Acculturation, Gender and Active Life Expectancy in the Mexican-origin Population

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Abstract

Objective: In this study we explore the potential effects of nativity and acculturation on active life expectancy (ALE) measured in terms of Activities of Daily Living (ADL) and Instrumental Activities of Daily Living (IADL) in a cohort study of native and foreign-born older Mexican-origin men and women who were 65 and older at baseline and who were followed for 17 years. **Methods**: We use the Hispanic Established Populations for the Epidemiologic Study of the Elderly (H-EPESE) to compute multistage life tables among native and foreign-born men and women. **Results**: The number of years lived after sixty-five with an ADL and IADL disability is higher for foreign-born women than native-born women. Among men, the foreign-born had lower levels of ADL disability than the native-born. In descriptive analysis both foreign-born and native-born women with low acculturation scores report a greater number of ADLs and IADLs than women with higher acculturation scores. Men manifest similar patterns for IADLs. **Discussion:** While foreign-born women enjoy longer life spans, they spend more time with ADL and IADL disabilities than native=born women. On the other hand, foreign-born men spend fewer years with ADL disabilities than native-born men. In spite of these differences the data reveal that older Mexican-origin men and women spend a large fraction of the years past 65 with serious disabilities. Given the rapid aging of the older Mexican-origin population and their relatively long life spans, public health interventions designed to prevent functional disability merit serious attention.

(238 words)

Introduction

Americans are living longer than ever before. In 2013 life expectancy at birth in the United States was 78 years and those who survived to age sixty-five could expect to live to 84 (Arias, 2012). Among those over 65, the proportion of the population 85 to 94 years-old experienced the fastest growth between 2000 and 2010, increasing from 3.9 million to 5.1 million, a growth rate of 29.9% (Werner, 2011). All segments of the population have benefited from declining mortality, but substantial gender, race and ethnic based differentials in life expectancy remain, although they are not always what one might expect (Hayward, Warner, & Crimmins, 2007). The Black and Mexican-origin populations share a similar disadvantaged socioeconomic profile, and on average the Mexican-origin population has very low levels of education, a major morbidity and mortality risk factor (Crimmins, Hayward, & Seeman, 2004). Yet, while Blacks experience higher levels of morbidity and shorter life spans than non-Hispanic whites, the Mexican-origin population enjoys average life expectancies at birth and age sixty-five that are equal to if not longer than those of non-Hispanic whites (Palloni & Arias, 2004). In 2008 Hispanic women who survived to age 65 could expect to live to 87, and Hispanic men who survived to age 65 could expect to live to 84. Non-Hispanic white women and men who survived to age 65 could expect to live to 85 and 82 respectively, and African-American women and men could expect to live to 83 and 80, respectively (Arias, 2010).

These statistics reveal a consistent female advantage in life expectancy. Yet even among women other social factors, including nativity, affect life expectancy. Among Hispanic women the foreign-born have the longest life expectancies at age 65 (Cantu, Hayward, Hummer, & Chiu, 2013; Palloni & Arias, 2004). The general female mortality advantage and their longer life spans raise questions concerning both the reasons for this female advantage, and the cultural and socioeconomic factors that account for racial and ethnic group differences. It also raises

questions related to the quality of life and level of functioning that characterizes the additional years that women live. Based on a study that estimated active life expectancy using performance-oriented mobility assessments among Mexican-origin individuals 65 or older, researchers found that foreign-born Mexican-origin women spend the greatest number of years, as well as the largest proportion of years after 65, with physical mobility limitations (Angel, Angel, & Hill, 2013). Foreign-born Mexican-origin women spend 64 percent of their remaining years with serious limitations in physical function based on the performance-oriented mobility assessment or POMA, compared to 61 percent for native-born women, 52 percent for foreign-born men, and 53 percent for native-born men (Angel, et al., 2013). Of course, since Mexican-origin women in the United States live longer than men or native-born women they have a greater opportunity to experience health problems (Angel, Torres-Gil, & Markides, 2012; Markides, Rudkin, Angel, & Espino, 1997).

In this paper we employ a longitudinal sample of Mexican-origin individuals 65 and older to compare estimates of active life expectancy based on two widely used measures of functional capacity, basic Activities of Daily Living (ADLs), and instrumental Activities of Daily Living (IADLs). Assessments of problems with the independent performance of ADLs and capacity to carry out IADLs are commonly used to measures of disability and independence (Spector & Fleishman, 1998). Our objective is to explore the potential role of acculturation on estimates of active life expectancy based on these two measures. These two measures of functional capacity differ in important respects that might affect the manner in which acculturation and gender affect each. ADLs refer to basic functional capacities, such as, the ability to carry out self-care activities such as bathing, dressing and toileting (Katz, Ford, Moskowitz, Jackson, & Jaffe, 1963). ADLs represent specific and concrete measure of disability

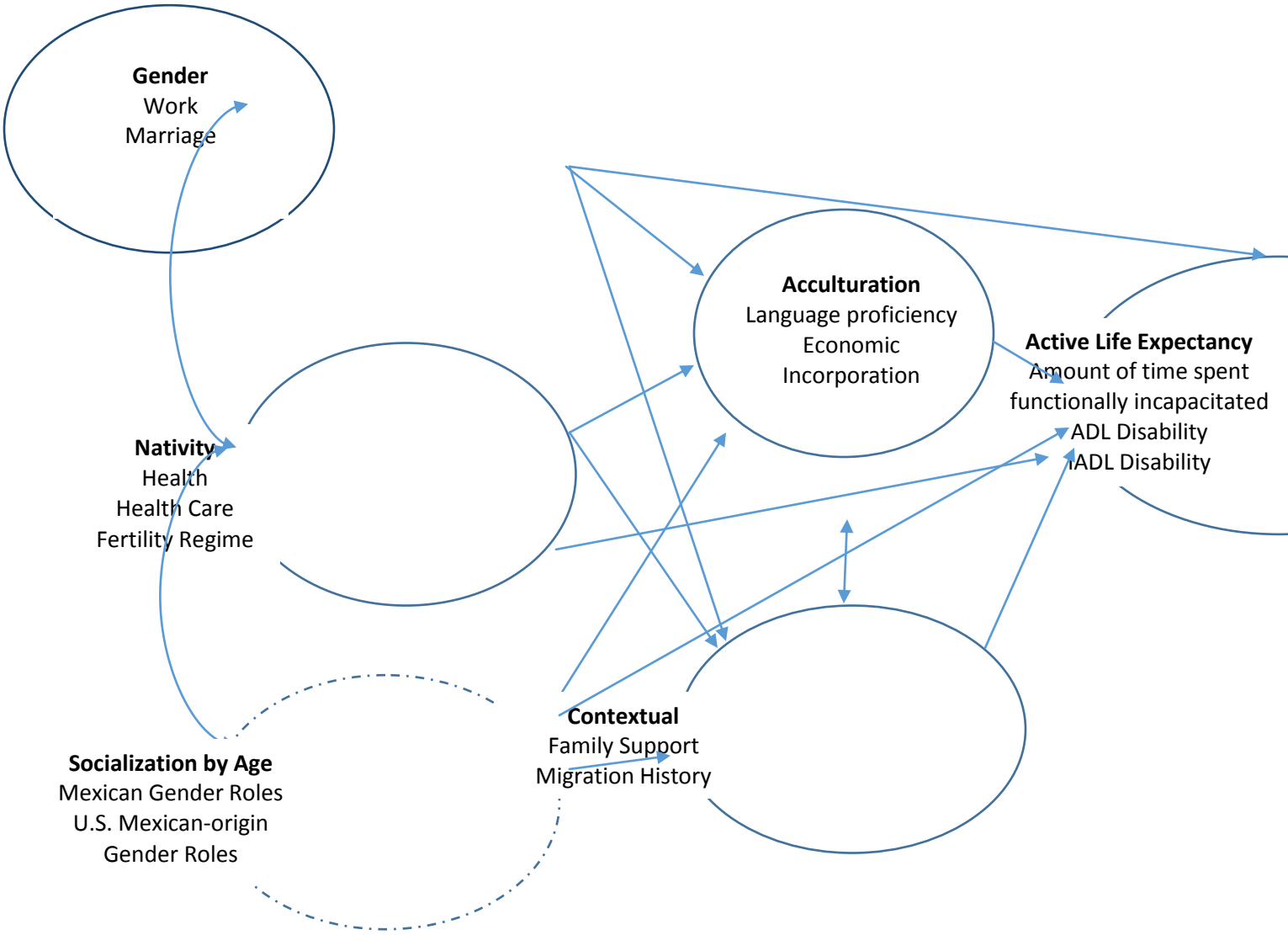
and predict the risk of long-term care (Kane, Kane, & Ladd, 1998). IADLs, on the other hand, assess one's ability to carry out more complex activities that require cognitive competence and some familiarity with the local cultural environment. Such tasks include driving, managing finances, and performing light housekeeping (Lawton & Brody, 1969). Given the more contextually dependent nature of IADLs we hypothesize that acculturation will have a greater impact on estimates of active life expectancy based on this scale.

A Model of Active Life Expectancy: Issues of Culture and Gender

Figure 1 presents a conceptual model that includes factors that influence active life expectancy (ALE), defined in terms of the number of years spent with either an ADL or IADL disability prior to death among older adults of Mexican-origin. Such estimates of the length of life spent in a disabled state are influenced by the respondent's subjective understanding of the questions used to assess functional status and the ability to carry out more complex life-management tasks. Although such subjective measures clearly reflect actual functional capacity as they might be assessed by an independent observer, self-reports are complex cognitive and culturally influenced constructs that may reflect more than an objective state (Glass, 1998). Our conceptual model as depicted in figure 1 is based on the assumption that lower levels of acculturation are associated with more traditional gender and family roles, which include less experience with such activities as driving and managing finances. Greater acculturation reflects a greater familiarity with American culture and less of a dependence on a spouse or other family members.

Figure 1

A Conceptual Model of Healthful Aging for Older Hispanics



Certain researchers find evidence for a gender-based Mexican cultural orientation which places great value on the family and defines a woman's core roles as those of wife, nurturer, and caregiver (Zinn and Pok 2002). A husband's core role is to serve as a provider and decision maker. Given such traditional gender and family role orientations, women may report greater competence in performing such tasks as shopping, cooking, and doing laundry than men (Lawton

& Brody, 1969). Men on the other hand, may be more likely to carry out such tasks as driving and handling money (Lawton & Brody, 1969). These distinctions in the cultural and gender-based content of the items making up the disability measures are important because they may be affected by acculturation, a concept defined in terms of the adoption of the social norms and traits of a host society (Abraido-Lanza, Armbrister, Florez, & Aguirre, 2006).

Acculturation, then, is a central focus of the analysis because it determines the extent to which one adopts traditional gender-based behaviors across different spheres of daily activity (Abraido-Lanza, et al., 2006). Lower acculturation decreases the ability of Mexican-origin women's ability to perform more complex tasks, such as managing finances and driving. The reason for this is that less acculturated Mexican-origin women in the United States are a particularly disadvantaged population (Parrado & Flippen, 2005). They lack critical social and economic resources needed to age successfully (Ronald J. Angel & Angel, 2009). Moreover, Mexican immigrants have a higher fertility regime than U.S.-born Mexican-origin women in the United States (Martin et al., 2009). As a result immigrant Mexican-origin women have fewer opportunities to work outside the home than the U.S.-born and, thus be more inclined to report fewer difficulties with performing the tasks needed to maintain a household, such as cleaning, cooking, and housekeeping. Assimilation is important in the Mexican American population in terms of enhancing financial well being (Borjas, 2005). Fewer years spent in the United States also increase the risk of poverty at age 65, wealth accumulation, and dependency on family and the government among Mexican-origin immigrant elders (Angel & Angel, 2009).

Although we do not have direct measures of gender or family roles, we employ an acculturation scale, as well as other variables related to a traditional orientation, including education, and marriage to tap potential differences in gender and family roles. Our analysis is

motivated by the wide use of self-reported ADLs and IADLs in the literature on functional capacity, and they are used widely in comparative research of group differences in functional decline and active life expectancy (Chiu & Wray, 2011; Minicuci et al., 2004; Wiener, Hanley, Clark, & Nostrand, 1990). The possibility of cultural and gender influences on the measurement characteristics of these scales has important implications for population research and public policy (Lynch, Brown, & Harmsen, 2003). An understanding of cultural influences on disability also contributes to the literature on the nexus of gender and immigration as it relates to active life expectancy.

Mindful of gender inequalities in work and family roles for the Mexican-origin population in the United States, our major analytic task is to determine the extent to which traditional gender roles associated with nativity and acculturation influence the likelihood of disability-free life expectancy for adult Mexican 65 and older. We should note that we are testing a portion of this model and are unable to pay close attention to certain components of the model, including psychological aspects of age-graded socialization. We expect that low acculturation increases higher levels of IADL than ADL net of nativity. High acculturation is associated with a lower need for IADL assistance due to reluctance to ask for help. Social context, however, is an important consideration. Individuals who have low education and physically demanding jobs are more likely to report a need for assistance with both ADL and IADL disability.

Methods

Data

We employ data from the Hispanic Established Population for the Epidemiologic Study of the Elderly (H-EPESE) to estimate the proportion of life spent in a disabled state prior to

death for native-born and foreign-born Mexican-origin men and women. The H-EPESE is a longitudinal cohort study of community-dwelling Hispanic elderly, aged 65 years and older, residing in the five southwestern states of Arizona, California, Colorado, New Mexico, and Texas (Markides et al. 1997). The H-EPESE has been used extensively to study the prevalence of disability among Mexican-origin adults in the U.S (Peek, Ottenbacher, Markides, & Ostir, 2003; Peek, Patel, & Ottenbacher, 2005).

These data provide detailed information on risk factors for physical illness and mortality for a sample of 3,050 individuals of Mexican-origin who were first interviewed in 1993-94. This panel was re-contacted in 1995-96, 1998-99, 2000-01, 2004-05, 2007, and 2010-11. Because of attrition in the original cohort, in 2004 a new cohort of 902 individuals who were the same age as the original cohort (75 or older at the time) was added to increase sample size and statistical power. This new panel was re-contacted in 2007 and 2010-11. We use aggregated individual level data from 1993-2011 to obtain prevalence estimates across survey years. Respondents ranged in age from 65-107 years. The final analytic sample includes 3,952 unique individuals and 35,701 person-years of data.

Measures

Disability refers to limitations in performance of social roles and tasks in the context of the socio-cultural and physical environment (Spector and Fleisman 1998). Respondents were given a detailed interview about demographic characteristics, health status, impairments, and disabilities. Measures of disability included activities of daily living and instrumental activities of daily living. The survey measured seven ADL activities: walking across a small room (8-foot walk), bathing (either a sponge bath, tub, or shower), dressing (putting on a shirt, buttoning or zipping, or putting on shoes), eating (holding a fork, cutting food, or drinking from a glass),

transferring from a bed to a chair, personal grooming (brushing hair), and using the toilet (Katz, Ford, Moskowitz, Jackson, and Jaffe 1963; Branch, Katz, and Papsidero 1984). For each of the seven items respondents were asked to indicate if they could perform the activity without help, with help, or if they were unable to do. ADL disability was dichotomized as no help needed versus needing help with or unable to perform one or more of the tasks. A positive response was coded as an ADL limitation.

Instrumental activities of daily living of IADLs (Rosow and Breslau 1966; Lawton and Brody 1969; Fillenbaum et al. 1998) are self-report measures commonly used in studies that assess basic activities necessary to reside in the community. Similar to the ADLs, IADLs are intended to identify elderly individuals who are having difficulty performing important activities of living and may be at risk for loss of independence in the community (Ostir and DiNuzzo 1995). Ten IADL activities were measured: preparing meals, doing heavy housework (wash windows, wall and floors), walk up and down the stairs without help, doing light housework (dishwashing, bed making, etc.), shopping, managing money, taking medicines, telephoning, going places outside of walking (driving car or traveling on bus or taxi), and walk a half mile without help. Respondents were asked to indicate if they could perform the activity without help or if they were unable to do. IADL disability was dichotomized as no help needed versus unable to perform one or more of the tasks. A positive response was coded as an IADL limitation.

Sociodemographic Characteristics

We include several known sociodemographic correlates of health status in our descriptive analysis, including age, sex, marital status, educational attainment, number of children, social support, living arrangements, and health status. Age is a continuous variable, ranging from (65)

to (107). Marital status is coded as (1) for unmarried and as (0) otherwise. Education is a continuous variable. Our measurement of social support is the measured by two items: emotional and instrumental support. Respondents were asked, ‘‘in times of trouble, can you count on at least some of your family or friends?’’ Respondents were also asked, ‘‘Can you talk about your deepest problems with at least some of your family or friends?’’ Response categories for these items were coded (0) hardly ever/some of the time, or (1) most of the time. We include three dichotomies based on living arrangements. The categories are: 1) *married with spouse* for those married individuals who are living with their spouse only; 2) *married with family* for married individuals who are living with their spouse and some other family member, and: 3) *alone* for single individuals with no family members living with them.

We used the performance-oriented mobility assessment (POMA) to assess functional mobility. The POMA is based on three tasks: standing balance (semi-tandem and side by side), a timed 8-ft walk at a normal pace (gait speed), and a timed test of five repetitions of rising from a chair and sitting down (Guralnik, Ferrucci, Simonsick, Salive, & Wallace, 1995). Each assessment was coded (0) unable to complete task, (1) poor, (2) moderate, (3) good, and (4) best. Respondents who received a score of (0) on at least one POMA’s item are coded as having a POMA disability.

Our assessment of chronic conditions is based on a summative measure of six self-reported items that asked whether the respondent had ever been told by a doctor or other medical personnel that he or she had any of the conditions. Respondents were asked whether they had ever had (a) arthritis or rheumatism; (b) diabetes, sugar in your urine, or high blood sugar; (c) high blood pressure; (d) a heart attack, or coronary, or myocardial infarction, or coronary

thrombosis; (e) a stroke, a blood clot in the brain, or a brain hemorrhage; or (f) cancer or a malignant tumor of any type.

We use two measures of immigration status. To classify nativity, we use birth place information and categorize those respondents born in the U.S. versus born in Mexico. To measure life course stage at migration, we include three age at immigration groups; those who arrived in childhood (0 – 19 years); middle age (20-49 years); and those who arrive in later life (after age 50).

Acculturation is measured in terms of three questions: In your opinion, how well do you 1) Understand spoken English; 2) Speak English; and 3) Read English. For each of the three items respondents were asked to indicate if they could perform the activity: 1) not at all; 2) not too well; 3) pretty well or: 4) very well. A scale was developed to measure level of acculturation. Respondents who scored less than six are coded as having low acculturation, respondents who scored six or higher are coded as having medium/high acculturation.

Methods

The study combines age-specific mortality rates with age-specific prevalence of ADL and I-ADL disabilities to calculate Sullivan-based multistate life table models of ADL and IADL disabilities free and life expectancy with ADL and I-ADL for each group (Sullivan, 1971). This technique is a prevalence-based method of estimating healthy life expectancy. This method divides total life expectancy into the different health states based on the age-specific prevalence of disabled (with ADL and IADL) and non-disabled (ADL and IADL free) states.

To estimate mortality rates, Gompertz models of the following form stratified by sex and nativity are employed.

$\ln m(x) = \beta_0 + \beta_1 \cdot age$…….....(1)

where, x is age $m(x)$ is age-specific mortality rate, β_0 is the constant term and β_1 is the coefficient for age (Teachman & Hayward, 1993).

To estimate prevalence probability, the logistic regressions of the following form stratified by sex and nativity are fitted.

$\ln(\pi/(1-\pi)) = \beta_0 + \beta_1 \cdot age$…….....(2)
where, π is the prevalence probability.

By using equation (1), age-specific mortality rates can be estimated and total life expectancy is obtained. From equation (2), the age-specific prevalence of ADL and I-ADL is obtained. The estimated prevalence is used to divide total life expectancy into the different health states based on the age-specific prevalence of disabled (with ADL and IADL) and non-disabled (ADL and IADL free) states. Disabled/Non-Disabled life expectancy calculated by this method is the number of remaining years (at a specific age) which a population can expect to live in a disabled/non-disabled state (Jagger, Cox, Le Roy, & EHEMU, 2006). For additional detail, please refer to Jagger et al., (2006).

A bootstrapping technique is used here to obtain standard errors for the total life expectancy, healthy life expectancy and unhealthy life expectancy. Bootstrapping generates repeated estimates of the healthy life expectancy by randomly drawing a series of bootstrap samples from the analytic samples. Repeating this approach for 300 times and distributions of the total life expectancy, healthy life expectancy and unhealthy life expectancy are obtained, which allow us to estimate sampling variability for the total life expectancy, healthy life expectancy and unhealthy life expectancy. Based on the 300 life tables for a given group, confidence intervals were obtained for the distributions of the total life expectancy, healthy life

expectancy and unhealthy life expectancy for that group. Statistical significant tests can be performed according to the confidence intervals.

We use the formula below to calculate confidence intervals.

$(X - Z_{\alpha/2} * SE, X + Z_{\alpha/2} * SE)$ ……..... (3)

Where, X is Total Life Expectancy, Health Life Expectancy, Unhealthy Life Expectancy, or Ratio of Healthy to Total Life Expectancy. SE is the standard error of X. The 95%, 99%, and 99.9% confidence intervals can be obtained by using When $\alpha = 0.05, 0.01$, and 0.001 respectively.

Results

ADL Active Life Expectancy

Table 1 presents estimates of life expectancy for men and women at age 65 as well as the average number of years spent with and without any ADL disability. The analysis is stratified by nativity to determine if an immigrant advantage emerges. Overall life expectancy for the foreign-born is modestly higher than the native-born. Among women, total life expectancy at age 65 is slightly higher (18.9 years) for the foreign-born than for the native born (17.8 years), although the difference is not statistically significant. Likewise, no statistically significant differences emerge in active life expectancy (13.5 vs. 14.0 years). However, foreign-born women experience a significantly higher ($p < .01$) number of elderly years spent with Activities of Daily Living disability than native-born women (4.9 vs. 4.3 years). Similarly, there are statistically significant differences ($p < .01$) in the ratio of number of years lived with Activities of Daily Living disability to the total number of years lived. The results indicate that foreign-born women spend 74 percent of their remaining years after age 65 in a healthy state compared to 76 percent for native-born.

A different pattern emerges for men. The foreign-born have a significant advantage ($p < .05$) in total life expectancy over the native-born. Results indicate that at age 65, foreign-born males can expect to live an additional 16.5 years compared to 15.3 years for the native-born. Furthermore, foreign-born males spend a greater amount of time healthy (13.9 vs. 12.5 years) than the native-born ($p < .05$). Conversely, no statistically significant differences emerge in the number of years spent with Activities of Daily Living disability. In addition, the data indicate the ratio of the number of years lived with Activities of Daily Living disability to the total number of years lived is largely similar for foreign-born and native-born men (84 percent vs. 82 percent, respectively).

IADL Active Life Expectancy

Table 1 presents estimates of life expectancy for men and women at age 65 as well as the average number of years spent with and without any IADL disability. Overall life expectancy for both foreign-born and native-born Mexican elderly men and women are identical to the previous analysis. Among women, active life expectancy at age 65 is 5.5 years for the foreign-born compared to 7.2 years for the native-born ($p < .001$). Foreign-born women also spend a larger fraction of their elderly years with Instrumental Activities of Daily Living disability than native-born women (13.4 vs. 10.8 years; ($p < .001$). Furthermore, table 1 reveals statistically significant differences ($p < .001$) in the ratio of number of years lived with Instrumental Activities of Daily Living disability to the total number of years lived. Foreign-born women spend 29 percent of their remaining years after age 65 in a healthy state compared to 40 percent for native-born.

For men, a slightly different pattern emerges. Foreign-born men have a higher life expectancy than native-born men (16.5 vs. 15.3 years). They also enjoy a healthier life than the native-born spending almost 14 years without ADL a disability (13.9 years versus 12. 5 years,

respectively). There are no statistically significant differences in IADL active life expectancy among foreign-born and native-born men.

Table 2 presents demographic and health characteristics of the sample, The analyses compare differences in ADL disability and IADL disability by nativity and level of acculturation separately for men and women. In the first half of the table, the data reveal that regardless of nativity, women with low acculturation reported fewer years of education. Similar patterns are observed for men. There were no statistically significant differences for marital status by acculturation. Lower acculturated native-born women are slightly older than medium-high acculturated native-born women ($p<.01$) Highly acculturated native-born men were more likely to live alone than low-acculturated foreign-born men or with their spouse only or in an extended household. Regardless of nativity, low-acculturated men and women report more children than medium-high acculturated men and women. In terms of immigration factors, foreign-born men and women with low acculturation were more likely to than the medium-highly acculturated foreign-born to have arrived in the U.S. in later life. Conversely, those who were highly acculturated came to the U.S. in childhood.

The second half of table 2 shows that less acculturated foreign-born men and women also report more emotional support than medium and highly acculturated foreign-born women ($p < .05$). A similar pattern is revealed in needing instrumental support for low-acculturated foreign-born women. Finally, there were few differences in health and self-reported ADL across acculturation groups for both men and women. However, there were statistically significant differences for both men and women in regard to lower acculturated scores among foreign-born reporting at least one IADL disability. Less acculturated foreign-born women were also more likely than the native-born with low acculturation scores to report a function limitation (POMA).

While less acculturated foreign-born women report more family to rely on for support they also report a greater need for assistance in terms of IADL disability and functional limitations. Ancillary analyses reveal that foreign-born women with low acculturation reported at least one IADL (59.1%). Altogether what these data reveal is that acculturation interacts with nativity across all measures of social, demographic and health characteristics at the wave 7 follow up.

Table 3 presents immigration-related characteristics of survivors and the deceased at wave 7 for foreign-born and U.S.-born men. The table compares six outcomes: no ADL disability, at least one ADL disability and deceased no ADL disability, at least one ADL disability and deceased. For women, the data reveal that mid-life immigrants (20-49 years old) were more likely to have died at the last follow up. There were no statistically significant differences across groups in level of acculturation. Similar patterns in mortality were observed among mid-life migrant men. While women are more likely than men to have survived by wave 7, they also report having at least one ADL and/or one IADL as unveiled in table 2.

Discussion

The United States Latino population has experienced unprecedented growth in the past several decades. Despite these growing numbers there has been relatively little research that examines whether there are nativity differences in active life expectancy within a single ethnic group. This research examined differentials in mortality and disability to assess to what extent does disabled and non-disabled life expectancy differ for foreign-born and native-born Mexican elders residing in the United States, and to what extent does the immigrant paradox in mortality extend to disability for foreign-born and native-born Mexican elders residing in the United States. Previous research has focused on comparing active life expectancy across racial and

ethnic groups, but few studies have focused specifically on the disabled and non-disabled life expectancy in disability outcomes within Mexican-origin elders residing in the United States.

Our findings underline the importance of considering nativity when planning for health interventions to address the needs of the growing Mexican elder population. These finding are consistent with the literature that foreign-born individuals residing in the United States have lower mortality than their native-born peers (Singh and Hyatt 2006). However, the healthy immigrant effect does not appear to apply to disability. While foreign-born Mexican elderly live longer, they are doing so in a disabled state. Foreign-born women in particular spend a larger fraction of their elderly years with both ADL and IADL disability compared to native-born women. Foreign-born males also spend a significantly larger fraction of their elderly lives with IADL disability compared to native-born men. However, they also spend a significantly larger fraction of non-disabled years ADL free. High rates of IADL disability among foreign-born men and women may be attributed largely to the problems they encounter with driving or obtaining transportation, areas in which they are clearly handicapped (Angel, Angel, McClellan and Markides 1996).

The descriptive analyses reveal the important role that acculturation plays in disability. Foreign-born women with low acculturation scores report a greater number of IADLs than foreign-born women with higher acculturation scores. Similarly, less acculturated native-born women resemble the low acculturated foreign-born. Men manifest similar patterns. What these results clearly reveal is that acculturation interacts with nativity and that lower acculturation scores magnify the disparity in IADL disability for foreign-born men and women. Our measure of acculturation is based on language proficiency and use and consequently, reflects both a

cultural orientation and social competence. By social competence we mean the ability to function in a new linguistic environment.

Our results regarding the lack of linguistic competency highlight the important implications for healthful aging. As recent research shows, low acculturation magnifies health disparities in diabetes and other disabling chronic illnesses (Afable-Munsuz, Gregorich, Markides, & Pérez-Stable, 2013). Moreover, limited English proficiency is linked to major barriers in access to medical and social services (Mutchler & Brallier, 1999). While the majority of individuals in the H-EPESE cohort report medium to high acculturation, those with low acculturation scores clearly are at risk for dependency on family and formal supports. This issue merits special attention in the development of community-based long-term care programs to appropriately target the specific needs of different sub-groups of older individuals of Mexican origin who are entering into their last decades of life.

In conclusion, lower mortality among foreign-born Mexican elderly individuals is not matched by low disability rates (Cantu et al. 2013; Hayward et al. 2014; Markides et al. 2007; Eschbach et al. 2007). Extended life expectancy of foreign-born Mexican elderly in the United States is accompanied by a lengthy period of disability, particularly for foreign-born Mexican females. Results support the immigrant paradox for foreign-born Mexican elderly in terms mortality, but not disability. There is no evidence of advantage in terms of disability; indeed the opposite appears to be the case. With the number of Mexican elderly projected to grow rapidly in the future, prevention and treatment of medical conditions need greater priority in this population to reduce disability dependence in the community.

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Table 1 - ADL and IADL Active Life Expectancy at Age 65 by Nativity and Gender

	ADL		IADL	
	Native Born	**Foreign Born**	**Native Born**	**Foreign Born**
Females	**Years (SE)**	**Years (SE)**	**Years (SE)**	**Years (SE)**
Total Life Expectancy	17.8 (0.32)	18.9 (0.39)	17.8 (0.32)	18.9 (0.39)
Active Life Expectancy	13.5 (0.27)	14.0 (0.30)	7.2 (0.21)	5.5 (0.23)***
Disabled Life Expectancy	4.3 (0.16)	4.9 (0.21)**	10.8 (0.26)	13.4 (0.35)***
Ratio of Active to Total	0.76 (0.01)	0.74 (0.01)**	0.40 (0.01)	0.29 (0.01)***
Males				
Total Life Expectancy	15.3 (0.32)	16.5 (0.45)*	15.3 (0.32)	16.5 (0.45)*
Active Life Expectancy	12.5 (0.30)	13.9 (0.40)*	8.6 (0.25)	8.8 (0.31)
Disabled Life Expectancy	2.7 (0.15)	2.6 (0.15)	6.7 (0.23)	7.6 (0.29)**
Ratio of Active to Total	0.82 (0.01)	0.84 (0.01)	0.56 (0.01)	0.54 (0.01)

Source: HEPESE Wave 1-7

*p≤=0.05 **p≤=0.01***p<=0.001 (Nativity Differentials)

Table 2: Demographic and Health Characteristics at Baseline (Unweighted N; Weighted Percentages)

	Females				Males			
Nativity	**Native-Born**		**Foreign-Born**		**Native-Born**		**Foreign-Born**	
Acculturation	**Low**	**Med/High**	**Low**	**Med/High**	**Low**	**Med/High**	**Low**	**Med/High**
Demographics								
Age (mean)	72.9	72.0**	73.9	73.6	72.2	71.8	73.4	74.8
Education (mean yrs)	2.4	7.0***	3.2	5.6***	2.9	7.2***	2.1	5.2***
Marital Status (married)	43.9	45.8	39.9	37.0	63.9	74.8	75.0	77.7
Number of Children	5.7	4.5***	5.1	4.4*	5.0	4.4*	6.3	5.6*
Life Course Stage at Migration								
Childhood	---	---	17.2	38.2***	---	---	19.9	34.3***
Mid Life	---	---	52.4	49.1***	---	---	56.5	50.0***
Late-Life	---	---	30.4	12.7***	---	---	23.6	15.8***
Social Support								
Emotional Support (most of the time)	76.3	74.8	73.4	61.3*	71.5	68.2	76.3	63.3*
Instrumental Support (most of the time)	75.8	79.1	76.2	61.8*	69.2	70.9	78.3	66.6
Living Arrrangements								
Spouse Only	28.9	29.5	22.6	20.8	37.9	45.4*	31.5	39.9
Spouse/Others	42.0	41.4	51.2	45.7	34.7	42.0*	56.0	47.1
Alone	29.1	29.1	26.2	33.5	27.5	12.6*	12.5	13.1
Health								
Any ADL	9.7	7.0	12.7	11.6	7.1	8.1	9.3	9.7
Any IADL	60.8	50.0**	77.1	61.9**	43.6	34.8*	50.9	44.0**
Limited Physical Mobility (POMA)	76.1	59.2***	60.3	65.2	62.5	53.9	45.7	56.9
Chronic Conditions (mean)	1.4	1.5	1.5	1.4	1.0	1.3	1.2	1.2
N	239	661	416	258	132	503	252	244

*P<.05**P < .01; ***P < .000

Source: HEPESE Wave 1

Note: These data have been inflated using person weights to obtain sample estimates.

Table 3- Immigration Related Characteristics of Survivors and Deceased at Wave 7

Females	**No ADL**		**ADL**		**Deceased**		**No IADL**		**IADL**		**Deceased**	
	NB	**FB**	**NB**	**FB**	**NB**	**FB**	**NB**	**FB**	**NB**	**FB**	**NB**	**FB**
Life Course Stage at Migration												
Childhood	---	19.9**	---	16.7**	---	28.5**	---	0.0**	---	19.1**	---	28.5**
Mid Life	---	56.1**	---	53.1**	---	51.7**	---	100.0**	---	51.7**	---	51.7**
Late-Life	---	24.0**	---	30.2**	---	19.8**	---	0.0**	---	29.2**	---	19.8**
Acculturation												
Low	15.9**	---	34.3**	---	23.1**	---	8.5	---	24.1	---	23.1	---
Medium/High	84.1**	---	65.7**	---	76.9**	---	91.5	---	75.9	---	76.9	---
Low	---	44.3	---	61.1	---	52.6	---	29.4*	---	55.4*	---	52.6*
Medium/High	---	55.7	---	38.9	---	47.4	---	70.6*	---	44.6*	---	47.4*
N	107	64	105	87	601	439	26	10	186	141	601	439
Males												
Life Course Stage at Migration												
Childhood	---	9.3*	---	29.8*	---	28.8*	---	11.3*	---	17.4*	---	28.8*
Mid Life	---	67.5*	---	57.2*	---	49.4*	---	63.1*	---	64.6*	---	49.4*
Late-Life	---	23.3*	---	12.9*	---	21.8*	---	25.6*	---	18.0*	---	21.8*
Acculturation												
Low	18.7	---	22.3	---	17.4	---	13.1	---	23.0	---	17.4	---
Medium/High	81.3	---	77.7	---	82.6	---	86.9	---	77.0	---	82.6	---
Low	---	47.0	---	62.9	---	51.4	---	45.6	---	55.0	---	51.4
Medium/High	---	53.0	---	37.1	---	48.6	---	54.5	---	45.0	---	48.6
N	62	52	34	37	486	359	31	19	65	70	486	359

*P<.05**P < .01

Source: HEPESE Wave 7