are not mediated by discrimination. In the results of Model 3 in Table 4, the nativity coefficient decreases after controlling for health behaviors, which indicates that the effect of nativity status on chronic conditions is mediated by health behaviors for Asians. Former smokers

and obese people are 39% and 107% more likely, respectively, to have chronic conditions than their reference group.

Model 4 in Table 4 includes both self-reported racial discrimination and health behaviors. The coefficient for dialectical proficiency is bigger than it is in the result of Model 3, which suggests that discrimination may still mediate some effects of dialectical proficiency on chronic conditions with health behaviors controlled. Model 5 adds controls for socioeconomic status and social support. Dialectical proficiency is still significantly related to chronic conditions, and US-born Asian Americans are still twice as likely to have chronic conditions.

To sum up the regression results in general, for all Latino and Asian Americans in the sample, poor dialectical proficiency and more frequent English usage are associated with more chances of having chronic conditions, and the effects are mediated by health behaviors, not discrimination. Compared to the general pattern, Latino Americans and Asian Americans have different patterns of association between acculturation-related factors and chronic conditions. For Latino Americans only, more frequent English usage is associated with a higher likelihood of having chronic conditions, and the effect is mediated by discrimination, not health behaviors. For Asian Americans only, the factors of being US-born and less proficient in dialects are related to a higher likelihood of having chronic conditions, and the effects are mediated by health behaviors and possibly discrimination.

DISCUSSION

Using the National Latino and Asian American Study, I investigated the relationship between acculturation and health for Latino and Asian Americans. I also examined whether health behaviors and discrimination mediate the effects of acculturation on health. Three hypotheses are tested in this paper: 1) acculturation is negative for health among Latino and Asian American adults; 2) health behaviors mediate some effects of acculturation on health, while unhealthy behaviors are negative for health; and 3) discrimination mediates some effects of acculturation on health.

The results of the logistic regression analysis support my first hypothesis that acculturation is negative for health among Latino and Asian American adults. In general, poor dialectical proficiency and more frequent English usage are associated with greater chances of having chronic conditions. Specifically, for Latino Americans, more frequent English usage is associated with a higher likelihood of having chronic conditions, and for Asian Americans, being US-born and less proficient in dialects are related to a higher likelihood of having chronic conditions.

The second hypothesis that health behaviors mediate some effects of acculturation on health is supported for Asian Americans but not for Latino Americans. When examining Latino and Asian Americans together (Table 2), health behaviors mediate the effect of dialectical proficiency and English usage on chronic conditions. Former smokers and obese people are more likely to have chronic conditions. If we examine the association by race, we see that health behaviors mediate some effects of nativity status and dialectical proficiency on chronic conditions for Asian Americans. However, health

behaviors do not mediate the effect of English usage on chronic conditions for Latino Americans, which is not consistent with findings from previous studies (Abraído-Lanza et al. 2005; Bate et al. 2008) . The effect of English usage is still significant in the full model; this suggests that there are other mediators of the association between acculturation and chronic conditions that are not captured in the regression models and current acculturation hypothesis for Latino Americans.

My third hypothesis, that discrimination mediates some effects of acculturation on health, is supported for Latino Americans and slightly supported for Asian Americans. Considering Latino and Asian Americans together, people who have experienced racial discrimination are more likely to have chronic conditions, but self-reported racial discrimination does not mediate the effects of dialectical proficiency and English usage on chronic conditions. When investigating the association between acculturation and chronic conditions by race, different patterns appeared. For Latino Americans, self-reported discrimination has a clear mediating effect on the association between English usage and chronic conditions. But for Asian Americans, self-reported discrimination has a subtle mediating effect on the association between dialectical proficiency and chronic conditions. These results suggest that discrimination is an important factor to consider for immigrants' health and the association between acculturation and health.

There are some limitations in this study. First, I do not have information to measure acculturation directly, and I use English proficiency, dialectical proficiency, and English usage as proxy measures of acculturation. Although language is a very important

component of culture, more direct and more sophisticated measures of the level of acculturation to the host culture are needed to better understand the effects of acculturation on health. Second, the data used in these analyses are from a cross-sectional survey, and I am unable to determine the processes through which acculturation-related factors reduced the likelihood of chronic conditions. It would be better to have longitudinal data to investigate the association between acculturation and health and determine how it varies with time.

Overall, this paper suggests another theoretical model to use in gaining an understanding of the relationship between acculturation and immigrants' health by including discrimination as a mediator. This paper also provided empirical tests of this model for Latino and Asian Americans' chronic conditions. Results suggest that a higher level of acculturation is associated with poor health outcomes and that health behaviors and discrimination are possible mediators of this association. The mediators are different for Latino Americans and for Asian Americans. Acculturation, health behaviors, and discrimination are important factors in immigrants' health outcomes.

APPENDIX

Table 1. Distributions of chronic conditions, language proficiency, self-reported racial discrimination, health behaviors, socioeconomic status and demographic characteristics of adults aged 25-64, by nativity, National Latino American and Asian American Study, 2002-2003

	Foreign-Born N=2630	US-Born N=942
Chronic Conditions (%)		
No Chronic Condition*	38.22	27.85
One or More Chronic Conditions*	61.68	72.15
Language Proficieny		
English Proficiency[a]*	6.75	10.41
Dialects Proficiency[a]*	9.61	6.69
English Usage[b]*	6.02	11.41
Self-reported Racial Discrimination		
Have Experienced Racial Discrimination (%)	.57	.57
Smoking (%)		
Current Smoker *	.15	.25
Former Smoker *	.17	.21
Never Smoked *	.68	.54
BMI (%)		
Underweight (less than 18.5)*	.03	.01
Normal (18.5-24.9)*	.47	.33
Overweight (25-29.9)	.34	.35
Obesity (greater than 30)*	.15	.31
Education (%)		
0-11 years*	.30	.16
12 years*	.19	.25
13-15 years*	.20	.31
More than 16 years*	.31	.29
Employment Status (%)		
Employed*	.69	.75
Unemployed*	.07	.06
Not in the labor force*	.24	.19
Household income (Median in 1000 US dollars)	45.00	56.75
Social Support		
Family Support[c]*	10.46	11.45
Friend Support[c]	9.16	10.56
Demographics		
Age	41.79	39.06
Female	.54	.55
Asian (%)	.52	.32
Latino (%)	.48	.68
Married or cohabiting*	.78	.64

a. These scales range from 3 to 12, where 3 indicates least proficiency and 12 indicates most proficiency.

b. This scale ranges from 3 to 15, where 3 indicates use of only dialect to speak and think, and 15 indicates using solely English to speak and think.

c. These scales range from 3 to 15, where 3 indicates least support and 15 indicates most support.

d. * $p<.05$. These one-way ANOVA tests show that first generation and second or more generation do not have the same mean or distribution.

Table 2. Odds ratios for the effects of language proficiency and preference on Latino and Asian Americans' chronic conditions, National Latino and Asian American Study, 2002-2003

	Model 1	Model 2	Model 3	Model 4	Model 5
English Proficiency[a]	1.01	1.01	1.01	1.10	1.00
Dialects Proficiency[a]	.95 *	.95 *	.96 *	.96 *	.96 *
English Usage[b]	1.03 +	1.03 +	1.03	1.03	1.03 +
US-Born	1.23	1.23	1.22	1.22	1.25
Age	1.05 ***	1.06 ***	1.05 ***	1.05 ***	1.05 ***
Female [Male]	1.49 ***	1.51 ***	1.59 ***	1.61 ***	1.47 ***
Married or Cohabiting	.91	.89	.88	.87	.88
Latino [Asian]	.97	.98	.83 *	.83 *	.82 *
Self-reported Racial Discrimination [Never]		1.45 ***		1.45 ***	1.45 ***
Smoking [Never smoked or only smoked a few times]					
Current Smoker			.98	.97	.97
Former Smoker			1.38 **	1.39 ***	1.40 **
BMI [Normal]					
Underweight (less than 18.5)			.89	.81	.77
Overweight (25-29.9)			1.22 *	1.20 *	1.19
Obesity (greater than 30)			1.70 ***	1.67 ***	1.63 ***
Family Support[c]					1.01
Friend Support[c]					1.00
Education [16+ years]					
0-11 years					.93
12 years					.88
13-15 years					1.02
Work Status [Employed]					
Unemployed					.98
Not in the labor force					1.53 ***
Household Income (in US $1,000)					1.00
Chi-square Test (-2 log-likelihood ratio)	258.93	284.09	283.68	307.81	327.43
Adjusted R2	.061	.068	.068	.074	.079
Sample Size	3208	3168	3183	3144	3136

a. These scales range from 3 to 12, where 3 indicates least proficiency and 12 indicates most proficiency.
b. This scale ranges from 3 to 15, where 3 indicates use of only dialect to speak and think, and 15 indicates using solely English to speak and think.
c. These scales range from 3 to 15, where 3 indicates least support and 15 indicates most support.
d. + p<0.1; * p<0.05; ** p<0.01; *** p<0.001
e. Reference categories in brackets.

Table 3. Odds ratios for the effects of language proficiency and preference on Latino Americans' chronic conditions, National Latino and Asian American Study, 2002-2003

	Model 1	Model 2	Model 3	Model 4	Model 5
English Proficiency[a]	1.01	1.01	1.01	1.02	1.03
Dialects Proficiency[a]	.98	.98	.99	.99	.99
English Usage[b]	1.06 *	1.05 +	1.06 *	1.05 +	1.06 *
US-Born	1.02	1.03	.99	1.00	.99
Age	1.05 ***	1.06 ***	1.05 ***	1.05 ***	1.05 ***
Female [Male]	1.81 ***	1.86 ***	1.90 ***	1.94 ***	1.66 ***
Married or Cohabiting	.88	.88	.85	.85	.91
Self-reported Racial Discrimination [Never]		1.47 ***		1.44 **	1.47 ***
Smoking [Never smoked or only smoked a few times]			.98	.97	.93
Current Smoker			1.35 *	1.33 *	1.30 +
Former Smoker					
BMI [Normal]			1.28	1.28	1.13
Underweight (less than 18.5)			1.25 +	1.24	1.24 +
Overweight (25-29.9)			1.69 ***	1.66 ***	1.60 **
Obesity (greater than 30)					
					1.00
Family Support[c]					1.02
Friend Support[c]					
Education [16+ years]					.92
0-11 years					.80
12 years					.95
13-15 years					
Work Status [Employed]					1.10
Not in the labor force					2.10 ***
Household Income (in US $1,000)					1.00
Chi-square Test (-2 log-likelihood ratio)	160.68	171.73	177.43	186.60	217.59
Adjusted R2	.069	.075	.077	.082	.096
Sample Size	1756	1733	1739	1717	1716

a. These scales range from 3 to 12, where 3 indicates least proficiency and 12 indicates most proficiency.

b. This scale ranges from 3 to 15, where 3 indicates use of only dialect to speak and think, and 15 indicates using solely English to speak and think.

c. These scales range from 3 to 15, where 3 indicates least support and 15 indicates most support.

d. + p<0.1; * p<0.05; ** p<0.01; *** p<0.001

e. Reference categories in brackets.

Table 4. Odds ratios for the effects of language proficiency and preference on Asian Americans' chronic conditions, National Latino and Asian American Study, 2002-2003

	Model 1		Model 2		Model 3		Model 4		Model 5	
English Proficiency[a]	1.00		1.01		1.01		1.00		.98	
Dialects Proficiency[a]	.93	**	.93	**	.93	**	.94	**	.94	*
English Usage[b]	1.01		1.01		1.00		1.01		1.00	
US-Born	2.17	**	2.17	**	2.08	**	2.08	**	2.12	**
Age	1.05	***	1.06	***	1.05	***	1.05	***	1.05	***
Female [Male]	1.17		1.17		1.26		1.26		1.22	
Married or Cohabiting	1.02		.99		1.00		.98		.91	
Self-reported Racial Discrimination [Never]			1.46	**			1.47	**	1.45	**
Smoking [Never smoked or only smoked a few times]										
Current Smoker					.93		.93		.93	
Former Smoker					1.39	+	1.42	+	1.45	*
BMI [Normal]										
Underweight (less than 18.5)					.88		.79		.76	
Overweight (25-29.9)					1.20		1.18		1.17	**
Obesity (greater than 30)					2.07	**	2.08	**	2.11	+
Family Support[c]									1.04	
Friend Support[c]									.98	
Education [16+ years]									.88	
0-11 years									.94	
12 years									1.07	
13-15 years										
Work Status [Employed]									.85	
Not in the labor force									1.11	
Household Income (in US $1,000)									1.00	
Chi-square Test (-2 log-likelihood ratio)	117.56		132.52		127.17		143.12		148.10	
Adjusted R2	.062		.070		.067		.076		.079	
Sample Size	1452		1435		1444		1427		1420	

a. These scales range from 3 to 12, where 3 indicates least proficiency and 12 indicates most proficiency.
b. This scale ranges from 3 to 15, where 3 indicates use of only dialect to speak and think, and 15 indicates using solely English to speak and think.
c. These scales range from 3 to 15, where 3 indicates least support and 15 indicates most support.
d. + p<0.1; * p<0.05; ** p<0.01; *** p<0.001
e. Reference categories in brackets.

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