

**Healthy life expectancy in Mexico and the U.S.: A cross national comparison
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PAA 2004 Abstract

Background

According to the 2000 Census, Mexicans are the largest ethnic subgroup among the U.S. Hispanic population. Health researchers have found that drawing conclusions about the overall condition of the U.S. Hispanic population tends to hide significant differences in the health condition of ethnic subgroups. This research describes the health condition of older Mexicans through a cross-national comparison of Mexican Americans in the U.S. and residents of Mexico.

How to sustain high quality lives at older ages has become an important issue in aging societies such as the U.S. Although Mexico has a younger age structure than the U.S., its population has also begun to age. A cross-national approach to the health of seniors residing in Mexico and U.S. will help researchers and policymakers to understand on the current and future health-care needs of older Mexicans.

We examine the healthy life expectancy of Mexicans and Mexican-Americans aged seventy and older using the Sullivan Method. Our universe of comparison includes six sub-groups. In the U.S. we compare U.S. born Mexicans, immigrant Mexicans, non-Hispanic whites, and non-Hispanic blacks. In Mexico, we look at migrants who returned from the U.S. to Mexico and at all other Mexicans.

Working-age Mexicans commonly use migration to United States as a strategy to improve their economic situation (Lindstrom, 1996; Massey and Espinosa, 1997; Tienda and Wilson, 1992). It is likely that migration may have an effect on the health condition of migrants. Studies suggest that English proficiency and duration of residence in U.S. have a strong effect on whether migrants use medical services and, therefore, on their overall health (Leclere, Jensen, and Biddlecom, 1994). It can be inferred from this pattern that U.S. born Mexicans and Mexican immigrants living in the U.S. are likely to have different health profiles—while U.S. born Mexican Americans’ healthy life expectancy may resemble other U.S. natives, immigrant Mexicans may be less healthy than other U.S. residents because they tend not to use medical services. These inferences, however, reflect only the health differentials between people of Mexican origin and other racial/ethnic groups in the United States. We know relatively little of the long-term effects of international migration at working-age on elders’ later-life health, either for those who stay in the U.S. and those who return to Mexico. This study is an effort to fill this gap in the literature. We seek to improve our understanding of Mexican elders by comparing healthy life expectancy on both sides of the border.

Methods

Since the concept of healthy life expectancy has a broad definition—including life without disability, functioning problems, dependency, or disease—we examine three aspects of elders’ later-life health (Molla, Wagener, and Madans, 2001; Saito, Crimmins, and Hayward, 1999):

1. *Disability-free life expectancy*: Disability is defined as the inability to perform a social role, such as self-care. However, when environments and culture are made more accessible for people with handicaps, their levels of disability may be reduced (Saito, Crimmins, and Hayward, 1999). In this study, we measure disability-free life expectancy based on "whether have at least one IADL limitations", because the IADL questions are more influenced by the outside environments compared to ADL activities. These IADL indicators include whether an elder can take medication, go shopping, prepare a hot meal, and manage money without help.
2. *Active-life expectancy*: Compared to IADL, the functional limitations measured by ADL activities are less likely to be affected by the outside changes. We use "whether have at least one ADL limitation" to assess the active-life expectancy. ADL indicators include whether the elder needs help to walk, to eat, to take a shower or bath, to get in and out of bed, and to use the toilet.
3. *Healthy life expectancy*: Healthy life expectancy is measured by selected chronic morbid conditions. We focus on whether the elder ever had a heart problem, stroke, high blood pressure, cancer, and diabetes.

In addition to the above, we also estimate elder's healthy years remaining based on their self-rated health status. All the analyses are conducted for men and women separately.

The healthy life expectancy estimated by the Sullivan Method reflects the current health of a population adjusted for age-specific mortality (Jagger, 1999). With the life tables (conditioned on the factors of interests) and the disease, disability, and functional limitation prevalence rates of the population, it provides succinct estimations of healthy years remained at starting age X. The major weakness of the Sullivan Method is that, unlike a multi-state approach, it doesn't take the health state transitions into account. For instance, the Sullivan Method cannot do an analysis of how transitions from hypertension to stroke shorten the remaining years. Since the multi-state approach requires longitudinal data for its analysis and our datasets are all cross-sectional, we are unable to perform such an analysis. However, the Sullivan technique is an ideal method for our data and research interest.

We use the Sullivan Method to estimate elders' disability-free, active, and healthy life expectancies, conditioned by their age, sex, U.S migration experiences, and country of residence. We also construct the Z-score tests to calculate the healthy year disparities between the elders who reside in Mexico, elders who migrated from Mexico to U.S, and elders born in US with Mexican background. While we are able to identify the disease and functional limitation prevalence rates of the Mexico residents by their ever U.S. migration experiences (from our survey data), the mortality rates by ever U.S. migrant status at population level are not available. Therefore, for the Mexican part of our study, we assume that Mexican elders who have returned from the U.S. have the same risk of dying as their counterparts who never migrated to the U.S., and apply general mortality rates to our analysis.

Data

Seven data sources are used for this study. For the sake of simplicity, we have tabulated these data sources by country and study purpose.

Table 1: Data sources for analysis

Country	Type of analysis	Data
United States	Constructing life tables by age, sex, Mexican nationality, and migration status for elders age 70 and older, who currently reside in the US.	(1) Integrated Public Use Micro Data Series, weighted 1% US Census 2000 (1% IPUMS, 2000). (2) Multiple Cause of Death, 1999.
	Calculating the disease, disability, and functional limitation prevalence rates by age, sex, Mexican nationality, and migration status.	(3) The third phase of Hispanic Established Populations for Epidemiologic Studies of the Elderly, 1998-99 (H-EPESE 1998-99).
	Calculating the disease, disability, and functional limitation prevalence rates by age, sex and race (non-Hispanic whites and non-Hispanic blacks).	(4) Health and Retirement Study 2000 (HRS 2000).
Mexico ¹	Constructing life tables by age and sex for elders age 70 and older, who currently reside in Mexico.	(5) The Mexican Vital Statistics 2000, (Instituto Nacional de Estadística Geografía e Informática, 2000). (6) The Mexican Death Counts 2000, (Instituto Nacional de Estadística Geografía e Informática, 2000).
	Calculating the disease, disability, and functional limitation prevalence rates by age, sex, and ever U.S. migration experiences.	(7) The first wave of the Mexican Health and Aging Study, 2001 (MHAS 2001).

Preliminary findings

Comparison for men

Among our six comparison sub-groups, elderly men residing in Mexico have the longest life expectancy, and the U.S. non-Hispanic black have the shortest. However, the years of life expectancy may not accurately reflect elderly men's quality of life at older ages. After a series of analyses, we find that while it is true that the non-Hispanic blacks are the least healthy group among the six, the healthy states of other groups vary as the definition of healthy life expectancy changes.

Prevalence of functional limitation and disease

Examinations of disease prevalence rates indicate that U.S. non-Hispanic black males have the highest prevalence of heart problems, stroke, high blood pressure, cancer, and diabetes. Mexican elderly who did not have any U.S. migration experience have lower rates of heart problem, high blood pressure, and cancer than return migrants and immigrants who stay in U.S. This result may be partly due to the fact that a greater proportion of U.S. born Mexicans use medical services and are better informed about their health condition. Additionally, the functional limitation prevalence rates show that Mexican elders living in the U.S. have higher rates of at least one ADL and IADL limitations than elders in other groups.

Disability-free, active, and healthy life expectancy

The analysis of disability-free life expectancy using at least one IADL limitation as an indicator shows that ever U.S. migrants residing in Mexico have the longest years free from disability in their later-life, followed by those who never left Mexico. On the other hand, the U.S. born Mexicans will reach the state of having at least one IADL limitation sooner than others. The active life expectancy analysis using at least one ADL limitation variable demonstrates similar pattern—elderly men in Mexico have the longest years of activity in their later-life. Non-Hispanic black elders have the shortest years in the active state among all the groups.

The analysis of healthy life expectancy using selected diseases as indicators paints a somewhat different picture. Non-Hispanic blacks remain the least healthy group in terms of having shortest years free from heart problem, stroke, high blood pressure, and diabetes, followed by the U.S. born Mexican males. But while Mexican-born immigrants in the U.S. and ever U.S. migrants residing in Mexico have similar health profiles in terms of years free from heart problem and high blood pressure, the return migrants seem better-off than the Mexican born elders who stay in the U.S.

Healthy expectancy to life expectancy

When using self-rated health as the indicator, non-Hispanic white males will be healthy for more than 81% of their later-life. Although ever U.S. migrants in Mexico have the greatest proportion of later-life being disability-free and active, the opposite is true of immigrants who stay in U.S. Our analysis of heart problems, stroke, high blood

pressure and cancer indicates that Mexican residents will be healthy for the most years before death. The analysis of diabetes has a different result. Ever U.S. migrants in Mexico and non-Hispanic whites in U.S. are the healthiest, while the Mexicans living in U.S. are in the middle, followed by the non-Hispanic blacks.

Comparisons for women

The life table estimation shows U.S. born Mexican women have the longest life expectancy among all the groups, followed by Mexican born women in the U.S. Similar to their male counterparts, non-Hispanic black women have the lowest life expectancy. Due to the small sample size of the Health and Retirement Survey, we are not able to include the Sullivan Method results of non-Hispanic white and non-Hispanic black women. We plan to explore other data sources in the future.

Prevalence of functional limitation and disease

Immigrant women have higher percentages of functional limitations and morbidity regardless of country of residence. For instance, higher percentages of ever U.S. immigrant women reported that they have poor health and suffer from stroke. Furthermore, Mexican born women in the United States are more likely to have at least one ADL and IADL limitation, along with heart problem, high blood pressure, cancer, and diabetes. Again, this result may be partly due to the availability of medical diagnosis services in the U.S.

Disability-free, active, and healthy life expectancy

Never U.S. migrant women have the best health condition among all comparison groups. This conclusion applies to the disability-free, active, as well as the healthy life expectancy analysis. As expected, Mexican born women in the U.S. are the least healthy.

Healthy expectancy to life expectancy

Consistent with our other results, women in Mexico who have never migrated live the greatest proportion of their later-life in the healthy states. These include self-rated health, at least one ADL, heart problem, stroke, and high blood pressure. Ever U.S. migrant women may live more than 36% of their remaining years in poor health. In the United States, U.S. born elderly women enjoy longer years of health than their Mexican born counterparts.

The paper presents the full set of results, including graphs to facilitate comparisons across groups and outcome variables. We also include the results of statistical tests of differences across groups, and draw conclusions.

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