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## **Poverty, Migration and Health**

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# Poverty, Migration and Health

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This chapter provides an overview of research on the association between poverty and other indicators of socioeconomic status (SES) and health. It also describes the complex ways in which race and ethnicity, SES and immigration status combine to affect patterns in the distribution of disease in the in the United States. Some of the findings of prior research are empirically examined in a large, racially and ethnically diverse sample of California adults. The chapter also considers the importance of including health status in policy initiatives that address poverty and the need for researchers and policy makers to be sensitive to the ways in which a broad range of social policies can have health consequences.

### Poverty and Health

In the United States, persons who are poor have markedly higher rates of disease disability and death than their economically favored counterparts. One national study concluded that the effect of poverty on increasing the risk of death was comparable to that of cigarette smoking (Hahn et al. 1995). These data are consistent with a larger literature on economic status and health. Socioeconomic status (SES), whether measured by income, education, occupational status or wealth is one of the strongest known determinants of variations in health (Williams and Collins, 1995; Adler et al., 1993; Marmot et al., 1987). This association exists in virtually every society in both the developed and the developing world. In U.S. data, for example, low SES adults have levels of illness in their 30s and 40s that are not evident in their highest SES peers until their 60s and 70s (House et al. 1994). The association between SES and health affects the entire society. It is most marked at the low levels of SES but it exists throughout the SES hierarchy, with individuals at every level of SES having worse health than their counterparts who are higher in SES. For example, analysis of the association between income and mortality in the Panel Study of Income Dynamics (PSID) find large reductions in the mortality rate associated

with increases of income at low levels of SES but smaller declines in mortality linked to additional income at higher levels of SES (McDonough et al. 1997).

Why is SES related to health? Socioeconomic deprivation and exposure to poor living and working conditions are central contributors to the poor health of low SES groups. An individual's or group's socioeconomic position is associated with the types and level of stressors to which they are exposed, the availability of resources to cope with stress, and the patterned nature of responses and strategies that they develop over time to manage their environmental challenges. Research reveals that compared to individuals of higher SES, low SES persons report elevated levels of stress and are sometimes more vulnerable to the negative effects of stressors. Chronic exposure to stress is associated with altered physiological functioning that may ultimately increase risks for a broad range of health conditions (McEwen 1998).

In addition, virtually every behavioral and psychosocial risk factor for common chronic diseases (e.g., poor dietary behavior, physical inactivity, cigarette smoking and alcohol abuse) are more prevalent among the poor than among high SES persons (Cooper et al. 2000). Changes in health practices over time are also patterned by social status. Low SES groups are less likely than those of higher SES to reduce high-risk behaviors or to initiate new health enhancing practices. Changes in cigarette smoking over time illustrate this. High SES persons have been markedly more likely to quit cigarette smoking over the last several decades compared to their lower SES counterparts (Cooper et al. 2000).

There is growing research attention to the ways in which the health damaging characteristics of low SES persons that are typically measured at the individual level are constrained by larger social structures and contexts. For example, multiple characteristics of neighborhoods can be conducive to the practice of healthy or unhealthy behaviors. The

perception of neighborhood safety is positively associated with getting regular exercise (MMWR 1999). In addition, neighborhoods differ in the existence and quality of recreational facilities, open spaces and green spaces. Recent research indicates that the presence of trees and vegetation in residential areas have positive effects on physical and psychological well-being and can reduce the negative effects of stress on health (Wells and Evans 2003). Similarly, the availability and cost of healthy products in grocery stores vary across residential areas in the United States and the availability of nutritious foods is positively associated with its consumption (Cheadle et al. 1991). Poor residential areas also have a high concentration of billboard advertising for alcohol and tobacco (Hacker et al. 1987; Moore et al. 1996). These areas also have elevated levels of multiple sources of stress, including violence, financial stress, family separation, death and family turmoil (Evans and Saegert 2000). In turn, alcohol and tobacco are chemical agents that are often used to cope with stress.

Research reveals that the relationship between SES and health status is dynamic and reciprocal. That is, in addition to conditions linked to low SES adversely affecting health, poor health status can also negatively affect SES. Research reveals, for example, that early life illnesses can lead to restricted socioeconomic attainment (Kessler et al. 1995) and major chronic illnesses in adulthood can lead to declines in economic status (Smith 1999). On balance, the predominant casual flow in the SES and health association in the general population appears to be that of SES affecting health (House and Williams 2000). Because high SES persons, compared to their lower SES peers, have greater knowledge and resources regarding health, SES has been identified as a fundamental cause of inequalities in health (Link and Phelan 1995; Williams 1990).

## Race and Health

Race is also a strong predictor of variations in health in the U.S. and other racially stratified societies (Polednak 1989). Historically, racial categories have been viewed as meaningful indicators of genetic distinctiveness. In contrast, this chapter views “race” as capturing ethnicity—common geographic origins, ancestry, family patterns, language, cultural norms and traditions. We also acknowledge that racial categorization in the U.S. and elsewhere reflects oppression, exploitation and social inequality (American Sociological Association 2003). The U.S. Government’s Office of Management and Budget recognizes five racial categories (white, black, American Indian or Alaskan Native, Asian, and Native Hawaiian and other Pacific Islander) and one ethnic category (Hispanic). Given the dynamic and arbitrary nature of racial categorization and the preference of the majority of Hispanics to have this category treated as a racial category (Tucker et al., 1996), in the interest of parsimony and economy of presentation, we use the term race to refer to all of the Office of Management and Budget (OMB) racial and ethnic categories. We use the term ethnicity to refer to subgroups of these global OMB categories. In addition, in recognition of individual dignity, we use the most preferred terms (Tucker et al., 1996) for the OMB categories (such as, Black and African American, Hispanic and Latino, American Indian and Native American) interchangeably.

For most of the 20<sup>th</sup> century, research on race and health in the U.S. has centrally focused on the health of blacks compared to that of whites. There is broad recognition of the need to give increased attention to the health of indigenous populations (American Indians/Alaska Natives and Native Hawaiians and other Pacific Islanders) and the immigrant groups that are an increasingly large part of the American mosaic (Williams 2005b). Prior research reveals that there are large black-white differences in health. For example, although the magnitude of racial

differences in death rates varies by the specific cause of death, African Americans have elevated death rates than whites for 12 of 15 leading causes of death and the overall death rate for blacks is equivalent to that of whites some 20 to 30 years ago (NCHS 2003). Like African Americans, American Indians also have higher age-specific mortality rates than Whites and Hispanics have higher death rates than Whites for several causes of death (Williams, 2005b).

Racial differences in SES play an important role in explaining racial variations in health status (Williams and Collins, 1995). Adjusting racial differences in health for SES leads to marked reductions in the observed disparities. In addition, when race and SES are considered simultaneously, it also becomes evident that there are large SES differences in health within each racial group and that SES variations are larger than racial ones. For example, in national data, the differences in health between poor and high income persons (more than \$50,000) are more than three times the overall black/white difference in health and more than four times the overall Hispanic/white health gap (Pamuk et al. 1998). In addition, race has effects on health that are independent of socioeconomic differences between racial groups (Williams 2005b). For example, African Americans generally exhibit worse health outcomes even when compared to whites with statistically equivalent levels of SES. These differences are often largest among the poor or at the lowest level of SES. Thus, race carries its own burdens for health beyond those associated with socioeconomic disadvantage.

#### The Added Burden of Race

Several explanations have been offered to account for the residual effects of race on health even when SES is controlled. First, some researchers have emphasized the non-equivalence of SES indicators across race. Compared to whites, blacks receive poorer quality education, have lower earnings at equivalent levels of education, less wealth at the same levels of

income, and less purchasing power of income due to racial differences in residential environments (Williams & Collins 1995). Institutional discrimination in the form of residential segregation has been viewed as a driving force behind these differences in socioeconomic circumstances. There is also interest in the extent to which socioeconomic and other social characteristics linked to residence can adversely affect health independent of individual factors.

A second explanatory framework emphasizes that the SES-health relationship should be understood in a life course framework. Current health status is affected by socioeconomic conditions over the life course (Harper et al. 2002). Moreover, socially disadvantaged populations are more likely than their more economically advantaged peers to have experienced economic adversity and other disadvantages associated with low SES during childhood. Thus, a complete assessment of the association between SES and health requires a comprehensive and dynamic characterization of exposure to various socioeconomic circumstances over time.

A third set of explanations focus on the multiple ways in which non-economic forms of discrimination are an added pathogenic factor that can adversely affect the health of non-dominant racial populations. Research suggests that acute and chronic experiences of discrimination are a source of stress that is adversely related to physical and mental health. National data reveal that one-third of the U.S. population reports exposure to major acute experiences of bias and 60 percent report that they have experienced chronic, everyday discrimination (Kessler, Mickelson, & Williams, 1999). Everyday discrimination includes perceptions of being treated with less courtesy than others and receiving poorer service than others in restaurants and stores. Unfair treatment experiences based on race is the most common type of bias in society (Kessler, Mickelson, & Williams, 1999), and African Americans and other minorities report much higher levels of racial/ethnic bias than whites (Williams, 2000).

Discrimination has been linked to poorer physical and mental health for racial groups in the U.S., as well as for immigrant groups in Canada and Western Europe (Williams, Neighbors and Jackson, 2003). For example, one study found that reports of chronic discrimination among black women were positively related to the development of subclinical disease in the carotid artery (Troxel et al. 2003). Other research also indicates that perceptions of discrimination make an incremental contribution to explaining the residual effects of race on health after SES is controlled (Williams et al., 1997).

Data on racial differences in access to and especially the quality of medical care illustrate another way in which racial bias can affect health. For example, research reveals that there are systematic racial differences in the kind and quality of medical care received among Medicare beneficiaries (Escarce et al., 1993; McBean & Gornick, 1994). In an analysis of racial differences and the rates of procedures performed by hospitals for Medicare beneficiaries in 1992, McBean and Gornick (1994) found that black Medicare beneficiaries were less likely than their white counterparts to receive all of the 16 most commonly performed procedures. The differences appeared to be largest for referral-sensitive procedures. These researchers further examined the Medicare files to ascertain if there were any procedures that black beneficiaries of Medicare received more frequently than their white counterparts. They found that this was true of four non-elective procedures. All of these procedures reflected delayed diagnosis for initial treatment or failure in the management of chronic disease. For example, African American Medicare beneficiaries were 3.6 times more likely to have the amputation of a lower limb (usually as a consequence of diabetes) and 2.2 times more likely to have the removal of both testes (generally performed because of cancer in males) than their white counterparts.

These racial differences in the quality of medical care among Medicare beneficiaries are consistent with a much larger literature that finds consistent and systematic racial differences in the receipt of a broad range of medical procedures. Multiple explanations have been offered for these racial disparities in medical care. It has been argued that they could reflect the geographic mal-distribution of health resources, racial differences in patient preferences, physiology, economic status, insurance coverage, place of treatment, and trust, knowledge and prior experience with medical procedures. However, all of the available evidence suggests that systematic discrimination, some of which may be unconscious, remains a central, plausible explanation of this striking pattern of racial disparities (Williams & Rucker, 2000; Smedley et al. 2003).

#### Migration, SES and Health

Efforts to understand the complex associations among poverty, race and health, must also pay attention to immigration. Similar to African Americans, Hispanics, a group with a high proportion of immigrants, have relatively low levels of SES but, surprisingly, have levels of health status that are equivalent and sometimes superior to that of the white population. This profile of Latino health that is better than expected, given their SES, is often referred to as the “Hispanic Paradox” (Franzini et al., 2001). However, this pattern for Hispanics may not be unique. National data reveal that immigrants of all racial groups have lower rates of overall and infant mortality than their native-born counterparts (Singh and Yu, 1996; Singh and Miller, 2004; Hummer et al., 1999). Nonetheless, a conclusion of superior health for immigrants compared to the native born may be premature because the health of immigrants appears to vary by the specific indicator of mortality under consideration (Williams, 2002). For example, although immigrants have lower levels of infant mortality than non-immigrants, they have higher

rates of maternal mortality (Centers for Disease Control and Prevention, 2001). In addition, inadequate attention has been given to measures of illness and the available data suggests that a more complex pattern emerges when these are considered (Carter-Pokras and Zambrana 2001). For example, in contrast to a pattern of lower overall mortality rates than Whites, Hispanics tend to have higher rates of illness than whites for global indicators of morbidity, such as self-rated ill-health (NCHS, 2003). Moreover, the very existence of the paradox has been questioned by some given methodological limitations of the available mortality data (Palloni & Morenoff, 2001; Palloni and Arias, 2004).

At the present time we do not clearly understand the determinants of the health profile of Hispanics and the ways in which SES and migration might combine to affect health. Moreover, little national data on health status indicators is available for Asians and other numerically small racial populations, so that it is not clear whether patterns observed for Hispanics are generalizable to other groups. Additionally, the Latino and Asian populations are characterized by heterogeneity, with some subgroups varying markedly from others in terms of both SES and health. Research on Hispanics and Asians also suggests that the health of these groups worsen with length of stay in the U.S. and generational status (Vega and Amaro, 1994; Cho and Hummer, 2000). These populations also differ dramatically from each other in their levels of SES upon arrival in the U.S. and their trajectories of SES mobility over time. Our current knowledge is limited regarding how immigrant status, race and ethnicity combine with SES to affect levels of health, and the extent to which the pattern for Latinos compares to that of Asians and varies for subgroups within each of these populations.

### The Importance of Health in Poverty Policy

There are several reasons why it is important for policy makers to be attentive to the association between SES, race and health. First, there is considerable volatility in income over the life course and declines in income matter for health. Variations in economic status expose a large portion of U.S. households to low economic status at some point in their life and these declines in income can have important implications for health. Income levels fluctuate with various stages of the life cycle with income levels, adjusted for family size, peaking in the late fifties (McDonough et al. 2000). In addition to these fairly predictable changes in income by life cycle, about 40% of the U.S. population experience large income gains and losses during their working years. For example, over an eleven year period of observation, Duncan (1988) found that about one third of the U.S. population experienced a decline in household income by 50% or more in consecutive years, and between 20% and 35% of women aged 25 to 75 experienced poverty at least once.

These declines in income are importantly related to health status. Analysis of economic and health data revealed that individuals who experienced a large income loss had an elevated risk of mortality in the subsequent 5-year period (McDonough et al. 1997). Moreover, the effect of income loss on mortality risk was larger for middle income individuals than for those of low income. Relatedly, individuals who had persistently low levels of income had higher mortality risk than those for whom the experience of low income was transitory (McDonough et al. 1997). These findings highlight the importance of researchers and policy makers attending to the potential health consequences of both the level of income and its stability over time.

Second, research reveals widening income inequality in the U.S. and other industrialized countries in recent decades (Danziger and Gottschalk 1993). In tandem with these trends, socioeconomic inequalities in health in the U.S. have also widened (Pappas et al. 1993). Similar

patterns exist in other countries with the data for England and Wales being especially striking. Analysis of mortality data by occupational social class for every decade from 1911 to 1981 reveals that despite major changes in the causes of death (from acute, infectious illnesses to chronic degenerative diseases) during this period, the elevated mortality risks for individuals in the lower social classes remained large compared to the professional and managerial classes (Marmot 1986). It is especially noteworthy that increases in the quantity and effectiveness of medical care during this entire period and more equitable access due to the inception of the National Health Service in 1948, appeared to have no effect on eliminating SES inequalities in health.

Third, economic and racial inequalities in health are costly to society. They reflect considerable loss of life during the most economically productive years. National data on survival for 1999 illustrate the magnitude of these differences (Anderson and DeTurk, 2002). For every 100,000 black and white females born, some 97,000 white females survive to see their 45<sup>th</sup> birthday compared to 94,000 black females. Similarly, 87,000 white women survive to age 65 compared to 78,000 black women. The differences are even larger for males. Of every 100,000 black and white males born in the U.S., 5,400 fewer black males survive to age 45 and 16,000 fewer black males live to see their 65<sup>th</sup> birthday. Poorer health also affects the level of participation and productivity in the workforce and in income support programs. A recent study found that the higher levels of illness for blacks and American Indians compared to whites, accounted for a large part of the racial differences in employment rates and in participation in public assistance programs and Social Security, especially among 45 to 64 year-olds (Bound et al. 2003).

Fourth, addressing the health status of the poor is central to the success of interventions to improve economic opportunities for poverty populations. For example, a study of women transitioning from welfare to work found that over 70% reported limitations in functioning, over 60% met criteria for major depression or generalized anxiety disorder and 37% had a child with a health problem (Corcoran, Danziger, and Tolman 2004). Levels of obesity were also high in this population and served as a barrier to employment and earnings for at least some current and former welfare recipients (Cawley and Danziger, 2005). Thus, facilitating the successful transition from welfare to work requires the provision of support services that address the barriers that illness can create for success in the labor market.

#### California Health Interview Survey: An Empirical Illustration

We will empirically examine the complex ways in which race, poverty and immigrant status relate to each other and combine to produce particular patterns of health by using a unique data source. The 2001 California Health Interview Survey (CHIS) is a two-stage, geographically stratified representative sample of the California population. It used a random digit-dial telephone survey of 55,428 households in California with oversamples of Asian ethnic groups and rural and urban American Indian/Alaska Natives. CHIS sampled one adult in each household. Up to 14 attempts were made to reach telephone numbers that were repeatedly busy, not answered or had answering machines. The cooperation rate (ratio of completed interviews over the sum of completed interviews and refusals of selected respondents) was 77.1%, but the weighted response rate was 43.3%, comparable to that of other statewide health surveys (CHIS Technical Paper 1, 2003). Interviews were conducted in English, Spanish, Chinese (Mandarin and Cantonese dialects), Vietnamese, Korean, and Khmer.

The CHIS allows for a rare glimpse of the racial and ethnic diversity of the U.S. population with regards to health. Table 1 shows the sample sizes for each of the racial and ethnic categories. Notably, in addition to blacks and non-Hispanic whites, it has large samples of Hispanics and Asians, as well as for major ethnic subgroups of these populations. It also has large samples of American Indians, multiracial persons and adequate numbers of Native Hawaiians and Other Pacific Islanders. There is no other health data resource that provides such comprehensive coverage of racial and ethnic groups in the U.S.

Another strength of the CHIS data is the availability of multiple measures of health. Health is multidimensional and the associations among poverty, race, immigration and health may vary by the indicator of health status under consideration. Self-rated health is one of the most widely used subjective indicators of general health status in health research. It is based on a single question in which respondents rate their health on a 5-point scale, with 1=excellent and 5=poor. Prior research indicates that this global indicator of health status is a strong predictor of mortality and changes in physical functioning (Idler and Benyamini, 1997; Idler and Kasl, 1995).

Emotional distress is a second measure of health. This indicator of mental health status captures symptoms of anxiety and depression that are typical of those used in general health surveys to measure psychological distress. The emotional distress scale sums the frequency with which the respondent felt calm and peaceful, downhearted and sad and had lots of energy in the past four weeks. Scales of emotional distress can reflect not only clinically significant symptoms but also aspects of demoralization that are reflective of the stressors and adverse living conditions that are more common in low SES contexts (Link and Dohrenwend, 1980). Recent research indicates that mental health problems are among the most common causes of absenteeism from work and reduced productivity at work (Ustun et al. 2004).

Physical limitations is a measure of functional health status that captured the extent to which respondents reported being limited when climbing several flights of stairs, in moderate activities like pushing a vacuum cleaner, and at work or in other activities. A high score on the scale is indicative of greater limitations. The health measure, chronic conditions, is the fourth health status indicator that focuses on the presence of specific diagnosed illnesses. Respondents were asked if a doctor had ever told them that they had asthma, arthritis, diabetes, high blood pressure, heart disease or high cholesterol. Chronic health conditions is a count of the number of illnesses that each respondent reports. This measure of health status is at least partly confounded by access to medical care.

The CHIS data can shed light on the following questions:

1. How is SES (poverty and education) related to race, and to ethnic status within racial categories?
2. What is the nature of the association between poverty and health? To what extent is there a threshold effect or a graded association between economic status and health? How generalizable is this association across multiple racial groups, and ethnicity within race categories?
3. To what extent does race and ethnicity predict variations in health? Are observed variations in health consistent across ethnic categories within racial groups and for multiple indicators of health status? How much of the variation in health status by race and ethnicity is accounted for by SES?
4. How does SES (poverty and education) vary by immigrant status for multiple racial and ethnic groups?

5. How does the health of immigrants compare to that of the native born for multiple racial groups, as well as for subgroups of the Latino and Asian populations? How generalizable is this pattern across multiple indicators of health status?

6. How does the health of immigrants vary by length of stay in the U.S.? To what extent does this pattern vary by the indicator of health status under consideration?

#### Racial and Ethnic Variation in Poverty and Education

The distribution of household income, categorized by poverty and multiples of the poverty level, is presented in Table 1. Poverty is defined based on the Federal poverty level (FPL) for 2001. Respondent's household income is additionally classified into near poverty (100-199% FPL), moderate income (200-299% FPL), high income (300-399% FPL), and very high income (400% FPL or greater). There are large variations in poverty rates across our major racial and ethnic groups. Compared to a white rate of poverty of 6.1%, the rate of poverty is three times higher for blacks, five times higher for Latinos, and twice as high for Pacific Islanders, American Indians, and Asians.

Both the Hispanic and Asian groups are characterized by considerable heterogeneity. For example, among Latinos, Mexican Americans and Central Americans have rates of poverty that are three times as high as that of Puerto Ricans. Similarly, among Asians, Filipinos, South Asians and Japanese have poverty rates that are markedly lower than the Asian average and only one-fifth of the poverty rate of the Vietnamese. The variation in poverty rates is very similar to the racial/ethnic patterns that exist at high levels of income. For example, two-thirds of whites and half of all Asians have income levels that are at least three times that of the federal poverty level. In contrast, 41% of blacks, 22% of Hispanics, 46% of Pacific Islanders, and 41% of

American Indians fall into the two highest income categories. Of interest, both the other race and multiracial categories have patterns of poverty that are generally similar to that of whites.

Levels of educational attainment mirror that observed for poverty (data not shown). Hispanics again stand out as the most disadvantaged group, with half of all Hispanic adults having less than a high school education. Marked variation in formal education is again evident in the Hispanic group. Mexicans (55%) and Central Americans (57%) are four times more likely to have less than a high school education than Puerto Ricans (14%) and South Americans (14%). Asians, Blacks, Other Race, and multiracial persons are about twice as likely as whites to have not graduated from high school. Fully 24% of American Indians also fall into this category. Large variation is also evident within the Asian category, with Japanese (3%) and South Asians (13%) having the lowest rates and Vietnamese (30%) having the highest rates of not completing high school. Asians (47%) and whites (39%) have the highest rates of college completion, with the rates being intermediate for blacks (24%) and Pacific Islanders (22%) and very low for American Indians (13%) and Latinos (8%).

### Poverty and Health

Table 2 presents the association between poverty status and self-rated ill-health for each of our racial/ethnic groups. Each row of Table 2 presents the results from a separate regression model in which we examined the association between household income and self-rated ill-health, with very high income as the omitted category. For all of our racial and ethnic categories, except other race, persons who are poor are more likely to rate their health negatively than persons who have very high income. The largest effects of income are at the lower levels of income, and for whites, blacks, Hispanics, Native Americans, Asians, and multiracial persons, there is a stepwise progression of risk in the relationship between household income and health status with each

higher level of income associated with better health status. This pattern of improving health with each advancing step on the household income ladder was not evident for Pacific Islanders, Puerto Ricans, Chinese, Filipinos, and Vietnamese. Of particular interest is that the highest risk of poor health was observed for the penultimate income group among Pacific Islanders. A somewhat similar pattern has been noted for blacks, where for some measures of health status (such as hypertension and suicide), middle-class African Americans sometimes have worse health than their lower SES peers (Williams, 2003). Future research needs to clearly identify the factors that may be an added pathogenic burden for middle class members of some socially disadvantaged groups and the conditions that give rise to this specific pattern of ill-health.

#### Poverty, Race and Health

Table 3 presents unstandardized regression coefficients for the association between race/ethnicity and our four indicators of health status. Two models are presented for each outcome. The first model shows the association between race and ethnic status and health adjusted for gender and age. The second model adds three indicators of SES: poverty levels, years of formal education, and employment status (currently employed versus not employed). For self-rated ill-health there is a pervasive pattern of racial/ethnic differences in health, with almost all of the racial/ethnic categories having higher levels of self-rated ill-health than the non-Hispanic white population. Two Asian subgroups are the only exception to this pattern. South Asians have a significantly lower level of self-rated ill-health than the white population and Japanese do not differ from the white population in terms of health. However, Model 2 shows that the consideration of SES markedly reduces the excess levels of ill-health for virtually all of the racial/ethnic categories. Some of the initial racial/ethnic differences are reduced to nonsignificance when controls are introduced for SES. However, a striking pattern is evident for

most racial/ethnic categories where there is a residual effect of race even after SES has been taken into account. It was earlier noted that the research literature has identified an added burden of race for the health of African Americans after SES is controlled. These analyses indicate that the pattern is generalizable to most racial populations in the U.S.

Similar to the pattern observed for self-rated ill-health, Table 3 also reveals that most of the racial/ethnic status categories have higher rates of emotional distress than whites. However, the addition of poverty and the other SES indicators plays an even larger role than was observed for self-rated health in reducing the elevated levels of distress among the other racial/ethnic categories. That is, when SES is added in Model 2, elevated rates of distress for several population groups (Central Americans, Puerto Ricans, South Americans, Other Latinos, Multiethnic Latinos, Pacific Islanders, American Indians, Vietnamese, and Other Asians) are reduced to non-significance. At the same time, although the elevated rates of distress for African Americans and multiracial persons are markedly reduced when adjusted for SES they still remain significant. It is also noteworthy that the lower levels of distress for Japanese Americans compared to whites are unchanged when adjusted for SES. This suggests that there are factors other than SES, linked to the psychosocial context of life for Japanese Americans that is protective of mental health.

A now familiar pattern is evident for physical limitations where most of the racial/ethnic categories report higher levels of physical limitations than the white population. Similar to what has been observed for the other health outcomes, the consideration of the SES indicators markedly reduced the association between race/ethnicity and health. The exceptions to this pattern are several of the Asian groups where Chinese, Filipinos, Japanese, and Koreans report lower levels of physical limitations than whites. These associations become more marked when

the socioeconomic indicators are considered. Factors other than the SES, presumably immigration status, may also play a role in shaping the health status of these Asian groups. However, for African Americans, Pacific Islanders, and American Indians, although the coefficients for physical limitations are reduced, they still remain significant after income, education, and employment are adjusted for.

The final panel of Table 3 shows the association of race and ethnicity with chronic conditions. Groups with a long history of residence in the U.S. (African Americans, Puerto Ricans, Pacific Islanders, American Indians, and multiracial persons) report higher levels of chronic health conditions than whites. At the same time, Latino and Asian populations that have a high proportion of immigrants report lower levels of chronic health conditions than the white population. The consideration of SES in Model 2 produces patterns similar to what has been observed before. For groups with elevated rates of chronic health conditions, the addition of SES reduces the size of that relationship but does not eliminate it. For those population groups with lower levels of chronic health conditions than whites, the addition of SES generally leaves that association intact.

In sum, Table 3 reveals a fairly complex pattern of association between race/ethnicity, SES, and health. In general, most non-white racial and ethnic populations had higher levels of illness than whites but the association varied by specific health outcome and by the particular population under consideration. Across all of the health status indicators considered, African Americans and American Indians have elevated levels of poor health compared to the white population. It is also instructive, that a consistent disadvantage is evident in these data for persons reporting multiracial status. Our analyses also confirm that racial differences in SES play a large role in accounting for variations in health. Associations between race and health were reduced

when socioeconomic variables were considered, but remained robust and significant even in the face of controls for three indicators of SES.. The CHIS data do not allow for the analysis of the relative contribution of the various race-related factors, reviewed earlier, that have been shown to contribute to an elevated risk of illness after SES is taken into account.

For Latinos, the pattern is complex, with higher levels of illness than whites observed for some health outcomes such as self-rated ill-health, emotional distress and physical limitation, but with a lower level of chronic health conditions. At the same time, the consideration of SES markedly reduces and in some cases reverses the elevated levels of ill-health for some Latino populations, particularly Mexicans and Central Americans. This may reflect the selective effect of immigration where these two populations stood out in an earlier table as being some of the most disadvantaged in SES, but who are nonetheless probably selected on the basis of health.

A very complex pattern of association is observed for the Asian population with most Asian groups doing more poorly than whites for measures of health such as self-rated ill-health, but doing considerably better than whites on other health status indicators such as emotional distress, physical limitations and chronic health conditions. An important take-home message from the results in Table 3 is the great diversity within the Latino and Asian categories, where patterns vary dramatically depending on the health outcome and the particular group under consideration.

#### Gender, Race, Poverty and Health

Time and space prevent us from fully and systematically attending to variations in the association among race/ethnicity, SES and health by gender. Prior research indicates that numerous paradoxes are sometimes evident when race, ethnicity, gender and SES are simultaneously considered. Each of these variables can all make an important contribution to

disparities in health. Moreover, their effects are additive. Williams (2005a) shows, for example, that national data on life expectancy at age 25 for blacks and whites reveal that the most advantaged group, in terms of health, is white women at the highest level of income who have a life expectancy at age 25 of almost 58 years. The worst off group is low-income African American males who can expect to live an additional 41.6 years at age 25. The life expectancy difference between these two groups of 16.2 years is almost four times as large as the overall black-white difference in life expectancy, more than twice as large as the gender difference for blacks and whites, and almost twice the size of the largest income differences in life expectancy.

Williams and Jackson (in press), have also highlighted the paradoxes of the black middle class. For example, in national data, the highest SES group of African American women have equivalent or higher rates of infant mortality, low birth weight, hypertension and overweight than the lowest SES group of white women (Pamuk et al., 1998). Among men, while SES is inversely related to the suicide rate for whites, it is positively related to suicide for blacks (Williams, 2003). Jackson and Williams (in press) show that differential exposure to social and economic adversity over the life course and individual and institutional discrimination can combine with cultural practices and beliefs and the non-comparability of SES indicators across race to account for the observed patterns. Elucidating how processes linked to migration history and acculturation combine with nativity differences and SES to produce gendered patterns in the distribution of health for diverse racial and ethnic groups is beyond the scope of this chapter.

Nonetheless, to highlight the importance of attending to gender, in analyses not shown, we examined the association between poverty levels and self-rated ill-health, separately for men and women, for each of the racial categories in the CHIS data. Our analyses revealed that similar to the pattern in Table 2, there were large differences in health by income for both men and

women. For most racial groups, for both genders, the largest effect of SES was in the poor and near-poor categories, with a stepwise progression of risk in which each higher level of income was associated with better health. There were two noteworthy exceptions to this pattern. Among Pacific Islanders, poor men had markedly elevated rates of ill-health compared to higher income men but women with income at three times the poverty level or greater were almost twice as likely as poor women to report being in poor health. Among American Indians, there was little variation in health by income for men, but poor women were three times more likely to report ill-health than poor men. Some 27% of American Indian women in poverty reported their health as fair or poor. This level was substantially higher than that of any other income group for all other racial groups in CHIS. Future research needs to elucidate the determinants of the markedly elevated health risks of high income Pacific Island women and poor American Indian women.

#### Immigration and health

There is also growing recognition that understanding the relationship between race/ethnicity and health requires careful attention to the role of migration in shaping patterns in the distribution of health. The impact of immigration is likely to be especially important for Hispanics and Asians. In the 2000 Census, while 4% of whites, 6% of blacks, and 5% of American Indians and Alaska Natives were foreign-born, 69% of Asians, 43% of Latinos and 20% of Native Hawaiians and Other Pacific Islanders were foreign-born. Thus, taking immigrant status into account may provide some insight into the patterns of the distribution of health across racial/ethnic populations. There is considerable selectivity of immigrants in terms of health. We noted earlier that the adult and infant mortality profile of immigrants was favorable compared to the native-born, but it is less clear what patterns are for indicators of illness. Immigrants also vary dramatically from each other and from their native counterparts in

terms of socioeconomic characteristics. We now consider the extent of socioeconomic variation (both poverty and education) for immigrant and non immigrant populations in California.

### Immigrant Status and SES

Table 4 presents poverty status variation for immigrants and the native born of each racial and ethnic category. Several immigrant populations have higher rates of poverty than their native born peers. The pattern exists for whites, most of the Latino subgroups, and Pacific Islanders. At the same time, the opposite pattern is evident for blacks, Puerto Ricans, South Asians, Koreans, Vietnamese, and multiracial persons where immigrants of these groups have lower rates of poverty than their native born counterparts. For other groups such as the Filipinos, the rates of poverty are very close between the immigrants and the native born. A similar heterogeneity in patterns is evident at the high levels of income. Levels of high and very high income (300% of the federal poverty level or greater) are roughly comparable for immigrants and the native born for the white, black, and Filipino groups, and the native born have slightly higher levels of income than immigrants for Japanese and multiracial persons. For some Latino groups (Mexican-Americans, Central Americans, South Americans), Pacific Islanders, some Asian groups (Chinese, South Asians, Other Asians), and Other Race persons, the native born are much more likely to be in the high income categories than immigrants. At the same time, immigrants from Puerto Rico, Korea, and Vietnam are much more likely to fall into the high income categories than their native born counterparts.

A similar series of analyses (not shown) explored variations in educational attainment by immigrant status for various racial and ethnic populations. In the 2000 Census, 24% of American adults aged 25 years and older have a college degree. In the CHIS sample white, black, South American, and Asian immigrants in California have levels of college completion

that are twice the U.S. average. These levels are especially high for South Asian immigrants, with 83% of this group having a college degree or more education. College completion rates among immigrants are markedly lower than the U.S. average for Latinos, in general (5%), and for Mexican Americans (3%) in particular. Some immigrants also have markedly higher levels of formal education completed than the native born. This is true for whites, blacks, Puerto Ricans, Other Latinos, Pacific Islanders, Other Race, and multiracial persons. The overall levels of education for Asian immigrants and natives are comparable, but some Asian immigrant sub-groups such as the Filipino, South Asian, Korean, Vietnamese, and Other Asians have higher levels of college completion than their native born peers.

#### Nativity Status, SES and Health

As noted earlier, prior research suggests that there should be a general expectation that immigrants would enjoy better health than their native born counterparts. Table 5 provides a careful look at this issue for self-rated ill-health and emotional distress. It shows that the expected pattern is true for black, Puerto Rican and Filipino immigrants. Strikingly, although native born blacks report higher levels of ill-health than whites, black immigrants in California actually enjoy better health than U.S.-born whites. In contrast, for both self-rated ill-health and emotional distress the opposite pattern exists where some immigrants (Mexicans, Central Americans, South Americans, Multiethnic Latinos, Pacific Islanders, Koreans, Other Asians, and persons of multiracial status) are *more likely* than their native born counterparts to report ill-health and emotional distress. For still other groups, immigrant status is unrelated to health. For the Vietnamese, Japanese, and Chinese, immigrants and native born persons report fairly similar levels of self-rated health and emotional distress. Taking SES into account in Model 2 produces few changes to the patterns noted in Model 1 for self-rated ill-health, suggesting that factors

linked to immigration status are key determinants of the observed patterns. In the case of emotional distress, adjusting for SES produces large reductions in the excess risk for immigrants. This suggests that indicators of mental health status among immigrants are more affected by the stressors linked to migration and adaptation processes as reflected in average SES levels than are measures of physical health.

Table 6 presents similar analyses to that observed in Table 5 for physical limitations and chronic conditions. Unlike the pattern for distress and self-rated ill-health, the analyses in Table 6 reveals a pattern that more closely mirrors the general expectations of the literature than that observed in Table 5. Several immigrant groups report lower levels of physical limitations than their native-born counterparts. This is true for whites, blacks, Central Americans, Filipinos, Japanese, and multiracial persons. At the same time, Pacific Island immigrants and multiethnic Latino immigrants report higher levels of physical limitation than their native-born counterparts. When immigrants are doing better with physical limitations, adjusting the relationship for SES reduces the association but the underlying pattern persists. In contrast, when immigrants are doing worse, taking SES into account, the pattern remains significant for Pacific Islanders but becomes nonsignificant for multiethnic Latinos.

The analyses of chronic conditions clearly show the pattern that the literature predicts. Most immigrant populations in Table 6 have lower levels of chronic conditions than their native-born counterparts. The only exception to this pattern is Puerto Ricans, where immigrants from Puerto Rico report a higher level of chronic conditions than their native-born counterparts. Adjustment for SES leaves the fundamental pattern largely unchanged for blacks, whites, Filipinos, and South Asians, while it becomes stronger for Mexican Americans, Central

Americans, South Americans, Multiethnic Latinos, and several immigrant Asian groups (Chinese, Japanese, Korean, Vietnamese and Other Asians).

Much of the prior research on the health of immigrants has used readily available mortality data. Our analyses reveal that the pattern observed in the mortality data (immigrants have better health than the native born) is generally true when measures of physical health status are considered. In contrast, health status measures that capture emotional functioning or that have a large subjective component indicate that many immigrant groups do more poorly than their native-born peers. This pattern of findings suggests the importance of studying multiple indicators of health status and how stressors linked to migration and adaptation to a new society can affect emotional well being, which as noted earlier, can have important implications for economic productivity. In addition, the variation across race and ethnicity highlight the necessity of understanding the role of culture and acculturation and how it may impact the particular patterns of health observed.

#### Length of Residence in the U.S. and Health

Prior research suggests that with length of stay in the U.S. and acculturation to American society the health advantage of immigrants tends to decline over time. For example, research on Latinos reveals that adult mortality, infant mortality, psychiatric disorders, psychological distress, substance use, low birth weight, poor health practices, and other indicators of morbidity all increase with increasing length of stay and acculturation (Finch, et. al., 2002, Vega and Amaro, 1994). Similarly, an analysis of the prevalence of chronic disease in the National Health Interview Survey from 1992 to 1995 showed a consistent trend across multiple populations in which recent immigrants reported better health than long-term immigrants and the U.S. born (Singh and Miller, 2004). This pattern existed for non-Hispanic whites and blacks, Chinese,

Japanese, Filipinos, Asians, Indians, Koreans, Vietnamese, Other Asian Pacific Islanders, Mexicans, Cubans, and Central and South Americans.

Table 7 takes a careful look at this issue for two of the Latino groups (Mexicans and Central Americans) where the samples are large enough to carefully examine the relationship between length of stay in the U.S. and health. In these analyses persons who are born in the U.S. are compared to immigrants who have spent one year or less, 2-4 years, 5-9 years, 10-14 years, and 15 or more years. Table 7 shows that the association between length of stay in the U.S. and health varies by indicator under consideration and by particular immigrant population. For both Mexicans and Central Americans, recent immigrants report poorer self-rated health than their native-born counterparts. The coefficients for time in the U.S. become smaller with increasing lengths of stay and markedly so for Central Americans. Adjustment for SES markedly reduces the association between length of stay and self-rated ill-health.

For both Hispanic immigrant groups, levels of emotional distress are very high among recent immigrants. For Mexicans, all immigrants report higher levels of distress than their native-born counterparts, but the pattern is especially pronounced among those immigrants who have spent less than one year in the U.S. Among Central Americans, the pattern is significant only among those who have spent four years or less in the U.S. For this second outcome, we also see the pattern of all Mexican immigrants reporting higher levels of distress, while elevated distress persists only for very recent Central Americans. Instructively, adjusting for SES reduces the association to nonsignificance. Very recent immigrants of both Hispanic groups report higher levels of physical limitation than their native-born counterparts. For Mexicans, adjustment for SES leads to a reversal of the pattern where immigrants in the U.S. from two or more years report lower levels of physical limitation than their native-born counterparts. For

Central Americans, the elevated risk among recent immigrants is reduced to nonsignificance when adjusted for poverty and the other indicators of SES, while the reduced level of physical limitations among longer term immigrants becomes more pronounced when the socioeconomic factors are taken into account.

For Mexicans, all immigrants report significantly lower levels of chronic conditions than their native-born counterparts. The pattern is somewhat graded, such that the coefficients increase with increasing length of stay in the U.S. For Central Americans, the very recent immigrants (one year or less in the U.S.) and those 10-14 years, have lower levels of chronic conditions than their native-born counterparts. Adjustment for SES makes the pattern more pronounced for Mexican Americans, and significant coefficients in the first model for Central Americans remain significant when socioeconomic factors are also considered.

Table 10 shows similar patterns of association for two Asian groups, Chinese Americans and Filipino Americans. For both immigrant groups, immigrants report poorer health than their native-born counterparts. For Chinese Americans, this pattern tapers off with length of stay and becomes considerably weaker among those 10-14 years in the U.S. and is not significant for immigrants with a tenure of 15 years or longer. A similar but more graded association is evident for Filipino Americans. For both groups, the addition of SES reduces the effect, although it still remains significant especially among Filipino Americans where the association appears to be largely independent of SES. Unlike the pattern observed for the Hispanic groups, higher levels of emotional distress are not evident for either of the Asian groups in the initial age-adjusted model. In contrast, when adjusted for SES, both Chinese and Filipino immigrants who have spent one year or less in the U.S. report lower levels of emotional distress than their native-born counterparts. This may reflect an initial effect of a certain level of euphoria and high

expectations linked to their successful immigration to the U.S. (Vega and Rumbaut, 1991).

Instructively, this positive effect is no longer evident with two years or more in the U.S.

Among Chinese Americans, there is no significant association between length of stay in the U.S. and physical limitations in the initial age-adjusted model, however, with adjustment for SES, immigrants of less than one year tend to have fewer physical limitations than their native-born counterparts. The pattern is more complex among Filipinos. In the initial model, immigrants who have spent one year or less in the U.S. report higher levels of physical limitation than their native-born counterparts, but immigrants in the U.S. ten years or longer report lower levels of physical limitation. These associations are reduced but remain significant when adjusted for SES. Recent Chinese and Filipino immigrants enjoy lower levels of chronic conditions than their native-born counterparts. This association is largely independent of SES.

Thus, in contrast to our expectation that recent immigrants would enjoy better health than their native-born counterparts, we found that for three of the four health outcomes, recent Hispanic immigrants report worse health status. Chronic conditions are the only exception to this pattern where the health of immigrants is clearly better than that of their U.S.-born counterparts. These patterns are more marked for Mexican than Central American immigrants. Research on Central American immigrants has emphasized the importance of taking into account the context of exit from the country of origin, as well as processes of adaptation in the new society (Portes and Rumbaut, 1996). In particular, it has been noted that although Central American immigrants have not been classified as refugees and have received a negative reception from U.S. officials, many escaped conditions of civil war in their countries of origin that were as traumatic as those reported by official refugees. Accordingly, one might expect that Central American immigrants, relative to Mexicans, may be doing much more poorly than their U.S.-born counterparts. Our

findings suggest that Mexican immigrants may face harsh economic exit conditions or may face equally difficult adaptation challenges in the U.S. as do Central Americans.

The association between length of residence for Asians differed from that observed for Hispanics. For the two Asian groups considered, immigrants did not differ from the native born on either emotional distress or physical limitations. Among Filipinos, immigrants enjoyed better self-rated health than the U.S.-born, with the pattern being more pronounced for recent immigrants compared to those with longer tenure. In contrast, Chinese immigrants who were in the U.S. less than 15 years, reported higher levels of ill-health than U.S.-born Chinese Americans. For chronic conditions, immigrants of both Asian groups tended to report fewer health problems than their American-born peers, with no clear patterning by length of residence. These analyses document that the association between length of residence in the U.S. and health status is neither simple nor straightforward and more careful attention is needed to identify the conditions under which particular patterns of association vary by health outcome and by specific population.

### Discussion

Our review of the literature and empirical analysis of a large, diverse, multiethnic sample from America's most populous state converge to emphasize that health varies by the economic and migration status of populations. However, there are several limitations to consider. The generalization of findings for immigrants in California to all U.S. immigrants may not be warranted. The extent to which the State of California is distinct is unclear. Nonetheless, the empirical analyses provided a rare and unique glimpse of America's racial diversity. They clearly indicate that there is no generic 'minority health model' that can be indiscriminately applied to all groups. Instead, they emphasize the importance of paying attention to the unique

history, context of migration or conquest and patterns of incorporation into the U.S. for each population. Also evident in the analyses was one of the most comprehensive glimpses of the health of persons who identify as multiracial. Across the four health measures considered, they experience poorer health than whites that is not explained by SES. The data analyzed were cross-sectional and provide no basis for the temporal ordering of observed associations. There is a need to follow populations over time and monitor changes in their social conditions and health. This is especially important for identifying potential changes in the health fortunes of second and third generation immigrants.

Nonetheless, the evidence considered here reveals that poverty and other socioeconomic indicators are important predictors of variation in health. Policy makers need to give more attention to health status in policy initiatives around poverty. This is especially important given the growing economic inequality and high rates of childhood poverty in the U.S. Levels of child poverty and economic vulnerability are disconcertingly high in the U.S. Twenty three percent of all America children under the age of 18 (19% for whites, 21% for Asian and Pacific Islanders [API], 26% for Blacks, and 33% for Hispanics) are being raised in a poor household (NCHS 1998). Moreover, 43% of all children (31% for Whites, 41% for APIs, 68% for Blacks, and 73% for Hispanics) are in economically vulnerable households (annual income less than twice the poverty level). Early childhood is likely to be a strategic intervention point not only for improving child health outcomes but also for establishing a trajectory for enhanced SES and thus health in adulthood.

Effectively addressing the relationship between poverty and health requires initiatives in four domains (Mackenbach and Stronks 2002). First, policies are needed that seek to reduce the levels of poverty in the population. Such strategies could include enhancing educational

achievement among poor children, implementing new tax and income support policies to prevent an increase in income inequality, reducing long-term poverty through new programs that assist the chronically unemployed to find paid employment, and providing additional financial resources for very poor families with children. A second category of needed policies are those that seek to reduce the effects of health on SES. This could include modifying work conditions so that the work participation levels of the chronically ill and disabled could be increased, and offering counseling services to low-income populations who have challenges working because of their health. Third, policies are needed to reduce the intervening factors between SES and health. An example would be the initiation of health promotion programs targeted to low SES groups. Such initiatives should focus not only at individual behavior but should emphasize programs focused on environmental measures, such as providing free fruit at elementary schools, increasing tobacco taxes to reduce consumption and re-engineering work conditions to reduce the physical workload of manual jobs. Finally, policies are needed that improve access to medical care. Specific initiatives include increasing low SES groups financial access to care, reducing the shortage of primary care providers in disadvantaged areas, strengthening health care access and quality by deploying more health care professionals and peer educators to implement disease prevention programs, and ensuring the availability of culturally sensitive care to all language groups.

Policy makers also need greater awareness that non-health policies can have decisive consequences for the health of economically vulnerable populations. Although a causal relationship has not been established, it is instructive that black-white inequalities in health over the last 50 years have narrowed or widened in tandem with black-white inequalities in income. When the racial gap in income narrowed between 1968 and 1978 as a result of the gains of the

Civil Rights movement, black men and women experienced larger declines in mortality, absolutely and relatively, compared to their white counterparts (Cooper et al. 1981). Similarly, as incomes for blacks declined relative to those of whites during the 1980s, the life expectancy for blacks declined absolutely and relative to that of whites during the last half of the decade of the 1980s (Williams and Collins 1995.)

Non-economic policies and events can also have health consequences. A panel study of African Americans from 1979 through 1992, found the lowest levels of chronic health problems, disability and emotional distress in 1988 (Jackson et al. 1996). That year also marked the lowest level of racial discrimination and the highest level of optimism about race relations. Given that 1988 was the year that Jesse Jackson, an African American male was running the most successful presidential campaign by a black person in U.S. history, the researchers suggested that there appears to have been a spill-over effect from the larger political climate to health and dubbed it the “Jesse Jackson effect” (Jackson et al. 1996). A recent study provides another example of how the larger socio-political context, as reflected in an increased threat of discrimination and harassment for Arab Americans after the terrorist attacks in 2001, can create an environment that adversely affects health. An analysis of birth outcomes before and after September 11, 2001 in the state of California revealed that Arab American women were the only group of California women to experience an increased risk of low birthweight and preterm birth in the post September 11 period (Lauderdale 2006).

Thus, prior research raises the intriguing possibility that anti-immigrant initiatives in California could have affected the levels of health observed for immigrants. In contrast to earlier research using both national and California data (Burnham et al. 1987; Singh and Miller 2004; Vega & Rumbaut 1991), our analyses of the CHIS data reveal that many immigrant

groups including Mexican immigrants report poorer health than the native born, especially for indicators of health status that have a large emotional component. The CHIS data were collected in 2001, a time of considerable anti-immigrant sentiment in California. First, there was a movement to resurrect Proposition 187, which had been overturned in 1998 (Mendel 2000). Proposition 187 which had initially passed in 1994 had limited immigrants' access to a range of social services, including medical care and public school education. It also required law enforcement officials and public employees to report suspected undocumented immigrants to the immigration authorities. Second, in October, 2001, the Governor of California, Gray Davis, vetoed two bills that had provided some rights to immigrants who had applied for legal residency, but had not yet been granted legal status. One bill would have allowed immigrants to obtain a temporary driver's license, while the other would have allowed students who had graduated from a state high school to be eligible to pay more affordable in-state tuition at California's colleges and universities (Quach 2000). It is possible that the spectre of discrimination against immigrants raised by anti-immigrant rhetoric and impending policies adversely affected immigrants' levels of self-rated ill-health and emotional distress.

The evidence considered in this chapter suggests that health is closely tied to social conditions in which groups live and work. Poverty and migration status are important contexts in this regard. Individuals in poverty and other economically vulnerable populations have elevated risks of disease, disability and death. Their health problems can serve as a barrier to their ability to benefit from initiatives designed to improve their SES. Accordingly, strategies to improve the mental and physical health of the poor should be considered as a component of any comprehensive poverty policy. Policy makers also need to be aware that policies in domains far

removed from traditional health policy (such as taxes, education, employment and workplace design) can impair or enhance health.

Table 1  
Poverty level by Race/Ethnicity (Percentages Reported) in the California Health Interview Survey (CHIS), 2001

Race/Ethnicity	N	Poverty (0-99 %)	Near Poverty (100-199%)	Moderate Income (200-299%)	High Income (300- 399%)	Very High Income (400%+)
1. White	34383	6.1	14.3	13.7	18.6	47.3
2. Black	2498	20.9	21.5	16.3	15.3	26.0
3. Latino	11840	32.4	31.1	14.0	10.8	11.6
a. Mexican	8304	35.0	32.1	14.3	9.4	9.2
b. Cen. American	1019	37.1	35.3	11.1	9.5	7.0
c. Puerto Rican	180	12.6	23.9	16.3	20.2	27.0
d. South Amer.	275	18.4	23.7	17.5	14.9	25.4
e. Other Latino	788	16.8	22.4	12.0	17.4	31.4
f. Multiethnic Lat.	1155	19.8	25.9	15.1	18.0	21.2
4. Pacific Islander	189	11.5	20.8	22.1	20.0	25.6
5. American Indian	424	15.3	25.8	17.4	17.5	24.0
6. Asian	4651	13.5	18.6	15.1	15.1	37.7
a. Chinese	1227	14.0	18.0	11.9	12.2	43.8
b. Filipino	831	6.7	21.2	20.1	21.2	30.9
c. South Asian	381	4.6	10.6	14.8	11.6	58.4
d. Japanese	468	6.2	14.2	12.4	16.9	50.3
e. Korean	789	11.6	21.6	17.3	13.2	36.3
f. Vietnamese	821	33.0	23.3	13.9	12.1	17.7
g. Other Asian	281	26.5	17.7	10.7	17.0	28.1
7. Other Race	181	8.3	21.0	16.7	12.8	41.2
8. Multiracial	2104	10.4	18.8	14.7	20.5	35.5

Table 2.  
Unstandardized OLS Regression Coefficients (and standard errors) for the Association between  
Poverty and Self Rated Ill-Health for each racial/ethnic group, CHIS, 2001.<sup>1</sup>

	<b>Poverty</b> (0-99%)	<b>Near Poverty</b> (100-199%)	<b>Moderate Income</b> (200-299%)	<b>High Income</b> (300%-399%)	<b>Very High Income</b> (400%+)
1. White	.830(.03)**	.565(.02)**	.398(.02)**	.262(.02)**	(omitted)
2. Black	.807(.05)**	.446(.05)**	.321(.06)**	.148(.06) *	(omitted)
3. Latino	.997(.03)**	.726(.03)**	.494(.03)**	.269(.03)**	(omitted)
a. Mexican	.998(.03)**	.748(.03)**	.510(.04)**	.287(.04)**	(omitted)
b. Central American	.953(.11)**	.530(.11)**	.287(.12) +	.148(.13)	(omitted)
c. Puerto Rican	.902(.25)**	.205(.20)	-.019(.22)	.280(.20)	(omitted)
d. South American	.929(.16)**	.997(.15)**	.767(.17)**	.343(.17) +	(omitted)
e. Other Latino	.875(.11)**	.495(.10)**	.409(.12)**	.264(.11) +	(omitted)
f. Multiethnic Latino	.614(.09)**	.530(.08)**	.371(.09)**	.175(.09)	(omitted)
4. Pacific Islander	.616(.30) +	.430(.25)	.014(.25)	1.093(.25)**	(omitted)
5. American Indian	.772(.19)**	.503(.17) *	.408(.19) +	.081(.19)	(omitted)
6. Asian	.837(.04)**	.415(.04)**	.392(.04)**	.224(.04)**	(omitted)
a. Chinese	.455(.07)**	.228(.06)**	.177(.07) +	.287(.07)**	(omitted)
b. Filipino	.684(.10)**	.095(.07)	.379(.07)**	.121(.07)	(omitted)
c. South Asian	.962(.16)**	.448(.11)**	.180(.10)	.220(.11) +	(omitted)
d. Japanese	.448(.17) *	.552(.13)**	.425(.13)*	.047(.11)	(omitted)
e. Korean	.614(.14)**	.538(.11)**	.454(.11)**	.303(.12) +	(omitted)
f. Vietnamese	.889(.10)**	.786(.11)**	.488(.12)**	.619(.13)**	(omitted)
g. Other Asian	.948(.13)**	.802(.15)**	.647(.18)**	.195(.15)	(omitted)
7. Other Race	.325(.30)	.350(.20)	.550(.23) +	.327(.24)	(omitted)
8. Multiracial	.791(.13)**	.611(.11)**	.336(.12) *	.187(.10)	(omitted)

<sup>1</sup>Adjusted for age and gender  
\*\*p<.001; \*p<.01; +p<.05

Table 3

Unstandardized OLS regression coefficients (and standard errors) for the association between race/ethnicity and self-rated ill-health, emotional distress, physical limitations, and chronic health conditions, CHIS, 2001

	Self-Rated Ill-Health		Emotional Distress		Physical Limitations		Chronic Health Conditions	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
1. Gender (Women)	.063 (.01)*	-.030 (.01)*	.516 (.04)*	.380 (.02)*	.451(.02)*	.241 (.02)*	.042 (.01)*	-.003 (.01)
2. Age	.013 (.00)*	.010 (.00)*	.003 (.00)*	-.002 (.00)+	.04 (.00)*	.033 (.00)*	.026 (.00)*	.024 (.00)*
3. White (omitted)								
4. Black	.387 (.02)*	.216 (.02)*	.361 (.04)*	.159 (.04)*	.498 (.04)*	.246 (.04)*	.276 (.02)*	.231 (.02)*
5. Latinos								
a. Mexican	.769 (.01)*	.321 (.00)*	.322 (.02)*	-.150 (.03)*	.339 (.03)*	-.252 (.03)*	-.036 (.01)*	-.151 (.01)*
b. Central American	.776 (.03)*	.328 (.03)*	.482 (.05)*	.003 (.05)	.336 (.06)*	-.241 (.06)*	-.090 (.02)*	-.200 (.02)*
c. Puerto Rican	.243 (.07)*	.094 (.07)	.334 (.14)+	.181 (.14)	.248 (.16)	.072 (.16)	.139 (.06)+	.108 (.06)
d. South American	.245 (.06)*	.116 (.06)+	.102 (.11)*	-.061 (.11)	.038 (.13)	-.131 (.12)	-.155 (.05)*	-.182 (.05)*
e. Other Latino	.311 (.04)*	.137 (.04)*	.303 (.07)*	.121 (.07)	.305 (.08)*	.083 (.08)	.104 (.03)*	.051 (.03)
f. Multiethnic Latino	.432 (.03)*	.159 (.03)*	.361 (.06)*	.070 (.06)	.458 (.06)*	.082 (.06)	.149 (.02)*	.071 (.02)+
6. Pacific Islander	.276 (.08)*	.122 (.07)	.330 (.15)+	.168 (.15)	.588 (.17)*	.396 (.16)+	.126 (.06)+	.089 (.06)
7. American Indian	.476 (.06)*	.251 (.05)*	.228 (.11)+	.073 (.11)	.600 (.12)*	.328 (.12)+	.359 (.04)*	.303 (.04)*
8. Asian								
a. Chinese	.284 (.02)*	.230 (.02)*	-.024 (.05)	-.103 (.05)+	-.316 (.05)*	-.418 (.05)*	-.237 (.02)*	-.256 (.02)*
b. Filipino	.133 (.03)*	.122 (.03)*	.075 (.05)	.033 (.05)	-.223 (.06)*	-.256 (.06)*	-.048 (.02)+	-.047 (.02)+
c. South Asian	-.160 (.04)*	-.025 (.04)	-.163 (.08)+	-.069 (.08)	-.130 (.09)	-.007 (.09)	-.177 (.03)*	-.146 (.03)*
d. Japanese	.031 (.04)	.051 (.04)	-.242 (.09)+	-.242 (.08)+	-.322 (.10)*	-.349 (.09)*	-.057 (.03)	-.063 (.03)
e. Korean	.370 (.04)*	.312 (.04)*	-.028 (.08)	-.148 (.08)	-.216 (.09)+	-.371 (.09)*	-.241 (.03)*	-.266 (.03)*
f. Vietnamese	.920 (.04)*	.604 (.04)*	.449 (.07)*	.085 (.07)	.444 (.08)*	-.016 (.08)	-.107 (.03)*	-.197 (.03)*
g. Other Asian	.418 (.05)*	.212 (.05)*	.378 (.10)*	.106 (.10)	.295 (.11)+	-.055 (.11)	-.128 (.04)*	-.193 (.04)*
9. Other Race	.057 (.08)*	-.011 (.08)	-.129 (.16)	-.214 (.15)	.042 (.18)	-.056 (.17)	-.003 (.06)	-.023 (.06)
10. Multiracial	.308 (.04)*	.206 (.03)*	.404 (.07)*	.299 (.07)*	.691 (.08)*	.563 (.08)*	.259 (.03)*	.233 (.03)*
11. Income (Poverty Levels)		-.123 (.00)*		-.170 (.01)*		-.176 (.01)*		-.022 (.00)*
12. Education		-.128 (.00)*		-.084 (.01)*		-.125 (.01)*		-.035 (.00)*
13. Employment (Employed)		-.228 (.01)*		-.403 (.02)*		-.798 (.02)*		-.187 (.01)*
Constant	1.597 (.02)	2.963(.02)	5.52 (.04)	7.17(.05)	3.02(.04)	5.40(.06)	-.530(.02)	-.034(.02)
R <sup>2</sup>	.107	.195	.023	.058	.103	.158	.252	.267

\*p<.001; +p<.05

Table 4  
Poverty Levels by Race/ethnicity and Nativity Status (Percentages Reported), CHIS 2001

Race/Ethnicity	N	Poverty (0-99 %)	Near Poverty (100-199%)	Moderate Income (200-299%)	High Income (300- 399%)	Very High Income (400%+)
1. White Native	38,818	5.9	14.2	13.8	18.7	47.4
1a. White Immigrant	2,565	8.1	15.5	12.5	17.4	46.6
2. Black Native	2,373	21.6	21.6	15.3	15.7	25.8
2a. Black Immigrant	125	9.5	20.4	30.3	10.4	29.5
3. Latino Native	5,104	18.0	23.2	17.1	17.9	23.8
3a. Latino Immigrant	6,736	40.3	35.5	12.4	6.9	4.9
4. Mexican Native	3,171	18.9	22.6	18.8	17.7	22.0
4a. Mex Immigrant	5,133	42.3	36.5	12.3	5.6	3.3
5. Cent Amer Native	106	19.3	33.9	9.2	19.6	18.0
5a. Cent Amer Immigrant	913	38.9	35.5	11.3	8.5	5.9
6. Puerto Rican Native	155	13.9	22.6	17.7	18.6	27.2
6a. Puerto Immigrant	25	5.3	31.5	8.2	28.8	26.2
7. South Amer Native	57	8.2	7.9	9.1	21.4	53.4
7a. South Amer Immigrant	218	20.6	27.0	19.3	13.5	19.6
8. Other Latino Native	601	13.5	23.0	12.7	16.8	34.0
8a. Other Latino Immigrant	187	25.2	20.8	10.3	19.0	24.8
9. Multi Latino Native	931	17.7	25.1	15.0	18.6	23.5
9a. Multi Latino Immigrant	224	27.5	28.6	15.6	15.7	12.6
10. Pacific Isle Native	145	10.4	15.8	24.1	23.0	26.7
10a. Pacific Isle Immigrant	44	14.3	33.0	17.3	12.5	22.9
11. Asian Native	879	8.4	14.2	15.3	17.3	44.8
11a. Asian Immigrant	3,772	14.9	19.7	15.0	14.5	35.8
12. Chinese Native	275	5.8	9.4	12.3	15.3	57.2
12a. Chinese Immigrant	952	15.9	20.0	11.7	11.4	40.9
13. Filipino Native	165	8.6	17.0	21.1	22.9	30.3
13a. Filipino Immigrant	666	6.2	22.2	19.8	20.4	31.4
14. South Asian Native	37	8.3	25.8	14.0	10.1	41.8
14a. South Asian Immigrant	344	4.3	7.5	15.2	12.0	61.0
15. Japanese Native	341	4.3	13.8	12.8	16.7	52.4
15a. Japanese Immigrant	127	12.6	13.8	12.0	15.4	46.1
16. Korean Native	73	20.9	19.8	16.2	4.0	39.1
16a. Korean Immigrant	716	10.3	21.9	17.4	14.5	35.8
17. Vietnamese Native	16	38.0	29.6	16.8	13.8	1.8
17a. Vietnamese Immigrant	805	32.8	23.1	13.7	12.0	18.4
18. Other Asian Native	58	15.7	7.5	8.2	25.9	42.7
18a. Other Asian Immigrant	223	29.6	20.1	11.5	15.1	23.7
19. Other Race Native	137	7.1	12.0	21.6	15.5	43.8
19a. Other Race Immigrant	44	10.6	39.0	7.0	7.5	36.0
20. Multiracial Native	1,990	10.9	17.9	14.6	20.7	35.9
20a. Multiracial Immigrant	114	6.3	27.6	16.0	18.2	31.9

Table 5  
Unstandardized OLS regressions coefficients for the association between immigrant status and self-rated  
ill-health and emotional distress, CHIS,2001. <sup>1</sup>

	Subjective Health		Emotional Distress	
	Model 1	Model 2	Model 1	Model 2
1. White Native (Omitted)				
1a. White Immigrant	-.049 (.02)+	-.018 (.02)	.085 (.04) +	.097 (.04)+
2. Black Native	.419 (.02)*	.249 (.02)*	.381 (.04)*	.169 (.04)*
2a. Black Immigrant	-.162 (.07)+	-.197 (.07)+	.188 (.14)	.119 (.14)
Latino				
3. Mexican Native	.412 (.02)*	.164 (.02)*	.155(.04)*	-.114 (.04)*
3a. Mex Immigrant	.925 (.01)*	.418 (.02)*	.409 (.03)*	-.161 (.03)*
4. Cent Amer Native	.518 (.08)*	.218 (.08)+	.263 (.16)	-.098 (.16)
4a. Cent Amer Imm.	.797 (.03)*	.357 (.03)*	.512 (.05)*	.018 (.05)
5. Puerto Rican Native	.282 (.08)*	.139 (.08)	.332 (.16)+	.171 (.16)
5a. Puerto Immigrant	-.003 (.19)	-.123 (.18)	.391 (.37)	.285 (.36)
6. South Amer Native	-.096 (.14)	-.045 (.13)	.000 (.27)	.032 (.26)
6a. South Amer Imm.	.311 (.06)*	.155 (.06)*	.131(.12)	-.071 (.12)
7. Other Latino Native	.344 (.04)*	.185 (.04)*	.325 (.09)*	.148 (.08)
7a. Other Latino Imm.	.213 (.07)+	.030 (.07)	.273 (.14)+	.077 (.13)
8. Multi Latino Native	.393 (.03)*	.150 (.03)*	.323 (.06)*	.050(.06)
8a. Multi Latino Imm.	.553 (.06)*	.228 (.06)*	.538 (.12)*	.173 (.12)
9. Pacific Isle Native	.248 (.09)+	.104 (.09)	.288 (.18)	.139 (.17)
9a. Pacific Isle Imm.	.328 (.14)+	.183 (.13)	.461(.28)	.265 (.28)
10. American Indian	.495 (.06)*	.276 (.05)*	.324 (.11)+	.103 (.11)
Asian				
11. Chinese Native	.124 (.06)+	.212 (.05)*	.127(.11)	.196 (.11)
11a. Chinese Imm	.313 (.03)*	.234 (.03)*	-.047(.05)	-.157 (.05)+
12. Filipino Native	.349 (.06)*	.244 (.05)*	.057(.11)	-.089 (.11)
12a. Filipino Imm	.072 (.03)+	.078 (.03)+	.088 (.06)	.075 (.06)
13. South Asian Native	-.285 (.13)+	-.449 (.13)*	-.252 (.26)	-.517 (.26)+
13a. South Asian Imm	-.152 (.04)*	.011 (.04)	-.146 (.09)	-.012 (.09)
14. Japanese Native	.022 (.05)	.064 (.05)	-.279 (.10)+	-.245 (.10)+
14a. Japanese Imm.	.047 (.09)	-.001 (.08)	-.100 (.17)	-.196 (.17)
15. Korean Native	.146 (.15)	-.024 (.11)	.349 (.23)	.098 (.23)
15a. Korean Imm.	.395 (.04)*	.356 (.04)*	-.072 (.09)	-.171 (.09)+
16. Vietnamese Native	1.157 (.17)*	.667 (.16)*	.584 (.33)	-.047 (.33)
16a. Vietnamese Imm.	.904 (.04)*	.611 (.04)*	.450 (.07)*	.097 (.07)
17. Other Asian Native	.190 (.11)	.148 (.10)	-.578 (.21)+	-.654 (.21)+
17a. Other Asian Imm.	.473 (.06)*	.235 (.05)*	.645 (.11)*	.320 (.11)+
18. Other Race Native	.095 (.10)	.062 (.09)	-.117 (.19)	-.158 (.19)
18a. Other Immigrant	-.032 (.14)	-.155 (.13)	-.133 (.27)	-.301 (.27)
19. Multiethnic Native	.296 (.04)*	.202 (.04)*	.421 (.08)*	.318 (.07)*
19a. Multi Immigrant	.376 (.12)*	.276 (.11)+	.315 (.23)	.190 (.23)
20. Poverty		-.117 (.00)*		-.170 (.01)*
21. Education		-.123 (.00)*		-.086 (.01)*
22. Employment		-.233 (.01)*		-.404 (.02)*
Constant	1.60 (.02)	2.93(.03)	5.52(.04)	7.18(.05)
R <sup>2</sup>	.119	.199	.025	.059

<sup>1</sup>Adjusted for age and gender

\* p<.001; + p<.05.

Table 6  
Unstandardized OLS Regression Coefficients for the Association between Immigrant Status and Physical Limitations and Chronic Conditions, CHIS 2001<sup>1</sup>

	<u>Physical Limitations</u>		<u>Chronic Conditions</u>	
	Model 1	Model 2	Model 1	Model 2
1. White Native (Omitted)				
1a. White Immigrant	-.265 (.05)*	-.243 (.05)*	-.159 (.02)*	-.150 (.02)*
2. Black Native	.519 (.04)*	.245 (.04)*	.294 (.02)*	.238 (.02)*
2a. Black Immigrant	-.160 (.16)	-.211 (.15)	-.203 (.06)	-.205 (.06)*
3. Mexican Native	.300 (.04)*	-.053 (.04)	.079 (.01)*	-.000 (.01)
3a. Mex Immigrant	.327 (.03)*	-.407(.03)*	-.106 (.01)*	-.264 (.01)*
4. Cent Amer Native	.685 (.18)*	.192 (.18)	-.008 (.07)	-.114 (.06)
4a. Cent Amer Immigrant	.277 (.06)*	-.335 (.06)*	-.113 (.02) *	-.243 (.02)*
5. Puerto Rican Native	.239 (.18)	.042 (.17)	.053 (.06)	.013 (.06)
5a. Puerto Immigrant	.156 (.41)	.049 (.40)	.540 (.15)*	.516 (.15)*
6. South Amer Native	-.275 (.30)	-.246 (.29)	.059 (.11)	.067 (.11)
6a. South Amer Immigrant	.079 (.14)	-.142 (.13)	-.216 (.05)*	-.258 (.05)*
7. Other Latino Native	.341 (.10)*	.099 (.09)	.125 (.03) *	.070 (.03)+
7a. Other Latino Immigrant	.136 (.15)	-.064 (.15)	.001 (.05)	-.067 (.05)
8. Multi Latino Native	.411 (.07)*	.039 (.07)	.186 (.03)*	.103 (.03)*
8a. Multi Latino Immigrant	.534 (.13)*	.088 (.13)	-.046 (.05)	-.151 (.05)*
9. Pacific Isle Native	.309 (.20)	.118 (.19)	.180 (.07)+	.137 (.07)+
9a. Pacific Isle Immigrant	1.20 (.31)*	.982 (.30)*	-.053 (.11)	-.094 (.11)
10. American Indian	.622 (.12)*	.333 (.12)+	.360 (.04)*	.294 (.04)*
11. Chinese Native	-.268 (.12)+	-.185 (.12)	-.106 (.04)+	-.085 (.04)+
11a. Chinese Immigrant	-.353 (.06)*	-.497 (.06)*	-.281 (.02)*	-.310 (.02)*
12. Filipino Native	.097 (.12)	-.124 (.12)	.042 (.04)	-.005 (.04)
12a. Filipino Immigrant	-.332 (.06)*	-.320 (.06)*	-.087 (.02)*	-.077 (.02)*
13. South Asian Native	.049 (.29)	-.398 (.28)	-.028 (.11)	-.125 (.10)
13a. South Asian Immigrant	-.172 (.10)	.019 (.09)	-.207 (.03)*	-.157 (.03)*
14. Japanese Native	-.288 (.11)+	-.256 (.11)+	-.020 (.04)	-.012 (.04)
14a. Japanese Immigrant	-.522 (.19)+	-.711 (.19)*	-.225 (.07)*	-.261 (.07)*
15. Korean Native	-.220 (.26)	-.603 (.25)+	-.122 (.09)	-.203 (.09)+
15a. Korean Immigrant	-.240 (.10)+	-.365 (.09)*	-.272 (.03)*	-.291 (.03)*
16. Vietnamese Native	.433 (.37)	-.466 (.36)	.127 (.13)	-.066 (.13)
16a. Vietnamese Immigrant	.422 (.08)*	-.032 (.08)	-.132 (.03)*	-.229 (.03)*
17. Other Asian Native	-.357 (.24)	-.471 (.23)+	-.168 (.09)+	-.191 (.08)+
17a. Other Asian Immigrant	.447 (.12)*	.023 (.12)	-.132 (.04)+	-.218 (.04)*
18. Other Native	-.085 (.21)	-.151 (.21)	.128 (.08)	.115 (.08)
18a. Other Immigrant	.246 (.31)	.073 (.30)	-.302(.11)+	-.342 (.11)*
19. Multiethnic Native	.773 (.08)*	.645 (.081)*	.275 (.03)*	.246 (.03)*
19a. Multi Immigrant	-.333 (.26)	-.501 (.247)+	-.036 (.09)	-.071 (.10)
20. Poverty		-.187 (.008)*		-.031 (.00)*
21. Education		-.129 (.008)*		-.038 (.00)*
22. Employment		-.790 (.022)*		-.179 (.01)*
Constant	3.04 (.14)	5.46(.06)	-.521(.02)	.012(.021)
R <sup>2</sup>	.105	.161	.257	.274

<sup>1</sup>Adjusted for age and gender

\*p<.001; + p<.05.

TABLE 7

Unstandardized OLS regression coefficients (and standard errors) for the association between length of residence in the U.S. and self-rated Ill-Health, Emotional Distress, Physical Limitations, and Chronic Conditions for Mexican and Central Americans, CHIS 2001<sup>1</sup>

	Self-Rated Ill-Health		Emotional Distress		Physical Limitations		Chronic Conditions	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
<b>MEXICANS</b>								
1. Mexican								
a. US born(omitted)								
b. <1 year US	.563(.06)*	.199(.06)+	.683(.14)*	.275(.12)	.288(.14)+	-.104(.14)	-.115(.04)+	-.163(.05)*
c. 2-4 year US	.673(.04)*	.332(.04)*	.374(.09)*	-.021(.10)	.160(.09)	-.235(.09)+	-.125(.03)*	-.188(.03)*
d. 5-9 years US	.624(.03)*	.277(.03)*	.301(.07)*	-.118(.08)	.175(.07)+	-.264(.07)*	-.174(.02)*	-.238(.02)*
e. 10-14 years	.563(.03)*	.248(.03)*	.324(.06)*	-.003(.06)	.007(.06)	-.312(.06)*	-.210(.02)*	-.263(.02)*
f. 15+ years	.393(.02)*	.146(.02)*	.130(.05)+	-.137(.06)+	-.075(.05)	-.304(.05)*	-.190(.02)*	-.226(.02)*
2. Poverty		-.138(.01)*		-.176(.02)*		-.166(.02)*		-.018(.01)+
3. Education		-.138(.01)*		-.107(.02)*		-.080(.02)*		-.022(.01)*
4. Employment		-.154(.02)*		-.412(.05)*		-.745(.05)*		-.130(.02)*
Constant	1.82(.04)*	2.91(.05)*	5.12(.09)*	6.63(.12)*	3.61(.08)*	5.47(.12)*	-.645(.03)	-.328(.04)
R <sup>2</sup>	.102	.171	.031	.055	.068	.110	.276	.281
<b>CENTRAL AMERICANS</b>								
1. Central Americans								
a. US born(omitted)								
b. <1 year US	.485(.18)+	.235(.18)	.928(.42)+	.683(.42)	-.101(.36)	-.433(.35)	-.219(.11)+	-.254(.11)+
c. 2-4 year US	.703(.13)*	.320(.13)+	.822(.31)+	.400(.32)	.662(.26)+	.160(.27)	-.116(.08)	-.160(.08)
d. 5-9 years US	.243(.11)*	-.025(.11)	.069(.27)	-.151(.27)	.009(.23)	-.274(.23)	.091(.08)	.087(.07)
e. 10-14 years	.092(.10)	-.059(.10)	-.145(.24)	-.272(.24)	-.702(.20)*	-.850(.20)*	-.182(.06)+	-.151(.06)+
f. 15+ years	.010(.10)	-.035(.10)	-.037(.23)	-.040(.23)	-.650(.20)*	-.661(.20)*	-.079(.06)	-.043(.06)
2. Poverty		-.245(.03)*		-.158(.06)+		-.241(.05)*		-.037(.02)+
3. Education		-.170(.02)*		-.109(.06)		-.087(.05)		.013(.01)
4. Employment		-.212(.06)*		-.348(.14)+		-.377(.20)+		-.195(.04)+
Constant	1.66(.12)*	2.93(.15)*	5.00(.28)*	6.34(.37)	3.18(.23)*	4.78(.31)*	-.598(.07)	-.272(.10)*
R <sup>2</sup>	.084	.172	.044	.057	.104	.132	.197	.209

<sup>1</sup> Adjusted for age and gender

\*p<.001; + p<.05.

TABLE 8

Unstandardized OLS regression coefficients (and standard errors) for the association between length of residence in the U.S. and self-rated Ill-Health, Emotional Distress, Physical Limitations, and Chronic Conditions for Chinese and Filipinos, CHIS 2001<sup>1</sup>

	Self-Rated Ill-Health		Emotional Distress		Physical Limitations		Chronic Conditions	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
<b>CHINESE</b>								
1. Chinese								
a. US born(omitted)								
b. <1 year US	.415(.12)*	.337(.13)+	-.354(.25)	-.543(.25)+	-.314(.23)	-.524(.24)+	-.265(.08)*	-.349(.08)*
c. 2-4 year US	.205(.09)+	.110(.09)	-.043(.19)	-.234(.19)	.269(.17)	.080(.18)	-.124(.06)+	-.181(.06)+
d. 5-9 years US	.435(.08)*	.351(.09)*	.263(.17)	.133(.17)	.026(.16)	-.080(.16)	-.189(.05)*	-.198(.05)*
e. 10-14 years	.183(.08)+	.133(.08)	-.128(.15)	-.201(.15)	-.041(.14)	-.098(.14)	-.127(.05)+	-.129(.05)+
f. 15+ years	-.024(.07)	-.034(.07)	-.256(.13)	-.253(.13)	-.217(.12)	-.197(.12)	-.104(.04)+	-.086(.04)+
2. Poverty		-.058(.02)*		-.066(.04)		-.052(.03)		.001(.01)
3. Education		-.025(.02)		-.044(.03)		-.032(.03)		.005(.01)
4. Employment		-.067(.05)		-.296(.11)+		-.377(.10)*		-.198(.03)*
Constant	1.29(.10)*	1.84(.15)*	5.96(.21)*	6.96(.30)*	2.63(.19)*	3.6(.28)*	-.355(.07)*	-.124(.09)
R <sup>2</sup>	.120	.132	.015	.025	.139	.150	.232	.246
<b>FILIPINOS</b>								
1. Filipinos								
a. US born(omitted)								
b. <1 year US	-.624(.15)*	-.700(.14)*	-.551(.30)	-.793(.30)+	.774(.30)+	.608(.28)+	-.069(.11)	-.132(.11)
c. 2-4 year US	-.574(.11)*	-.447(.11)*	.169(.23)	.302(.23)	-.438(.23)	-.207(.22)	-.314(.09)*	-.262(.09)+
d. 5-9 years US	-.406(.10)*	-.412(.10)*	-.368(.19)	-.412(.19)+	-.177(.19)	-.171(.18)	-.272(.07)*	-.277(.07)*
e. 10-14 years	-.294(.09)*	-.185(.09)+	-.071(.18)	.106(.18)	-.746(.18)*	-.484(.17)+	-.104(.07)	-.039(.07)
f. 15+ years	-.334(.07)*	-.213(.07)+	-.221(.15)	-.002(.15)	-.378(.14)+	-.130(.14)	-.288(.06)*	-.218(.06)*
2. Poverty		-.056(.02)+		-.156(.04)*		-.059(.04)		-.033(.02)+
3. Education		-.136(.02)*		-.119(.04)		-.203(.04)*		-.039(.01)+
4. Employment		-.162(.058)+		-.457(.120)*		-.606(.114)		-.169(.045)*
Constant	2.02(.10)*	2.85(.13)*	5.57(.20)*	7.01(.26)*	3.71(.19)*	5.16(.25)*	-.509(.08)*	-.093(.10)*
R <sup>2</sup>	.090	.151	.023	.062	.123	.174	.348	.365

<sup>1</sup> Adjusted for age and gender

\*p<.001; + p<.05.

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