Introduction

Hispanics are said to have better than expected health and mortality outcomes given their lower SES (Cho et al, 2004; Elo et al. 2004). This phenomenon is called the "Hispanic Paradox" (Adler, Boyce, Chesney et al., 1994). However, researchers have argued recently that the paradox may not be so paradoxical when a population is heavily weighted with immigrants (Jasso et al. 2004; Palloni and Arias, 2004). Some studies have provided evidence of "healthy migrants" as an explanation for better than expected health outcomes (Sorlie et al., 1993).

To address questions on whether Hispanics have levels of health similar to those of non-Hispanic Whites and how immigration affects health status within the Hispanic population, this paper uses 10 indicators of measured physiological status as indicators of three dimensions of risk: cardiovascular, metabolic, and inflammatory. These 10 indicators have been related to subsequent disease onset, functioning loss, and mortality. Measured biological risk provides a more objective indicator of health status than self-reports of health that may be more influenced by cultural differences in reporting or differences in knowledge gleaned from interaction with the medical care system (Crimmins & Seeman, 2004; Seeman et al., 2004).

Methods

Data

Data are taken from the National Health and Nutrition Examination Surveys (NHANES) IV, cross-sectional studies of the civilian, noninstitutionalized population of the U.S. conducted by the National Center for Health Statistics, Centers for Disease Control (NCHS/CDC). NHANES includes survey data, laboratory analysis, and clinical exams for a representative sample of the U.S. noninstitutionalized population. This study uses 10,002 people ages 20 and over from the NHANES IV data during the 1999-2002 period. Because of the sampling design, the Hispanic population in NHANES is primarily a Mexican American population, so our results best reflect the Hispanic population of Mexican American origin.

Measures

Measures of health are based on clinical definitions of risk, with values outside the normal operating range defined as risk. Summary indicators of measured biological risk are developed based on individual values of the 10 indicators. These include three indicators of cardiovascular health (systolic and diastolic blood pressure and pulse); four indicators of metabolic risk (total cholesterol, glycated hemoglobin, body mass index, and HDL cholesterol); and three indicators of inflammation (fibrinogen, albumin, and C-reactive protein).

Analysis

Descriptive statistics are used to observe the mean level of biological risk by age across race, ethnicity, and nativity groups. Regressions predicting continuous biological risk by age, race, ethnicity, and nativity provide basic results. Explanatory variables including information on socioeconomic conditions and use of health care are added.

Results

When biological risk is the indicator of health – the Hispanic population appears to have a level between non-Hispanic whites and Blacks (Table 1). This is also true for the total measure of biological risk as well as each of the subcomponents (Table 1). Thus, there appears to be a fairly clear gradient in physiological status of the three ethnic groups in all three components.

Because the Hispanic population is a highly immigrant population, the health status is likely to be affected by the selectivity of immigrants on health. Comparison of biological risk at each age among Hispanics who are native-born and those who are foreign-born confirms that biological risk is lower among the foreign-born in spite of the fact that this is a markedly lower SES population (Figure 1).

A series of regressions of total, cardiovascular, metabolic, and inflammatory risk on age and U.S.-born versus foreign-born indicates that the higher level of biological risk for native-born Hispanics comes from higher metabolic risk (Table 2).

Summary

These results do not seem to pose a paradox, but indicate that the Hispanic population has higher biological risk than the non-Hispanic white population but lower risk than the black population. They also clarify that nativity is related to health status and native-born Hispanics appear to have worse health than foreign-born because of higher metabolic risk. The native-born Hispanic population has levels of biological risk similar to those in the black population.

Table 1: Total Biological Risk and Subcomponents of Risk by Ethnicity

	Total Biological Risk	Cardiovascular Risk	Metabolic Risk	Inflammation Risk
White	1.34	0.33	0.51	0.51
Hispanic	1.49	0.36	0.59	0.56
Black	1.70	0.47	0.65	0.61

Figure 1: Mean Biological Risk by Hispanic Origin

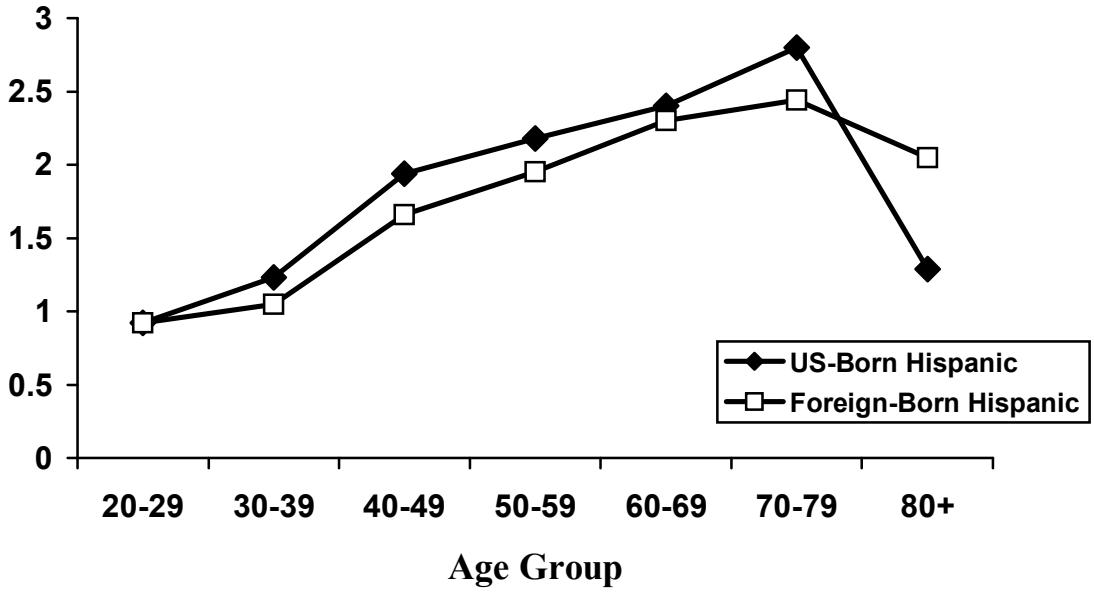

Table 2: Parameter Estimates from Regression of the Number of Biological Risk Factors for US born relative to foreign-born Hispanics

	Total	Cardiovascular	Metabolic	Inflammation
Age	0.03527****	0.01300****	0.01046****	0.01355****
US-Born Hispanic[1]	0.14859*	0.05003	0.18772****	-0.00872

[1]Compared to foreign-born Hispanic

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