Ethnicity, Acculturation and Self-Assessed Health among Retirement-Aged and Older Adults

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Abstract: Using data from the California Health Interview Survey, this study documents significant racial/ethnic variation in self-reported health among adults aged 51 and older and examines numerous sets of factors thought likely to account for the observed patterns. Specifically, the study considers physical health, functional status, lifestyle/preventive measures, social support, mental health, and acculturation variables as predictors of ethnic variation in self-rated health. The author finds that acculturation, particularly English language ability, accounts for much of the variation found between whites and some Latino and Asian groups but that none of the individual sets of factors nor the entire set of predictors sufficiently accounts for much greater likelihood of reporting fair or poor health status among Mexican origin and African American respondents when compared with whites. The findings support inclusion of more cultural measures in studies of self-reported health and suggest a need for further research into persistent ethnic differences.

Key Words: Race and Ethnicity, Acculturation, Self-Assessed Health, Immigrant Health

Word Count: 5,385 with 5 Tables

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INTRODUCTION

Study Background

Research examining self-assessed health (e.g., "Would you say your health is excellent, very good, good, fair or poor?") among older adults suggests a complex interplay between objective health measures and personal outlook on the reporting of health status. Although various studies suggest that objective indicators correspond well with health self-assessments (Carmel 2001, Carmel and Lazar 1998; Fillenbaum 1979; Jonnalagadda and Diwan 2005; Lee and Shinkai 2003; Linn and Linn 1980; Shetterly, Baxter, Mason and Hamman 1996) other studies document incongruities between objective factors and health ratings and suggest that cohort factors, selective survivorship, social roles and personal outlook intervene between objective measures and subjective health assessments (Borawski, Kinney and Kahana 1996; Gibson 1991; Idler 1993; Gonzalez, Chapman and Leventhal 2002; Kaplan and Baron-Epel 2003; Maddox 1962; Smith, Shelley and Dennerstein 1994). Additional research documents significant differences in self-rated health across ethnic groups and suggests the importance of examining cultural differences in role expectations, personal perspective and other criteria as explanations for these differentials (Bjerregaard and Curtis 1998; Carmel 2001; Franzini and Fernandiz-Esquer 2004; Read, Amick and Donato 2005; Read, Emerson and Tarlov 2005; Reijneveld 1998; Shetterly et al. 1996; Zimmer, Natividad, Lin and Chayovan 2000).

Cultural background heavily influences our global and self-perceptions through, for example, the language we use to describe personal and environmental conditions, our attitudes toward the healthcare system, expectations for informal care giving from friends and family, and our understanding of what constitutes "normal" functioning and behavior. As a result, to

understand differences in self-assessed health, it is important to consider how factors associated with cultural background can influence health ratings.

This study examines the health assessments of pre-retirement aged and older adults (i.e., individuals aged 51 and older) across a number of different ethnic groups in an attempt to document and describe racial/ethnic differences in self-reported health and determine the role that acculturative factors play in accounting for the observed patterns. Although ethnicity has often been used as a proxy for cultural characteristics, there is now wide recognition of the inadequacy of this approach. Ideally, the study data would include various indicators of cultural background that were recorded for each respondent. The acculturation-based measures for immigrants were the best approximations for cultural orientation included in the study data; therefore, the analyses to follow examined cultural predictors (i.e., acculturation level) only for immigrant respondents.

I focused specifically on older adults to control for some of the variation in factors that might influence health assessment. Although health status can vary widely across ages even among older adults, in general the social, physical, and cultural factors that influence self-perceptions of health status are relatively more uniform within a particular generation than when comparing across widely varying age cohorts. For example, young adults in the 18 to 34 age range typically do not suffer from the types of functional limitations and chronic health conditions that typically begin to appear in late adulthood and that can influence self-perceptions of health status. With the projected growth in the older non-white population in the United States improved understanding of how older adults view their health status and the factors that influence these assessments will assist in better predicting mortality and morbidity risks,

healthcare utilization patterns, and long-term service needs for an increasingly diverse population.

Factors Influencing Self-Assessed Health

Using a variety of qualitative and quantitative methods, a number of studies have attempted to delineate the range of factors that influence self-assessments of health (Angel and Cleary 1984; Bailis, Segall and Chipperfield 2003; Benyamini, Leventhal and Leventhal 2003; Idler, Hudson and Leventhal 1999; Pinquart 2001). Idler et al. (1999) combined qualitative and quantitative methods in order to test the hypothesis that the factors that influence self-rated health fall on a continuum from narrow, biomedical definitions to broad, inclusive concepts. They assumed that biomedical conceptions would be more closely related to poor self-rated health while more conceptually inclusive approaches would be associated with better self-ratings. Based on open-ended responses to the question, "what went through your mind" when the respondent provided a health assessment, these authors grouped answers into the following six hierarchical categories: 1) biomedical, 2) functioning, 3) health behaviors, 4) ability to engage in social activities, 5) social relationships and 6) psychological, emotional or spiritual factors. Their analyses of 159 elderly African American respondents found that health "overestimators" (i.e., those who scored low on objective indicators of health status but described their health as very good or excellent) were more likely to base their ratings on emotional or spiritual criteria than on strict biomedical definitions. Their study suggested one possible approach to the classification of factors that influence self-rated health and represents a unique contribution to the study of self-assessed health through the use of both qualitative and quantitative methods in the same research sample.

Most studies attempting to identify and evaluate the factors influencing health self-assessments do not include qualitative data and must use alternative classifications supported by prior qualitative or theoretical criteria. Bailis et al. (2003) utilized data from the National Population Health Survey in Canada to determine whether self-assessed health represents either a "spontaneous assessment" (i.e., based on current health status) or an "enduring self-concept" (i.e., formulated through an individual's psychological self-concept of their health). These authors grouped predictors into the following six categories: 1) physical, 2) mental, 3) social well-being, 4) functional ability, 5) lifestyle and preventive and 6) sociocultural constructions of health risks. The authors found that self-rated health was partially a function of current health status but also that the measure shows great stability over time, supporting the view that health assessment reflects both spontaneous and enduring criteria.

Benyamini et al. (2003) also took a quantitative approach in their interviews with 487 elderly people. Each respondent was read a list of 42 health-related factors and asked to rate the significance of each indicator as influencing the respondent's self-assessed health. These authors found that respondents who reported fair or poor health gave higher ratings to measures of current health status (e.g., ability to do things you need and want to do, level of energy, what doctor says about your health) while those reporting good, very good or excellent health emphasized risk factors and positive indicators (e.g., feel healthy, exercise, things done to prevent illness). Overall, the factor rankings were very similar among people who assessed their health as good, very good or excellent.

Importance of Acculturation on Self-Assessed Health

A growing body of literature documents significant differences in self-rated health by ethnicity and immigration status and suggests the importance of culture in accounting for these

disparities (Angel, Buckley and Finch 2001; Angel and Cleary 1984; Angel and Guarnaccia 1989; Carmel 2001; Chandola and Jenkinson 2000; Finch, Hummer, Reindl and 2002; Franks, Gold and Fiscella 2003; Franzini and Fernandez-Espuer 2004; Heron, Schoeni and Morales 2003; Jasso, Massey, Rosenzweig and Smith 2004; McGee, Liao, Cao and Cooper 1999; Newbold and Danforth 2003; Read, Amick and Donato 2005; Read, Emerson and Tarlov 2005; Ren and Amick 1996; Shetterly et al. 1996; Zimmer, Natividad, Lin and Chayovan 2000). The majority of these analyses reported poorer self-rated health among African American and Latino respondents and among foreign-born individuals when compared with whites and the native-born, respectively; however, significant variation exists. For example, Read, Emerson and Tarlov (2005) studied the self-rated health of black Americans. These authors found while U.S.-, European-, and West Indian-born blacks reported worse self-rated health than U.S.-born whites, African-born blacks gave comparatively better health ratings. This example provides evidence of the need to compare not only across ethnic and nationality groups but within these sub-populations as well. These comparisons should be conducted within a framework that outlines and classifies the factors that influence self-rated health but one that specifically includes conceptualization for sociocultural predictors.

Research Questions

Studies that have suggested the importance of sociocultural factors of self-rated health have either inferred cultural differences based on cross-national comparisons (Lee and Shinkai 2003; Reijneveld 1998; Zimmer et al. 2000) or included various measures of acculturation status to compare immigrants with native-born individuals (Angel, Buckley and Finch 2001; Angel and Cleary 1984; Carmel 2001; Franzini and Fernandez-Esquer 2004; Jasso et al. 2004; Read, Amick and Donato 2005; Shetterly et al. 1996), each with varying degrees of attention to additional

predictors. The present study examines a large number of U.S.-based racial/ethnic groups, considers several indicators of acculturation status, and examines numerous categories of predictors that have been previously shown to influence reports of self-rated health. The analyses presented in this paper addressed two primary research questions. First, how does self-rated health vary by ethnicity and acculturation level among older adults? Most of the studies referenced above reported worse self-rated health among racial and ethnic minority groups and immigrants when compared with native-born white respondents. However, as noted earlier, Read et al. (2005) and others have found variations within ethnic groups by immigrant status suggesting positive health selection effects for certain sub-groups (e.g., immigrants from geographically distant regions often give better health ratings than those from more geographically proximal locations) (Franzini and Fernandez-Esquer 2004; Jasso et al. 2004). Based on these findings, I predicted lower self-rated health within ethnic minority groups when compared with white respondents and that while groups with large numbers of immigrants will report worse health than those composed primarily of native-born individuals, the effect will be stronger for more geographically proximal populations.

Second, to what extent do cultural factors attenuate racial and ethnic differences in self-rated health among older adults, particularly when compared with other health-related predictor variables? Because cultural perspective pervades all other aspects of health status (e.g., determines what is considered "normal" functioning, influences the decision of when to seek care and from what type of provider, etc.) I predicted that the acculturation measures included in this study would prove the most significant factors accounting for ethnic differences in self-rated health between groups with large number of immigrants and native-born whites, the comparison group.

In order to address these two research questions, I modified the set of factors identified as influencing self-reported health from the prior studies. It was not possible to directly replicate the hierarchical approach from the Idler et al. (1999) paper due to the lack of qualitative information in the data chosen for this study's analyses. The Bailis et al. (2003) categories were more appropriate but I did not have access on information pertaining specifically to socio-cultural constructions of health risks and substituted acculturation measures as a proxy for cultural frame of reference. Therefore, the variables in this study were grouped into the following seven categories: 1) socioeconomic and demographic, 2) physical health, 3) functional status, 4) lifestyle/preventive, 5) social well-being, 6) mental health and 7) acculturation.

METHODS

Data

Data for this study were derived from the public-use files of the 2001 California Health Interview Survey (CHIS), a telephone survey of 55,428 households drawn from every county in California (California Health Interview Survey 2002). The survey utilized random-digit dialing and provides a sample that is representative of California's non-institutionalized population living in households with a telephone. Interviews were conducted between November 2000 and October 2001 with one adult respondent. In households with children, the CHIS interviewed one adolescent aged 12-17 and obtained information for one child under the age 12 in each qualified household from the adult most knowledgeable about that child. Over-sampled populations include American Indians and Alaska natives, Japanese, Vietnamese, South Asians, Koreans and Cambodians. Analyses for the present study were limited to the adult component and specifically to respondents aged 51 and older.

California provides a particularly suitable setting for comparative studies across older racial and ethnic groups. According to data from the U.S. Census Bureau, at nearly 3.6 million California boasts the largest population of individuals aged 65 and older (U.S. Census Bureau 2001). In addition, California has been a prime destination not only for immigrants generally but for older immigrants more specifically (Rogers and Raymer 1999). Estimates suggest that approximately one-quarter of the elderly population in California are foreign-born (Lee, Miller and Edwards 2003). The immigrant population of the state is also highly diverse, with large numbers of recent and more temporally distant arrivals as well as representatives from numerous sending regions and a highly ethnically diverse native population.

These data are also particularly suitable for the study's purposes because they include a number of ways to examine acculturation level. In addition to measures of language use and English ability, respondent and parental birthplace, and time resident in the U.S., the CHIS permits delineation of nativity into three groups: 1) native born individuals, 2) naturalized citizens and 3) non-citizens.

Dependent Variable

As noted above, self-rated health has been used as a predictor or outcome variable in numerous prior studies. The wording of the item has differed slightly across the literature with some studies asking for general assessments (i.e., "In general, would you say your health is excellent, very good, good, fair or poor?") and others asking for peer evaluation (i.e., "Compared with people your age, would you say your health is…?"). The CHIS asked for a general rating with a code of "1" indicating "excellent" overall health and "5" for "poor" health. For the purposes of this study, responses were dichotomized to "fair/poor" self-rated health and "good/very good/excellent" health, as done in similar prior studies (Angel et al. 2001; Finch et

al. 2002; Ren and Amick 1996; Chandola and Crispin 2000). This approach is further justified by findings from Benyamini et al. (2003) that individuals reporting fair or poor health appear to utilize different criteria for health ratings than those who report good, very good or excellent health and that the latter groups of respondents all weigh similar sets of factors. Statistical analyses modeled "fair/poor" health as the outcome of interest.

Independent Variables

Socioeconomic and Demographic

The racial/ethnic categories utilized in the study include the following: Mexican, Other Latino, American Indian/Alaskan Native, Chinese, Other Asian, African American, Other 1 Race, Other 2 or More Races, and white. The CHIS permits identification of sub-populations among Latino and Asian respondents. Analyses revealed that among this study's population (results not presented but available upon request) 65.3% of the Latinos were Mexican American with the remainder of respondents reporting the following backgrounds: Central America (6.9%), Puerto Rico (1.6%), South America (2.7%), "other" Latino (13.1%) and two or more Latino sub-types (10.4%). In the case of Asians, 30.3% were Chinese, 22.4% Filipino, 43.9% "other" Asian and 3.5% two or more Asian sub-types. While acknowledging the great diversity within these ethnic categories sample sizes for some sub-groups were too small to detect statistical significance so categories were collapsed as needed. Future study on this topic will address more specific factors at the sub-group level when feasible. Whites served as the reference group in multivariate analyses due, in part, to their large representation in the sample population but also because they gave the most positive self-assessments overall.

In addition to age and race/ethnicity, the sociodemographic predictors included in the analyses were sex, educational attainment, household poverty level, and metropolitan residence.

Age was generally treated as a continuous variable but in some model specifications the following categories were used: 51 to 64, 65 to 74 and 75 or older. Educational attainment included four groups, less than a high school degree, high school degree or diploma, some college, and a bachelor's degree or higher. Household poverty level utilized the following groups: 0-99% of the Federal Poverty Level (FPL), 100-199% FPL, 200-299% FPL and 300% or greater FPL. Metropolitan status contrasted metropolitan residents with non-metropolitan residents.

Physical Health

Physical health measures included body mass index (BMI), number of chronic conditions reported, and whether or not the respondent felt energetic in the past week. In separate questions all respondents were asked whether a physician had ever told them they had any of the following conditions: arthritis, asthma, diabetes, high blood pressure, heart disease or cancer. The number of conditions was summed across these questions creating an indicator for number of chronic conditions ranging from 0 to 6. Respondent BMI, calculated as weight (in kilograms) divided by height (in meters) squared, was classified into the following three groups: normal (BMI = 18.5-24.9), under or overweight (BMI of less than 18.5 and of 25-29.9, respectively) and obese (BMI of 30 or greater). I combined the over and underweight categories since both have been found to relate to higher mortality risk when compared to a normal weight but to lesser extent than obesity (Katzmarzyk, Craig and Bouchard 2001).

Functional Status

The measures of functional status include measures of physical limitations as well as use of equipment. The item, whether or not the respondent's health limits them in doing moderate activities (e.g., moving a table, pushing a vacuum cleaner, playing golf), utilized three categories

(limited a lot, a little or not at all). A measure of the extent to which pain interferes with normal work utilized five categories (i.e., pain interferes not at all, a little bit, moderately, quite a lot or extremely). The remaining indicators, whether or not in the past four weeks the respondent's physical health forced them to do less than they wanted to, and whether they have any health problem that requires them to use special equipment (e.g., cane, wheelchair), were scored as yes/no responses.

Lifestyle and Preventive

A large number of items were examined as lifestyle and preventive health factors. Separate variables indicated dietary habits (e.g., number of times eating vegetables in a week and a dichotomous indicator of the use of vitamin supplements), health habits (e.g., ever smoked at least 100 cigarettes in entire life, type of activity in an average day, use of alcohol in the past month, and participation in moderate activities in past 30 days), and use of the healthcare system. The latter category included whether or not the respondent had a usual place of care, whether or not the respondent had experienced a hospital stay of overnight or longer in the past year, the number of times they saw a medical doctor in the past 12 months, and whether or not the respondent delayed seeking health care in the past 12 months.

Social Well-Being

The social well-being measures attempted to describe sources and types of social support and/or integration. The measures included in this category included whether or not physical or emotional problems interfered with the respondent's social life in the past four weeks, marital status (married, not currently married or never married), and work activity in the past week. The latter variable included the following categories: working at a job, with a job but not at work, looking for work and not at work and not looking with the assumption of higher social

integration for those currently working and the least for those not at work and not looking for a job. Although marital status is generally treated as a sociodemographic factor in most studies, for the purposes of this analysis it was seen as a more useful indicator of social support.

Mental Health

The mental health measures included an identifier for whether or not emotional problems led the respondent to do less than they wanted over the last four weeks. Also included was an item asking how often the respondent felt calm and peaceful over the past four weeks (all of the time, most of the time, some of the time, a little of the time or not at all). Another variable indicated whether or not the respondent needed care from a mental health professional in the last 12 months. Finally, in an attempt to capture some indicator of social stress, respondents were asked to indicate whether or not they felt discriminated against in receiving health care in the past 12 months (though I did not examine specific reasons for feeling discriminated against due to sample size limitations, a follow-up question in the survey included numerous possible responses such as age, race/ethnicity, language/accent, gender, body weight, insurance type, and income level).

Acculturation

The final set of variables was the acculturation measures. Respondents were asked their country of birth (categorized as foreign-born or U.S.-born) as well as their parents' countries of birth. The latter question was asked separately for the respondent's mother and father but was combined into a single indicator with three categories: both parents U.S.-born, one parent foreign-born, and both parents foreign-born. Respondents were asked which language(s) are spoken at home and this variable was collapsed into the following groups: English only, English and some other language(s), and language(s) other than English only. Citizenship status

contrasted native-born respondents with naturalized and non-citizen respondents and respondents indicated how many years they have lived in the U.S. as well as how well they were able to speak English (very well, well, not very well or not at all).

Statistical Approach

All analyses were conducted using SAS version 8.2 (SAS Institute Inc, Cary, NC; SAS Institute 2000). Statistical analyses proceeded through a series of bivariate and multivariate models in order to test the effects of the seven sets of factors on health ratings by race and ethnicity. Multivariate models utilized logistic regressions due to the bimodal nature of the dependent variable. Significance levels were determined using the χ^2 test statistic. Comparative multivariate models were evaluated using the likelihood ratio test, a goodness-of-fit statistic that compares two nested models (i.e., one model is a sub-set of the other). The statistic follows a χ^2 distribution with degrees of freedom equal to the number of parameters in the full model minus the number of parameters in the reduced model and is calculated as follows:

1) $\chi^2 = 2\{(\text{Log likelihood of Full Model}) - (\text{Log likelihood of Reduced Model})\}$

Results

Ethnic Differences in Self-Rated Health

As predicted, there are significant differences in the report of fair/poor health by ethnicity and acculturation levels with the patterns conforming to expectations. Table 1 presents the sample sizes and health ratings by ethnic group. Looking at the last column of the table we see that while 47.4% of Mexican-origin respondents reported fair or poor health only 20.3% of whites did so. As expected, whites had the highest percentages of good, very good or excellent health overall with individuals of a single other race nearly equivalent. American Indian/Alaskan Natives and African Americans had the second and third worst health ratings,

with 38.4% and 36.5% reporting fair/poor health, respectively. Other Latinos, Chinese and Other Asians were the only other groups with appreciable numbers of immigrants and it is interesting to note their relatively better health ratings when compared with Mexicans, supporting the hypothesis of geographic-based health selection effects as posited by Jasso et al. (2004).

TABLE 1 ABOUT HERE

Figure 1 presents the results from a logistic model that predicted fair/poor health across the different ethnic groups included in the analysis. Using white respondents as the reference category, the figure confirms the statistically significant higher odds of reporting fair/poor health across nearly all of the racial/ethnic sub-groups. Only among persons reporting some single other race are the odds equivalent to those of whites (OR = 1.12, 95% CI [0.756 , 1.666]).

FIGURE 1 ABOUT HERE

Acculturation Levels and Their Association with Self –Rated Health

Table 2 presents cross-tabulated results of the measures of acculturation level by ethnic group. All of the variables show significant variation across ethnic groups. As noted above, Mexicans, Other Latinos, Chinese, and Other Asians were the only ethnic minority groups with large numbers of immigrants and levels of acculturation varied significantly across these groups depending on the measure in question. On some measures, Chinese and other Asians were the least acculturated (e.g., much higher percentages of Asians than Latino were foreign born and/or had two parents who were both foreign born) but on other measures Mexicans and other Latinos showed lower levels of acculturation (e.g., 22% of Mexican origin individuals said they did not speak English “at all” and approximately 23% were non-citizens, compared with 14%, 17% and

15% for other Latinos, Chinese and other Asians, respectively). Given the ages chosen for analysis (i.e., 51 and older) it is perhaps not surprising to find that nearly all respondents had been in the United States for 15 years or longer. Only among Chinese and other Asians were there significant numbers of respondents with 9 or fewer years residence in the U.S. (5.8% and 2.6%, respectively). Based on the data reported in Table 2, statistical analyses that include the acculturation measures focused on these four groups.

TABLE 2 ABOUT HERE

Table 3 demonstrates the importance of acculturation to the reporting of self-rated health. Across all of the acculturation measures those with lower acculturation levels were significantly more likely to report fair or poor self-assessed health as opposed to good, very good or excellent health. Although all of the reported findings were significant at $p < 0.001$, the most striking finding was for ability to speak English, where 71% of respondents who said they did not speak English "at all" reported fair/poor health versus 22% for those reporting that they speak English "very well." Despite the small sample sizes by years of residence there were statistically significant differences detected in these bivariate analyses.

TABLE 3 ABOUT HERE

The results from the previous two tables indicate substantial variation in acculturation levels across the sampled respondents as well as suggest the significance that acculturation levels may play in personal health assessments. The analyses to follow attempt to determine the importance of these predictors in explaining the wide variations in self-rated health illustrated in Figure 1 when compared with alternative explanatory variables.

Model Estimates Compared Across Ethnic Groups

Table 4 tests each set of predictor variables individually by ethnic group. The first block of estimates in the table, therefore, represents the results from the logistic model of fair/poor health regressed on the sociodemographic predictors among Mexican-origin respondents. The second block, to the right, represents the same model for Other Latinos while the block immediately below examines the physical health variables among Mexicans, and so on. The purpose of the table was to demonstrate ethnic differences in the factors influencing self-rated health. However, it should be noted that sample sizes played an important role in these analyses. For groups with relatively small samples, the models did not detect as many difference as those for groups with larger numbers of respondents (e.g., compare the results for American Indians/Alaskan Natives with those for whites). Despite this limitation, the results are informative across most of the groups included.

Sociodemographic Model

Education and poverty level were the strongest sociodemographic predictors across ethnic groups. The results demonstrate that individuals with higher education levels are less likely to report fair/poor health, relative to good, very good or excellent health while those with higher household poverty levels are more likely to report worse health. Only among Chinese respondents did neither of these findings hold. The only significant sociodemographic factor for Chinese respondents was age, with older individuals reporting poorer health.

Physical Health Model

The physical health measures included in the analysis showed strong associations with self-rated health across all ethnic groups. Higher numbers of reported chronic conditions were associated with poorer health ratings as was agreement with the statement that the respondent

"lacked energy" in the last four weeks. Although obesity was linked to poorer health rating this finding was significant only for Other Latinos.

Functional Status Model

The functional health measures were also highly associated with health rating across most of the groups analyzed. Individuals who reported limitations in daily activities, those with said they did less than they wanted to in the last four weeks and respondents who said that pain "extremely" interfered with their normal work were more likely to report fair or poor health. The use of special equipment was another predictor of poor health status but only among African Americans and whites. Again, Chinese were quite different from other respondents with pain a less important predictor of health report and doing less than desired not significant at all. Functional status was generally not significant to the health ratings of American Indians/Alaskan Natives and persons of one other race but these findings may relate to their relatively smaller sample sizes.

Lifestyle/Preventive Model

Due to the large number of predictors included in the Lifestyle/Preventive model I will not discuss each variable individually but will highlight important findings. First, it is interesting to note that only among Mexican and white respondents did personal dietary habits influence self-reported health. Individuals who ate vegetables more regularly and those who used vitamin supplements reported better health with vitamin use a significant predictor for American Indian/Alaskan Natives and Other Asians as well. Lifestyle patterns (e.g., activity levels) were significant for Mexican, African Americans, whites, in persons of two or more other races and healthcare utilization variables were important predictors for most groups. However, note the significant variation in the importance of individuals variables across groups. In some cases, one

of the most important predictors for individuals of one ethnic group (e.g., type of daily activity among Chinese) does not even rank in significance for others (e.g., Mexicans and Other Latinos).

Social Support Model

Somewhat surprisingly, marital status was a significant covariate for social support only among white respondents. Within this group, individuals who were not married at the time of the interview (i.e., were widowed, divorced or separated) reported worse health than married individuals. Nearly universal was the finding that individuals who reported problems in their social life in the past four weeks and those without employment and not looking for work were more likely to report fair or poor self-rated health.

Mental Health Model

The significance of mental health predictors varied a lot across ethnic groups. The report of emotional problems interfering with what respondents hoped to do over the previous four-week period was the most consistent mental health predictor of poor self-rated health and the only significant factor for American Indian/Alaskan Natives and Chinese respondents. Saying that one felt calm and peaceful over the last four weeks was also highly significant across most groups. Only Mexican and white respondents showed an association between feelings of discriminations in receiving health care and self-assessed health and the need for emotional health in the past 12 months was uniquely significant for persons of other Asian backgrounds.

Acculturation Model

Finally, we turn to the Acculturation model. As expected, Mexicans, Other Latinos, Chinese, Other Asians, and whites showed significant effects by various acculturation measures. For this set of analyses, the number of acculturation measures included in multivariate models was reduced due to the high correlations between certain sets of variables. For example, parental

birthplace directly influences respondent's birthplace. Similarly, languages spoken at home is highly correlated with English language ability (i.e., those who speak only English are far more likely to say they speak English "very well" compared with those who speak English and some other language or only some other language(s)). The final set of variables in the Acculturation model, therefore, was parental birthplace, English ability, citizenship status and years spent in the U.S. Despite the fact that each of these four predictors was significantly associated with self-reported health across each ethnic group (results not reported but available upon request), English speaking ability trumped other acculturation measures in multivariate models across all ethnic groups except Other Asians. As expected, those reporting poorer English language skills were far more likely to report fair or poor health than individuals with better speaking ability. Among Other Asians, individuals with two foreign-born parents were most likely to report poor health.

The importance of Table 4 is to point out the wide variation in factors influencing self-rated health across ethnic groups. Objective health measures (i.e., physical health indicators and functional status) and social support variables were significant across all of the groups considered. Other sets of predictors varied in significance from one group to the other with sociodemographic variables relatively insignificant for Chinese respondents compared with all other groups. The acculturation measures were individually important across all of the groups with sufficient numbers of immigrants but English language ability far outweighed other factors.

TABLE 4 ABOUT HERE

The final table (Table 5) presents a series of logistic models that control for each set of the predictor variables one at a time in order to gauge the impact on ethnic differences in self-reported health. The table reports only the coefficients for the ethnic groups in order to

demonstrate the marginal effect on these independent variables. Model 1 reiterates the findings reported in Figure 1 and serves as the baseline model for comparison purposes. Examination of the final column of the table confirms that each individual model represents a significant improvement over the baseline model which includes only the indicators for ethnic group. Of greater interest are the estimates and Odds Ratios reported for the individual models.

A comparison of the estimates between models 1 (ethnicity only) and 2 (ethnicity and sociodemographic characteristics) demonstrates substantial reductions in ethnic differences in reporting of fair/poor health among these older adult respondents. Many of the Odds Ratios are reduced by nearly a third after controlling for differences in sociodemographic characteristics; however, note that all of the ethnic differences remain highly significant. These findings were not unexpected given the wide variation in sociodemographic measures between members of ethnic minority groups and whites. For example, 54% of Mexican respondents reported highest educational attainment of less than a high school degree compared with only 7.5% among whites. Similarly,29.7% of Mexicans and 25.5% of Chinese reported household incomes of 0 to 99% of the Federal Poverty Level versus approximately 7% of whites. Given these wide variations and the significance of sociodemographic factors in influencing self-assessed health the dramatic reduction in ethnic differences from the Sociodemographic model should not be unexpected.

The Lifestyle/Preventive and Mental Health models also showed some reduction in ethnic differences in fair/poor self-rated health due to the greater likely of ethnic minority groups reporting poor outcomes on these measures. Despite the significantly better fit of these two models over the baseline model these factors did little to account for the observed ethnic differences. The Physical Health, Functional Status and Social Support models actually

increased ethnic disparities in self-rated health across most of the ethnic minority groups. These findings can be explained by the great variability in the individuals measures for each model across ethnic groups. For example, while nearly 15% of Mexicans reported feeling energetic "all of the time" only 6% of whites endorsed this response. However, nearly 34% of Mexicans were obese by the BMI standard compared with only around 19% of whites. Therefore, although physical health and functional status variables were significant predictors of self-rated health across all ethnic groups, the wide variation in health standing from one individual variable to another within these models actually enhanced ethnic differences rather than account for them.

Finally, we turn special attention to the Acculturation model. Comparing the estimates from the baseline model with this model we again find substantial reductions by ethnicity in the odds of reporting fair or poor health among those groups with large numbers of immigrant respondents. Most significantly, the results demonstrate that differences in acculturation level between Chinese and Other Asians versus whites completely eliminated the self-assessed health disparity for these two groups. However, the same did not hold true for Mexican and Other Latino respondents. As noted above, by far the strongest predictor in this set was English language ability. Returning to Table 2 momentarily it is particularly interesting to note that nearly none of the Chinese or Other Asian respondents reported a complete inability to speak English whereas 22% of Mexicans and 10% of Other Latinos said they did not speak English "at all." It is therefore interesting to find that English language ability is such an important factor influencing ethnic differences in self-rated health between Chinese and Other Asians compared with white respondents, a point I return to in the section to follow.

DISCUSSION

This study sought to demonstrate ethnic differences in reports of self-rated health among pre-retirement age and older adults as well as to identify sets of factors that could account for these differences. Specifically, the study attempted to demonstrate the importance of culturally-based factors for determining where differences arise. The analyses were able to confirm that significant differences in health self-assessments exist across ethnic groups and that immigrant acculturation measures accounted for much of this variability. Specifically, controlling for English language ability completely wiped out differences between whites and Chinese or other Asians and significantly reduced the effect for Mexicans and other Latinos.

The overwhelming importance of English speaking ability found here supports the conclusions from prior research (Angel, Buckley and Finch 2001; Finch, Frank and Vega 2004; Franzini and Fernandez-Esquer 2004). Angel, Buckley and Finch (2001) reported significant language effects in their study of older Latinos and suggested that English language proficiency serves as a protective factor for mental and physical health assessments. Franzini and Fernandez-Esquer (2004) also recently examined language as a predictor of self-rated health and found wide variation, suggesting that such language differences represent "culturally conditioned responses" to the question of health status and perception. The importance of English language use supports the need for overcoming language barriers throughout the healthcare system of the United States in order to improve individual understanding of health status, improve the provision of healthcare, and arrest premature declines in health outcomes.

The study also examined various other sets of predictors of self-rated health (as identified in the prior literature) that could account for the ethnic variability observed. The analyses confirmed the significance of objective factors as predictors of self-assessed health. Both

physical health and function limitations variables were significantly associated with self-rated health across all of the groups studied. However, these sets of variables were less useful for informing ethnic differences in health assessments due to the wide variation in the specific measures included. On some of these objective measures ethnic minorities had better outcomes than whites while on others whites were better off. The overall effect in multivariate analyses was to accentuate ethnic differences in the odds of reporting fair or poor health, rather than minimizes these disparities.

What the analyses most clearly revealed is that older adults who are members of ethnic minority groups (particularly those groups with large numbers of immigrants) are disadvantaged compared with whites primarily with respect to sociodemographic and acculturative characteristics and that these two sets of factors together account for much of the ethnic variation in self-reported health. As reported in prior research, socioeconomic variables such as educational attainment and household income or poverty status are highly predictive of self-assessed health (Angel, Buckley and Finch 2001; Carmel 2001; Carmel and Lazar 1998; Newbold and Danforth 2003; Reijneveld 1998; Shetterley et al. 1996). Individuals with lower educational attainment and poorer economic standing are far more likely to view their health negatively. The results of this study confirm those findings and suggest the need to further explore the extent to which these more negative assessments reflect truly worse health or simply reflect a more depressed outlook on one's overall situation and environment. Regardless of the reasons, this studies findings clearly indicate that equalization of socioeconomic status would go a long way toward eliminating the ethnic disparity in health perception.

The significance of the acculturation measures in these analyses reaffirms the need for better understanding of how culture influences health perceptions and outcomes. However, the

analyses did not include any direct measures of respondent cultural practices or beliefs. Several authors have criticized as inadequate many of the proxy measures for culture that are frequently utilized in the literature (e.g., race and ethnicity) and have called on the need for direct assessments of cultural background in studies of minority health (Lopez 1994; Guarnaccia and Martinez 1989; Alegría and McGuire 2003).

The need for such direct measures is not limited to immigrant groups or even to ethnic minority groups. There is an explicit assumption in much social science research that the majority white culture is so well defined and understood that it does not require either analysis or explanation. However, this is a specious assumption not only because no single majority white culture exists but also because it is impossible to make reliable comparisons when no explicit description is given of the baseline or comparative state. Native-born whites often serve as the reference group in social scientific studies of health status and outcomes in part because of their larger population size but also often because they fare the best, overall, on most health outcome measures. As the ethnic minority population grows it is becoming increasingly important to uncover the more subtle cultural differences that influence the ways in which social scientists ask questions about health and interpret findings from quantitative studies, and how the healthcare system is set up to perpetuate ethnic disparities in health perceptions and outcomes.

Reliance on survey data limits the ability to examine ethnic differences in what self-report of health means (Angel and Guarnaccia 1989; Gibson 1991; Jylha et al. 1998). Although much research has been conducted in the area of meaning in health self-reports the best approach for a study of this nature would be to combine qualitative and quantitative methods to better inform the meaning and significance of self-assessed health. Particularly when the populations under consideration incorporate such diverse groups qualitative interpretation is necessary.

The cross-sectional nature of the study design significantly impairs the ability to draw causal inferences regarding the various sets of predictors and health status. Similarly, the CHIS contains very limited information on context of arrival for immigrants. Older immigrants with frequent prior visits or a long history of residence in the U.S. likely differ in their experiences of the acculturation process than more recent, first-time arrivals. Evidence from longitudinal research is required to adequately address these issues.

The data used in this study were limited to residents of California. Although the data set includes weights for extrapolating findings to the state population, a large, nationally-representative and ethnically diverse sample with some means of describing immigrant context, social relationships, personal health expectations, and other culturally relevant factors would be preferable for this type of analysis. The National Health Interview Survey (NHIS), on which the CHIS was conceptually based, has been used in recent studies of self-rated health and has proved useful in analyzing relatively small population sub-groups such as Arab Americans and immigrant blacks (Read, Amick and Donato 2005; Read, Emerson and Tarlov 2005); however, the NHIS lacks sufficient indicators of the basic quantitative indicators of cultural background and also includes no qualitative data. Evidence from nationally-representative longitudinal data, such as the New Immigrant Study (Jasso et al. 2000) can offer much richer evidence of how, for example, immigration patterns interact with various aspects of the acculturation process to influence individual health but even this specific source is restricted in its capacity for generalization (e.g., the study only follows permanent residents and excludes "undocumented" immigrants).

Until more comprehensive quantitative/qualitative studies are undertaken researchers interested in the health outcomes for racial and ethnic minority groups must continue to build

evidence for likely relationships. In the meantime, this study confirms the need for greater differentiation among ethnic groups more generally, and foreign-born populations more specifically, in assessments of health and well-being and highlights the need for more culturally-specific information.

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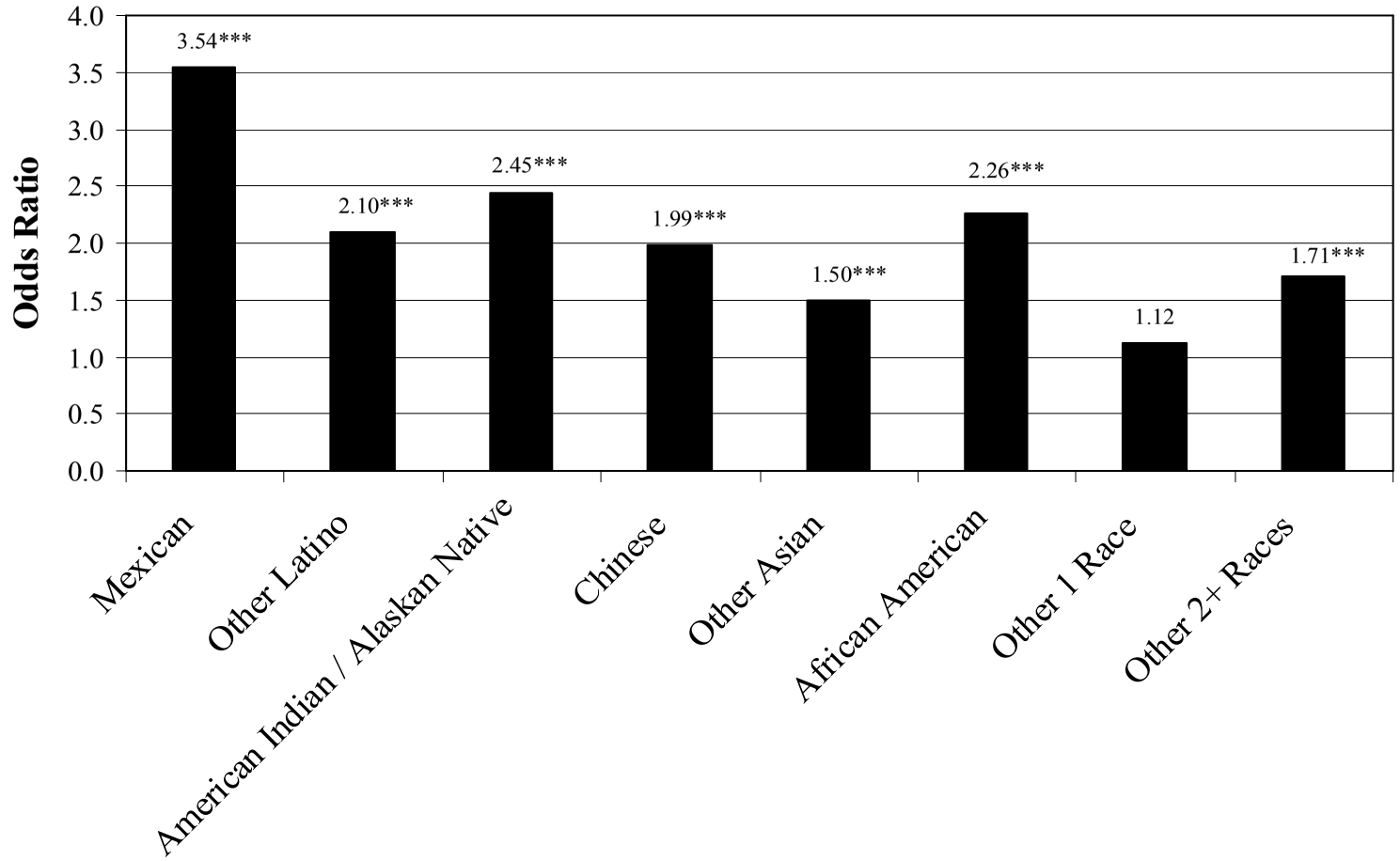
Table 1: Self-Assessed Health Among Older Adults: By Ethnic Group

	Sample Size	Good/ Very Good /Excellent	Fair/Poor
Mexican	1,598	52.6	47.4
Other Latino	851	65.1	34.9
AIAN[a]	172	61.6	38.4
Chinese	349	66.4	33.6
Other Asian	776	72.4	27.6
African American	968	63.5	36.5
White	16,981	79.7	20.3
Other 1 Race	144	77.8	22.2
Other 2+ Races	846	69.7	30.3

*Notes: Source: California Health Interview Survey, 2001 Adult Sample; [a] – American Indian/Alaskan Native; *** - indicates p < 0.0001*

Figure 1: Odds of Reporting Fair/Poor Health Compared with White Respondents



*Notes: Source: California Health Interview Survey, 2001 Adult Sample, *** - indicates p < 0.0001*

Table 2: Measures of Acculturation Level by Ethnic Group

	Total	Mexican	Other Latino	AIAN[a]	Chinese	Other Asian	African American	White	Other 1 Race	Other 2+ Races
N	*22,742*	1,598	851	172	349	776	968	16,981	144	846
Place of Birth***										
United States	*85.2*	47.1	59.0	98.8	18.7	23.9	97.0	92.9	84.0	97.5
Foreign Born	*14.8*	52.9	41.0	1.2	81.3	76.1	3.0	7.2	16.0	2.5
Parental Birthplace***										
Both Parents U.S.	*68.2*	16.7	33.9	92.4	3.2	6.6	95.1	75.9	68.6	91.0
One Parent Foreign Born	*10.2*	15.7	13.8	5.3	5.8	5.8	1.7	10.6	11.4	6.2
Both Parents Foreign Born	*21.6*	67.6	52.3	2.3	91.0	87.5	3.2	13.5	20.0	2.9
Language(s) Spoken at Home***										
English Only	*80.4*	15.5	33.1	84.9	14.0	24.3	94.2	91.6	77.8	89.5
English and Other	*12.9*	53.4	47.1	10.5	30.4	40.9	4.3	6.4	13.2	7.8
Other Only	*6.7*	31.0	19.7	4.7	55.6	34.8	1.5	2.0	9.0	2.7
Ability to Speak English***										
Very Well	*88.7*	37.7	54.8	92.4	26.1	45.1	98.8	97.4	92.4	97.3
Well	*5.2*	17.6	20.5	5.2	25.2	26.4	1.0	2.3	6.3	2.5
Not Well	*4.1*	22.5	14.8	1.7	48.7	28.4	0.2	0.3	0.7	0.2
Not at All	*2.0*	22.2	10.0	0.6	0.0	0.1	0.0	0.0	0.7	0.0
Citizenship Status***										
U.S. Born	*85.1*	47.1	57.6	98.8	18.9	24.1	97.0	92.8	84.0	97.5
Naturalized	*10.8*	30.0	28.6	0.6	63.9	61.1	2.3	5.8	11.1	2.1
Non-Citizen	*4.0*	22.9	13.9	0.6	17.2	14.8	0.7	1.4	4.9	0.4

Table 2, Continued…

Years Lived in the U.S.***										
0 to 9	*0.4*	1.6	0.6	0.0	5.8	2.6	0.1	0.1	0.7	0.1
10 to 14	*1.6*	6.2	3.8	0.0	19.8	14.0	0.1	0.3	0.7	0.2
15 or More	*98.1*	92.2	95.6	100.0	74.4	83.5	99.8	99.7	98.6	99.7

*Notes: Source: California Health Interview Survey, 2001 Adult Sample; [a] – American Indian/Alaskan Native; *** - indicates p < 0.0001*

Table 3: Self-Assessed Health by Acculturation Measures

	Good/ Very Good /Excellent	Fair/Poor
Total		
N	17,169	5,542
Percentage	75.6	24.4
Place of Birth***		
United States	77.5	22.5
Foreign Born	64.7	35.3
Parental Birthplace***		
Both Parents U.S	77.8	22.2
One Parent Foreign Born	78.3	21.7
Both Parents Foreign Born	67.5	32.5
Lanuage(s) Spoken at Home***		
English Only	78.3	21.8
English and Other	70.7	29.3
Other Only	53.1	46.9
Ability to Speak English***		
Very Well	78.3	21.7
Well	70.1	29.9
Not Well	46.3	53.7
Not at All	28.7	71.3
Citizenship Status***		
U.S. Born	77.5	22.5
Naturalized	68.5	31.5
Non-Citizen	54.3	45.7
Years Lived in the U.S.***		
0 to 9	55.4	44.6
10 to 14	50.6	49.4
15 or More	76.1	23.9

*Notes: Source: California Health Interview Survey, 2001 Adult Sample; *** - indicates $p < 0.0001$*

Table 4: Parameter Estimates from Individual Logit Models Predicting Fair/Poor Self-Rated Health: Comparisons Across Ethnic Groups

MODEL	Mexican	Other Latino	AIAN[a]	Chinese	Other Asian	African American	White	Other 1 Race	Other 2+ Races
1) Sociodemographic									
Gender	0.204	0.263	-0.611	0.077	0.025	0.079	-0.193***	0.766	0.050
Age	-0.183	-0.150	-0.249	0.513*	-0.106	0.056	0.269***	0.439	0.046
Education	-0.511***	-0.427***	-0.303	-0.138	-0.332***	-0.218*	-0.360***	-0.627*	-0.251*
Poverty Level	0.461***	0.446***	0.650**	0.215	0.643***	0.499***	0.462***	0.373	0.544***
Metro Residence	0.005	0.035	0.956	0.347	-0.675	0.277	0.111	-0.256	0.089
2) Physical Health									
# Chronic Conditions	0.468***	0.523***	0.486*	0.424*	0.422***	0.573***	0.566***	0.595*	0.616***
BMI	0.130	0.319*	0.230	-0.158	0.302	0.000	0.071	-0.392	0.063
Lacking Energy	0.666***	0.841***	0.718**	1.108***	0.774***	0.971***	1.294***	1.014***	1.213***
3) Functional Status									
Limited Activities	0.632***	0.827***	0.320	0.829***	0.650***	0.633***	1.129***	1.355**	1.185***
Did Less than Wanted	0.520**	0.771***	0.930	0.722	1.194***	0.842***	0.955***	0.463	0.635*
Pain Interfered	0.468***	0.466***	0.416	0.414*	0.332***	0.404***	0.343***	0.039	0.467***
Use Equipment	0.044	0.388	0.020	0.575	0.447	0.927***	0.601***	0.505	0.562
4) Lifestyle/Preventive									
Times Eaten Vegetables	-0.064*	-0.018	0.017	-0.027	-0.020	-0.038	-0.053***	0.080	-0.033
Did not Take Vitamins	0.538***	0.211	1.130*	0.125	0.819***	0.310	0.202***	0.285	0.242
Smoked 100+ Cigarettes	-0.042	-0.101	-0.434	0.063	-0.243	0.198	0.343***	-0.357	0.447
Daily Activity	0.081	0.065	0.099	0.340**	0.234**	0.291***	0.246***	0.135	0.274***
Did Moderate Activities	0.414**	0.480*	0.080	0.661	0.533*	0.563**	0.701***	0.814	0.634**
Did Strength Training	0.471**	0.291	0.140	0.961	0.211	0.298	0.389***	0.351	0.036
Drank Any Alcohol	-0.668***	-0.653***	-1.051	-0.445	-0.510	-0.588**	-0.875***	-0.796	-0.759***
Usual Place of Care	0.175	0.177	0.604	-0.173	0.260	-0.915	-0.480***	-11.738	-0.259
Times Seen Doctor	0.042**	0.102***	0.034	0.106***	0.095***	0.105***	0.055***	0.087	0.063***
Hospital Stay Overnight	0.724**	0.081	0.906	-0.253	0.802*	0.342	0.667***	0.367	0.713*
Delayed Medical Care	0.636*	0.768*	0.910	0.718	0.854*	0.931**	0.604***	-0.619	0.848***

Table 4, cont…

5) Social Support									
Problems in Social Life	0.687***	0.721***	0.373*	0.649***	0.720***	0.746***	0.861***	0.605*	0.665***
Marital Status	-0.015	0.237*	-0.202	0.137	0.143	0.007	0.135***	0.299	-0.088
Work Status	0.198***	0.340***	0.414*	0.307**	0.336***	0.411***	0.416***	0.242	0.507***
6) Mental Health									
Emotional – Did Less	0.751***	1.051***	1.649*	1.108**	1.283***	1.122***	0.704***	1.027	0.418
Felt Calm and Peaceful	-0.394***	-0.473***	-0.329	-0.346	-0.207	-0.601***	-0.571***	-1.006*	-0.759***
Needed Emotional Help	0.414	0.096	-1.316	0.538	0.964*	0.449	0.151	-0.870	-0.305
Felt Discrimination	0.763*	0.943	1.405	-1.145	0.361	0.323	0.598***	-11.948	0.163
7) Acculturation									
Parents' Birth Country	-0.106	0.102	0.140	0.394	0.754*	0.106	0.056	0.079	-0.191
English Ability	1.362***	1.272***	1.104	1.015**	1.535***	0.432	1.857***	15.064	-12.512
Citizenship Status	0.143	-0.240	-12.71	-0.086	-0.400	-0.745	-0.133	0.454	0.486
Years in the U.S.	-0.021	0.075	NA	-0.244	-0.326	10.314	0.411	10.961	0.438

Notes: Source: California Health Interview Survey, 2001 Adult Sample; a – American Indian/Alaskan Native; NA – Not Available (no variation)
* - indicates $p < 0.01$, ** - indicates $p < 0.001$, and *** - indicates $p < 0.0001$

Table 5: Multivariate Logistic Models Comparing Odds of Reporting Fair/Poor Self-Rated Health Across Ethnic Groups

MODEL	Estimate	Odds Ratio	95% CI	Likelihood Ratio χ^2 (df)
1) Ethnicity				***Baseline***
Mexican	1.264***	3.54	[3.187 , 3.932]	
Other Latino	0.743***	2.10	[1.817 , 2.433]	
AIAN[a]	0.895***	2.45	[1.795 , 3.334]	
Chinese	0.688***	1.99	[1.588 , 2.493]	
Other Asian	0.405***	1.50	[1.275 , 1.762]	
African American	0.814***	2.26	[1.968 , 2.585]	
Other 1 Race	0.116	1.12	[0.756 , 1.666]	
Other 2+ Races	0.535***	1.71	[1.468 , 1.987]	
2) Sociodemographic				***4,546.93 (5)***
Mexican	0.609***	1.84	[1.630 , 2.074]	
Other Latino	0.325***	1.38	[1.180 , 1.624]	
AIAN	0.480*	1.62	[1.163 , 2.245]	
Chinese	0.464**	1.59	[1.241 , 2.039]	
Other Asian	0.296**	1.34	[1.128 , 1.601]	
African American	0.569***	1.77	[1.523 , 2.049]	
Other 1 Race	-0.055	0.95	[0.626 , 1.431]	
Other 2+ Races	0.349***	1.42	[1.205 , 1.667]	
3) Physical Health				***12,145.79 (3)***
Mexican	1.680***	5.37	[4.674 , 6.163]	
Other Latino	1.062***	2.89	[2.410 , 3.473]	
AIAN	1.001***	2.72	[1.853 , 3.999]	
Chinese	1.315***	3.73	[2.843 , 4.880]	
Other Asian	0.804***	2.24	[1.834 , 2.722]	
African American	0.694***	2.00	[1.691 , 2.368]	
Other 1 Race	-0.013	0.99	[0.606 , 1.610]	
Other 2+ Races	0.281**	1.32	[1.099 , 1.595]	
4) Functional Status				***13,942.51 (4)***
Mexican	1.708***	5.52	[4.846 , 6.286]	
Other Latino	1.013***	2.75	[2.298 , 3.299]	
AIAN	0.771***	2.16	[1.454 , 3.216]	
Chinese	1.251***	3.49	[2.672 , 4.568]	
Other Asian	0.816***	2.26	[1.862 , 2.746]	
African American	0.745***	2.11	[1.766 , 2.511]	
Other 1 Race	0.086	1.09	[0.658 , 1.806]	
Other 2+ Races	0.088	1.09	[0.901 , 1.324]	

Table 5, cont…

5) Lifestyle/Preventive				***6,215.99 (11)***
Mexican	1.177***	3.25	[2.867 , 3.673]	
Other Latino	0.713***	2.04	[1.726 , 2.409]	
AIAN	0.575*	1.78	[1.223 , 2.583]	
Chinese	0.481**	1.62	[1.253 , 2.090]	
Other Asian	0.296*	1.34	[1.117 , 1.617]	
African American	0.525***	1.69	[1.442 , 1.981]	
Other 1 Race	0.073	1.08	[0.681 , 1.698]	
Other 2+ Races	0.306***	1.36	[1.139 , 1.617]	
6) Social Support				***8,547055 (3)***
Mexican	1.426***	4.16	[3.688 , 4.693]	
Other Latino	0.752***	2.12	[1.796 , 2.507]	
AIAN	0.791***	2.21	[1.526 , 3.188]	
Chinese	0.810***	2.25	[1.740 , 2.904]	
Other Asian	0.380***	1.46	[1.216 , 1.758]	
African American	0.654***	1.92	[1.641 , 2.255]	
Other 1 Race	-0.066	0.94	[0.590 , 1.486]	
Other 2+ Races	0.365***	1.44	[1.209 , 1.717]	
7) Mental Health				***3,329.31 (4)***
Mexican	1.163***	3.20	[2.853 , 3.585]	
Other Latino	0.626***	1.87	[1.596 , 2.191]	
AIAN	0.727***	2.07	[1.469 , 2.912]	
Chinese	0.725***	2.07	[1.616 , 2.639]	
Other Asian	0.347***	1.42	[1.187 , 1.687]	
African American	0.726***	2.07	[1.782 , 2.397]	
Other 1 Race	0.150	1.16	[0.760 , 1.777]	
Other 2+ Races	0.395***	1.49	[1.260 , 1.749]	
8) Acculturation				***747.70 (4)***
Mexican	0.628***	1.87	[1.639 , 2.143]	
Other Latino	0.371***	1.45	[1.233 , 1.703]	
AIAN	0.860***	2.36	[1.729 , 3.233]	
Chinese	-0.141	0.87	[0.667 , 1.130]	
Other Asian	-0.064	0.94	[0.777 , 1.133]	
African American	0.828***	2.29	[1.995 , 2.627]	
Other 1 Race	0.056	1.06	[0.704 , 1.590]	
Other 2+ Races	0.545***	1.73	[1.481 , 2.009]	

*Notes: Source: California Health Interview Survey, 2001 Adult Sample; a – American Indian/Alaskan Native; * - indicates p < 0.01, ** - indicates p < 0.001 and *** - indicates p < 0.0001*