Nativity Differences in Mental and Physical Health Outcomes: The Roles of Emotional Support, Family, and Social Integration

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ABSTRACT

Many studies have shown that despite their lower socioeconomic status, immigrants tend to have better health than the native born population, although this advantage declines with time in United States. To date, however, researchers have not provided a systematic analysis of the paradox across a range of physical and mental health outcomes. Furthermore, while theoretical explanations for the paradox abound, actual research examining commonly hypothesized mediators – especially social support/integration – is lacking. We address this issue using data on adults from the 2001 wave of the National Health Interview Survey (NHIS). We examine multiple measures of immigrant characteristics (including duration of residence, citizenship, and language proficiency), investigating their influence on indicators of both physical and mental health. In particular, we examine how well indicators of social support and integration explain the immigrant health advantage. Results show clear evidence of an immigrant paradox in physical health, but no support for differences between immigrants and non-immigrants in mental health status. Measures of support and integration do not explain the bulk of the immigration effect on physical health.

Word Count: 174

INTRODUCTION

Immigrants come to the United States, often overcoming harsh conditions and obstacles, expecting the land of opportunity (Ecklund 2006). Part of this involves increased advantages for better health, and it does appear that new migrants are generally a healthy population – a situation that has been termed paradoxical, since the socioeconomic status of immigrants tends to be lower than the native born population. However, scholars who examine health among immigrants have also shown that while they are initially healthier than the native born population, with time in the U.S. their health status appears to decline (Abraido-Lanza et al. 2005, Acevedo-Garcia et al. 2005, Antecol & Bedard 2006, Cho et al. 2004, Finch et al. 2004, Franzini & Fernandez-Esquer 2004, Landale et al. 1999, Lopez-Gonzalez et al. 2005).

This immigrant health paradox has been observed for many years and across a range of ethnic groups, yet studies often just describe the pattern without investigating the more precise reasons underlying this phenomenon. Here, using data from the 2001 wave of the National Health Interview Survey (NHIS), we examine the role of social network support for predicting health status among adults. While a large literature exists with regard to the importance of multiple aspects of social network support for health in general (see review by Berkman & Glass 2000), the contribution of social networks to health differences between immigrant and native born populations is not well understood. We examine the mediating influence of social network support across a range of health outcomes (both mental and physical) for multiple measures of immigrant status.

Specifically, we structure our analysis to investigate the following questions. First, does the immigrant health paradox hold across different measures of physical and mental health? We examine two objective measures of physical health (hypertension, heart disease), and a subjective

measure of physical health (self-rated health), along with three indicators of mental health (depressive mood, happiness, and life satisfaction). Second, if immigrants are physically and/or mentally healthier than the native born, do measures of social support (specifically, emotional support) and social integration (including marital status, family size, frequency of contact with family and friends, and attendance at worship services and other group events) explain this difference?

THE HEALTHY IMMIGRANT EFFECT

During the latter half of the 20th century the number of immigrants entering the United States increased substantially, with over one million legal migrants arriving in 2005. Overall, 37 million foreign-born persons reside in the United States, representing 12 percent of the total U.S. population (Martin and Midgley 2006). As the size of the foreign-born population has grown, so has research examining immigrant health and well-being. Several studies document that while the health profile of the foreign-born population is as good (and sometimes better) than the native-born U.S. population, this health advantage declines with time spent in the United States (e.g., Antecol and Bedard 2006; Cho and Hummer 2001; Singh and Siahpush 2002). That new migrants should have such good health is surprising, given immigrants' relatively limited socioeconomic resources. Indeed, this pattern runs counter to a great deal of research documenting poor health outcomes among lower socioeconomic groups in the United States (House & Williams 2000), and past studies frequently find that adjusting for socioeconomic status does not explain the relationship between immigrant characteristics and measures of mental health (Escobar et al. 2000), or physical health (Angel et al. 2001, Cho et al. 2004).

To account for this pattern, two complementary explanations are often applied. First,

immigrants appear to represent a selective snapshot of residents from their country-of-origin, wherein they are healthier than their counterparts who did not migrate (Jasso et al. 2004; Landale, Oropesa, and Gorman 2000). Second, studies also indicate that immigrants living in the United States appear to benefit from cultural ties and norms that emphasize healthier behaviors and strong family support networks (see discussion by Jasso et al. 2004; Vega and Amaro 1994). However, studies also indicate that with increasing time spent in the United States, immigrant health deteriorates, even though socioeconomic status rises (Jasso et al. 2002). This research suggests two conclusions: first, that selection cannot completely account for the healthy immigrant effect, and that researchers should also consider the role of acculturation (often measured by duration of residence in the U.S., language use, and citizenship); and second, that changes in other health-related factors (e.g., social support) over time may override the health gains associated with increased economic well-being.[1]

Most often, declines in immigrant health with time spent in the U.S. are explained by increases in unhealthy behaviors among immigrants. Specifically, with increasing acculturation immigrants tend to report more smoking (Abraido-Lanza et al. 2005, Acevedo-Garcia et al. 2005, Balcazar et al. 1996), higher alcohol intake (Abraido-Lanza et al. 2005, Balcazar et al. 1996, Elder et al. 2005), poorer diet (Jonnalagadda & Diwan 2005) and a higher body mass index (Abraido-Lanza et al. 2005, Antecol & Bedard 2006). Frequency of exercise, however, appears to increase with acculturation (Abraido-Lanza et al. 2005, Evenson et al. 2004, Jonnalagadda & Diwan 2005).

Less understood is the role of social network support as an explanatory mechanism

[1] While most research supports a decline in health with time spent in the US, other work does suggest that health may actually improve during the short term (Jasso et al. 2004).

linking immigrant status to health outcomes. This is surprising, since theoretical works exploring the importance of social relationships for health date back to the late 19th century and the works of Émile Durkheim, especially *Suicide,* which established the foundation of thinking regarding the role of social integration for health (Durkheim 1897, 1951). Lisa Berkman and Thomas Glass (2000), in their excellent review of the state of this literature, conclude that social networks influence individual health through four pathways. First, health is influenced by the *provision of social support,* including emotional, instrumental, appraisal, and informational support. Second, social networks influence health through *social influence*, whereby shared norms regarding health behaviors (e.g., the acceptability of smoking) shape health outcomes. Third, networks impact health by promoting *social engagement and attachment*, through contact with friends, family, and participation in social functions. Fourth, networks can provide *access to material resources* that have a direct influence on health (e.g., membership in religious organizations that assist in accessing health care). These pathways are not mutually exclusive, and oftentimes may operate simultaneously.

In this study, we directly examine the relevance of two of these pathways: the provision of social support (specifically, emotional support), and social engagement and attachment (which we refer to as social integration, and test with measures of marital status and household structure, recent contact with friends and family, and attendance at church and other group events). There is considerable evidence that social support is related to numerous health outcomes, including mortality, depression, and anxiety (Glass et al. 1999, Ha & Carr 2005, Lin & Dean 1984). For example, emotional and instrumental support were negatively related to somatic symptoms in a mostly immigrant sample of Chinese Americans in Los Angeles County (Mak & Zane 2004). Numerous aspects of social integration also are related to health. For example, single parents

experience stress and role overload (Weiss 1979), which can negatively impact health; in contrast, marriage benefits the health of both men and women by providing economic resources and encouraging risk-averse behavior and health monitoring (Waite 1995). Research is more mixed on the importance of kin ties. Ha and Carr (2005) found that living near or residing with adult children were negatively related to depressive symptoms and anxiety in a sample of widowed older adults, whereas Sibai et al. (2007) found that middle-aged and older adults in Lebanon had higher mortality risks when they resided with adult children, even after adjusting for prior health conditions. Finally, indices of social integration that include social contacts and group membership significantly predict mortality and risky health behaviors (Berkman & Breslow 1983, Berkman & Syme 1979).

Perspectives on immigrants often argue that the migration experience relies on and encourages strong social network support. Because of the family reunification process of U.S. immigration policy (Martin & Midgley 2006), immigrants tend to settle in areas of the country where they know people and where there are members of their particular ethnic group (Arnold 1989). This process of chain migration may mean that immigrants come to the U.S. initially with strong social network ties, necessary to bring migrants to a new country. These network ties may be particularly important for a population faced with adjustment to a new culture and with significant need for assistance. Indeed, immigrants are more likely than the native-born to both utilize and provide instrumental supports such as economic exchanges and coresidence between themselves and extended kin (Glick 1999, 2000). Social ties can benefit health by reducing the stress associated with moving to a new country and culture, or more directly through, for example, providing guidance about how to navigate the U.S. medical system. With increasing acculturation and duration in the U.S., social ties might weaken as immigrants become part of the

broader community (Nee et al. 1994), leading to decreases in health.

Yet, other work points out that the experience of social network bonding for immigrants is not always a positive one. Rogler (1994) notes that immigration engenders an upheaval in social relationships, in that immigrants must break primary ties to family and friends in the home country and seek out or strengthen new sources of support in the receiving country. This process of loss and readjustment in social relationships may contribute to acculturative stress and poorer health. A qualitative study of South Asian immigrant women found that loss of extended family and social activities was a serious stress factor that respondents cited as contributing to mental health concerns (Ahmad et al. 2004). Upon arrival, immigrants become tightly enmeshed in the family network, which Rumbaut (1997) notes can be "at once a rich resource and a potential vulnerability" (p. 8). The isolation and dependency new immigrants experience can amplify family conflicts, especially during the stressful resettlement process. Even non-kin networks can be sources of stress and discontent. Usita (2005) found that immigrant Japanese women cited co-ethnic immigrant women as an important source of interpersonal problems in their lives, but were unwilling to end those relationships because of a need for interaction with co-ethnics as a source of ethnic identity. Finally, membership in social networks can involve both giving and receiving of social support and engagement (see Cherlin 2005, Kahn & Antonucci 1980); if immigrants are more embedded in social networks, they may be obligated to provide resources to kin, to the neglect of their own health.

Immigrant Physical Health

Studies of immigrant health often focus on measures of physical morbidity and mortality. Singh and Siahpush (2002), in a comprehensive examination of health and mortality based on respondents included in the National Longitudinal Mortality Study and the National Health

Interview Study, conclude that risks for all-cause mortality, as well as cause-specific mortality (e.g., death due to cardiovascular disease), are significantly lower among the foreign born. Studies of morbidity also find lower rates of physical health problems, including hypertension and heart disease, among the foreign born (Wilkinson et al. 1996), although rates increase with acculturation (Singh and Siahpush 2002, Steffen et al. 2006).

Yet, while the immigrant paradox is clear for most measures of physical health, the picture is less clear for self-rated health. This is perhaps not surprising since self-rated health scores, unlike objective health assessments, are based on subjective health assessments made by respondents – and adults often base their responses on a variety of factors from several different domains of life, including social and emotional well-being (Idler and Benyamini 1997). Some studies do find that immigrant adults report better self-rated health than the native born (Cho et al. 2004, Finch and Vega 2003), and that self-rated health declines with time spent in the United States (Finch et al. 2004), while others report better self-rated among the native born (Angel et al. 2001a, Angel et al. 2001b, Franzini and Fernandez-Esquer 2004, Wilkinson 2006). Studies that consider language use, however, tend to report poorer self-rated health among adults who are not proficient in English, a finding that appears to partly reflect differences in how non-English speakers interpret and assess queries about their health status (see discussion by Franzini and Fernandez-Esquer 2004). In addition, regardless of which group is found to experience an elevated risk of poor health, effects appear to be very sensitive to adjustment for socioeconomic and demographic differences between foreign and native born groups (e.g., Angel et al. 2001b, Cho et al. 2004, Finch and Vega 2003).

In terms of social support and integration, we found no studies that explored its explanatory role for the relationship between immigration and hypertension or heart disease, and

findings for self-rated health are fragmentary at best. Several studies show a direct, protective effect for multiple measures of support and/or integration in multivariate models examining the relationship between immigrant status and self-rated health, although direct assessments of how much these measures explain the effects of immigrant status were not included (Angel et al. 2001b, Cho et al. 2004, Finch and Vega 2003, Franzini and Fernandez-Esquer 2004). However, two studies by Finch and colleagues (2001, 2004) do test for mediating effects, and find no evidence that measures of social support or integration explain the effects of nativity or English acculturation on self-rated health for Mexican adults. Furthermore, Angel et al. (2001a) find church attendance and satisfaction with home and family life have no influence on self-rated health among foreign born Hispanics – although they all have a protective influence for the native born, indicating these might help explain the higher self-rated health scores among the native born found in this study. And, Finch and Vega (2003) do find that instrumental and religious support buffer the negative effects of acculturative stress (measured as perceived discrimination due to Mexican-origin status) on self-rated health, but they did not test for buffering effects between social support/integration and indicators of acculturation, including duration in the United States and English proficiency.

Immigrant Mental Health

Like the literature on self-rated health, studies of mental health are mixed with regard to the protective influence of immigrant status (Rogler et al. 1991). Several studies do find better mental health profiles among immigrant groups than the native born (Escobar et al. 2000). First-generation immigrants have been shown to experience less depression and greater positive well-being when compared to the native-born, even with adjustment for demographic and family background characteristics (Harker 2001). Studies also show that higher acculturation is

associated with an increased risk of depression (Cuellar et al. 2004, Shen and Takeuchi 2001), and that low English use is associated with lower odds of depression and poor emotional health (Angel et al. 2001, Finch et al. 2004). As suggested by Rogler et al. (1991), these findings support a protective interpretation of immigrant status, whereby immigrants benefit from strong network ties that operate to reduce stress and improve mental health.

Yet, other studies report more mental health problems among the foreign born (Angel et al. 2001b, Franzini and Fernandez-Esquer 2004), and that increasing acculturation is associated with less depression (González et al. 2001, Miller et al. 2006). For example, a study of Latino women enrolled in the WIC program showed that anxiety attacks were highest among women who spoke primarily Spanish, depressive syndrome was highest among women with traditional beliefs, and the use of mental health services was highest among women with less traditional beliefs (Cordero & Kurz 2006). These studies interpret their findings as evidence of a negative interpretation for immigrant status, wherein the stresses involved in moving to a new country (i.e., new culture and norms regarding behavior, leaving behind friends and family) are initially damaging to mental health, most likely because new immigrants have had little time to construct new networks of support. With time in the United States, surroundings become more familiar, new friend and family ties are made, and mental health improves.

A limited number of studies have investigated whether social network support explains differences in mental health between immigrants and the native born, and findings are mixed. Finch et al. (2004) examine Mexican migrant farm workers, and find no mediating effect between acculturation and depression for an extensive array of support/integration measures (including emotional and instrumental support, number of peers and family members in the U.S., religious attendance and beliefs, and spiritual comfort seeking). Yet, researchers have found that

social support has a positive impact on reducing the stress associated with the immigrant experience (Young 2001). In addition, Wilmoth and Chen (2003) show that while not living with a spouse increases depression for middle-aged and older adults, the effect is much stronger for immigrants than the native born. However, Miller et al. (2006) found that higher acculturation scores were indirectly related to less depressed mood -- by reducing social alienation, and, subsequently, lowering family and personal stress.

Given the complex and fractured pattern described in past studies regarding the relationship between immigrant status and health, the analyses that follow systematically examine the association between immigrant status and measures of mental and physical health. Furthermore, after documenting these relationships, we explore whether and how measures of social support and integration explain differences in health status between immigrants and the native born.

DATA AND MEASURES

Study Sample

This research uses data from the 2001 wave of the National Health Interview Survey (NHIS), an annual survey conducted by the National Center for Health Statistics and the Centers for Disease Control and Prevention, administered by the U.S. Census Bureau. NHIS uses a multi-stage, stratified, cluster sample design, with oversamples of blacks and Hispanics. The data were collected via face-to-face interviews, about health and other attributes of each member of the household. When weighted, they are nationally representative of the non-institutionalized civilian population in the United States.

For each family in the NHIS, one sample adult (aged 18 and above) was randomly selected and included in the sample adult core. These respondents were asked a detailed set of questions regarding health status, health care services, and behavior. In the 2001 wave (n = 33,326), a series of additional questions were asked regarding social support and integration. For the present study, the sample is restricted to adults with non-missing information on the physical and mental health outcomes examined in this paper (n = 31,732).[2] Missing values on independent measures were imputed using the impute command in STATA (see (StataCorp 2003) for more information).[3]

Dependent Measures: Physical and Mental Health

We examined six health outcomes in this paper, including three measures of physical health and three measures of mental health. For physical health, the NHIS survey asks a series of questions regarding chronic medical conditions, including hypertension and heart disease. Specifically, respondents were asked whether they had ever been told by a doctor or other health professional they had hypertension (or high blood pressure), and whether they were ever told they had heart disease (coronary heart disease, angina pectoris, or any other heart condition or disease). Responses for hypertension and heart disease were coded 1 = yes, 0 = no. In addition, we examined self-rated health. Respondents were asked to rate their health in general on a five-point scale (poor, fair, good, very good, and excellent). This is a powerful measure of health, as studies consistently demonstrate its importance as an independent predictor of mortality (Idler &

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[2] Because of our interest in family structure as a mediator between immigration status and health outcomes, we also removed 289 adults from our sample who reported that they lived with other adults and children (but no parents), due to the small number of persons living in this family structure type.

[3] For imputed measures, the majority had a very low rate of missing values (between 0.1 – 3.6%). For the family income-to-poverty ratio, however, non-response was much higher (22.1% of cases); therefore our logistic regression models include a dummy variable that flags missing cases on income (not shown).

Benyamini 1997). We recoded this measure into two categories that contrasted poor health (1 = poor or fair self-rated health) with good health (0 = good, very good, or excellent health) because this measure was highly skewed towards good health, and in order to focus our attention on adults who do not report good health – the most problematic outcome from a health standpoint.

We also examined three measures of mental health. First, we included a measure of short-term depressive mood constructed from the average response to six questions (ranging from 1 = none of the time to 5 = all of the time). Specifically, the questions asked how often, during the last 30 days, the respondent felt sad, hopeless, restless, nervous, worthless, and that everything was an effort (Cronbach's alpha = .86). This index was constructed from questions drawn from Item Response Theory models, and was validated with a two-stage clinical reappraisal survey (Kessler 2002). Since this measure was highly skewed towards adults who reported no symptoms in the last month, we created a dichotomous measure of depressive mood where 1 = some, most, or all of the time, and 0 = none or a little of the time. Our second measure of mental health was based on a question that asked how satisfied respondents were with their life, where 1 = very dissatisfied, 2 = dissatisfied, 3 = satisfied, and 4 = very satisfied. Because this measure was also skewed, we recoded this as "dissatisfaction with life" measure where 1 = very dissatisfied or dissatisfied, and 0 = very satisfied or satisfied. Our last measure of mental health was unhappiness, based on a question that asked how often respondents felt happy in the past 30 days (1 = none of the time, 2 = a little of the time, 3 = some of the time, 4 = most of the time, and 5 = all of the time). We recoded this measure to contrast those who are rarely happy (1 = none of the time or a little of the time) with those who report more frequent happiness (0 = some, most, or all of the time).

Independent Measures

Our predictor measures are clustered into four categories: immigration characteristics, social support and integration, health behaviors, and demographic and socioeconomic status controls. Since immigration characteristics are our predictors of interest, we included four measures to tap the immigration status of respondents. First, we included a categorical measure of duration of residence in the United States, where 1 = U.S. born (reference), 2 = born outside the U.S., living in the U.S. for under 5 years, 3 = born outside the U.S., living in the U.S. for 5-14 years, and 4 = born outside the U.S., living in the U.S. for 15 or more years. We also included measures of citizenship status (1 = U.S. citizen, 0 = not a U.S. citizen) and whether the NHIS interview was completed in English (1 = non-English interview, 0 = English interview).[4]

We also include six measures of social support and integration. Family structure is included as a categorical measure, denoted by four types without children: (1 = living alone [reference], 2 = living with roommates, 3 = married or cohabiting without children, 4 = other adult-only families) as well as four types with children: (5 = single parent, 6 = married or cohabiting with children, 7 = stepfamily with children, and 8 = parent[s], children, and adult relatives). We tap social support with a measure of emotional support. Specifically, respondents were asked: "How often do you get the social and emotional support you need?" Responses were measured on a five-point scale, where 1 = never, 2 = rarely, 3 = sometimes, 4 = usually, and 5 = always. Since the measure was skewed towards higher levels of support, we collapsed it into three categories: 1 = never or rarely gets needed support (reference), 2 = sometimes, and 3 = usually or always gets needed support.

[4] It is important to include language because differences in health measures such as self-reported health may be an artifact of low proficiency in English language.

The NHIS also included a series of yes/no questions tapping social integration during the past two weeks. First, respondents were asked whether they (a) talked to friends or neighbors on the telephone, and (b) talked with any relatives on the telephone who lived outside their home. We combined these two questions to create a measure of whether respondents talked to friends or family on the phone during the past two weeks, where 1 = neither (reference), 2 = talked to either friends or family, but not both, and 3 = talked to both friends and family. Second, respondents were asked whether they (a) got together socially with friends and neighbors, and (b) got together with any relatives living outside their home. We combined these two questions to create a measure of whether respondents got together with friends or family during the past two weeks, where 1 = neither (reference), 2 = got together with friends or family, but not both, and 3 = got together with both friends and family. Last, we include dichotomous measures of whether respondents attended a church, temple, or another place of worship for services or other activities (1 = yes, 0 = no), and whether they went to a show or movie, sports event, club meeting, class or other group event (1 = yes, 0 = no).

Health behaviors were captured with four measures. First, we included smoking status as a dummy measure, where 1 = current smoker and 0 = not a current smoker. Second, we compared those who reported binge drinking (consuming 5+ drinks per occasion) with adults who reported all lower levels of alcohol consumption. Third, based on body mass index, we created a dichotomous measure where 1 = obese weight, and 0 = all lower weight. Fourth, we created a measure of physical exercise based on the average response to four questions regarding the frequency of physical activity each week: (a) vigorous activities for at least 10 minutes that cause heavy sweating or large increases in breathing or heart rate; (b) light or moderate activities for at least 10 minutes that cause only light sweating or a slight to moderate increase in breathing

or heart rate; (c) physical activities specifically designed to strengthen muscles such as lifting weights or doing calisthenics; and (d) physical activities designed to stretch muscles, such as yoga (Cronbach's alpha = .74). Because most adults reported low levels of exercise, we dichotomized this measure so that 1 = no exercise and 0 = all higher levels of exercise.

Last, we include seven demographic and socioeconomic controls. This includes three demographic characteristics: gender (1 = female, 0 = male) and age at interview (range: 18 years to 85+ years), as well as a categorical measure of racial/ethnic group membership, where 1 = non-Hispanic white (reference), 2 = non-Hispanic black, 3 = Mexican, 4 = Puerto Rican, 5 = Cuban, 6 = other Hispanic, 7 = non-Hispanic Asian, and 8 = all other groups. In addition, we include a continuous measure of the highest grade of school completed (range: 0 = never attended school to 21 = doctoral degree). We also added a measure of the family's income-to-poverty ratio, representing each respondent's family income as a proportion of the income level that defined the federal poverty line. Next, we included a categorical measure of respondent's employment status (1 = currently working (reference), 2 = unemployed, 3 = retired, and 4 = never worked), as well as a dichotomous measure of health insurance, where 1 = no medical insurance, and 0 = has medical insurance.

Analysis

Due to the complex sampling strategy in the NHIS data, models were estimated using the Huber or White estimator of variance in STATA. Rather than assuming that observations are independent, STATA corrects for the intra-cluster correlation that occurs because of the sample design and produces standard errors that are more accurate and reduce the change of false-positive significance tests. Moreover, because blacks and Hispanics were oversampled, we use weights in all analyses.

— Table 1 about here —

Table 1 presents weighted means and percentages for each independent predictor. These were calculated for the full sample and by nativity status to give the reader a general sense of how sample immigrants (n = 4,821) differ from the native born (n = 26,911). Among immigrants, over half (52.2 %) have lived in the U.S. for 15 years or more, while 19.6 percent have lived in the U.S. for less than five years. Just under half are U.S. citizens (48.3 %, compared to 99.2 % among the native born), and almost one-third completed the NHIS interview in a language other than English (compared to just 1.3% of non-English interviews among the native born).

In terms of family structure, fewer immigrants live alone, are married or cohabiting without kids, are a single parent, or live in a stepfamily, but a higher percentage are living in other adult-only families (e.g., with a spouse and their parents in the home), married or cohabiting with children, or living with children and other adult relatives (with or without a spouse). For other measures of support and integration, immigrants tend to do less well than the native born. Immigrants report that they less-frequently get needed social and emotional support, they talk on the phone and get together with friends and family less often, and fewer report that they went out to a group event during the past two weeks. However, immigrants do better in one respect: 55.0% of immigrants reported that they went to a place of worship during the past two weeks, compared to 50.1% among the U.S. born.

Looking at health behaviors, immigrants report less smoking and binge drinking, and fewer are obese (i.e., 15.1% of immigrants are obese, compared to 22.6% of the native born). However, immigrants do not do as well as the native-born in terms of exercise, with 44.2 percent reporting no weekly exercise (in contrast to 31.9% of the native born). Last, looking at

demographic and socioeconomic characteristics, immigrants in our sample are younger than the native born (42.4 years old compared to 45.1 years old), but do not differ in terms of the proportion female. One-quarter of the immigrant population is Mexican, and over 24% is non-Hispanic white (though this is much lower than among the native born, where the population is 81.3% non-Hispanic white). While non-Hispanic blacks make up a significantly greater proportion of the native born population (11.4% among U.S. born adults vs. 8.0% among foreign born adults), all other ethnic groups (i.e., Puerto Ricans, Cubans, other Hispanics, Asians, and other groups) are significantly more prevalent among the immigrant population. As expected, immigrants report lower levels of education, more poverty, and less medical insurance. Immigrants and the native born, however, report equivalent rates of employment and unemployment, although significantly fewer immigrants are retired, and significantly more report that they have never worked.

RESULTS

Mean Health Status by Immigration Characteristics

The next table addresses our first research question: Is there evidence of an immigrant paradox across multiple measures of physical and mental health? Table 2 presents the bivariate relationships between indicators of immigration status and health measures, and we see evidence of the predicted immigrant paradox even when examining multiple measures of physical health status. Immigrants generally have better physical health than the native born, but this health advantage diminishes over time. Immigrants living in the U.S. for less than 5 years are the least likely to report poor health, hypertension, or heart disease, and the incidence of these health problems increases with duration in the United States. Among long-term immigrants (15+ years in the United States) rates of heart disease are still lower than the native born; however,

hypertension rates are equivalent, and a significantly greater number report poor or fair self-rated health. Other indicators of acculturation also suggest that immigrants have better physical health. Respondents who are U. S. citizens report more physical health problems, while those who were interviewed in a language other than English are less likely to report hypertension and heart disease -- although more non-English speakers report poor-to-fair self-rated health.

— Table 2 about here —

However, when we move beyond physical health outcomes to indicators of mental health, the immigrant paradox becomes less clear, and we see a weaker association between immigrant characteristics and mental health. Life dissatisfaction is lower among recent immigrants (3.9%) than the native born (5.8%), but long-term immigrants actually report being more unhappy than the native born. There is no relationship between citizenship and any of the measures of mental health, but having a non-English interview is positively associated with depressed mood and unhappiness. In sum, these results confirm prior research suggesting an immigrant paradox in physical health, but evidence for a similar paradox in mental health is tenuous at best.

Logistic Regression Models

Next, we examine the relationship between immigrant characteristics and health status using a multivariate framework. Our goals are twofold: (1) to document the extent of an immigrant health advantage after accounting for demographic and socioeconomic status characteristics, and (2) to assess the relative contributions of social support and social integration for explaining the relationship between immigrant status and adult physical and mental health. The tables that follow show logistic regression models using the set of immigration characteristics to predict our measures of health status. In order to assess the relevance of potential explanatory mechanisms linking immigration status to adult health, our models

sequentially add controls for demographics and socioeconomic status (Model 1), social support and social integration (Model 2), and health behaviors and other health status (Model 3). Since studies have demonstrated that mental health influences physical health, and vice versa (Rugulies 2002, Schnittker 2005), when predicting physical health status we control for mental health indicators, and when predicting mental health status we control for measures of physical health.

— Table 3 about here —

Table 3 shows models predicting physical health status. Looking at Model 1 for each outcome, we see that the immigrant paradox is partially explained by demographic and socioeconomic characteristics (and by simultaneously considering all measures of immigrant status). Duration of residence is no longer a significant predictor of poor self-rated health (compared to bivariate associations in Table 2), and most of the effect is explained away in the hypertension and heart disease models. In addition, being a U. S. citizen is no longer a significant predictor of heart disease (although it is still associated with poor self-rated health and hypertension), and language of interview has no significant effect for any of the physical health measures. Overall, demographic and socioeconomic background characteristics have strong, direct effects on physical health. While there is some variability in which measures reveal a significant association with each measure of physical health, in general respondents who are older, are Black, Puerto Rican, Other Hispanic, or Asian, are poor, and are not working tend to report poorer physical health, while females and the well-educated report better health. An exception is heart disease; respondents who identify as Black, Mexican, or Other race/ethnicity are less likely to receive such a diagnosis. Interestingly, those without medical insurance are actually less likely to be diagnosed with hypertension or heart disease; this is probably explained by the irregularity of access to medical care among the uninsured.

Recall from Table 1 that the foreign born actually reported *lower* levels of social support and integration (with the exception of church attendance). Thus, it is not surprising that family structure and social support cannot explain the association between immigrant characteristics and better physical health in Model 2. Indeed, immigrant effects are largely unchanged compared to Model 1. We do find, however, that living in a family household is not always positively related to physical health; in fact, residing with others is associated with better self-rated health only if one is married or cohabiting with children. We actually find significantly poorer self-rated health for those living in single parent families and other-adult family types, higher rates of hypertension for single parents, and higher rates of heart disease for couples with no children and parents living with children and other relatives. In contrast, all other indicators of social support and integration are negatively associated with poor self-rated health, while frequent social/emotional support and attendance at group events is associated with a lower risk of hypertension. Social/emotional support, group events, and going to a worship service all have a negative relationship to heart disease. Unexpectedly, we find that talking to either friends or family on the phone, but not both, is positively associated with hypertension. Possible explanations are that this kind of social contact may indicate social obligations rather than social support, or may occur in response to health problems or diagnoses.

In Model 3 we add indicators of health behaviors and mental health status, and find little mediating effect. Thus, even with adjustment for a range of potential mediating mechanisms, U.S. citizens continue to experience significantly elevated odds of poor-to-fair self-rated health (89% higher) and hypertension (28% higher). In addition, new immigrants (living in the U.S. under 5 years) remain 34 percent less likely to be diagnosed with hypertension, while long term

immigrants (over 15 years in the U.S.) are 27 percent less likely to report heart disease, compared to those born in the U. S.

While adjustment for health behaviors and mental health indicators in Model 3 does not mediate the influence of immigrant status on physical health, they do seem to explain some of the influence of family structure and other measures of support and integration shown in Model 2. In particular, sometimes receiving social/emotional support becomes associated with poorer self-rated health, and the benefits of frequent social/emotional support are eliminated across all outcomes. In addition, the poor health and hypertension associated with being a single parent are explained by the poor mental health and health behaviors among single parents, especially obesity and depressive mood. The better self-rated health associated with phoning friends and relatives and going to worship is not significant in the full model. Interestingly, a positive relationship emerges between getting together with both friends and family and being diagnosed with heart disease. Again, this may signal a social response to health problems. The influence of health measures is generally in the expected directions; unhealthy behavior and poor mental health is associated with poor physical health status. One exception is that binge drinking has a negative relationship to poor self-rated health. While the meaning of this relationship is unclear, it is possible that adults only engage in binge drinking when they feel that their health status is good enough to tolerate any potential negative effects of heavy drinking.

Overall, Table 3 demonstrates that while immigrants tend to have better physical health when compared to the native-born, there is no evidence that social support or integration explain this relationship. Rather, demographic and socioeconomic characteristics are more successful mediators, although they do not explain away all of the relationship between immigrant

characteristics and physical health. Even after adjustment for a wide range of indicators, we still see evidence that immigrants have an advantage over the native born in terms of physical health.

— Table 4 about here —

Moving beyond physical health, Table 4 examines the relationship between immigrant attributes and mental health status. As expected, we find no evidence of an immigrant paradox in the multivariate models; demographic and socioeconomic background characteristics explain most of the few bivariate differences found in Table 2. While most demographic and socioeconomic characteristics are significantly associated with mental health status, female respondents are no more likely to report life dissatisfaction and unhappiness than males. Additional models (not shown but available upon request) revealed that adult women report significantly poorer mental health across all outcomes in bivariate analyses; adjustment for socioeconomic differences between men and women reduces the influence of gender to non-significance. Older age, being Black or Puerto Rican, poverty, unemployment, never working, and lacking medical insurance are all associated with poorer mental health, while education and Mexican ethnicity have strong, protective influences.

Not surprisingly, immigrant characteristics remain nonsignificant in the next two models, although direct results indicate the influence of social support/integration and health behaviors/ characteristics on mental health. Model 2 shows that, unlike the results for physical health, measures of support and integration have consistently strong influences on mental health. For example, residing in a family household or living with roommates, as opposed to living alone, is associated with lower odds of reporting depressed mood, dissatisfaction with life, or unhappiness; in particular, respondents who are married or cohabiting with children were about half as likely to report poor mental health. Receiving social/emotional support, getting together

or talking on the phone with friends or family, attending a place of worship or group events all are negatively related to reporting depressed mood, life dissatisfaction, and unhappiness.

As expected, negative health behaviors and poor physical health characteristics are directly related to poor mental health (Model 3). Current smokers are more likely to report negative mental health, while lack of exercise is associated with depressed mood and unhappiness, and obesity is associated with depressed mood and dissatisfaction. We demonstrate the connection between physical health and mental health by showing that respondents who report being in poor-to-fair health are more than two-and-a-half times more likely to report all three indicators of poor mental health, and those with hypertension are 28 percent more likely to report depressed mood. Also, respondents who have been diagnosed with heart disease are about 25% more likely to report depressed mood or life dissatisfaction. Overall, we find no direct connection between immigrant characteristics and mental health status, but even more evidence that multiple aspects of support and integration are important resources that can boost self-reported levels of mental health and satisfaction for both immigrants and the native born.

CONCLUSION

This study builds on existing immigrant health literature by examining the extent and causes of the immigrant paradox in health. We examined the relationship between immigrant status and acculturation (as measured by duration of residence, citizenship, and English language use) to mental and physical health, to determine whether the immigrant advantage in health extends across multiple indicators of health status. In addition, we examined the relative contributions of social support and integration to explaining the immigrant paradox. Consistent with previous research (e.g., Wilkinson et al. 1996), we find clear evidence that immigrants have

better physical health, including diagnoses of hypertension and heart disease. These effects hold even after accounting for demographic and socioeconomic factors such as race and ethnicity, income-to-poverty ratio, and insurance status. Despite mixed evidence of immigrant effects on self-rated health (see Angel et al. 2001, Cho et al. 2004), our results show that, at least based on citizenship, immigrants do report better health than U.S. citizens, and this is not explained by immigrants' relative disadvantage in terms of demographic and socioeconomic risk factors.

In contrast, we find no evidence of an immigrant paradox in mental health indicators. Significant relationships were weak in bivariate associations (Table 2) and were inconsistent in direction; while recent migrants were less dissatisfied with life, respondents who were not interviewed in English were more likely to report depressed mood and unhappiness. Regardless, there were no significant effects of immigrant characteristics on mental health after controlling for demographic and socioeconomic background, indicating that the small differences in mental health that do exist between immigrants and the foreign born are attributable to factors such as age, gender, income, and employment status. This also provides support for work by Jasso (2004), which documented the positive health effects that result from income gains associated with immigration. Ultimately, our results for mental health support a negative interpretation, wherein the stresses of migration (and perhaps perceived discrimination) are initially damaging to mental health (see Finch et al. 2004), and attenuate any benefits of migration that are influential on physical health. Overall, we find that the immigrant paradox is a physical, not mental, health phenomenon. Researchers should take care in theorizing about immigrants as being advantaged in overall health, since the process of migration is likely to have differential influences on each dimension of health.

Of equal importance, we find little evidence that social support and integration explain the immigrant paradox we find for the physical health measures. Our results support the conclusions of Finch et al. (2004), suggesting that mediational analyses which separate the effects of acculturation from effects of social support are unlikely to find support for the proposition that social support explains the healthy immigrant effect. In fact, we cannot claim that immigrants actually receive more social support than the native-born (aside from having somewhat higher rates of attendance at worship services). We find that immigrants are more likely than non-immigrants to live in families with children and non-nuclear relatives, but are less likely to receive frequent emotional support or to have contact with both family and friends. There is support for this finding in the literature; Franzini and Fernandez-Esquer (2004), in a study of low-income Mexican adults in Texas, found that Spanish speaking adults reported lower levels of social support than English-speaking adults. While chain migration allows immigrants to enter the U.S. with a set of social ties that help them to get set up in a new country (Arnold 1989), it is not clear that these social ties can also provide the emotional support and social engagement necessary to benefit health. Indeed, social support and integration do not always have positive influences on health. Our results show that moderate-to-high levels of emotional support and contact can be related to negative physical health outcomes. This may indicate a social response to health problems, or may be a sign of social obligation to others rather than a source of social support (see Kahn & Antonucci 1980). In general, our findings that neither social support and integration nor health behaviors can explain why immigrants have better physical health suggests that studies on immigrant health should reconsider the question of what makes immigrant health distinctive, because neither social nor behavioral explanations are sufficient.

Our study also highlights the benefits of examining both dimensions of health (physical and mental) with multiple measures. It is important to recognize that acculturation, demographic factors, socioeconomic status, social support, and health behaviors have separate impacts on health, and that these influences can operate in different ways depending on the dimension of health being considered. In addition, we advance the small amount of research that employs diverse measures of acculturation (see Franzini & Fernandez-Esquer 2004)-- including duration of residence, citizenship status, and language -- as well as provide evidence that social networks can impact health through multiple pathways, including social support and social integration (see Berkman & Glass 2000).

This study has several limitations that the reader should keep in mind. First, the National Health Interview Survey does not contain indicators of stress, even though studies have noted the importance of stress for health among immigrants (Finch et al. 2004). And, while we found no evidence of a mediating effect of support and integration, it may be that these measures matter for health because they buffer the negative effects of stress (see Finch & Vega 2003). Second, our mental health measures reference short-term feelings of depressed mood, life satisfaction, and happiness, limited to the past 30 days or immediate assessments. As such, these measures do not specifically target chronic, long-term conditions that can significantly impact health and daily functioning. These measures are also indicators of extreme mental and emotional distress, with about 7-10% of the sample reporting depressed mood and 4-6% reporting life dissatisfaction or unhappiness. While this is a sub-group whose lives are likely to be significantly impacted by their mental health conditions, we may be missing some who are affected more moderately by their negative mental health status. Finally, while we use measures of acculturation that are common in the immigration literature (see Franzini & Fernandez-Esquer 2004), we are unable to

measure factors such as cultural media consumption, location within ethnic communities, ethnic and national identity, or cultural values for which indicators such as language use, citizenship, and duration of residence serve as proxies. Future research should consider attitudinal and value-based measures of acculturation as well.

Ultimately, this study tells a cautionary but rich tale about immigration and health outcomes when compared to other research on the immigrant health paradox. Our results challenge the conventional wisdom that there is an overall healthy immigrant effect in health, and that immigrants' superior social network support is an important reason for their health advantage. Instead, we argue for a re-formulation of the epidemiological paradox, limiting it to physical health, and consideration of the different ways in which immigrants and the native-born population experience mental and physical health. Immigrants face more risk factors for poor health than do those born in the U.S., and it remains an unanswered question why these risk factors do not always translate into negative health outcomes for those who choose to migrate to this country.

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Table 1. Weighted Sample Characteristics

	Full Sample (n = 31,732)	US Born (n = 26,911)	Foreign Born (n = 4,821)
Immigration Characteristics			
Duration of Residence, %			
US born (ref)	87.4	100.0	---
< 5 years	2.5	---	19.6
5-14 years	3.5	---	28.2
15+ years	6.6	---	52.2
US Citizen, %	92.8	99.2	48.3***
Non-English Interview, %	5.1	1.3	32.0***
Social Support and Integration			
Family Structure, %			
Living alone	16.6	17.3	11.8***
Living with roommates	2.2	2.2	1.9
Married or cohabiting, no children	27.3	28.6	18.2***
Other adult-only families	14.9	14.6	16.9**
Single parent	3.5	3.6	3.0**
Married or cohabiting, with children	20.9	20.2	25.5***
Stepfamily with children	3.3	3.4	2.3***
Parent(s), children, and adult relatives	11.3	10.0	20.4***
How often get needed social/emotional support, %			
Never or rarely	5.4	5.0	7.7***
Sometimes	12.1	11.8	14.5***
Usually or always	82.5	83.2	77.8***
Phoned friends or family last 2 weeks, %			
Neither	5.5	3.7	5.2***
Either family or friends	22.4	12.5	16.0***
Both family and friends	72.1	83.8	78.9***
Got together with friends or family last 2 weeks, %			
Neither	3.9	5.1	7.8***
Either family or friends	12.9	22.0	25.3***
Both family and friends	83.2	72.9	66.8***
Went to place of worship last 2 weeks	50.7	50.1	55.0***
Went to a group event last 2 weeks, %	58.5	59.4	52.6***
Health Behaviors			
Current smoker	22.7	23.8	15.6***
Binge drinker	6.8	6.9	5.8*
No exercise	33.5	31.9	44.2***
Obese	21.6	22.6	15.1***
Demographic and Socioeconomic Characteristics			
Age, mean	44.8 (17.2)	45.1 (17.2)	42.4 (17.5)***
Female, %	52.1	52.2	51.7

Table 1. Weighted Sample Characteristics

	Full Sample (n = 31,732)	US Born (n = 26,911)	Foreign Born (n = 4,821)
Race/Ethnicity, %			
White (ref)	74.1	81.2	24.4***
Black	11.0	11.4	8.0***
Mexican	6.5	3.8	25.2***
Puerto Rican	1.1	0.7	3.8***
Cuban	0.6	0.2	3.9***
Other Hispanic	2.4	0.9	13.4***
Asian	1.3	0.3	8.0***
Other	2.9	1.4	13.2***
Education, mean	14.4 (3.4)	14.5 (3.0)	13.1 (5.3)***
Family income below the poverty line, %	8.7	7.6	16.2***
Employment status, %			
Working	67.2	67.3	66.7
Retired	14.2	14.9	9.0***
Unemployed	14.5	14.6	13.7
Never worked	4.1	3.1	10.5***
No medical insurance, %	14.5	12.4	29.4***

*p ≤ .05; **p ≤ .01; ***p ≤ .001 (two-tailed t-test; reference: US born). Standard deviations in parentheses.

Table 2. Weighted Percentage Scores on Health Measures, by Immigrant Characteristics (N = 31,732)

	Physical Health Status			Mental Health Status		
	Poor/Fair SRH	Hypertension	Heart Disease	Depressed Mood	Dissatisfied with Life	Unhappy
Duration of Residence						
US born (ref)	11.3	24.0	11.2	8.1	5.8	4.2
< 5 years	5.9***	7.2***	3.4***	7.7	3.9*	4.4
5-14 years	7.7***	12.3***	3.5***	7.0	5.8	5.4
15+ years	14.3***	26.4	8.6***	8.6	5.8	5.3*
US Citizen						
Yes	11.5***	24.2***	11.1***	8.1	5.8	4.2
No (ref)	7.6	12.1	3.9	7.6	5.1	5.0
Non-English Interview						
Yes	13.6***	18.4***	5.4***	9.7*	6.4	6.4***
No (ref)	11.1	23.6	10.9	8.0	5.7	4.2

*p ≤ .05; **p ≤ .01; ***p ≤ .001 (two-tailed t-test, relative to noted reference group).

Table 3. Odds Ratios from Logistic Regression Models: Physical Health Measures

	Poor-to-Fair Self-Rated Health			Ever Diagnosed with Hypertension			Ever Diagnosed with Heart Disease		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Immigration Characteristics									
Duration of Residence (ref: US born)									
< 5 years	.97	.96	1.13	.57**	.56**	.66*	.79	.78	.86
5-14 years	.94	.93	1.04	.82	.82	.93	.69	.69	.71
15+ years	.95	.91	.99	.88	.87	.95	.72**	.72**	.73**
US Citizen	2.06***	2.01***	1.89***	1.32**	1.31**	1.28*	1.25	1.25	1.23
Non-English Interview	.87	.93	.93	1.10	1.13	1.16	.99	1.02	1.02
Social Support and Integration									
Family Structure (ref: Living alone)									
Living with roommates		1.01	1.24		.91	.96		1.14	1.19
Married or cohabiting, no children		1.10	1.14*		1.08	1.07		1.16**	1.17**
Other adult-only families		1.23**	1.24**		1.12	1.06		1.07	1.06
Single parent		1.28**	1.16		1.16*	1.09		1.19	1.16
Married or cohabiting, with children		.69***	.80**		.93	.94		.86	.89
Stepfamily with children		1.01	1.08		.99	.96		1.15	1.19
Parent(s), children, and adult relatives		1.05	1.04		1.02	.97		1.26*	1.26*
Social/emotional support (ref: Never or rarely)									
Sometimes		1.02	1.30**		.85	.88		.88	.94
Usually or always		.56***	.95		.78***	.91		.78**	.93
Got together with friends/family (ref: Neither)									
Either family or friends		.76**	.87		1.02	1.06		1.16	1.21
Both family and friends		.69***	.84		.97	1.01		1.21	1.27*
Phoned friends or family (ref: Neither)									
Either family or friends		.96	.98		1.21*	1.18		.96	.97
Both family and friends		.81*	.89		1.08	1.11		.91	.95
Went to place of worship		.86**	.91		.95	.96		.88**	.88**
Went to a group event		.62***	.71***		.87***	.90*		.87**	.89*
Health Behaviors									
Current smoker			1.36***			.93			.91
Binge drinker			.72**			1.32***			1.12
No exercise			1.61***			1.01			.91*
Obese			1.75***			2.79***			1.27***

Table 3. Odds Ratios from Logistic Regression Models: Physical Health Measures

	Poor-to-Fair Self-Rated Health			Ever Diagnosed with Hypertension			Ever Diagnosed with Heart Disease		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Mental Health									
Depressed mood			2.82***			1.46**			1.59***
Dissatisfied with life			1.87***			1.13			1.31*
Unhappy			1.52***			1.09			1.07
Demographic and Socioeconomic Status									
Age	1.04***	1.04***	1.04***	1.06***	1.06***	1.06***	1.05***	1.05***	1.05***
Female	.81***	.85***	.82***	.91**	.91**	.94	.81***	.83***	.84***
Race/Ethnicity (ref: White)									
Black	1.74***	1.72***	1.68***	1.92***	1.92***	1.79***	.86*	.87*	.87*
Mexican	1.03	1.12	1.17	1.02	1.06	.97	.55***	.57***	.56***
Puerto Rican	1.87***	1.77***	1.58**	1.64***	1.64***	1.48**	1.14	1.13	1.09
Cuban	1.41	1.45	1.26	.95	.95	.93	.59	.58*	.56*
Other Hispanic	1.37**	1.35*	1.40*	.98	.98	.96	.70	.71	.71
Asian	1.17	1.04	1.16	1.54*	1.50*	1.71**	.91	.87	.89
Other	1.18	1.15	1.27	1.02	1.01	1.08	.66*	.65*	.67*
Education	.88***	.90***	.92***	.96***	.97***	.98***	.99	.99	.99
Family income below the poverty line	1.68***	1.55***	1.41***	1.03	1.02	.96	1.37***	1.36***	1.32***
Employment status (ref: working)									
Retired	1.26***	1.32***	1.39***	.90	.91	.95	1.37***	1.36***	1.35***
Unemployed	5.10***	4.74***	3.77***	1.63***	1.59***	1.49***	2.34***	2.26***	2.04***
Never worked	3.00***	3.07***	2.54***	1.16	1.16	1.13	1.53**	1.52***	1.44**
No medical insurance	1.09	.99	.94	.85**	.83***	.83***	.83*	.81**	.81*
Pseudo R^2	.19	.21	.25	.17	.17	.20	.13	.13	.13

*p ≤ .05; **p ≤ .01; ***p ≤ .001 (two-tailed t-test).

Table 4. Odds Ratios from Logistic Regression Models: Mental Health Measures

	Depressed Mood			Dissatisfied with Life			Unhappy		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Immigration Characteristics									
Duration of Residence (ref: US born)									
< 5 years	.95	.87	.88	.68	.62	.62	1.07	1.03	1.05
5-14 years	.78	.72	.77	1.00	.96	1.02	1.27	1.26	1.35
15+ years	.95	.93	.99	.99	.97	1.04	1.14	1.12	1.20
US Citizen	1.36	1.33	1.11	1.29	1.27	1.10	1.33	1.33	1.18
Non-English Interview	.83	.92	.97	.87	1.01	1.05	.99	1.11	1.14
Social Support and Integration									
Family Structure (ref: Living alone)									
Living with roommates		.72*	.74*		.82	.86		.74	.78
Married or cohabiting, no children		.87*	.87*		.55***	.53***		.71***	.71***
Other adult-only families		.90	.89		.77**	.75**		.89	.88
Single parent		1.06	1.05		1.07	1.03		1.17	1.13
Married or cohabiting, with children		.57***	.63***		.42***	.45***		.48***	.50***
Stepfamily with children		.59***	.61**		.41***	.42***		.58*	.60*
Parent(s), children, and adult relatives		.87	.90		.72**	.71**		.89	.89
Social/emotional support (ref: Never or rarely)									
Sometimes		.77**	.78**		.51***	.49***		.41***	.41***
Usually or always		.20***	.21***		.11***	.12***		.14***	.14***
Got together with friends/family (ref: Neither)									
Either family or friends		.75**	.76**		.73**	.75*		.71**	.73**
Both family and friends		.58***	.60***		.50***	.52***		.47***	.49***
Phoned friends or family (ref: Neither)									
Either family or friends		.90	.89		.99	1.01		.85	.86
Both family and friends		.70***	.72**		.67***	.71**		.66***	.69***
Went to place of worship		.80***	.87*		.67***	.71***		.83*	.89
Went to a group event		.65***	.73***		.61***	.68***		.64***	.72***
Health Behaviors									
Current smoker			1.48***			1.42***			1.51***
Binge drinker			1.21			.93			.86
No exercise			1.12*			1.10			1.24**
Obese			1.17**			1.28***			1.12

Table 4. Odds Ratios from Logistic Regression Models: Mental Health Measures

	Depressed Mood			Dissatisfied with Life			Unhappy		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Physical Health									
Hypertension			1.28***			1.14			1.14
Heart Disease			1.26**			1.24*			1.09
Poor-to-Fair Self-Rated Health			3.45***			2.94***			2.63***
Demographic and Socioeconomic Status									
Age	1.00	.99*	.98***	1.01*	.99	.99***	1.01***	1.00	.99
Female	1.29***	1.40***	1.49***	.93	1.02	1.04	.97	1.03	1.05
Race/Ethnicity (ref: White)									
Black	.87	.79**	.71***	1.20*	1.11	1.03	1.09	.97	.90
Mexican	.84	.89	.93	.71**	.75*	.78	.88	.91	.98
Puerto Rican	1.48**	1.28	1.13	1.48*	1.24	1.12	.93	.76	.70
Cuban	.94	1.18	1.12	1.25	1.73***	1.70**	1.36	1.77*	1.64
Other Hispanic	.95	.89	.87	.91	.83	.82	1.21	1.12	1.13
Asian	1.29	1.02	1.05	.72	.50*	.52	.78	.56	.56
Other	.97	.87	.85	.82	.67*	.65*	.92	.77	.75
Education	.91***	.94***	.97***	.94***	.98	1.01	.95***	.98	1.01
Family income below the poverty line	1.68***	1.38***	1.23**	1.47***	1.02	.88	1.45***	1.07	.95
Employment status (ref: working)									
Retired	.92	1.01	1.04	.83	.92	1.00	1.01	1.10	1.17
Unemployed	3.11***	2.96***	2.19***	3.67***	3.61***	2.75***	2.61***	2.30***	1.74***
Never worked	1.67***	1.89***	1.54***	1.95***	2.43***	1.96***	1.95***	2.28***	1.86***
No medical insurance	1.31*	1.07	1.08	1.69***	1.35***	1.38***	1.44***	1.16	1.17
Pseudo R^2	.07	.17	.20	.07	.23	.25	.04	.16	.18

*p ≤ .05; **p ≤ .01; ***p ≤ .001 (two-tailed t-test).