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Emily Walton ^a; David T. Takeuchi ^a; Jerald R. Herting ^a; Margarita Alegría ^b

^a Department of Sociology, University of Washington, Seattle, Washington ^b Center for Multicultural Mental Health Research and Department of Psychiatry, Harvard Medical School, Cambridge, Massachusetts

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Does Place of Education Matter? Contextualizing the Education and Health Status Association Among Asian Americans

EMILY WALTON,¹ DAVID T. TAKEUCHI,¹
JERALD R. HERTING,¹ AND MARGARITA ALEGRÍA²

¹Department of Sociology, University of Washington, Seattle, Washington

²Center for Multicultural Mental Health Research and Department of Psychiatry, Harvard Medical School, Cambridge, Massachusetts

The educational gradient in health is one of the most robust associations in social science research. Results of the current study indicate that, like the pattern observed among other racial and ethnic minority groups, the well-established educational gradient in health is attenuated among Asian Americans. We also show that the gradient association between educational attainment and self-rated health among Asian Americans depends on whether they receive the bulk of their education in the United States or abroad. Compared to the schooling received in the United States, being educated in a foreign country does not result in the same health payoffs for increasing educational attainment. Analysis of an extensive set of mediators indicates that a foreign education restricts economic opportunities, limits positive social interaction, and inhibits English language proficiency. We discuss the implications for Asian Americans, a group composed largely of immigrants who received their education outside the United States.

Is education the “great equalizer of the conditions of men [sic], the balance wheel of the social machinery,” as Horace Mann (1957) claimed? The ambitions reflected in this ideal demonstrate a pervasive optimism in the United States that the general skills gained through education are keys to eliminating poverty, crime, health inequalities, and a host of other social problems. The implicit conclusion is that the structural relationship of education to these social problems exists after taking into account individual characteristics. Indeed, considerable research demonstrates that education *is* an important means of achieving social mobility and reducing inequality. Higher levels of education often lead to better employment opportunities, greater economic resources, access to social networks that foster social mobility, and lifestyles that reduce risk-taking behavior and encourage better diets—all of which are associated with better health outcomes (Ross and Wu, 1995). Much of the research on this association demonstrates both direct and indirect positive effects of education on health (Feinstein, 1993). The robustness of this monotonic association has earned it the name of an educational gradient in health, such that each increase in educational attainment corresponds with a corresponding incremental improvement in health status (Adler et al., 1994). However, evidence for the robustness of

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Address correspondence to Emily Walton, Department of Sociology, University of Washington, Box 353340, Seattle, WA 98195. E-mail: waltone@u.washington.edu

the educational gradient in health has been largely limited to Whites and it is not entirely evident that similar relationships exist among non-White racial and ethnic groups (Acevedo-Garcia, Soobader, and Berkman 2007; Farmer and Ferraro 2005; Goldman, Kimbro, Turra and Pebley, 2006; Kimbro, Bzostek, Goldman and Rodriguez, 2008; Leu et al., 2008). This study critically examines the educational gradient in health among Asian Americans, putting particular emphasis on the differential returns to health for the U.S.- and foreign-educated.

The first goal of this study is to examine whether the educational gradient in health persists among Asian Americans. In addition, we seek to investigate the effect of an important source of the heterogeneity in this broadly defined racial group: the diversity of educational experience. A central feature of the Asian American experience is recent immigration, the ramifications of which may affect the way education is related to social mobility. Asian Americans have often been cited as exemplifying the impact education can have on economic success. Though, on average, Asian Americans achieve higher levels of education compared to other racial and ethnic groups (U.S. Census Bureau, 2004), not all members of this population may be equally able to convert educational achievement into other markers of success, such as occupational prestige and income (Barringer, Takeuchi, and Xenos 1990; Hirschman and Wong 1984). This disparity in the benefits of education has been attributed largely to nativity, such that native-born Asian Americans enjoy economic parity with Whites at the same educational levels but not the foreign-born (Iceland, 1999). This finding raises the possibility that educational attainment may not foster good physical health through the same pathways or with the same magnitude for all Asian Americans.

This article takes as problematic the well-established education and health relationship, disentangling the association among Asian Americans. Specifically, we determine whether the education-health association depends on where people receive their education. In other words, does the place of education condition the structural relationship of education to health status? By *place of education*, we mean whether the individual was educated in the United States or in a foreign country (Zeng and Xie, 2004). Asian immigrants who receive the bulk of their education in their native countries may not experience equal health returns to that education compared to U.S.-educated Asian Americans. Examining this question may illuminate more generally how and why education is associated with health, especially in groups that are composed of large proportions of immigrants.

Background

Education and Health

Education's positive gradient association with health is among the most consistent and robust relationships in social science research (Lynch 2003). This educational gradient suggests that successful movement up the educational ladder brings increasingly better health (Adler et al. 1994; Feinstein 1993). Higher educational attainment is associated with lower mortality and morbidity, better self-rated health, and improved functional status (Bratsberg and Ragan 2002; House et al., 1994; Pappas, Queen, Hadden, and Fisher 1993; Sorlie, Backlund, and Keller 1995). Education aids in building cognitive and informational resources that enhance an individual's ability to achieve positive health outcomes (Elo and Preston 1996). Such general habits as problem solving, communication, discipline, good judgment, and the learned skills of reading and writing can all affect the ways in which individuals negotiate the complex process of health management.

A large part of the relationship between education and health can be attributed to education's impact on important mediators (Ross and Wu 1995). Education is indirectly linked to better health through its effect on work and economic outcomes, social-psychological resources, and health behaviors (Leigh 1983; Murrell and Meeks 2002; Ross and Wu 1995). Highly educated people are less likely to be unemployed and experience economic hardship and more likely to have full-time jobs, fulfilling work, and high incomes (Ross and Wu 1995). Formal education develops general skills that increase the sense of personal control and teach people that outcomes depend on their own choices and actions, encouraging individuals to be active participants in creating healthy lifestyles (Mirowsky and Ross 1998; Seeman and Seeman 1983). The well-educated also tend to have more supportive and egalitarian relationships, which improve health through economic assistance, emotional understanding, information gathering, and help in finding medical treatment and decision making (House, Landis, and Umberson 1988; Mirowsky and Ross 2003:128). Compared to the poorly educated, the highly educated are more likely to exercise, drink moderately and not smoke, and receive preventive medical care (Ford et al., 1991).

Some studies have found that the relationship between education and health is not consistent among members of non-White racial and ethnic groups. Among African Americans, for example, as education levels increase, adults do not have the same improvement in self-rated health as White adults (Farmer and Ferraro 2005). This racial disparity remains net of other measures of socioeconomic status. The authors find the gap in self-rated health between African Americans and Whites is largest at the highest levels of income, occupational prestige, and education. Given the high levels of school segregation between African Americans and Whites, education may not help African Americans as much as Whites partly because they receive lower quality education or institutional barriers may deter those with high levels of education from accruing the same social and economic benefits as Whites (Bowles and Gintis 1976; Kozol 1995; Orfield 2001).

Among Latino Americans, some subgroups exhibit weaker educational gradients in health than other groups. A recent study found that education was either weakly associated or not associated with health behaviors and outcomes among Mexican Americans when compared to Whites (Goldman et al., 2006). Similarly, foreign-born Mexican and Central/South American women have significantly flatter education gradients in predicting low birth weight than their U.S.-born counterparts and other Latino women (Acevedo-Garcia et al. 2007). In both of these studies of Latino Americans, the authors hypothesize that the change in shape of the educational gradient may be a result of attenuated educational gradients in other countries, selective immigration according to positive health and socioeconomic characteristics, or social and cultural factors such as strong social networks, that are protective to health among some groups.

Among Asian Americans, there is some evidence to suggest that the trend of an educational gradient in health may not be as strong or consistent as has been observed among White Americans. An investigation of nativity differences in the effects of education on health outcomes among Asian American men finds that compared to the U.S.-born, the foreign-born tend to have smaller health differentials by education and lower predicted probabilities of poor health outcomes (measured by self-rated health, work limitations, and levels of physical activity; Kimbro et al. 2008). Among Asian American women, the educational gradient in predicting low birth weight was found to be indistinct among both the U.S.- and foreign-born (Acevedo-Garcia, Soobader, and Berkman 2005). Generational status also seems to affect the strength of the educational gradient in health among Asian Americans. In a recent study, only third-generation individuals demonstrated any differences in obesity between those with a high school education and those with greater than

high school (Bates, Acevedo-Garcia, Alegría, and Krieger 2008). In a study of immigrant Asian Americans, Leu and colleagues (2008) find that traditional measures of socioeconomic status, such as education and income, do not predict changes in mental health status. Instead, increasing subjective social status, measured using a symbolic ladder with 10 rungs that asked participants to place themselves in comparison with others in the United States in relation to common aspects of what it means to be at the top and bottom of society (e.g., the top have the most money and education and the best jobs), has a consistent protective effect on mental health. The current study investigates this pattern of a weakened or nonexistent educational gradient in health among Asian Americans and examines a possible contribution to the disparity: whether individuals receive the bulk of their education in the United States or in a foreign country.

Place of Education

Although research is limited on the health returns to education for those who receive it outside of the United States, there has been some investigation of income returns to having been educated abroad. However, results are mixed. Difficulty stems, in part, from the fact that the data most commonly used to study immigrants, the U.S. Census, have insufficient information to reliably determine the place of an immigrant's education. Using the Census of Population in Israel, Friedberg (2000) finds that education acquired outside Israel is compensated at a significantly lower rate than education obtained in the country. In this study, place of education was the most important factor explaining earnings gap between similarly educated immigrants and natives. Using a proxy measure for place of education, Zeng and Xie (2004) find that it plays a crucial role in the socioeconomic stratification of Asian Americans. The researchers find no differences in income returns to education between U.S.-born Whites, U.S.-born Asian Americans, and U.S.-educated Asian American immigrants. Only the foreign-educated Asian American immigrants received a lower payoff relative to the other three groups. Previous studies on income disadvantages of Asian Americans that found that the foreign-born are disadvantaged attribute this to nativity (Iceland, 1999). Once place of education was included in analyses, the earnings disadvantage could not be attributed to nativity or ethnicity differences (Zeng and Xie 2004).

One explanation for the disparity is that U.S. labor markets devalue education received in less-developed countries and countries in which schooling is not in English (Chiswick 1978). Another suggestion is that the returns to schooling and years of experience may be lower for non-White immigrants than for White immigrants (Stewart and Hyclak 1984). These findings are consistent with the argument that differential income returns based on place of education may be attributed to the quality of foreign and U.S. schooling. Except for a high school education, it is not entirely clear that cross-national educational levels are equivalent. It is fairly well substantiated that a secondary education is comparable across developed countries. In a 2003 study comparing international levels of math, science, reading, and problem solving among 15-year olds, the United States scored below average on all tests except reading (Lemke et al. 2004). The Asian countries included in this study were China, Japan, and Korea. A complication in comparing education across countries is that selection factors may be at work, whereby individuals that are able to attain higher levels of education outside the United States are socioeconomically advantaged and thus healthier. However, selection of healthier individuals into higher levels of education would make the foreign educated more similar to the U.S.-educated and thus should not influence the effect of a foreign education on health status.

In this study, we base our hypotheses about reasons for the moderating effects of place of education on the direct and mediating effects of education on health. Explicitly, we expect that the direct effects of education among individuals who receive most of their education outside the United States may not be those that are important for protecting health status or overlap well with the values of the labor market in the United States. There may be qualitative differences in the habits and skills learned in foreign schools that are different from those learned in U.S. schools, such as language acquisition, communication styles, problem solving, and judgment (Elo and Preston 1996), which affect individuals' ability to manage complex health situations. These cultural differences may make it difficult for foreign-educated immigrants to easily communicate with U.S. doctors or other health professionals. Consequently, foreign-educated immigrants may have limited access to important health care information and may have difficulties gaining access to health services in a timely manner. Additionally, mediators in the education and health relationship may be affected by place of education, such that the foreign educated don't have commensurate work and economic outcomes, social-psychological resources, and health behaviors with their U.S.-educated peers. It is possible that Asian Americans with foreign schooling face structural barriers in access to employment and economic resources that reduce their ability to convert education into good health (Ross and Wu, 1995). For example, foreign-educated immigrants may be more likely than U.S.-educated immigrants to enter jobs with limited health insurance coverage that makes it difficult to obtain preventive health care. The social-psychological resources that are linked to educational experiences, such as social networks and support, may be less extensive or effective in facilitating good health for foreign-educated individuals who must often move away from the environments in which their networks and support were developed (House et al. 1988; Mirowsky and Ross 2003:128). Finally, foreign-educated immigrants may be more likely to engage in some health behaviors, such as smoking, that account for some of the disparity in health returns to education (Ford et al., 1991).

Research Questions

It is well established that increasing educational achievement positively affects health status. There is some reason to expect, however, that the educational gradient in health will be attenuated among Asian Americans. Given that a substantial proportion of the Asian American population is foreign-born and foreign-educated, it is likely that place of education is an important moderating factor in determining the association of education with health status among Asian Americans as a whole. Asian American immigrants with foreign education may have diminished ability to convert their education into positive health rewards relative to native-born Asian Americans and immigrants who receive most of their education in the United States. Given these possibilities, this research study addresses the following questions:

1. What is the relationship of education with health status among Asian Americans?

Hypothesis 1: Education will exhibit a gradient relationship with health status among the Asian American population as a whole.

2. Do the health returns to education for Asian Americans depend on where they were educated?

Hypothesis 2: Those who receive most of their education before the age of 16 outside of the United States will demonstrate a weaker educational gradient in health status compared to those who receive most of their education in the United States.

3. If there are differential health returns to a foreign education, what explains this association?

Hypothesis 3: We anticipate that the effects of place of education will work directly by providing the foreign-educated with different habits and skills (English language proficiency), and indirectly through important mediators, such that the foreign-educated don't have commensurate income, positive social interaction, and health behaviors with their U.S.-educated peers.

Methods

Data

The data used in this article come from the National Latino and Asian American Study (NLAAS; Alegria et al. 2004). The NLAAS, which began in May 2002 and ended in December 2003, collected information primarily from nationally representative samples of Latino and Asian American adults. All non-institutionalized individuals living in households who met self-identified racial/ethnic group criteria, were 18 years of age or older, and who resided in any of the 50 states and Washington DC were eligible to participate. Interviews were completed with 4,864 adults, comprising 2,095 Asians, 2,554 Latinos, and 215 non-Hispanic whites. The analysis for this article is limited to the respondents of Asian descent. The final weighted response rate for Asian Americans was 66%. This analysis is limited to respondents 25 years or older to allow for the completion of at least 17 years of schooling. Additionally, we exclude respondents who were born in the United States but received the bulk of their education before 16 years outside the United States ($n = 10$), because we expect the effects of a foreign education among U.S.-born respondents to be quite different from the effects among foreign born respondents. The final sample size is 1,802.

Participants in the NLAAS core sample were identified using a multistage stratified area probability sampling design. Primary sampling units, defined as metropolitan statistical areas or county units, and secondary sampling units, formed from contiguous groupings of Census blocks, were selected using probability proportionate to size. From these, households were sampled. The core sampling procedure of the NLAAS resulted in a nationally representative, household sample of Asian Americans. The NLAAS sampling procedures required the construction of weighting corrections to take into account joint probabilities of selection under the three components of the sampling design (Heeringa 2004). Trained interviewers administered the NLAAS questionnaire in the participant's preferred language in a face-to-face interview, unless the respondent specifically requested a telephone interview. Detailed descriptions of the methods used in the NLAAS appear elsewhere (Heeringa et al. 2004; Pennell et al. 2004).

Measures

Dependent Variable. The health status outcome used in this study is *self-rated health*. Specifically, the NLAAS interview asked, "How would you rate your overall physical health—excellent, very good, good, fair or poor?" Following previous studies (Frisbie, Cho, and Hummer 2001; Lynch 2003), we collapse these categories into a binary outcome and model the probability of experiencing good health: "Good health" represents excellent, very good, and good self-rated health, and "poor health" represents fair and poor self-rated

health. This measure is a robust indicator of general health status that predicts morbidity, mortality, subsequent disability, and health care utilization (Ferraro and Yu 1995; Gomez, Kelsey, Glaser, Lee, and Sidney 2004; reviewed in Idler and Benyamini 1997; Mutchler and Burr 1991). Some research has shown self-rated health to be a stronger predictor of mortality than physician-assessed health (Mossey and Shapiro 1982). A recent study finds that there are no systematic differences between foreign- and U.S.-born Asian Americans in the way they report self-rated health (Erosheva, Walton, and Takeuchi 2007). Additionally, the meaning of self-rated health has been validated among different ethnic groups, and the robustness of the concept appears to overcome translation into different languages (Chandola and Jenkinson 2000).

Independent Variables. Several methodological reasons influenced our decision to focus on *education*. It is a direct and reliable indicator of socioeconomic status, and some research suggests that education is a more stable and robust indicator than occupation or income (Duncan 1996; Kitagawa and Hauser 1973). Educational attainment can be determined for individuals not in the labor force. Additionally, because education is obtained early in life, it is generally temporally and hence causally prior to deteriorating health status, making it less prone to endogeneity bias from reverse causality than other measures of socioeconomic status. Because the rate of return to education varies by periods of schooling that correspond with meaningful certificates (Backlund, Sorlie, and Johnson 1999; Hungerford and Solon 1987), we collapse years of education into four categories that we represent as a series of indicator variables. These indicator variables represent receipt of less than a high school education (0–11 years); high school graduate (12 years); some college (13–15 years); and college and beyond (16 or more years). In analyses, we treat 16 or more years of education as the reference category. The respondent's *place of education* is operationalized as an indicator variable—foreign education versus U.S. education. Place of education is ascertained from the question, “In what country did you receive most of your education before age 16?” *Nativity* is an indicator variable distinguishing foreign born from native born.

Controls. *Ethnicity* is categorized as a series of indicator variables representing (1) Vietnamese, (2) Filipino, (3) Chinese, and (4) Other Asian (Asian Indian, Japanese, Korean or Other Asian). The respondent's *gender* is coded (1) male and (0) female. *Marital status* is operationalized as an indicator variable representing (1) currently married versus (0) not currently married. *Age* is a continuous variable measured in years.

Mediators. The mediating variables included in this study are designed to represent the economic/occupational, social-psychological, and healthy-behavior mediators, along with the direct effects of educational skills that can be learned in school. First, we test *income*, which is household income adjusted for *family size* and logged to correct for skewness in analyses. Household income is the sum of the midpoints of the following income measures: personal, spouse, other family members, social security, government assistance, and other sources. Because of a large number of missing values (270 missing), this variable was imputed using hot deck methods based on the variables of ethnicity, gender, age, education, household composition, and employment status. We divide household income by family size to make household income meaningful at the individual level. We include a scale of *positive social interaction* to represent dimensions of family and friend support. Positive social interaction is a scale constructed from six questions, such as “How often do you talk on the phone or get together with family/relatives/friends,” “How much can you

rely on your family/relatives/friends for help if you have a serious problem,” and “How much can you open up to your family/relatives/friends if you need to talk about your worries?” Responses range from (1) a lot to (4) not at all, yielding minimum and maximum scores of 6 and 24 respectively. The scale is reverse-coded so that higher scores indicate a higher degree of positive social interaction than lower scores. In the present sample, the scale has adequate internal consistency ($\alpha = .77$). The variable *current smoker* comes from the question “Are you a current smoker, ex-smoker, or have you never smoked?” and is operationalized as an indicator variable representing current smoker vs. other categories. Finally, *English language proficiency* is a scale that asks the respondent to rank his or her ability to speak, read, and write in English. For these three measures, response categories range from (1) poor to (4) excellent, yielding minimum and maximum scores from 3 to 12. The scale has strong internal consistency ($\alpha = .94$).

Analytic Methods

Table 1 provides a statistical summary of the measures included in this study. It lists means for continuous variables and percentages for dichotomous variables along with their associated standard errors. Each variable is described for the total sample, and stratified statistics are reported based on place of education. Significant differences in the distributions of the variables based on place of education are reported in the last column of Table 1. To assess the significance of these differences, we performed logistic and linear regressions in which we regress foreign education on each variable in the analyses separately. In Tables 2, 3, and 4, we report the results from a series of logistic regressions that assess the net effect of educational attainment on good self-rated health. We report unstandardized maximum likelihood coefficients in the tables to show the direction and magnitude of effects. We also present odds ratios with 95% confidence intervals to make the assessment of an educational gradient more salient and interpretable. All continuous variables (age, positive social interactions, and English language proficiency) are centered around their respective means in the analyses for Tables 2, 3, and 4. In Table 2, for Models 1, 2 and 3, we report the $-2 \log$ likelihood as a measure of model fit. Based on the critical chi square for the additional degrees of freedom used, we determine whether including place of education in the analyses in Model 3 results in a significantly better fit than the previous model (Model 2). In Tables 2 and 3, we perform additional analyses for all models in which education is entered as a rank-order variable (i.e., a series of categories representing monotonically increasing steps) to test for the presence of a significant educational gradient in health status. These analyses are not shown in the tables; however, the significance of the gradient is reported in the results section for each model. All of the analyses adjust for the hierarchical nature of the multistage survey data. The SAS 9.1 PROC SURVEYLOGISTIC procedure allows for the incorporation of complex survey sampling methods in its point and standard error estimation process, including designs with stratification, clustering, and unequal weighting (SAS Institute Inc., 2003).

Results

Sample Description

Table 1 describes the total sample and offers preliminary insights into the differences between U.S.- and foreign-educated Asian Americans. U.S.-educated respondents are

Table 1
Weighted means and standard errors for all variables in the analyses,
stratified by place of education

| Variable | Total sample | | Foreign-educated | | U.S.-Educated | | Sig. diff. |
|--|--------------|--------|------------------|--------|---------------|--------|------------|
| | (N = 1,802) | | (N = 1,346) | | (N = 456) | | |
| | Mean | SE | Mean | SE | Mean | SE | |
| Good Self-Rated Health | 83% | (0.01) | 81% | (0.01) | 90% | (0.02) | ** |
| Education | | | | | | | |
| 0–11 years | 16% | (0.02) | 21% | (0.02) | 3% | (0.01) | *** |
| 12 years | 15% | (0.01) | 15% | (0.01) | 17% | (0.02) | |
| 13–15 years | 23% | (0.01) | 19% | (0.01) | 34% | (0.02) | *** |
| 16+ years | 45% | (0.02) | 45% | (0.03) | 46% | (0.03) | |
| Age (years) | 44.75 | (0.79) | 45.89 | (0.97) | 41.68 | (1.02) | *** |
| Female | 53% | (0.01) | 54% | (0.01) | 49% | (0.02) | |
| Married | 75% | (0.02) | 82% | (0.01) | 57% | (0.03) | *** |
| Ethnicity | | | | | | | |
| Vietnamese | 13% | (0.02) | 17% | (0.03) | 5% | (0.01) | *** |
| Filipino | 21% | (0.02) | 32% | (0.03) | 22% | (0.03) | |
| Other Asian | 36% | (0.03) | 20% | (0.03) | 24% | (0.03) | *** |
| Chinese | 29% | (0.03) | 31% | (0.03) | 49% | (0.03) | * |
| Foreign-Educated | 73% | (0.03) | | | | | |
| Foreign-Born | 81% | (0.03) | 100% | (0.00) | 28% | (0.04) | *** |
| Income per family member (thousands of dollars per year) | 42.14 | (1.59) | 39.38 | (2.10) | 49.54 | (2.46) | ** |
| Positive Social Interaction (scale 6–24) | 17.20 | (0.19) | 16.36 | (0.19) | 19.46 | (0.19) | *** |
| Current Smoker | 13% | (0.01) | 12% | (0.01) | 15% | (0.02) | |
| English Language Proficiency (scale 3–12) | 8.40 | (0.19) | 7.52 | (0.18) | 10.76 | (0.12) | *** |

Note: Percentages are reported for categorical variables and means for continuous variables. Significant differences between the variable distributions based on place of education are determined using logistic or linear regression of each variable on place of education.

* $p < .05$. ** $p < .01$. *** $p < .001$ (two-tailed test).

significantly more likely than the foreign-educated to report good self-rated health. There are also educational attainment differences across place of education, whereby the foreign-educated having a higher percentage of individuals in the “0–11 years” category and the U.S.-educated having a higher percentage of individuals in the “13–15 years” category, but there are no differences in the proportions of both who receive high school and college degrees. The foreign-educated are older and more likely to be married, reflecting a stronger orientation toward traditional values than among the U.S.-educated. There are some differences in the proportions of individuals in each ethnic group. Most notably, the foreign-educated have

higher percentages of Vietnamese and lower percentages of Chinese Americans compared to the U.S.-educated. Finally, on average, the U.S.-educated have higher incomes, more supportive family and friend networks, and speak English more proficiently than the foreign-educated.

Educational Attainment and Place of Education

Table 2 presents the maximum likelihood coefficients, odds ratios, and confidence intervals from a series of logistic regression models that estimate the determinants of self-rated good health. Model 1 shows the bivariate association of education with good self-rated health in the total sample. A gradient relationship is evident, with incrementally higher educational achievement predicting a greater likelihood of reporting good health (gradient $p < .001$). Though the gradient trend is present, attending some college does not significantly differ from having a college degree in its relationship with health status. Model 2 introduces demographic control variables to the analysis. With the addition of age, gender, marital status, and ethnicity, the relationship of education to health is attenuated slightly, but the increasing monotonic association is still present (gradient $p < .001$). As expected, as individuals age, the likelihood of reporting good health decreases. Filipino and other Asian Americans are more likely than Chinese Americans to report good health. Adding demographic variables significantly increases model fit (Δ -2LogL = 88.75; $p < .001$). Model 3 adds the direct effects of receiving a foreign education to the analysis. Individuals who are foreign-educated are significantly less likely to report good health than those educated in the United States. The importance of place of education is evidenced by its significant relationship with health and the fact that the model fit is significantly better (Δ -2LogL = 8.62; $p < .01$) in Model 3; however, the educational gradient remains largely unchanged with the inclusion of foreign education (gradient $p < .001$). The lack of change to the educational gradient may be due to the fact that the foreign educated comprise 75% of the total sample.

To gain more insight into the relationship of education to health considering place of education, we stratified Model 2 by place of education, essentially introducing an interaction across all variables and allowing for a comparison of the association between education and health among the foreign- and U.S.-educated. Model 2a presents Model 2 for the foreign-educated, and Model 2b presents Model 2 for the U.S.-educated. The most striking difference across the stratified models is that the educational gradient is strong and significant for the U.S.-educated (Model 2b, gradient $p < .001$), whereas the foreign-educated exhibit a weaker gradient (Model 2a, gradient $p < .05$), with a significant difference only between the effects of low (less than high school) vs. high (college or more) education. The stratification also shows the differences in the effects of age and ethnicity across place of education. Interestingly, among the U.S.-educated, there are no differences in the likelihood of reporting good health as individuals increase in age. Similarly, being educated in the United States erases any ethnic differences in health status.

Ruling Out Confounding of Nativity with Place of Education. Because place of education substantially overlaps with the concept of nativity, we conducted a series of analyses to rule out the possibility that the observed effects of place of education are due to nativity differences. As an initial test (analyses not shown), we added nativity both by itself and in addition to place of education to the analyses from Table 2, Model 3. When foreign birth is substituted for foreign education in the model, foreign birth is not significantly related to good self-rated health ($b = -.42$; $p = .10$; $OR = .65$). When included in the same model

Table 2
Unstandardized coefficients and odds ratios from logistic regression of education, demographic controls,
and foreign education on good self-rated health

| | Model 1 (N = 1,802) | | | Model 2 (N = 1,802) | | | Model 3 (N = 1,802) | | | Foreign-educated (n = 1,346) | | | U.S.-Educated (n = 456) | | |
|-------------------|---------------------|------------------|--|---------------------|------------------|--|---------------------|------------------|--|---------------------------------|------------------|--|----------------------------|------------------|--|
| | B | OR (95% CI) | | B | OR (95% CI) | | B | OR (95% CI) | | B | OR (95% CI) | | B | OR (95% CI) | |
| | | | | | | | | | | Model 2a | | | Model 2b | | |
| Intercept | 2.15*** | | | 1.74*** | | | 2.06*** | | | 1.52*** | | | 3.17*** | | |
| Education | | | | | | | | | | | | | | | |
| 0-11 years | -1.40*** | 0.25 (0.16-0.37) | | -0.91*** | 0.40 (0.26-0.63) | | -0.87*** | 0.42 (0.27-0.67) | | -0.64* | 0.53 (0.33-0.86) | | -1.66* | 0.19 (0.04-0.84) | |
| 12 years | -0.81*** | 0.44 (0.27-0.71) | | -0.55* | 0.58 (0.35-0.96) | | -0.58* | 0.56 (0.34-0.93) | | -0.33 | 0.72 (0.41-1.26) | | -1.56** | 0.21 (0.08-0.58) | |
| 13-15 years | -0.43 | 0.65 (0.42-1.01) | | -0.33 | 0.72 (1.47-1.11) | | -0.38 | 0.68 (0.45-1.04) | | -0.19 | 0.83 (0.51-1.35) | | -1.19** | 0.31 (0.13-0.72) | |
| 16 years (ref) | | | | | | | | | | | | | | | |
| Age | | | | | | | | | | | | | | | |
| Female | | | | -0.03*** | 0.97 (0.96-0.98) | | -0.03*** | 0.97 (0.96-0.98) | | -0.04*** | 0.96 (0.94-0.97) | | 0.00 | 1.00 (0.98-1.03) | |
| Married | | | | -0.25 | 0.78 (0.56-1.07) | | -0.24 | 0.79 (0.57-1.10) | | -0.28 | 0.76 (0.53-1.10) | | -0.34 | 0.71 (0.35-1.47) | |
| Ethnicity | | | | 0.18 | 1.20 (0.83-1.73) | | 0.27 | 1.31 (0.90-1.91) | | 0.14 | 1.15 (0.73-1.83) | | 0.41 | 1.51 (0.72-3.17) | |
| Vietnamese | | | | 0.12 | 1.13 (0.76-1.69) | | 0.16 | 1.18 (0.79-1.76) | | 0.25 | 1.29 (0.84-1.98) | | -0.16 | 0.85 (0.21-3.52) | |
| Filipino | | | | 0.68** | 1.97 (1.28-3.02) | | 0.65** | 1.92 (1.25-2.95) | | 1.07*** | 2.93 (1.73-4.94) | | -0.36 | 0.70 (0.28-1.78) | |
| Other Asian | | | | 0.60* | 1.83 (1.14-2.93) | | 0.53* | 1.70 (1.06-2.73) | | 0.68* | 1.98 (1.14-3.43) | | -0.02 | 0.98 (0.38-2.53) | |
| Chinese (ref) | | | | | | | | | | | | | | | |
| Foreign Education | | | | | | | | | | | | | | | |
| -2LogL | 1890.53 | | | 1801.78 | | | 1793.16 | | | | | | | | |
| df | 3 | | | 9 | | | 10 | | | | | | | | |
| A-2LogL | N/A | | | 88.75*** | | | 8.62** | | | | | | | | |

Note: Models 1-3 use the total sample (N = 1,802); Models 2a (n = 1346) and 2b (n = 456) are stratified models by place of education. Age is centered around its mean.
*p < .05. **p < .01. ***p < .001 (two-tailed test).

Table 3
 Unstandardized coefficients and odds ratios from logistic regression of education and demographic controls on good self-rated health, stratified by nativity and place of education (Total N = 1,802)

| | U.S.-Born and U.S.-Educated (n = 317) Model 1a | | Foreign-Born and U.S.-Educated (n = 139) Model 1b | | Foreign-born and Foreign- educated (n = 1,346) Model 1c | |
|----------------|---|------------------|--|-------------------|--|------------------|
| | B | OR (95% CI) | B | OR (95% CI) | B | OR (95% CI) |
| Intercept | 3.16*** | | 2.86** | | 1.52*** | |
| Education | | | | | | |
| 0–11 years | –1.89* | 0.15 (0.03–0.83) | — | — | –0.64** | 0.53 (0.33–0.86) |
| 12 years | –1.53*** | 0.22 (0.07–0.70) | –1.73* | 0.18 (0.03–0.95) | –0.33 | 0.72 (0.41–1.26) |
| 13–15 years | –0.91 | 0.40 (0.15–1.07) | –2.25*** | 0.11 (0.03–0.44) | –0.19 | 0.83 (0.51–1.35) |
| 16 years (ref) | | | | | | |
| Age | | | | | | |
| 0–11 years | 0.00 | 1.00 (0.98–1.03) | 0.01 | 1.01 (0.97–1.06) | 0.04*** | 0.96 (0.95–0.97) |
| 12 years | –0.56 | 0.57 (0.25–1.31) | 0.43 | 1.53 (0.28–8.48) | –0.28 | 0.76 (0.53–1.10) |
| 13–15 years | 0.37 | 1.45 (0.64–3.30) | 0.35 | 1.42 (0.43–4.74) | 0.14 | 1.15 (0.73–1.83) |
| Ethnicity | | | | | | |
| Vietnamese | — | — | 0.36 | 1.43 (0.23–8.84) | 0.25 | 1.29 (0.84–1.98) |
| Filipino | –0.37 | 0.69 (0.23–2.05) | 0.41 | 1.50 (0.25–9.22) | 1.07*** | 2.93 (1.73–4394) |
| Other Asian | –0.05 | 0.95 (0.34–2.67) | 1.07 | 2.90 (0.27–30.86) | 0.68* | 1.98 (1.14–3.43) |
| Chinese (ref) | | | | | | |

Note: Age is centered around its mean. In Models, 1a and 1b, “Vietnamese” and “0–11 years of Education” were dropped from the analysis because of very few cases in these categories (n = 2 and n = 5, respectively).

* $p < 0.5$. ** $p < .01$. *** $p < .001$ (two-tailed test).

with foreign education, foreign birth again demonstrates no association with good self-rated health ($b = .02$; $p = .97$; $OR = 1.02$). Owing to the relatively high level of correlation between these constructs ($r = .74$; $p < .001$), the statistical power of foreign education in the model was reduced, but the magnitude of the coefficient for this variable was not substantially altered ($b = -.49$; $p = .31$; $OR = .61$). This analysis demonstrates that any apparent effects of foreign birth on health status can likely be attributed to the fact that the foreign-educated comprise 91% of the foreign-born in this sample.

As a stricter test, we performed analyses stratified by three classes of nativity and place of education: (1) U.S.-Born and U.S.-Educated; (2) Foreign-Born and U.S.-Educated; and (3) Foreign-Born and Foreign-Educated (see Table 3). In this way, we were able to account for both nativity and place of education in the analyses without multicollinearity, thereby allowing us to determine more specifically how foreign education adds complexity to the nativity differences in the effect of education on health. Among the U.S.-Born and U.S.-Educated (Model 1a), the educational gradient is evident, with the exception of “13–15 years” of education being statistically indistinguishable from “16 or more” years (gradient $p < .01$). The gradient trend is evident in the increasing odds of good health with increasing education (0–11 years, $OR = 0.15$; 12 years, $OR = 0.22$; 13–15 years, $OR = 0.40$). Among individuals who are Foreign-Born and U.S.-Educated (Model 1b), observation of significant differences between levels of education is slightly complicated by the fact that the category “0–11 years” of education was dropped from the analysis owing to small number of cases ($n = 2$). Though only a marginally significant gradient is present (gradient $p = .08$), it is clear that getting a college degree significantly improves the odds of good health compared to both obtaining a high school degree and completing some college. Among the Foreign-Born and Foreign-Educated (Model 1c), a gradient is present (gradient $p < .05$), but the effects of receipt of a college degree on good health significantly differ from only the lowest category of education, “0–11 years.” For this group, a high school degree, some college, and college are indistinguishable in their effects on health status. The differences between the educational patterns in Model 1b and Model 1c demonstrate that the effects of a foreign education can be clearly separated from the effects of foreign birth on health status. In sum, education is beneficial to health among the foreign-educated, but the fact that there are no additional health returns to increasing education beyond a high school degree indicates that the educational gradient in health is attenuated at higher levels among foreign-educated compared U.S.-educated individuals.

The Meaning of a Foreign Education

The analyses presented in Table 4 test possible mediators in the association between place of education and good self-rated health by sequentially adding income, positive social interaction, smoking status, and English language proficiency to Model 3 from Table 2. If the inclusion of these variables reduces the magnitude and significance of place of education, we consider them to exhibit mediating effects. In Model 4, we observe that income (adjusted for family size and log transformed) significantly mediates the relationship between foreign education and good health. In other words, one of the reasons the foreign-educated experience a health disadvantage is because, on average, they earn less than individuals educated in the United States. However, this mediation effect is small; though the effects of a foreign education are not significant at the $\alpha = .05$ cutoff, the magnitude of the coefficient is not substantially affected and remains marginally significant ($p = .06$). Positive social interaction (Model 5) also mediates the relationship between place of education and health. If the foreign-educated have supportive relationships with family and friends,

Table 4
Unstandardized coefficients and odds ratios for logistic regression testing intervening mechanisms in the foreign education and health status association (N = 1802)

| | Model 4 | | | Model 5 | | | Model 6 | | | Model 7 | | | Model 8 | | |
|-----------------------------|----------|------------------|--|----------|------------------|--|----------|------------------|--|----------|------------------|--|---------|------------------|--|
| | B | OR (95% CI) | | B | OR (95% CI) | | B | OR (95% CI) | | B | OR (95% CI) | | B | OR (95% CI) | |
| Intercept | 1.10** | | | 1.93** | | | 2.09*** | | | 1.65*** | | | 0.89* | | |
| Education | | | | | | | | | | | | | | | |
| 0–11 years | -0.81*** | 0.44 (0.28–0.71) | | -0.70** | 0.50 (0.31–0.80) | | -0.86*** | 0.43 (0.27–0.67) | | -0.14 | 0.87 (0.52–1.47) | | -0.03 | 0.97 (0.58–1.64) | |
| 12 years | -0.55* | 0.58 (0.35–0.96) | | -0.48 | 0.62 (0.38–1.01) | | -0.56* | 0.57 (0.34–0.94) | | -0.16 | 0.85 (0.50–1.46) | | -0.08 | 0.92 (0.54–1.57) | |
| 13–15 years | -0.37 | 0.69 (0.45–1.06) | | -0.30 | 0.74 (0.48–1.14) | | -0.37 | 0.69 (0.45–1.05) | | -0.19 | 0.83 (0.53–1.29) | | -0.12 | 0.89 (0.57–1.38) | |
| 16 years (ref) | | | | | | | | | | | | | | | |
| Age (years) | -0.03*** | 0.97 (0.96–0.98) | | -0.03*** | 0.97 (0.96–0.99) | | -0.03*** | 0.97 (0.96–0.98) | | -0.02*** | 0.98 (0.96–0.99) | | -0.02** | 0.98 (0.96–0.99) | |
| Female | -0.22 | 0.81 (0.58–1.12) | | -0.32 | 0.73 (0.52–1.02) | | -0.26 | 0.77 (0.55–1.08) | | -0.22 | 0.80 (0.57–1.12) | | -0.29 | 0.75 (0.52–1.08) | |
| Married | 0.18 | 1.20 (0.82–1.76) | | 0.30 | 1.35 (0.93–1.98) | | 0.26 | 1.30 (0.89–1.90) | | 0.23 | 1.26 (0.86–1.86) | | 0.18 | 1.20 (0.81–1.78) | |
| Ethnicity | | | | | | | | | | | | | | | |
| Vietnamese | 0.22 | 1.25 (0.84–1.86) | | 0.29 | 1.34 (0.90–1.99) | | 0.17 | 1.18 (0.80–1.76) | | 0.30 | 1.34 (0.89–2.03) | | 0.42* | 1.52 (1.01–2.29) | |
| Filipino | 0.62** | 1.87 (1.22–2.86) | | 0.57* | 1.76 (1.14–2.73) | | 0.66** | 1.93 (1.26–2.96) | | 0.01 | 1.01 (0.64–1.60) | | -0.02 | 0.98 (0.62–1.56) | |
| Other Asian | 0.54* | 1.71 (1.06–2.75) | | 0.45 | 1.57 (0.99–2.51) | | 0.53* | 1.71 (1.06–2.74) | | 0.14 | 1.16 (0.70–1.91) | | 0.11 | 1.12 (0.68–1.85) | |
| Chinese (ref) | | | | | | | | | | | | | | | |
| Foreign | -0.40 | 0.66 (0.42–1.04) | | -0.33 | 0.72 (0.45–1.14) | | -0.48* | 0.62 (0.39–0.97) | | 0.16 | 1.18 (0.69–1.99) | | 0.26 | 1.30 (0.76–2.22) | |
| Education | | | | | | | | | | | | | | | |
| Income | 0.10*** | 1.10 (1.04–1.17) | | | | | | | | | | | 0.07** | 1.08 (1.02–1.14) | |
| Positive Social Interaction | | | | 0.07** | 1.07 (1.03–1.11) | | | | | | | | 0.05* | 1.05 (1.01–1.10) | |
| Smoker | | | | | | | -0.13 | 0.88 (0.54–1.42) | | | | | -0.10 | 0.91 (0.55–1.50) | |
| English Proficiency | | | | | | | | | | 0.25*** | 1.29 (1.18–1.40) | | 0.23*** | 1.26 (1.16–1.37) | |

Note: Age, positive social interaction, and English language proficiency are centered around their respective means. Income is adjusted for family size and log transformed.
* $p < .05$. ** $p < .01$. *** $p < .001$ (two-tailed test).

they are no less likely than the U.S.-educated to report good health. Model 6 tests whether health behaviors, specifically smoking status, can account for observed differences in health by place of education. Being a current smoker does not affect self-rated health, and similarly does not affect the relationship of being foreign-educated to health. Model 7 includes English language proficiency, which exerts a profound influence on reports of good health and negates the detrimental effect of foreign education. Model 8 includes all mediators together to show their partial effects. All mediators retain most of their magnitude, and the significance of their effects on health status does not change. Together, these factors account for the attenuated educational gradient in health among the foreign-educated. Though income and social interaction retain partial effects on health status in Model 8, the strong mediating effect of English language proficiency in the associations between education, ethnicity, and foreign education and health status in Model 7 attest to its importance and power as a health predictor.

Discussion

Our study presents important qualifications to the conclusions of prior research on the relationship between education and health status. One of the most salient and robust relationships in social science is that of a gradient relationship of educational attainment with better health status (Adler et al. 1994; Feinstein 1993). Increasingly, scholarship has called into question the assumption that education has the same gradient effect on health across different racial and ethnic groups (Acevedo-Garcia et al. 2007; Farmer and Ferraro 2005; Goldman 2006; Kimbro et al. 2008; Leu et al. 2008). In this study, we find that among the Asian American population as a whole, education does not have the same significant, positive relationship with self-rated health that has been observed among White Americans (House et al. 1994). Additionally, place of education is an important moderator of the effects of education on health, with the foreign-educated not receiving the same health payoff for increasing educational attainment as the U.S.-educated. Disaggregating the sample into groups based on place of education reveals that among the U.S.-educated, there is a significant educational gradient in health, with each successive educational achievement resulting in more positive health outcomes. Among the foreign-educated, education *does matter* for better health; however, the gradient relationship between education and health status is weakened, especially at the highest levels of education. Foreign-educated individuals exhibit significant differences in health status only between the lowest and highest educational groups.

To further understand the ways in which place of education matters to the effects of education on health among Asian Americans, we tested a series of mediators in the relationship between foreign education and good health. We found support for mediating effects of income, positive social interaction, and English language proficiency, but the place of education-health association was not mediated by smoking. By far, the most outstanding mediator was English language proficiency, which supports the conclusions of prior research finding strong associations of language proficiency with both health care quality and health outcomes. Proficiency in English has been related to poorer quality of health care among Latinos, even among insured individuals. Insured Latinos with fair or poor English proficiency were more likely to report not having a primary source of care, difficulty in getting information/advice by phone, and poorer quality of service (Pippins, Alegria, and Haas 2007). Among elderly Chinese and Korean immigrants, English language proficiency predicted poorer physical functioning and limitations, general health, vitality, social functioning and mental health (Mui, Kang, Kang and Domanski, 2007). Additionally, it

is probable that limited English proficiency is associated with increased prevalence of mental disorders (Takeuchi et al. 2007), inhibits opportunities for employment in high prestige occupations (Davila and Mora 2000), and results in earnings penalties (Mora 1998), all of which are associated with poorer health outcomes. The mediating effects of income lend support to earlier studies showing that receipt of a college degree in a foreign country results in significantly lower economic compensation for immigrants (Friedberg 2000; Zeng and Xie 2004).

Previous research on the educational gradient in groups with substantial foreign-born populations has focused on nativity differences as a primary explanation for variability in the effects of education on health (Acevedo-Garcia et al. 2005, 2007; Goldman et al. 2006; Bates et al. 2008; Kimbro et al. 2008). With the current study, we make the case that an important aspect of nativity differences in the effects of education is the context of one's educational experience. That is, though the concepts of nativity and place of education overlap considerably (i.e., most of the foreign-born are also foreign-educated), they do not equate to the same phenomenon, and distinguishing the effect of a foreign education provides valuable insight into why the foreign-born may experience attenuated educational gradients in health. Among the foreign-born, those who received the bulk of their early education in the United States have an increasingly positive health payoff at all levels of education, demonstrating that education can be a means for success among *some* foreign-born individuals. Interestingly, our analyses demonstrate that even among the U.S.-born and U.S.-educated, some college does not differ from a college degree in its relationship to good health; however, a salient educational gradient does still exist.

Though the comprehensive nature of the social and health data on Asian Americans in the NLAAS is unparalleled, the findings offered in this study should be considered in light of some limitations. In general, the cross-sectional nature of the data reduces our ability to rule out reverse causality in the education and health association. Because education generally occurs early in the life course and health problems increase with age, using education as the indicator of socioeconomic status and limiting the sample to respondents who are 25 years or older increase our confidence in the direction of the association. Additionally, there are some factors that may affect immigrant education and health in general, such as migrant selectivity and acculturation, which we are not able to fully account for with the current data.

First, migration selectivity may play an influential role in attenuating the educational gradient among all immigrants, regardless of place of education. The migration-selectivity hypothesis, or "healthy migrant" effect, posits that there is a minimum health level that makes migration worthwhile. The decision to migrate is seen as a rational one in which migrants weigh the economic costs and benefits of migration. Good health can enhance earnings capacity, so that healthier individuals will gain more personally from migration and they will be positively selected by the host country on their health status (Jasso, Massey, Rosenzweig, and Smith 2000). There is additional evidence that those who migrate are more highly educated than those who stay. Feliciano (2005) found that among 32 immigrant groups in the United States, nearly all of those who migrated were more educated than those who stayed behind in their home countries. This study also found substantial differences in the degree of educational selectivity based on country of origin, with those emigrating from Asia being more positively selected on education. Therefore, the migration selectivity hypothesis suggests that migration is selective of healthier, more-educated individuals, which may affect the strength of the educational gradient in health among members of these groups. It is also possible that migration selectivity works differentially by level of education, with the least-educated individuals experiencing more barriers to

migration, making health status even more consequential in determining their ability to migrate. Thus, one reason for a weakened educational gradient among the foreign-born may be that those at the lowest level of education must be relatively healthy and those with higher levels of education have a wider range of health status because their educational credentials trump health status in determining their ability to migrate. Comprehensive tests of this hypothesis have not been carried out because of the difficulty in obtaining data on the health of residents who stay in their home countries. However, recent data from Mexico find generally weak support for this hypothesis (Rubalcava, Teruel, Thomas, and Goldman 2008). It is not clear whether this will also be true for migrants from Asian countries, given that health selection may be weaker for migrants from border countries such as Mexico and Canada (Jasso, Massey, Rosenzweig, and Smith 2004).

Second, for immigrants, place of education measures aspects of early life experience and how these may affect success in the United States; therefore, it is difficult to distinguish the construct from variables that measure acculturation, namely age at immigration and length of time in the United States. Classic assimilation theories suggest that as immigrants adapt to the United States they acculturate or take on the cultural habits and practices of the mainstream society, and integration is seen to progress successively throughout an immigrant's lifetime and from one generation to the next (Alba and Nee 2003). Along with socioeconomic assimilation, as immigrants acculturate, their health has been shown to more closely mirror that of the native-born population in terms of both general health status and prevalence of specific diseases (Kasl and Berkman 1983; Marmot and Syme 1976). With more time in the United States, individuals may adopt unhealthy behaviors (e.g., smoking and alcohol use; Epstein, Botvin, and Diaz 1998; Guilamo-Ramos, Jaccard, Johansson, and Tunisi 2004), or have less salient ethnic identity as their social networks widen to include more mainstream Americans (Yip, Gee, and Takeuchi 2008). In effect, with increased time in the United States, changes in health behaviors or ethnic identity may trump the effects of education on health. The acculturation argument focuses on a loss of culture-related protective factors as immigrants and their native-born children become more socially embedded to the United States.

Given that place of education and age at immigration are empirically similar, we attempted to isolate their effects on health status. The two variables are highly correlated, precluding placement of both into a model simultaneously (chi-square test, $p < .001$). We performed some stratified analyses by age at immigration (0–16 years, 17–25 years, 26–39 years, and 40+ years) to determine how education related to health in these groups (analyses not shown). These analyses confirm a significant educational gradient in two age-at-immigration groups (0–16 and 26–39), but not the other two groups (17–25 and 40+). In general, the proportion of U.S.-educated in all three of the older age-at-immigration groups is extremely low, making it difficult to tease out the differential effects of these two related variables. Nearly all U.S.-educated individuals were either born in the United States or immigrated between the ages of 0 and 16, and strong educational gradient also exists in this group, confirming our supposition that the constructs of place of education and age at immigration are empirically similar. Tests for an educational gradient in the other three groups do less to clarify the effects of the overlap. The early and late age at immigration groups (17–25 and 40+) do not demonstrate a significant gradient. Conversely, among the group who likely received all of their education in a foreign country (age at immigration 26–39) and came to the United States for work, there is once again a clear educational gradient. Ultimately, we must acknowledge the limitations of the cross-sectional nature of our data to sort out the differential effects of these empirically related, yet conceptually distinct, constructs. Our aim with the current study is to broaden the

perspective from a singular focus on cultural explanations associated with acculturation to argue for the importance of structural constraints imposed by one's place of education (i.e., the utility of one's educational experience for navigating the health care system or labor market).

A third limitation is in the measurement of place of education itself. Because the NLAAS survey question measuring place of education is designed to estimate the effects of receiving most of one's education in another country before the age of 16, it leaves open the possibility that a foreign-educated respondent received his or her college degree in the United States. When Zeng and Xie (2004) created a proxy variable for the foreign-educated, they emphasized the place of degree, assuming that if an immigrant completed his or her education in the United States, receiving some in a foreign country would not matter for earnings. We conducted supplemental analyses to determine whether it is receipt of a foreign education before age 16 or a foreign degree that is driving the association we observe between place of education and health (analyses not shown). We constructed a proxy variable for place of degree, based on the respondent's age when she or he entered the United States. First, we determined which respondents received most of their education before 16 years outside the United States. Second, if their age at immigration was lower than 25 years, we considered them to have a U.S. degree. If age at immigration was greater than or equal to 25 years, we considered them to have a foreign degree. Using this strategy, we distinguished three main categories of degree location within the subset of respondents with at least a college degree: U.S.-educated respondents with a U.S. degree, foreign-educated respondents with a U.S. degree, and foreign-educated respondents with a foreign degree. Using logistic regression, we tested the association of "place of degree" with good health. For those who were foreign-educated, there was not a significant difference in the effects of education between those who got their degree in a foreign country and those who got their degree in the United States. There *was* a significant difference between the U.S.-educated and the foreign-educated regardless of place of degree. These supplemental analyses strengthen our conclusion that it is the place of education, defined as where the respondent received most of his or her education before the age of 16, not the place of degree, that matters most for the relationship of education to good health.

Finally, at the present time, the study focuses only on Asian Americans. Future research should investigate both inter-racial differences between Asian Americans and other racial groups and differences among Asian American ethnic groups. Among Asian American ethnic groups, the value of foreign education for health may differ by country of origin. The magnitude of the health disadvantage associated with foreign education may also vary accordingly. The weakened education gradients observed for foreign-educated Asian Americans may be a result of different relationships of education to health in the immigrants' countries of origin, but we are limited in testing this owing to lack of health information from sending countries. It is also possible that other factors not captured in our study explain the difference between a U.S. and foreign education in predicting self-rated health. For example, job characteristics (Warren, Hoonakker, Carayon, and Brand 2004); occupational prestige (Knesebeck, Lüschen, Cockerham, and Siegrist 2003); discrimination (Pavalko, Mossakowski, and Hamilton 2003); and racial residential segregation (Patel et al. 2003) have all been shown to significantly affect self-reported health. It is conceivable that the moderating effect of the country where one receives the majority of one's education may be routed through one of the aforementioned factors. Further inquiry into the relative importance of these unmeasured factors would complement this study.

Despite these limitations, this study has shown that educational context has important implications for the effects of education on health status among Asian Americans. In studies of health among groups with large numbers of immigrants, it is exceedingly important that future research take into account both the effect of education and where it was received. Understanding the effects of place of education can illuminate more generally the processes by which immigrants adapt to the United States. The characteristics and educational skills that Asian immigrants bring with them from their countries of origin clearly affect their economic integration in the United States, their ability to speak English, and their social interactions, all of which determine how individuals provide for their own health and interact with health care systems. Though investment in human capital remains an important road to future success and good health status among Asian Americans, failure to consider the context of where that education was received may lead to erroneous conclusions about the health benefits of attaining subsequently higher levels of education.

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