**Junk Food Nation: the Effect of U.S. Exposure on Cardiovascular Mortality Risk**

**among Older Mexicans**

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**ABSTRACT**

While many theories attempt to explicate the epidemiological paradox, little empirical research exists to substantiate one theory over the other. This paper examines the prevalence of risk factors for cardiovascular disease among older Mexicans in the U.S. and Mexico using the Health and Retirement Survey and the Mexican Health and Aging Survey. Preliminary results demonstrate that the U.S. and Mexican samples differ significantly on health behaviors and cardiac risk indicators. U.S. born Mexicans and Mexicans who migrated to the U.S. and live there have higher proportions of those currently smoking, currently drinking, and those who are obese, as well as high proportions who suffered diabetes, heart attacks, and strokes, than those living in Mexico. However, health behaviors and health conditions apparently do not vary by exposure to the US in either the US or Mexican sample. The implications of these findings for existing theoretical explanations of the epidemiological paradox are discussed.

**INTRODUCTION**

The superior health of Mexican Americans—particularly among recent migrants—is often noted but rarely understood (Markides and Coreil 1986). Despite a high prevalence of poverty and suboptimal living circumstances, Mexican Americans are consistently better health and mortality outcomes than other racial and ethnic groups in similar socioeconomic conditions, leading researchers to label this phenomenon the "epidemiological paradox" (e.g., Guendelman 1998, Markides and Coreil 1986, Scribner 1996, Council on Scientific Affairs 1991, Liao, Cooper, Cao, Durazo-Arvizu, Kaufman, Luke, and McGee 1998).

In particular, Mexican Americans have demonstrated unusually lower rates of cardiac disease and mortality compared to other racial and ethnic groups (Swenson, Trepka, Rewers, Scarbro, Hiatt, Hamman 2002, Winkleby, Kraemer, Ahn, and Varady 1998, Wild, Laws, Fortmann, Varady, and Byrne 1995). Mexican Americans, however, have higher rates of diabetes, obesity, and hypertension, thus augmenting to the enigmatic lack of effect of social and environmental risks (Mendelson, Aronow, and Ahn 1998). Yet, as it is in the United States, cardiovascular disease is the number one cause of mortality in Mexico (Martínez and Leal 2003, National Center on Health Statistics 2003).

While many theories attempt to explicate this paradox, little empirical research exists to substantiate one theory over the other. Recent advances in data collection and availability allow researchers to shed further light on the factors contributing to the Mexican Americans salubrity with the use of bi-national data sets. The intent of this

paper is to examine the cardiovascular health of older Mexicans in the United States and Mexico, in order to answer the following two questions:

1. How does the prevalence of risk factors for cardiovascular disease differ among Mexicans in Mexico versus Mexicans in the United States?

2. Are these differences conditioned by exposure to the United States for either population?

**PREVIOUS LITERATURE**

**The Mexican American Epidemiological Paradox**

Empirical evidence has established a "paradox" in which despite their lack of financial and social resources Mexican Americans demonstrate lower risk for certain types of illnesses than their Anglo American counterparts (Markides and Coreil 1986; Wild, Laws, Fortmann, Varady, and Byrne 1995; Sorlie, Backlund, Johnson, and Rogot 1993). Three major theses exist to account for this paradox. First, some research point to the selection effect of migration to explain health disparities between migrant and U.S. born populations, therefore individuals who migrate are said to be more physically and psychologically healthy (Landale, Oropresa and Gorman 2000; Brimblecombe, Dorling and Shaw 1999).

Second, many believe that the superior health and mortality status of Mexican Americans in the United States can be explained by culture (Winkleby, Kraemer, Ahn, and Varady 1998; Espino and Maldonado 1990; Black and Markides 1993). Some argue that Mexican Americans are protected by health promoting behaviors and beliefs maintained by their culture of origin. However, others believe that exposure to

discrimination and American culture explains health status decline among this group (Finch, Hummer, Kolody, and Vega 2001).

Finally, and most recently, the"salmon bias" explains the paradox as a result of return migration and unhealthy Mexicans in the United States return to Mexico (Palloni and Arias 2003; Abraído, Dohrenwend, Ng-Mak, and Turner 1999). Return migration would therefore lead to an undercount of illness and mortality among Mexican Americans. Limited research has explored this perspective; however some preliminary results present weak evidence in support of this theory (Abraído, Dohrenwend, Ng-Mak, and Turner 1999).

**Racial/Ethnic Differences in Cardiovascular Illness Risk**

Generally, poor health is said to be linked to inadequate socioeconomic circumstances. Life in impoverished environments is characteristic of poor nutrition, sanitation, and access to healthcare providers. Although financial status has been associated to risk factors and conditions such as obesity, smoking, diabetes, hypertension, and physical inactivity (Mendelson, Aronow, and Ahn 1998; Berber, Gómez-Santos, Fanghanel, and Sánchez-Reyes 2001), it has not been found to increase Mexican Americans' risk for cardiovascular disease (Winkleby, Kraemer, Ahn, and Varady 1998). In fact, in a comparison between Mexican Americans and whites with diabetes, whites were significantly more likely to have cardiovascular and cardiac disease than Mexican Americans (Swenson, Trepka, Rewers, Scarbro, Hiatt, and Hamman 2002).

*Selection effects*

One of the most popular explanations for the "epidemiological paradox" is that newly arrived Mexican immigrants are more healthy because the selectivity of migration favors better health (Palloni and Morenoff 2001). People who are unhealthy simply do not migrate. Confirmation of the selection effect in migrants has been with not only Mexicans but other place of origin groups (Hummer et. al 1999).

Specifically, with respect to cardiac health, Mexican Americans are said to also benefit from migration selection or genetic predetermination from cardiac health and illness (Tortolero, Goff, Nichaman, Labarthe, Grunbaum, and Hanis 1997; Wei, Valdez, Mitchell, Haffner, Stern, and Hazuda 1996; Mitchell, et al. 1996). These findings are further supported by The San Antonio Heart Study (Mitchell, Stern, Haffner, Hazuda, and Patterson 1990). In comparing U.S. born to Mexican born Mexican Americans, this study found statistically significant differences from whites—but not between the two groups—in cardiovascular mortality risks.

One way to disentangle the effects of selection on migrant health is to compare the US residing population to comparable groups in the place of origin (Landale, Oropresa and Gorman 2000). Mexicans who were left behind in Mexico should have poorer cardiac health that those who migrated. Furthermore Mexican migrants in the United States should have better cardiovascular profiles than US born Mexicans. Until this point comparisons of groups on both sides of the border have been limited and none have attempted to address the selection effect hypothesis on cardiacvascular health.

**Culture and Acculturation**

From a cultural perspective, cardiovascular health can be attributed to an adoption of cultural norms set in this country with an emphasis on fast food and convenience. One example is the increased propensity US born Mexican Americans and longer stay immigrants have in smoking cigarettes or drinking alcohol (Lee and Markides 1991). The more Mexican Americans adopt these deleterious behaviors, the more likely they are to suffer physical and psychological consequences (Espino and Maldonado 1990; Black and Markides 1993; Markides and Black 1996; Cho et. al. forthcoming) as demonstrated by the association of levels of acculturation to the United States with hypertension controlling for both age and poverty for Mexican Americans (Espino and Maldonado 1990). Little is know as to how cultural effects may operate among Mexicans in the United States compared to those residing in Mexico. If level of acculturation to the United States has an effect on cardiovascular health then we can expect US born Mexicans to differ from migrants from Mexico and from Mexicans who have never came to the United States.

**The Salmon Bias Effect**

As skepticism towards the paradox to Mexican American mortality and morbidity risk has risen (Palloni and Arias 2003; Pandey, Labarthe, Goff, Chan, Nichaman 2001; Palloni and Morenoff 2001), some researchers have developed an alternative explanation to this phenomenon, now termed the "salmon bias" effect (Abraído et al. 1999). This perspective suggests that part of the health advantage the Mexican American population has is explained by the return migration of sick Mexican immigrants to Mexico. However, Abraído et al. (1999) found return migration did not account for the health advantage for Latinos in the United States. Furthermore, using

the Mexican Health and Aging (MHAS) survey, Palloni and Arias (2003) found only a weak association between returning to Mexico from the United States and self reported health and mortality.

**Bi-national Comparisons of Cardiovascular Health**

Increased efforts towards bi-national investigations of mortality and morbidity risk in Hispanics have been due primarily to the availability of comparable international datasets (e.g., Weeks, Rumbaut, and Ojeda 1999). This availability has been particularly useful in trying to understand the "epidemiological paradox." Attempts have been made to look at similar health variables in Mexico and the United States to determine what the true differences in health status are (Vega, Kolody, Aguilar-Gaxiola, Alderete, Catalano, and Caraveo-Anduaga 1998; Weeks et al. 1999; Palloni and Arias 2003).

In respect to cardiovascular health, Mexicans living in Mexico have been observed to have similarly high rates of diabetes and untreated hypertension as those living in the United States (Rodríguez-Saldaña, Morley, Reynoso, Medina, Salazar, Cruz, and Torres 2002; Gonzalez-Villalpando, Stern, Haffner, Gonzalez Villapando, Gaskill, and Rivera Martinez 1999; García-Peña, Thorogood, Reyes, Salmerón-Castro, Durán 2000). Yet in bi-national comparisons, Mexicans living in Mexico have been found to have lower risk of heart attack (Mitchell, González Villalpando, Arredondo Pérez, Seoane García, Valdez, and Stern 1995) and lower levels of HDL cholesterol and lower fat content diets (Haffner, González, Miettinen, Howard, and Stern 1995). It is evident that differences exist between Mexico and the United States with respect to cardiovascular health; however what yet to be determined is if this is due to acculturation or selection.

**HYPOTHESES**

The limitations in the past literature with respect to testing the epidemiological paradox specifically in cardiac illness have been due primarily to limitations in types of data sources. Most past studies have had to rely on information from clinical setting or non-nationally represented samples. The current study will extend the literature by using nationally representative data sources from both the United States and Mexico to investigate a specific health and mortality outcome; cardiovascular health. Moreover, this study will examine each of the previously proposed explanations for the "epidemiological paradox" to determine which has the most empirical viability.

**Hypothesis #1 Selection**

Newly arriving immigrants have been demonstrated to have better physical and mental health than their long-term U.S. residing counterparts (Vega, Kolody, Aguilar-Gaxiola, Alderete, Catalano, and Caraveo-Anduaga 1998; Cho, Frisbie, Hummer, and Rogers (forthcoming)). If selectivity is the driving force behind previously noted health differentials than those with migration histories will have lower cardiovascular risk than non-migrants living in the United States and Mexico.

**Hypothesis #2 Acculturation**

Previous findings suggest that duration of stay in the United States has a negative result on immigrant health due to the effects of acculturation (Finch, et. al. 2001; Vega, Alderete, Kolody, and Aguilar-Gaxiola. 1998). The more Mexican Americans adopt or ascribe to the lifestyle of the United States, the more likely they will be to suffer deleterious health effects. If the acculturation hypothesis is true than we can

expect that U.S. born Mexicans and immigrants from Mexico living in the United States will have higher cardiovascular risk than their Mexico-residing counterparts.

**DATA AND METHODS**

This paper makes use of the Mexican Health and Aging Survey and the Health and Retirement Survey. The Mexican Health and Aging Survey, the counterpart to the Health and Retirement Survey, is a nationally representative panel survey of Mexicans aged 50 and over in 2000 and their spouses (n=15,186). Respondents and their spouses answered questions regarding their demographic, health, family, and economic conditions, among other topics. The MHAS is particularly well-suited to study the effects of migration on health because six states—which combined account for 40 percent of U.S. migrants' origin—were over-sampled at a rate of nearly 2:1 (MHAS website). The HRS is a longitudinal survey of a nationally representative sample of those ages 51 to 61 in 1992 (n=12,521). The HRS sampling frame includes over-samples of African-Americans, Hispanics, and residents of Florida. Follow-up surveys were conducted every two years after the initial survey (1994, 1996, 1998, 2000 and 2002).

In 1998 (wave 4), the HRS added two sub-samples of respondents—the War Babies sub-sample, who were born between 1942 and 1947, and the Children of the Depression sub-sample, who were born between 1924 and 1930. Wave 4 was also the first time respondents were asked detailed questions regarding their international migration behavior, in addition to the questions on demographics, health, and family conditions asked in previous years (HRS website). For these two reasons, we use wave 4 of the HRS in our analysis. For the purposes of this study, we limit our analysis

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to those aged 50 and over at the time of the survey in an attempt to control for the non-random selection of respondent's spouses, and to roughly equalize the age distributions of both samples.

## *Cardiovascular Variables*

We chose as our cardiac health indicators as follows; history of having a stroke or heart problems and two known associated risk factors for cardiovascular disease diabetes and hypertension. Whether the respondent has had a stroke, or has diabetes, heart problems, or hypertension is an indication of cardiac mortality health (yes=1, for each health indicator). The preceding variables have all been identified in the mortality literature as risk factors for death attributable to cardiovascular problems (National Center for Health Statistics 2000).

## *Health Behaviors*

Respondents' health behaviors are measured by smoking, alcohol use, and BMI. These measures were chosen due to significance in past literature as evidence of acculturation in Mexicans in the United States (Lee and Markides 1991; Dawson 1998; Popkin and Udry 1998) and their association with cardiovascular illness. Current smoking behavior was measured by four categories (never smoked=1, former/infrequent smoker=2, currently smokes a pack a day or less=3, currently smokes a pack a day or more=4). "Former/infrequent smokers" included those who in the past regularly smoke but at the time of the survey had quit. Current drinking behavior was also measured by four categories (never drank=1, not currently drinking=2, sporadic drinkers=3 and regular drinkers=4). "Sporadic drinkers" were those who do drink, but in the three months preceding the survey didn't drink or drank less than once a week.

"Regular drinkers" were those who, on average in the three months preceding the survey, drank on one or more days a week. BMI was calculated by creating a ratio of subjects' self-reported weight to their height. BMI estimated in were calculated for each country in the respective measurement system.  Respondents' BMI is divided into five categories—underweight (BMI <19), normal weight (19<BMI<25), overweight (24<BMI<30), obese (29<BMI<40), and severely obese (BMI>39).

### Demographics

Gender (female=1), age, and years of education were utilized as standard demographic variables. Estimated means for age and years of education will be presented in the results.   Income will not be used due to inability to make adequate comparison between countries.

### Nativity

Our primary independent variable of interest is exposure to the U.S., ranging from never being in the United States to those who were U.S. born. Respondents were divided into the following five groups:  U.S. born Mexicans living in the U.S., Mexican migrants living in the U.S., Mexicans who have spent more than 10 years in the U.S. and are currently living in Mexico, Mexicans who have spent less than 10 years in the U.S., and Mexicans who have never been to the U.S.

### RESULTS

Previous research has noted that the effect the "protective" culture of Mexican immigrants has on health status diminishes with increased time in the U.S. (for example, Finch, Hummer, Kolody and Vega 2001).  Since most of the Mexican migrants living in the U.S. had migrated 10 years ago or earlier, empirically we were not able to

divide this category into recent migrants and later migrants. However long they have been in the U.S., arguably the HRS sample of Mexican immigrants is still strongly tied to their culture of origin, as evidenced by the high proportion of this group that chose to be interviewed in Spanish (especially in light of the frequent use of language preference as a measure of acculturation).

Table 1 provides descriptive statistics for our variables of interest by respondent's exposure to the U.S. While there is little difference within Mexicans in the U.S and those in Mexico, Mexicans in Mexico tend to be slightly older and more predominately female. U.S. born whites and Mexicans are by far the most educated group with means of 12.91 and 9.5 years of schooling respectively; the average level of education for the other four groups is about 5 years.

Differences in marital status between the groups are not as apparent as differences in other demographic measures. Those residing in the U.S. who are Mexican born are most likely to be married, followed closely by whites; although the percentage of U.S. born Mexicans who are married is also substantially higher than that of Mexicans in Mexico. Additionally, the percentage of Mexicans divorced, separated or widowed in Mexico is overall higher than in the HRS sample. Finally, respondents interviewed in the United States had the option of conducting the interview either in English or Spanish. While almost a quarter of U.S born Mexicans chose to be interviewed in Spanish, more than four-fifths of Mexican born respondents chose the same.

Turning our attention to Table 2 and the selection hypothesis, with the exception of hypertension, migrants do not appear to be less at risk for the tested cardiovascular

conditions. In fact longer exposure to the United States appears to reduce the risk of hypertension regardless of migration status. These results are contrary to the Espino and Maldonado (1990) results, however this study does control for demographic or aspects of acculturation such as language use as the previous study did. Furthermore, Mexicans living in the United States in fact are at greater risk of diabetes than all Mexicans living in Mexico regardless of nativity status which is counter to the selection hypothesis. With respect to previously having a heart attack, proportions increase with each category of nativity with whites having the greatest amount of affirmative reports. Mexican born living in the United States have a slightly smaller proportion of reported heart attacks than US born Mexicans. Although the short term (less than 10 years in the US) have a slightly proportion of reported heart attacks, Mexicans living in Mexico who spent more than 10 years in the United States are somewhat at greater risk. Chi square and gamma values are most significant for heart attack and indicate that with less exposure to the United States, Mexicans have a lower propensity to report having a heart attack previously. Finally, self reports of previous strokes do not support the selection effect hypothesis. The group with the smallest percentage of those reporting strokes in the past is the Mexicans who have never migrated to the United States which may be more support for the acculturation argument. The point of division for all cardiovascular health and illness groups overall appears to be along the line of country of residence rather than migration activity.

In order to test the acculturation hypothesis, Chi-square statistics were computed for differences in health conditions and health behaviors by exposure to U.S. (see Tables 2 and 3). The differences for cardiovascular condition have been described in

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the context of the selection hypothesis, however, drawing our attention to Table 3 the most striking difference exists in smoking behaviors. Mexico residing Mexicans overall are significantly more likely to never smoke. On the other hand, US residing Mexicans and whites have a greater proportion of respondents who previously smoked but have quit. Chi-square and gamma values indicate highly significant results suggesting that residents in Mexico are less likely to smoke in any capacity than US residing whites and Mexicans.

With respect to alcohol consumption we also observe similar patterns as with smoking behaviors (see Table 3). Mexicans living in Mexico regardless of US exposure have a greater proportion of respondents who have never drunk alcohol. Furthermore whites and US born Mexicans are more likely to drink on a regular basis. Results continue to be highly significant as demonstrated by chi square and gamma values suggesting that the lower the exposure to the United States the less likely respondents are to use alcohol at any level. Finally BMI results for all groups yield comparable trends for the obese and extremely obese categories. Those residing in the United States regardless of nativity have greater proportions of individuals that are obese or extremely obese that the Mexicans in Mexico. These results are statistically significant as reflected by Chi square and gamma results.

These findings concur with our hypothesis regarding acculturation's effects on health. At this point of the analysis we find little support for the selection effect of migration on health status; although the percentages of those participating in deleterious health behaviors and those exhibiting signs of cardiac health differ slightly

between U.S. born Mexicans and Mexican born living in the U.S., these differences are not as stark as those between those residing in the U.S. and those residing in Mexico.

Before proceeding we should note the weakness in using chi-square statistics—it is a statistic proportional to sample size. Thus, since an overwhelming number of respondents in the sample had no history of migration to the U.S., their outcomes weigh more heavily on chi-square values for our descriptive statistics. Clearly then, multivariate analysis is needed to correct this problem however due to limitations in the data this was not possible for this study.

**DISCUSSION**

This analysis was the first of its kind to test the effects of selection and acculturation on cardiovascular health using national representative data. The results of this study yielded mixed support for these long standing hypotheses of migrant health advantage. Our results did not support the selection effect hypothesis but did for acculturation.

US born Mexican Americans and migrants living in the United States appear to have the greatest negative effects of exposure to this culture. They are significantly more likely to drink alcohol, be overweight or obese, be diabetic, have histories of heart problems and strokes than their Mexico residing counterparts with any level of exposure. These greater proportions in many cases are even greater than for whites living in the United States. Interestingly the risk of hypertension has a reversed trend. Mexicans who have never been to the United States have the greatest proportion of self reported hypertension. These outcomes may be indicative of different pathways of acculturation for this population. On one hand Mexicans with greater exposure to the

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United States may be more likely to adopt deleterious health habits but on the other may be more likely to utilize health care services where they are more likely to be informed of their condition and more importantly receive treatment.

This study did not support the selection effect hypothesis. Migrants in all aspects of cardiovascular health and insalubrious behaviors demonstrate poorer outcomes than not only their non-migrating counterparts, but whites as well. One important consideration to make, however, is the mean age of the samples for both data sources. The average age for all groups is about sixty. Most likely those who migrated did not do so recently, but more probably in the earlier years of adulthood. It is therefore conceivable that a selection benefit was reduced with age or acculturation. Further analysis using respondents at all ages of the lifecycle is indicated to determine if the effects of selection are as powerful in health outcomes as previously noted in mortality(Lansdale, Oropresa, and Gorman 2000).

**CONCLUSIONS**

Is living in the United States hazardous to the health of Mexican Americans? If the strongest link to health differentials and exposure to the United States is the adoption of poor health habits for this group than many would tend to agree. The United States is the land of convenience and a fast way of life. Many Mexicans enter into this country in search of a better lifestyle. Most often from a financial standpoint they achieve their goals and they are able to access material goods that were previously out of reach, but is it with cost? The Mexican immigrants' lifestyle is personified by working long hours in low paying ( sometimes hazardous) jobs, living away from friends and family, and for some realizing that their aspirations of living the "American Dream" are

still out of reach because they do not possess the necessary human or social capital to advance in this society. Adopting poorer health habits may be a response the harsh reality of living in the United States as a Mexican.

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Table 1. Demographic Characteristics of Mexicans by Exposure to the United States

| | United States (HRS) | | | Mexico (MHAS) | | |
|---|---|---|---|---|---|---|
| | **Whites** | **US Born Mexican** | **Mexican Born** | **Mexican > 10 yrs in US** | **Mexican < 10 yrs in US** | **Mexican Never in US** |
| Age (mean) | 60.3 | 60.3 | 60.3 | 63.0 | 63.0 | 62.9 |
| Female | 51.24 | 50.5 | 52.5 | 55.4 | 54.2 | 57.5 |
| Years of Education (mean) | 12.91 | 9.5 | 5.1 | 4.6 | 4.7 | 4.6 |
| Marital Status | | | | | | |
| Married/ Partnered | 80.77 | 76.8 | 81.6 | 67.8 | 75.2 | 71.1 |
| Divorced/Separated/ Widowed | 16.76 | 20.1 | 15.8 | 28.7 | 22.2 | 25.2 |
| Never Married | 2.36 | 2.5 | 2.6 | 3.4 | 2.6 | 3.8 |
| Interview Conducted in Spanish* | -- | 24.4 | 88.8 | -- | -- | -- |
| Total n | 8754 | 432 | 297 | 166 | 1191 | 13831 |

Sources:         Health and Retirement Survey, Wave 4 (1998)
                       Mexican Health and Aging Survey, Wave 1 (2000)

*Only an option for the HRS interviews.

Table 2.  Mexican Health Conditions by Exposure to the United States by Percent.

| | United States (HRS) | | | Mexico (MHAS) | | | Measure of Association | |
|---|---|---|---|---|---|---|---|---|
| | Whites | US Born Mexican | Mexican Born | Mexican > 10 yrs in US | Mexican < 10 yrs in US | Mexican Never in US | GAMMA* | CHI-SQUARE |
| **Hypertension** | | | | | | | | |
| Yes | 40.95 | 45.0 | 46.2 | 57.3 | 59.9 | 61.9 | -.0825 | 58.43*** |
| No | 59.05 | 55.0 | 53.8 | 42.7 | 40.1 | 38.1 | | |
| | | | | | | | | |
| **Diabetes** | | | | | | | | |
| Yes | 11.18 | 24.4 | 22.5 | 16.2 | 15.1 | 16.0 | .1259 | 124.53*** |
| No | 88.82 | 75.6 | 77.5 | 83.8 | 84.9 | 84.0 | | |
| | | | | | | | | |
| **Heart Attack** | | | | | | | | |
| Yes | 17.97 | 12.7 | 11.3 | 5.6 | 2.6 | 3.6 | -.6752 | 1520.77*** |
| No | 82.03 | 87.3 | 88.7 | 94.4 | 97.4 | 96.4 | | |
| | | | | | | | | |
| **Stroke** | | | | | | | | |
| Yes | 4.07 | 7.4 | 4.9 | 3.5 | 3.6 | 2.8 | -.2116 | 65.97*** |
| No | 95.93 | 92.6 | 95.1 | 96.5 | 96.4 | 97.2 | | |

*Categories for Nativity were coded numerically as 1= white through 6 = Never in the United States.
*** $p<.001$

Sources:      Health and Retirement Survey, Wave 4 (1998)
                 Mexican Health and Aging Survey, Wave 1 (2000)

Table 3.  Mexican Health Condition and Behaviors by Exposure to the United States by
Percent.

| | United States (HRS) | | | Mexico (MHAS) | | | Measure of Association | |
|---|---|---|---|---|---|---|---|---|
| | Whites | US Born Mexican | Mexican Born | Mexican > 10 yrs in US | Mexican < 10 yrs in US | Mexican Never in US | CHI-SQUARE | GAMMA* |
| **Current Smoking Behavior** | | | | | | | | |
| Never | 9.55 | 12.9 | 12.5 | 57.9 | 50.5 | 55.8 | 6208.6*** | -.4904 |
| "Former" | 70.05 | 68.1 | 63.2 | 24.8 | 28.5 | 27.0 | | |
| Current, pack or less a day | 15.40 | 17.0 | 21.8 | 13.1 | 15.8 | 13.9 | | |
| Current, pack or more a day | 5.00 | 1.9 | 2.5 | 4.1 | 5.2 | 3.2 | | |
| **Current Drinking Behavior** | | | | | | | | |
| Never | .17 | 0.8 | 2.6 | 11.8 | 8.2 | 9.6 | 2328.3*** | -.4217 |
| Not Currently Drinking | 44.04 | 55.5 | 65.2 | 54.2 | 60.9 | 59.5 | | |
| Sporadic Drinkers | 20.14 | 13.5 | 12.7 | 15.3 | 15.1 | 16.9 | | |
| Drinks Regularly | 35.64 | 30.3 | 19.5 | 18.8 | 15.7 | 14.0 | | |
| **BMI** | | | | | | | | |
| Under weight (BMI<19) | 12.57 | 15.1 | 16.9 | 24.1 | 26.1 | 26.6 | 770.74*** | -.2022 |
| Normal weight (19<BMI<25) | 26.02 | 14.6 | 13.4 | 24.7 | 23.1 | 24.3 | | |
| Overweight (24<BMI<30) | 36.04 | 38.1 | 37.4 | 33.1 | 32.5 | 31.2 | | |
| Obese (29<BMI<40) | 22.82 | 29.2 | 29.1 | 16.9 | 16.6 | 16.2 | | |
| Extreme Obesity (BMI>39) | 2.56 | 2.9 | 3.1 | 1.2 | 1.7 | 1.8 | | |

*Categories for Nativity were coded numerically as 1= white through 6 = Never in the United States.
*** p<.001
Sources:          Health and Retirement Survey, Wave 4 (1998)
                       Mexican Health and Aging Survey, Wave 1 (2000)