RAND

Health Status of Older Immigrants in the United States

Melonie P. Heron
Robert F. Schoeni
Leo S. Morales

DRU-2862-NIA

March 2002

Labor and Population Program

Working Paper Series 02–07

The RAND unrestricted draft series is intended to transmit preliminary results of RAND research. Unrestricted drafts have not been formally reviewed or edited. The views and conclusions expressed are tentative. A draft should not be cited or quoted without permission of the author, unless the preface grants such permission.

RAND is a nonprofit institution that helps improve policy and decisionmaking through research and analysis. RAND's publications and drafts do not necessarily reflect the opinions or policies of its research sponsors.

Health Status of Older Immigrants in the United States

Melonie P. Heron [a,b,*], Robert F. Schoeni [c], Leo Morales [b,d]

[a] *Department of Sociology, The Florida State University, Tallahassee, FL, USA*
[b] *The RAND Corporation, Santa Monica, CA, USA*
[c] *Institute for Social Research, The University of Michigan, Ann Arbor, MI, USA*
[d] *Division of General Internal Medicine and Health Services Research, University of California-Los Angeles, CA, USA*

March 2002

* Corresponding address: The RAND Corporation, 1700 Main Street, P.O. Box 2138, Santa Monica, CA 90407. Tel: (310) 393-0411 ext. 6215. Fax: (310) 393-4818. E-mail address: melonie_heron@rand.org

Health Status of Older Immigrants

in the United States

Abstract

In light of increased immigration to the U.S. over the past thirty years, our objective is to examine the unique patterns of health status among immigrants aged 55 and over, using more detailed racial/ethnic categories than previously done. We explore health disparities within the immigrant population and between immigrants and natives of the same racial/ethnic group. Logistic regression is used to analyze data from the 1992-1995 National Health Interview Survey. Immigrants are less likely than natives to report an activity limitation or to be obese, but more likely than natives to report themselves in poor or fair general health. There are significant differences among immigrants arriving from different countries and between immigrants and natives who are of the same race/ethnicity. For some groups and health measures, a large share of the differences are explained by disparities in socioeconomic status; however, for others, the majority of the differences remain after adjusting for education and income. Older immigrants are not a large enough share of the population, nor do they have distinct enough health status, to substantially alter the aggregate prevalence of health conditions in the total population. However, the diversity in health status within the immigrant population is enormous. These estimates can be used to target populations with especially high rates of obesity and limitations.

Keywords: Activity limitation; Health disparities; Immigrant health; Obesity; Race/ethnicity; USA

HEALTH STATUS OF OLDER IMMIGRANTS IN THE UNITED STATES

INTRODUCTION

The objective of this paper is to investigate the health status of older immigrants (i.e., foreign-born persons) in the United States. Because of the sheer magnitude of the number of immigrants, their changing racial/ethnic mix, and their differing socioeconomic backgrounds (McCarthy & Vernez, 1997), the health of immigrants may have important implications for the health of the general U.S. population, access to and utilization of health services, and care of the elderly. Furthermore, the health of older immigrants, in particular, may have more of an impact than that of the overall population of immigrants, since most changes in health occur in middle and old age. Using three measures of health status, we compare the health of immigrants to that of natives, with a focus on the population aged 55 and over. First, we examine health disparities within the immigrant population and between immigrants and natives of the same detailed racial/ethnic group. Then, we explore the role that socio-economic status plays in accounting for observed health disparities.

Today, one out of every ten Americans was born outside of the U.S. while just twenty-five years ago only six percent of Americans were foreign born. These changes are even more pronounced in regions such as California, where one out of every four residents is an immigrant (McCarthy & Vernez, 1997). At the same time, the traditional immigrant stream from Europe has been replaced by dominant streams from Latin America and Asia. As recently as the 1960s, the proportion of all newly arriving immigrants who were from Europe was 53 percent, while just 12 percent were from Mexico and 6 percent from Asia. By 1998, the share of new arrivals who were born in Europe had declined to 14 percent, and the share born in Mexico and Asia increased to 20 percent and 32 percent, respectively (U.S. Immigration and Naturalization Services, 1998).

It is well established that there are significant differences in mortality and morbidity among racial/ethnic groups, with blacks, in particular, in worse health than whites. For example, blacks are more likely than whites to suffer and die from heart disease, cancer, stroke and diabetes, to live more years of their life in a disabled state, and to live truncated lives (e.g., Preston & Taubman, 1994; Williams & Collins, 1995; Hummer, 1996; Hayward & Heron, 1999; Rogers, Hummer & Nam, 2000). While the preponderance of research on health and mortality has focused on black-white differentials, studies have found that, in contrast with blacks, Asian Americans tend to have

better health, lower mortality, and longer life expectancy than all other racial/ethnic groups, including whites (Rogers et al., 2000; Hayward & Heron, 1999; Hummer, 1996). As a group, Hispanics tend to have an intermediate position, with better health outcomes than blacks and poorer (self-reported general health) or similar health outcomes compared with non-Hispanic whites (Hajat, Lucas & Kington, 2000). Many recent studies on Hispanic health take into account the diversity of this group by examining intra-group differences in health. Mortality and morbidity outcomes vary based on the ethnic origin of the Hispanic group, the health outcome in question, and nativity (Williams & Collins, 1995; Bassford, 1995; Hajat et al., 2000; Rosenwaike, 1987; Rogers et al., 2000; Hummer, Rogers, Nam & LeClere, 1999b). In general, Puerto Ricans have the worst mortality and health outcomes of all Hispanic groups while Cubans and Mexicans have the best (Hajat et al., 2000; Rosenwaike, 1987; Rogers et al., 2000).

Racial/ethnic disparities in health and mortality are largely attributed to group differences in socioeconomic factors such as education, employment, income, occupation, and living conditions, as well as exposure to environmental and occupational hazards that impact health, which is itself influenced by socioeconomic status (Lillie-Blanton & Laveist, 1996; Williams & Collins, 1995; Williams, Lavizzo-Mourey, & Warren, 1994). In fact, many studies find that disparities in education and income explain much, and in some cases all, of the differences in health status between blacks and whites (e.g., Geronimus, Waidmann, Hillemeier, & Burns, 1996; Schoenbaum & Waidmann, 1997; Preston & Taubman, 1994; Behrman, Sickles, & Taubman, 1991; Mutchler & Burr, 1991). Furthermore, group differences in lifestyle and coping behaviors, access to health care (especially early preventive care and health screenings), quality of medical care, health insurance coverage, knowledge about disease conditions and risk factors, and access to or utilization of family and friendship networks also contribute to racial/ethnic disparities in morbidity and mortality (Sorlie, Rogot, Anderson, Johnson, & Blacklund, 1993; Bassford, 1995; Flaskerud & Kim, 1999; Rogers, 1992; Williams & Collins, 1995).

Only a handful of nationally representative studies examine the health status of immigrants, in general, or the health status of elderly immigrants, in particular. A National Center for Health Statistics report (Stephen, Foote, Hendershot, & Schoenborn, 1994) concluded that the foreign-born population had better health than the U.S.-born population. This result is confirmed for the elderly population by Swallen (1997), who finds lower rates of cancer, lung disease, and diabetes among immigrants. LeClere, Jensen, & Biddlecom (1994) show that (not adjusting for

age or sex) native-born persons are more likely to have a work disability, a chronic condition, be in fair or poor health, or have any disability.

A larger set of more specialized studies have also been conducted. These studies have examined selected groups of immigrants (Angel, Angel, McClellan, & Markides, 1996; Angel & Guarnaccia, 1989; Black, Markides, Miller, 1998; Angel & Angel, 1992; Rosenwaike, 1987; Bassford, 1995; Reed & Yano, 1996), analyzed the non-elderly population (Popkin & Udry, 1998; Weeks & Rumbaut, 1991; Hummer, Biegler, DeTurk, Forbes, Frisbee, Hong, et al., 1999a; Alexander, Mor, Kogan, Leland, & Kieffer, 1996; Fuentes-Afflick & Hessol, 1997; Singh & Yu, 1996), or were not national in scope (Kuo & Tsai, 1986; Burnam, Hough, Karno, Escobar, & Telles, 1987; Shetterly, Baxter, Mason, & Hammon, 1996; Hazuda et al., 1988; Rosenwaike & Hempstead, 1990). In general, although there is no overwhelmingly strong pattern that emerges from these studies, the weight of the evidence suggests that immigrants are healthier than natives.

Our study, which focuses on the population aged 55 and over, improves on previous studies by using a nationally representative sample and by analyzing immigrant health at a level of racial/ethnic detail not previously examined. This allows for deeper understanding of the health status of immigrants, which may be beneficial for anticipating and addressing public health challenges in the U.S. as a result of a combination of increased immigration, diversity, and population aging. While a focus on detailed racial/ethnic comparisons is necessary because of the diversity of immigrants, it is also useful to examine immigrants as a whole – regardless of racial/ethnic identity -- to provide an overview of the immigrant population, which we do in this study.

One of the more closely studied determinants of health inequality is socioeconomic status, which may affect health directly or indirectly by, for example, increasing one's ability to purchase medical care or health insurance or reducing the probability of living or working in hazardous settings. The second objective of this paper is to place the spotlight on socioeconomic status by examining the extent to which differences in education and income can explain observed disparities in health status. It is established that there is a substantial gradient in health by socio-economic status (e.g., Preston & Taubman, 1994, Feinstein, 1993). Furthermore, there are substantial differences in the economic status of the foreign- and U.S.-born populations and among foreigners born in different countries (McCarthy & Vernez, 1997). Therefore, differences in socioeconomic status are likely to play an important role in accounting for disparities in health status among these groups.

METHODS

Data

We analyze data from the National Health Interview Survey (NHIS), which is an annual cross-sectional survey of the non-institutionalized U.S. population that interviews about 100,000 individuals in each year. We focus on the population aged 55 and older. To increase sample sizes, we pool data from four years, 1992-1995, resulting in 82,758 natives and 9,296 immigrants for a total sample size of 92,054 observations in our analyses. Individuals whose general health status was unknown, which represented less than 1 percent of the sample, were dropped from the sample.

Unfortunately, information about the specific country of birth of immigrants is not available in the NHIS public use data files. However, two additional questions on race/ethnicity allow us to identify the most likely country of birth for most immigrants. All respondents, not just immigrants, reported whether their "national origin or ancestry" is one of the following: Puerto Rican, Cuban, Mexican/Mexicano, Mexican American, Chicano, Other Latin American, Other Spanish. In addition, respondents reported their racial group, indicating one of the following: white, black, Indian (American), Eskimo, Aleut, Chinese, Filipino, Hawaiian, Korean, Vietnamese, Japanese, Asian Indian, Samoan, Guamanian, Other Asian Pacific Islander, Other Race, and Multiple Race. Cross-classifying immigrants and natives by their ethnicity and race, we are able to identify immigrants (and natives) of various racial/ethnic backgrounds. Due to small sample sizes, a few race/ethnic categories were grouped together in our analysis.

Many of the racial/ethnic classifications imply that an immigrant was born in a specific country; for example, an immigrant whose "national origin or ancestry" was Cuba was most likely born in Cuba. On the other hand, there may be a substantial number of immigrants who identify their race as "Chinese," but yet they were not born in China. Throughout the paper we will refer to such immigrants as being born in the specific country, e.g., China, but it should be kept in mind that some of these immigrants may have been born and lived elsewhere.

We examined three dimensions of health: self-perceived general health status, existence of an activity limitation, and obesity. General health status is the commonly used self-perceived report. It is a measure of health that is highly correlated with mortality (McGee, Liao, Cao, & Cooper, 1999). The categories asked in the NHIS are

excellent, very good, good, fair, or poor. We chose to assign a code of 1 to respondents if they reported being in fair or poor health and 0 if otherwise. Analyses were conducted using various alternative groupings of the five categories, and the qualitative results were robust.

Activity limitation is a leading measure of disability, and respondents are considered to have an activity limitation if they reported that an impairment or health problem limited their ability to complete their primary activity (i.e., working, keeping house, schooling) or any other activity. Survey respondents between 18 and 69 are asked about limitations with working, keeping house or going to school. Survey respondents 70 and older are asked about limitations with activities of daily living such as household chores, shopping and getting around.

We defined a person with a BMI (body mass index) equal to or greater than thirty as obese (NIH, 1998). The BMI is calculated from self-reported weight and height and is the ratio of weight in kilograms divided by the square of height in meters. Obesity is included as a health outcome due to rising public health concern over the increasing prevalence of obesity and the link between being overweight and various chronic diseases including hypertension, stroke and some cancers (NIH, 1998), as well as to mortality from these health conditions (Rogers et al., 2001; Bassford, 1995). Both activity limitation and obesity are measured in our analyses by 0/1 dummy variables.

Analytical Approach

We first examine health disparities between all immigrants and all natives. We then focus on immigrant-native disparities for detailed race/ethnic/ancestry groups. In both sets of analysis, we estimate a series of four logistic regressions for each of our three health indicators. The baseline logistic model (model 1) provides the age-adjusted differences among groups and therefore does not control for socio-economic status. Models 2-4 build on model 1 by including education (model 2), family income and family size (model 3), and then education, family income, family size, region, size of Metropolitan Statistical Area (MSA), and central city simultaneously (model 4).

In all four regression models we include demographic controls: an indicator for whether the respondent was female and dummy variables for quinquennial age groups, with 55-60 as the reference. We also include dummy variables for year of interview, with 1992 as the reference. Finally, an indicator is included for whether the information was (entirely) self-reported versus proxy reported.

Independent variables are incorporated into our models because of sample variation, as well as the association of these variables with the health outcomes in question. Family income and education are negatively associated with poor health outcomes and may help explain health disparities. In our analyses, education is measured by nineteen dummy variables representing years of schooling completed, as reported in the NHIS survey. Family income in the past twelve months, unadjusted for inflation across survey years, is measured by dummy variables for twenty-seven nominal NHIS categories. In order to adjust for families' economic needs, seven dummy variables for family size are included in the models that control for family income. Finally, to control for geographical differences in health and access to health care, we included in model 4 controls for region, the size of the Metropolitan Statistical Area (MSA), and central city residence in the form of 0/1 dummy variables.

One potential limitation of our strategy is that some indicators of socioeconomic status may be endogenous. For example, family income may affect health care utilization, which in turn affects health status. But at the same time, good health may allow people to work harder, longer, and more productively, so their income may be higher. Although this bias may affect the models controlling for income, it is less likely to affect the models that control for education. For the most part, educational investment decisions are made prior to changes in health status (at least among the adults in our sample). However, if there is persistent unobserved heterogeneity, such as genetic or family background environment, that is related to education and health status, then even education may be endogenous. Our

maintained hypothesis is that education is exogenous. This is supported by evidence from Behrman (1993) who find that the effects of education (and income) are not sensitive to unobserved heterogeneity. The results controlling for education versus family income will be compared in models that exclude the potentially endogenous control variables of MSA size, region, and central city.

RESULTS

Immigrant-Native Differences in Health

Before turning to the regression analyses where we adjust for socio-demographic factors, it is useful to examine the unadjusted differences in health status among groups. In the population aged 55 and over, the foreign-born report their general health to be worse than the U.S.-born (Table 1). This immigrant-native disparity in

general health status is statistically significant and holds true for men and women. Interestingly, the pattern of native advantage in general health status is reversed for activity limitation and obesity. Immigrants are significantly less likely than natives to report an activity limitation. Based on self-reported weight and height, immigrants are also significantly less likely than natives to be obese. For example, 13 percent of the foreign-born are obese relative to 16 percent of the U.S.-born. For both of these health outcomes, the immigrant advantage holds true for men and women.

TABLE 1 ABOUT HERE

The observed disparities in health between immigrants and natives persist once group difference in educational attainment is taken into account (table not shown). Both immigrants and natives report better health at higher levels of education. However, given the same level of educational attainment, immigrants report being in significantly worse general health than natives, while natives are significantly more likely than immigrants to have an activity limitation or to be obese. These findings are supported by multivariate logistic regressions of health outcomes on immigrant status (Table 2, model 1).

TABLE 2 ABOUT HERE

Immigrants have lower socio-economic status than natives (Table 3). Therefore, given the positive association between socio-economic status (as measured by education) and health found in preliminary analyses, the immigrant advantage in activity limitation and obesity actually increases once socio-economic status and other relevant factors are taken into account. In Table 2, model 4, net of all predictors, natives have 35% higher odds of having an activity limitation than immigrants; the odds of being obese are 51% higher for natives than for immigrants. Interestingly, the native advantage in general health reverses so that, in model 4, natives are 15% *more* likely than immigrants to report being in fair or poor health.

Health Disparities Among Immigrants, by Detailed Racial/Ethnic Group

Immigrants (and natives) come from a variety of backgrounds and cultures, and we explore the differences in health status by analyzing immigrants by their country of origin and race/ethnicity. The unadjusted differences among the groups are reported in Table 3. Overall, we find that the Japanese and Chinese are the healthiest immigrant groups on all three health outcomes (Table 3). Mexicans, Puerto Ricans, and immigrants of Other Race

(mostly comprised of American Indians, Eskimos, Aleuts and mixed-race people) are consistently among the most disadvantaged. Contrary to the pattern for black natives, black immigrants tend to occupy an intermediate position on health outcomes, having worse health than Asian immigrants, but similar or better health than Hispanic immigrants. Interestingly, black immigrants are less likely than white immigrants to report an activity limitation.

TABLE 3 ABOUT HERE

General Health. Controlling for demographic and other factors, in terms of general health status, Puerto Rican, Other Race and Mexican immigrants continue to be in the worst health of all immigrant groups, the Japanese the healthiest (Table 4 model 1). The odds of being in fair or poor health are 29-52% higher for black, Other Asian, Other Hispanic, and Cuban immigrants relative to white natives. White and Chinese immigrants are not significantly different from white natives on this health outcome, although the odds ratio for the Chinese suggests that they are in better health than white natives (low power due to small sample size for Chinese immigrants may be an issue).

Once group variation in socio-economic status is taken into account, the differences between immigrants and white natives in the odds of fair/poor health are either reduced or disappear in most cases (Table 4, models 2 and 3). In the case of Chinese immigrants, the difference in general health actually becomes significant once education or income is controlled. For most groups, education plays a stronger role than family income in accounting for or reducing disparities in general health. The effect of controlling for education and family income, as well as geographical variation, varies by group, with the result typically being either no change or further reduction in the health gap (model 4). Contrary to this pattern, the initial disadvantages in general health of Mexican, Cuban and Other Hispanic immigrants compared to white natives are actually reversed (model 4).

TABLE 4 ABOUT HERE

Activity Limitation. Controlling for demographic factors, black, Cuban, and Other Hispanic immigrants are at par with white natives in terms of having an activity limitation (Table 5, model 1). Interestingly, once socio-economic factors are also controlled, these three groups are significantly less likely than white natives to have a limitation (models 2, 3 and 4). Consistent with the pattern of disadvantaged health status previously seen, Puerto Rican, Other Race, and Mexican immigrants have higher odds of activity limitation than white natives (1.82, 1.44 and 1.23 respectively). That disadvantage decreases for Puerto Ricans, reverses for Mexicans, and disappears for Other Race

once socio-economic factors are controlled (models 2, 3, and 4). White and Asian immigrants are less likely to have an activity limitation than white natives. For the most part, this advantage actually increases with socio-economic and other controls, the exception being Japanese, for whom there is little change across models. For most groups, education appears to have a greater impact on disparities than income, whether in reducing disadvantage or increasing advantage of immigrants.

TABLE 5 ABOUT HERE

While white natives are a natural reference group for immigrants under the assimilation model, Table 6 offers a more direct analysis of differences in activity limitation among immigrants. That is, we report a subset of the results of statistical tests done to determine whether health status is different among various groups. The shaded area above the diagonal reports tests based on model (1), with the tests based on model (4) reported in the remaining portion of the table. For example, the comparison between white immigrants and Cuban immigrants is not statistically significant at the 0.05 level when adjusting only for age, sex, survey year, and proxy reporting, i.e., model (1). But the difference is statistically significant (as indicated by "*" in Table 6) once education and income are adjusted in model (4).

Controlling only for demographic factors (model 1), we find that, initially, there is no significant difference among white, black, Other Asian, Cuban, and Other Hispanic immigrants. These groups are in better health than Puerto Rican and Mexican immigrants (who are significantly different from each other), but in worse health than Chinese and Japanese immigrants (who are at par with each other). Once socioeconomic and other factors are taken into account (model 4), gaps in health appear for some groups. For example, while whites and blacks remain at par, whites become significantly different from Other Asians, Cubans, and Other Hispanics who now seem to be in better health. For other groups, model 4 controls explain away initial differences. For example, once socioeconomic and geographic factors are controlled, there are no observed health gaps among the Japanese, Mexicans, Other Asians, Cubans, and Other Hispanics. Chinese immigrants are now in the best health; Puerto Rican immigrants remain in the worst health.

TABLE 6 ABOUT HERE

Obesity. Black, Other Race, and Cuban immigrants are no more or less likely than white natives to be obese, and

this finding persists across models (Table 7). Mexican immigrants and island-born Puerto Ricans are the most disadvantaged groups, having 66.6% and 44.9% higher odds of obesity relative to white natives, respectively. This disadvantage disappears for Puerto Ricans and is reduced for Mexicans once socio-economic factors are controlled (models 2 and 3). The gap in health between Mexican immigrants and white natives is completely accounted for when education, income, and geographical factors are simultaneously controlled (model 4). Japanese immigrants are the least likely to be obese with odds that are 96% lower than those of white natives, and this finding is persistent across models. The gap in health between white natives and Chinese or Other Asian immigrants is also fairly large. The odds of being obese are 87% and 71% lower for Chinese and Other Asians immigrants, respectively. The differences in health between these groups and white natives only increase with controls for socio-economic status.

According to Table 8, there are no significant differences in health among white, Other Race, Cuban and Other Hispanic immigrants in terms of obesity (model 1). These groups are in worse health than the Chinese and Japanese, who themselves are at par and in the best health. The picture is more complex for other groups. For example, there is no health gap between black immigrants and Other Race, Puerto Rican, Cuban and Mexican immigrants. However, Cubans are significantly different from both Mexicans and Puerto Ricans, who themselves are at par with each other. Once socioeconomic and geographic factors are controlled, some disparities disappear. For example, black and white immigrants are now at par, as are whites and Puerto Ricans. The gaps in health among Hispanic groups, with the exception of Other Hispanics, also disappear. For the most part, however, the patterns of disparity observed in model 1 persist even when socioeconomic status is taken into account.

TABLE 8 ABOUT HERE

Immigrant-Native Health Disparities, Within Detailed Racial/Ethnic Group

Comparing immigrants and natives within each detailed racial/ethnic group (Table 3), we find that for all groups (except Puerto Ricans), immigrants have the same or lower prevalence of activity limitation than natives, and immigrants are less likely to be obese than natives. However, for all groups (except blacks), immigrants are more likely to be in fair or poor health. For each health outcome, the immigrant-native gap ranges from 0% to 4% in most groups. However, the immigrant-native disparities are particularly large for Puerto Ricans and blacks. Among Puerto Ricans, there is an 18 percentage point difference in favor of the mainland-born for self-reported general

health and a 13 percentage point difference in favor of the mainland-born for activity limitation. Among blacks, there is a 15 and a 13 percentage point difference in favor of immigrants for general health and activity limitation, respectively. The gap between black immigrants and natives is also large for obesity (9 percentage points in favor of immigrants).

We further examine health disparities by detailed racial/ethnic group with multivariate logistic regressions for each health outcome in Tables 4, 5, and 7. In addition to the coefficient estimates, the tables report statistical tests for the difference between immigrants and natives within the same racial/ethnic group, with a statistically significant difference at the 0.05 level indicated with a superscript "*y*." The analyses reveal a persistent and significant gap in health between immigrant and native blacks on all three health outcomes. Black immigrants have the same or better health than white natives, while black natives are disadvantaged regardless of controls for group differences in demographic, socio-economic, geographical and other factors. White immigrants have the same odds of being in fair or poor health but lower odds of having an activity limitation or being obese relative to white natives. As with blacks, any observed group differences (or lack thereof) hold across all models. There is no significant difference in health on any of the three outcomes between immigrants and natives among Asian groups, regardless of model controls, with the exception of Other Asians (a heterogeneous group). In terms of obesity, Other Asian immigrants have a significant and persistent advantage in health relative to their U.S.-born counterparts.

Among Puerto Ricans, there is no significant difference in health between the island-born and the mainland-born in terms of obesity. However, natives are less likely to have an activity limitation. This disparity in activity limitation is completely explained by group differences in education or income. Natives are also less likely to report being in fair or poor health, a disparity explained solely by educational differences between the two groups.

Net of demographic factors, Mexican immigrants and natives are not significantly different from one another in terms of obesity, activity limitation or general health (Tables 4, 5 and 7, model 1). However, while parity holds true across subsequent models for obesity, disparities in general health and activity limitation become evident once socio-economic factors are controlled. Immigrants are less likely to be in poor health only in models where education is controlled. They are also less likely to have an activity limitation when either education or income is controlled.

For all three health outcomes, Other Hispanic immigrants and natives are initially at par, net of

demographic factors. However, in terms of activity limitation and obesity, a gap in health - in favor of immigrants - becomes apparent once either education or income is controlled. A significant difference, again in favor of immigrants, is observed for general health status only when income, education and geography are simultaneously controlled. This finding on general health mirrors that for Cuban immigrants and natives, who are otherwise at par - across all models - on obesity and activity limitation outcomes. Other Race immigrants and natives have no difference in general health and activity limitation, regardless of controls. However, Other Race immigrants are less likely to be obese than natives once either education or income is controlled.

DISCUSSION

The rise in immigration and the increase in health care costs have focused greater attention on health care utilization, health insurance coverage, and health status of immigrants. This paper has examined the latter by painting a broad picture of the health status of immigrants born in various countries, comparing their situation with immigrants born in other countries and U.S.-born persons of similar racial and ethnic backgrounds. As expected given the variation in socioeconomic status among groups, there are large disparities in health status among different immigrant groups. In general, Asian immigrants have the best health outcomes, while Puerto Ricans, Mexicans and "Other Race" persons the worst. However, once socioeconomic and geographic controls are included in multivariate analyses, Mexican immigrants' disadvantaged status relative to white natives reverses to one of immigrant advantage for general health and activity limitation and changes to parity for obesity. Mexican immigrants continue to be significantly different from most other immigrant groups across health outcomes. The health disadvantage of Puerto Rican immigrants relative to white natives is usually explained by socioeconomic and geographic controls (with the exception of general health). Likewise, gaps in the odds of being obese between island-born Puerto Ricans and some of the other immigrant groups disappear with controls; however, most differentials between Puerto Rican and other immigrant groups persist where activity limitation is concerned.

The differences between immigrants and natives of the same racial/ethnic background are large and usually in favor of the immigrant. One of the most striking differences is between black immigrants and natives, with natives much more likely to be in poorer health across all health outcomes even after controlling for socioeconomic and geographic variables. Within the Asian population, the Chinese and the Japanese are least likely to report an

activity limitation or to be obese. In most cases, Asian immigrants and natives have similar health outcomes. Hispanic immigrants and natives, however, tend to differ significantly on most health outcomes. Some of the differences in health - in favor of immigrants - can be attributed to socioeconomic status, although only for a few groups and comparisons can the majority of the gap be accounted for by these factors.

One potential explanation for our findings is that there may be positive selection on health among immigrants (see, for example, Swallen, 1997). Those who migrate to the U.S. may be healthier than those who remain in the country of origin, and so they compare favorably to the U.S.-born population. It is also possible that there is selective survival in that less healthy immigrants may return to their country of origin, leaving the sturdiest immigrants as a comparison for the native population. Explaining the causes for the remaining differences across the large number of groups we have examined here is a high priority for future research (Abraido-Lanza, Dohrenwend, Ng-Mak, & Turner, 1999).

Given its large sample sizes, the NHIS is the best dataset to paint a broad picture of health status among various immigrant groups. However, the NHIS (and most all other national data on health status of immigrants) has limitations. In particular, the interview is usually conducted in English. There are no full translations of the instrument into other languages. This is certainly problematic for some immigrants, and the selection into the survey based on language may be associated with health status (Jylha, Guralnik, Ferucci, Jokela, & Heikkinen, 1998). However, the overall response rate for the NHIS was 95-98 percent, depending on the year, suggesting that this problem may not be substantial. The NHIS is also limited in that the health measures are not clinically confirmed, and elsewhere it has been shown that language of interview effects self-assessed health status (Angel & Guarnaccia, 1989). Additional analyses should examine the sensitivity of self-reported measures to racial/ethnic/ancestry. We have used both subjective (i.e., general health status) and more objective measures (i.e., obesity), but clinical assessments would strengthen the conclusions.

Finally, our measures of socioeconomic status are limited and only include completed years of schooling and a categorical indicator of total household income from all sources. Information on wealth, income in other years, and parental background are not available. Despite this latter limitation, measured socioeconomic status plays an important role in explaining the differences in health among some groups, and future work will investigate the proximate components of this link. We also plan to investigate the effects of acculturation, or duration of time in the

U.S., on various health outcomes of immigrants.

ACKNOWLEDGMENTS

We thank Julie DaVanzo, Ron Hays, Raynard Kington, Michael Schoenbaum, and Bob Wallace for helpful discussions. Support for this research was received from the National Institutes of Health, RAND Postdoctoral Fellowship to Heron, the National Institute on Aging, grant K01 AG00670 to Schoeni, and the Robert Wood Johnson Foundation, Minority Faculty Development Fellowship to Morales.

REFERENCES

Abraido-Lanza, A.F., Dohrenwend, B.P., Ng-Mak, D.S., & Turner, J.B. (1999). The Latino mortality paradox: A test of the "salmon bias" and healthy migrant hypotheses. *American Journal of Public Health, 89*(10):1543-1548.

Alexander, G.R., Mor, J.M., Kogan, M.D., Leland, N.L., & Kieffer, E. (1996). Pregnancy outcomes of U.S.-born and foreign-born Japanese Americans. *American Journal of Public Health, 86*(6):820-824.

Angel, J.L., & Angel, R.J. (1992). Age at migration social connections, and well-being among elderly Hispanics. *Journal of Aging and Health, 4*(4):480-499.

Angel, J.L., Angel, R.J., McClellan, J., & Markides, K.S. (1996). Nativity, declining health, and preferences in living arrangements among elderly Mexican Americans: Implications for long-term care. *The Gerontologist, 36*(4):464-473.

Angel, R.J., & Guarnaccia, P.J. (1989). Mind, body, and culture: Somatization among Hispanics. *Social Science and Medicine, 28*(12):1229-1238.

Bassford, T.L. (1995). Health status of Hispanic elders. *Clinics in Geriatric Medicine, 11*(1):25-38.

Behrman, J. R., Sickles, R., & Taubman, P. (1993). Some causes and consequences of death. Mimeo, University of Pennsylvania.

Black, S.A., Markides, K.S., & Miller, T.Q. (1998). Correlates of depressive symptomatology among older community-dwelling Mexican Americans: The Hispanic EPESE. *Journals of Gerontology, Series B: Psychological Science and Social Sciences, 53*(4):S198-208.

Borjas, G. (1985). Assimilation, changes in cohort quality, and the earnings of immigrants. *Journal of Labor Economics, 3*(4):63-489.

Burnam, M.A., Hough, R.L., Karno, M., Escobar, J.I., & Telles, C.A. (1987). Acculturation and lifetime prevalence of psychiatric disorder among Mexican Americans in Los Angeles. *Journal of Health and Social* Behavior, 28:89-102.

Feinstein, J. (1993). The relationship between socioeconomic status and health: A review of the literature. *The Milbank Quarterly, 71*(2):279-322.

Flaskerud, J., & Kim, S. (1999). Health problems of Asian and Latino immigrants. *Emerging Nursing Care of Vulnerable Populations, 34*(2):359-380.

Fuentes-Afflick, E., & Hessol, N.A. (1997). Impact of Asian ethnicity and national origin on infant birth weight. *American Journal of Epidemiology, 145*(2):148-155.

Geronimus, A.T., Bound, J., Waidmann, T.A., Hillemeier, M.M., & Burns, P.B. (1996). Excess mortality among blacks and whites in the United States. *The New England Journal of Medicine, 335*(21):1552-1558.

Guendelman, S. English, P., & Chavez, G. (1995). Infants of Mexican immigrants: Health status of an emerging population. *Medical Care, 33*(1):41-52.

Hajat, A., Lucas, J.B., & Kington, R. (2000). Health outcomes among Hispanic subgroups: United States, 1992-1995. *Advance Data from Vital and Health Statistics: no. 310.* Hyattsville, MD: National Center for Health Statistics.

Hayward, M. D., & Heron, M. (1999). Racial inequality in active life among adult Americans. *Demography, 36*(1):77-91.

Hazuda, H.P., Haffner, S.M., Stern, M.P., & Eifler, C.W. (1988). Effects of acculturation and socioeconomic status on obesity and diabetes in Mexican Americans: The San Antonio Heart Study. *American Journal of Epidemiology, 128*(6):1289-1301.

Hummer, R.A. (1996). Black-white differences in health and mortality: A review and conceptual model. *The Sociological Quarterly, 37*(1):105-125.

Hummer, R.A., Biegler, M., DeTurk, P.B., Forbes, D., Frisbee, W.P., Hong, Y., & Pullum, S.G. (1999a). Race/ethnicity, nativity, and infant mortality in the United States. *Social Forces, 77*:1083-1118.

Hummer, R.A., Rogers, R.G., Nam, C.B., & LeClere, F.B. (1999b). Race/ethnicity, nativity, and U.S. adult mortality. *Social Science Quarterly, 80*:136-153.

Jylha, M., Guralnik, J.M., Ferrucci, L., Jokela, J., & Heikkinen, E. (1998). Is self-rated health comparable across cultures and genders? *Journal of Gerontology: Social Sciences, 53B*(3):S144-S152.

Kasl, S.V., & Berkman, L. (1983). Health consequences of the experience of migration. *Annual Review of Public Health, 4*:69-90.

Kestenbaum, B. (1986). Mortality by nativity. *Demography, 23*(1):87-90.

Kuo, W.H., & Tsai, Y.M. (1986). Social networking, hardiness, and immigrants' mental health. *Journal of Health and Social Behavior, 27*(2):133-149.

LeClere, F.B., Jensen, L., & Biddlecom, A.E. (1994). Health care utilization, family context, and adaptation among immigrants to the United States. *Journal of Health and Social Behavior, 35*:370-84.

Lillie-Blanton, M., & Laveist, T. (1996). Race/ethnicity, the social environment, and health. *Social Science and Medicine, 43*(1):83-91.

McCarthy, K.F., & Vernez, G. (1997). *Immigration in a Changing Economy: California's Experience.* Santa Monica, CA: The RAND Corporation.

McGee, D.L., Liao, Y., Cao, G., & Cooper, R.S. (1999). Self-reported health status and mortality in a multiethnic U.S. cohort. *American Journal of Epidemiology, 149*(1):41-46.

Mutchler, J.E, & Burr, J.A. (1991). Racial differences in health and health care utilization in later life: The effect of socioeconomic status. *Journal of Health and Social Behavior, 32*:42-56.

National Institutes of Health. (1998). *Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults -- The Evidence Report.* NIH Publication No. 98-4083. Bethesda, MD: National Heart, Lung and Blood Institute.

Popkin, B.M., & Udry, J.R. (1998). Adolescent obesity increases significantly in second and third generation U.S. immigrants: The National Longitudinal Study of Adolescent Health. *Journal of Nutrition, 128*:701-706.

Preston, S.H., & Taubman, P. (1994). Socioeconomic differences in adult mortality and health status. In L.G. Martin & S.H. Preston (Eds.), *Demography of Aging*, (pp. 279-318). Washington, D.C.: National Academy Press.

Reed, D., and Yano, K. (1996). Cardiovascular disease among elderly Asian-Americans: Lessons from the Ni-Hon-San Studies. Mimeo, Buck Center for Research in Aging, Novato, California.

Rogers, R.G. (1992). Living and dying in the U.S.A: Socio-demographic determinants of death among blacks and whites. *Demography, 29*:287-303.

Rogers, R.G., Hummer, R.A., & Nam, C.B. (2000). *Living and Dying in the USA: Behavioral, Health, and Social Differentials of Adult Mortality.* San Diego, CA: Academic Press.

Rosenwaike, I. (1987). Mortality differentials among persons born in Cuba, Mexico, and Puerto Rico residing in the

United States, 1979-1981. *American Journal of Public Health, 77*(5):603-606.

Rosenwaike, I., & Hempstead, K. (1990). Differential mortality by ethnicity and nativity: Foreign- and native-born Irish, Italians, and Jews in New York City, 1979-1981. *Social Biology, 37*(1-2),:11-25.

Schoenbaum, M., & Waidmann, T. (1997). Race, socioeconomic status and health: Accounting for race differences in health. *Journals of Gerontology, Series B: Psychological and Social Sciences, 52B*:61-73.

Scribner, R. (1996). Paradox as paradigm—health outcomes of Mexican Americans. *American Journal of Public Health, 86*(3):303-305.

Shetterly, S.M., Baxter, J., Mason, L.D., & Hamman, R.F. (1996). Self-reported health among Hispanics vs non-Hispanic white adults: The San Luis Valley Health and Aging Study. *American Journal of Public Health, 86*(12):1798-1801.

Singh, G.K., & Yu, S.M. (1996). Adverse pregnancy outcomes: Differences between U.S.- and foreign-born women in major U.S. racial and ethnic groups. *American Journal of Public Health, 86*(6):837-843.

Sorlie, P., Rogot, E., Anderson, R., Johnson, N.J., & Blacklund, E. (1992). Black-white mortality differences by family income. *Lancet, 340*(8815):346-350.

Stephen, E.H., Foote, K., Hendershot, G.E., & Schoenborn, C.A. (1994). Health of the foreign-born population: United States, 1989-90. *Advanced Data from Vital and Health Statistics, no. 241.* Hyattsville, MD: National Center for Health Statistics.

Swallen, K.C. (1997). Do health selection effects last? A comparison of morbidity rates for elderly adult immigrants and U.S.-born elderly persons," *Journal of Cross-Cultural Gerontology, 12*:317-339.

U.S. Immigration and Naturalization Service. (1998). *Statistical Yearbook of the Immigration and Naturalization Service, 1998*, U.S. GPO: Washington, D.C.

Ventura, S.J., & Taffel, S.M. (1985). Childbearing characteristics of U.S.- and foreign-born Hispanic mothers. *Public Health Reports, 100*(6):647-652.

Weeks, J.R., & Rumbaut, RG. (1991). Infant mortality among ethnic immigrant groups. *Social Science and Medicine, 33*(3):327-334.

Williams, D.R., & Collins, C. (1995). U.S. socioeconomic and racial differentials in health: Patterns and explanations. *Annual Review of Sociology, 21*:349-386.

Williams, D.R., Lavizzo-Mourey, R., & Warren, R. (1994). The concept of race and health status in America. *Public Health Reports, 109*:26-41.

,

Table 1: Percent with Selected Health Conditions by Immigrant Status and Gender, Aged 55 and Over, 1992-1995 [a]

	In Fair or Poor Health			Activity Limitation			Obese		
	Immigrant	U.S.-born	Total Pop.	Immigrant	U.S.-born	Total Pop.	Immigrant	U.S.-born	Total Pop.
All	27.9	25.3	25.5	32.4	34.6	34.4	13.3	16.4	16.1
Males	26.2	25.2	25.3	30.7	33.5	33.3	10.9	15.3	14.9
Females	29.1	25.4	25.7	33.6	35.5	35.3	15.0	17.2	17.0

[a] Weighted; Sample size: Total - 92,054; Natives - 82,758; Immigrants - 9,296. All differences in health between immigrants and natives (overall and for men and women) are statistically significant at $p<.05$.

Table 2: Odds Ratios from Logistic Regressions of Health Outcomes on Immigrant Status, 1992-1995 [a]

Dependent Variable	Model 1	Model 2	Model 3	Model 4
In Fair/Poor Health	0.872***	1.106***	1.043	1.147***
Activity Limitation	1.110***	1.306***	1.261***	1.346***
Obese	1.231***	1.418***	1.414***	1.505***
Controls				
Age, sex, year, self-report	T	T	T	T
Education		T		T
Income, family size			T	T
Region, MSA size, central city				T

* p<.05; ** p<.01; ***p<.001

[a] Immigrant status is a dummy variable, where 1=native and 0=otherwise

Table 3: Weighted Descriptive Statistics of NHIS Sample Aged 55 and over, by Detailed Race/Ethnic/Immigrant Status, 1992-1995

Detailed Race/Ethnic/Immigrant Status	Percent (%) in Fair or Poor Health	Percent (%) with Activity Limitation	Percent (%) Obese	Mean Age	Percent (%) Female	Percent (%) completed high school or more
All Immigrants (N=9,296)	27.9	32.4	13.3	68	60.7	56.2
All Natives (N=82,758)	25.3	34.6	16.4	68	55.9	68.3
Non-Hispanics: (N)						
White natives (68,370)	23.3	33.7	15.1	68	55.4	71.1
White immigrants (3,936)	24.9	33.7	13.0	70	59.1	65.6
Black natives (9,787)	41.2	43.3	27.0	67	58.1	48.8
Black immigrants (363)	26.7	30.8	20.1	66	59.5	58.3
Chinese immigrants (396)	19.1	19.1	2.1	66	50.8	60.0
Chinese natives (55)	17.2	23.5	4.6	66	42.4	88.5
Japanese immigrants (138)	14.1	13.1	1.3	64	84.6	79.5
Japanese natives (231)	13.1	23.6	4.5	68	55.8	78.4
Other Asian immigrants (825)	28.7	26.0	4.6	65	54.4	66.7
Other Asian natives (67)	27.1	28.0	15.8	66	50.1	70.9
Other immigrants (154)	37.0	41.5	16.9	66	59.1	46.3

Other natives (604)	38.2	42.9	25.9	67	56.4	54.1
Hispanics: (N)						
Island-born Puerto Ricans (619)	42.1	46.0	21.9	65	57.1	328
Mainland-born P. Ricans (123)	21.4	32.0	17.1	66	58.7	72.5
Cuban immigrants (746)	33.4	33.5	15.3	68	57.4	45.2
Cuban natives (94)	34.2	30.6	18.0	69	50.9	60.9
Mexican immigrants (1,175)	35.9	35.9	22.3	66	54.5	18.7
Mexican natives (1,832)	34.9	37.9	22.5	65	56.0	37.4
Other Hispanic immigrants (906)	26.8	29.5	14.0	65	59.6	49.8
Other Hispanic natives (1,160)	26.9	32.0	14.5	68	55.6	69.3

Table 4: Odds Ratios from Logistic Regressions of (Fair/Poor) Health Status on Detailed Race/Ethnic/Immigrant Status, 1992-1995

Independent Variable	Model 1	Model 2	Model 3	Model 4
Non-Hispanics:				
White native (reference)	—	—	—	---
White immigrant (N=3,936)	1.031	0.971	1.022	1.034
Black native (N=9,787)	2.420*** [y]	1.862*** [y]	1.756*** [y]	1.462*** [y]
Black immigrant (N=363)	1.288* [y]	1.034 [y]	0.934 [y]	0.918 [y]
Chinese immigrant (N=396)	0.790	0.626***	0.624***	0.561***
Chinese native (N=55)	0.674	0.742	0.742	0.770
Japanese immigrant (N=138)	0.589*	0.609*	0.693	0.676
Japanese native (N=231)	0.504***	0.540**	0.531**	0.530**
Other Asian immigrant (N=825)	1.394***	1.231*	1.101	1.060
Other Asian native (N=67)	1.095	1.063	1.083	1.029
Other immigrant (N=154)	2.051***	1.469*	1.552*	1.326
Other native (N=604)	2.023***	1.658***	1.554***	1.376***
Hispanics:				
Island-born Puerto Rican (N=619)	2.570*** [y]	1.549***	1.619*** [y]	1.347***
Mainland-born Puerto Rican (N=123)	1.093 [y]	1.086	0.961 [y]	0.993

Cuban immigrant (N=746)	1.7518***	1.071	1.127	0.834* [y]
Cuban native (N=94)	1.681*	1.461	1.578*	1.373 [y]
Mexican immigrant (N=1,175)	2.044***	0.996 [y]	1.209**	0.770*** [y]
Mexican native (N=1,832)	2.017***	1.256*** [y]	1.413***	0.993 [y]
Other Hispanic immigrant (N=906)	1.395***	0.976	0.989	0.831* [y]
Other Hispanic native (N=1,160)	1.297***	1.108	1.175*	1.031 [y]
Controls				
Age, sex, year, self-report	T	T	T	T
Education		T		T
Income, family size			T	T
Region, MSA size, central city				T
-2LogL	103023.46	99144.92	98370.63	96467.44
df	31	50	64	91

* p<.05; ** p<.01; ***p<.001

[y] indicates statistically significant difference, at the .05 level, between the effects for immigrants and natives within the same racial/ethnic group

Table 5: Odds Ratios from Logistic Regressions of Activity Limitation on Detailed Race/Ethnic/Immigrant Status, 1992-1995

Independent Variable	Model 1	Model 2	Model 3	Model 4
Non-Hispanics:				
White native (reference)	—	—	—	---
White immigrant (N=3,936)	0.905**	0.866***	0.898**	0.896**
Black native (N=9,787)	1.570*** [y]	1.307*** [y]	1.205*** [y]	1.079** [y]
Black immigrant (N=363)	0.914 [y]	0.790* [y]	0.711** [y]	0.742* [y]
Chinese immigrant (N=396)	0.509***	0.418***	0.420***	0.350***
Chinese native (N=55)	0.555	0.570	0.589	0.514*
Japanese immigrant (N=138)	0.386***	0.392***	0.420***	0.383***
Japanese native (N=231)	0.589***	0.618**	0.615**	0.531***
Other Asian immigrant (N=825)	0.822*	0.731***	0.663***	0.579***
Other Asian native (N=67)	0.864	0.841	0.867	0.725
Other immigrant (N=154)	1.436*	1.109	1.148	0.946
Other native (N=604)	1.512***	1.308**	1.218*	1.066
Hispanics:				
Island-born Puerto Rican (N=619)	1.818*** [y]	1.270**	1.261**	1.153
Mainland-born Puerto Rican (N=123)	1.040 [y]	1.034	0.939	0.954

Cuban immigrant (N=746)	0.880	0.685***	0.703***	0.597***
Cuban native (N=94)	0.893	0.807	0.823	0.762
Mexican immigrant (N=1,175)	1.227**	0.708*** [y]	0.811** [y]	0.529*** [y]
Mexican native (N=1,832)	1.385***	0.988 [y]	1.044 [y]	0.770*** [y]
Other Hispanic immigrant (N=906)	0.942	0.722*** [y]	0.713*** [y]	0.618*** [y]
Other Hispanic native (N=1,160)	0.958	0.881 [y]	0.894 [y]	0.813** [y]
Controls				
Age, sex, year, self-report	T	T	T	T
Education		T		T
Income, family size			T	T
Region, MSA size, central city				T
-2LogL	115741.35	114054.27	112696.64	111860.28
df	31	50	64	91

* p<.05; ** p<.01; ***p<.001

[y] indicates statistically significant difference, at the .05 level, between the effects for immigrants and natives within the same racial/ethnic group

Table 6: Results of Significance Tests Among Immigrants: Activity Limitation, Model 1 (above the diagonal in shaded area) and Model 4 (below the diagonal) from Table 5

Immigrant Group	White	Black	Chinese	Japanese	Other Asian	Other Race	P. Rican	Cuban	Mexican	Other Hispanic
White			*	*		*	*		*	
Black			*	*		*	*		*	
Chinese	*	*			*	*	*	*	*	*
Japanese	*	*			*	*	*	*	*	*
Other Asian	*		*			*	*		*	
Other Race			*	*	*			*		*
Puerto Rican	*	*	*	*	*			*	*	*
Cuban	*		*			*	*		*	
Mexican	*	*	*			*	*			*
Other Hispanic	*		*			*	*			

* p<.05

Table 7: Odds Ratios from Logistic Regressions of Obesity on Detailed Race/Ethnic/Immigrant Status, 1992-1995

Independent Variable	Model 1	Model 2	Model 3	Model 4
Non-Hispanics:				
White native (reference)	—	—	—	---
White immigrant (N=3,936)	0.853**	0.837***	0.839***	0.841***
Black native (N=9,787)	2.042*** y	1.793*** y	1.730*** y	1.689*** y
Black immigrant (N=363)	1.296 y	1.180 y	1.087 y	1.080 y
Chinese immigrant (N=396)	0.133***	0.120***	0.109***	0.110***
Chinese native (N=55)	0.319	0.342	0.311*	0.349
Japanese immigrant (N=138)	0.035***	0.036***	0.037**	0.040**
Japanese native (N=231)	0.252***	0.266***	0.248***	0.280***
Other Asian immigrant (N=825)	0.289*** y	0.275*** y	0.228*** y	0.242*** y
Other Asian native (N=67)	0.951 y	0.954 y	0.914 y	0.993 y
Other immigrant (N=154)	1.175	0.999 y	0.961 y	0.917 y
Other native (N=604)	1.789***	1.614*** y	1.550*** y	1.537*** y
Hispanics:				
Island-born Puerto Rican (N=619)	1.449***	1.119	1.139	1.005
Mainland-born Puerto Rican (N=123)	1.233	1.241	1.155	1.209
Cuban immigrant (N=746)	1.036	0.867	0.894	0.889

Cuban native (N=94)	1.352	1.296	1.300	1.315
Mexican immigrant (N=1,175)	1.666***	1.170*	1.222**	1.085
Mexican native (N=1,832)	1.583***	1.258***	1.303***	1.242***
Other Hispanic immigrant (N=906)	0.876	0.737** [y]	0.705*** [y]	0.683*** [y]
Other Hispanic native (N=1,160)	0.976	0.964 [y]	0.943 [y]	0.992 [y]
Controls				
Age, sex, year, self-report	T	T	T	T
Education		T		T
Income, family size			T	T
Region, MSA size, central city				T
-2LogL	80031.598	79288.935	79339.106	78855.949
df	31	50	64	91

* p<.05; ** p<.01; ***p<.001

[y] indicates statistically significant difference, at the .05 level, between the effects for immigrants and natives within the same racial/ethnic group

Table 8: Results of Significance Tests Among Immigrants: Obesity, Model 1 (above the diagonal in shaded area) and Model 4 (below the diagonal) from Table 7

Immigrant Group.	White	Black	Chinese	Japanese	Other Asian	Other Race	P. Rican	Cuban	Mexican	Other Hispanic
White		*	*	*	*		*		*	
Black			*	*	*					*
Chinese	*	*			*	*	*	*	*	*
Japanese	*	*			*	*	*	*	*	*
Other Asian	*	*	*			*	*	*	*	*
Other Race			*	*	*					
Puerto Rican			*	*	*			*		*
Cuban			*	*	*				*	
Mexican	*		*	*	*					
Other Hispanic		*	*	*	*		*		*	

* p<.05