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Sex, Nativity, and Disability in Older Mexican Americans

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Abstract

Background/Objectives—Although older Mexican Americans are a rapidly growing segment of the U.S population, with high rates of disability, there is presently little research examining nativity and sex differences in activities of daily living (ADL) and mobility limitations in older Mexican Americans compared to general studies of the older population. This study examined the effect of nativity and sex on ADL and mobility limitations in older Mexican Americans.

Design, Setting, Participants, Measurements—2,069 non-institutionalized Mexican American aged 75 years and older from the Hispanic Established Population for the Epidemiological Study of the Elderly (Hispanic EPESE) (2004-2005). Socio-demographics, self-reported medical conditions (arthritis, cancer, diabetes, stroke, heart attack, and hip fracture), ADLs, and gross mobility function were obtained.

Results—Out of 2069, 56.3% were US-born and 43.7% were Mexico-born. The prevalence of ADL and mobility limitation in both US-born and Mexico-born was 32.9% vs. 33.9% and 56.6% vs. 55.6%, respectively. Compared to US-born subjects, Mexico-born tend to report less ADL limitation (OR=0.79; CI: 0.59- 1.05) after controlling for socio-demographic variables and medical conditions. Similarly, they were less likely to report mobility limitation (OR=0.64; CI: 0.48- 0.86) after controlling for all covariates. There was a significant interaction effect between nativity and sex (OR=0.42; CI=0.24-0.74) on ADL limitation suggesting that Mexico-born men were less disabled than US-born while the opposite was true for women. No significant interaction between nativity and sex was found for mobility limitation.

Conclusion—We found that Mexico-born men were less disabled than US-born counterparts. However, Mexico-born women were more likely to report disability than Mexico-born men.

Keywords

Nativity; Sex; Mexico-born; US-born; ADL; Mobility Limitation; Older Mexican Americans

Introduction

Older Mexican Americans are a rapidly growing segment of the U.S. population, and they have high rates of disability. According to the 2010 U.S. Census, older Mexican Americans have higher rates of disability than whites but lower rates than blacks (1). From baseline (1993–94) to Wave 5 (2004–05) of the Hispanic Established Populations for Epidemiologic Studies of the Elderly (H-EPESE), the prevalence of activity of daily living (ADL) disability increased from 29.5% to 41.5% in Mexican Americans aged 75 and older, and instrumental activity of daily living (IADL) disability increased from 77.3% to 80.1% (2), but there is little research examining nativity and sex differences in ADL disability and mobility limitations in older Mexican Americans.

The Hispanic Epidemiologic Paradox, introduced over two decades ago, describes the situation in which Hispanic people residing in the Southwestern part of the United States appear to have an overall health profile that is similar to or better than that of non-Hispanic Whites, even though their socioeconomic circumstances are more similar to those of non-Hispanic Blacks who have a poorer health profile than non-Hispanic Whites (3). More recently the literature has suggested a mortality advantage among the various Hispanic subpopulations—an advantage that is most evident among immigrants and is widest in old age (4). It is argued that the bulk of the evidence continues to support at least a minimal mortality advantage for Mexican Americans, and that the greatest mortality advantage, occurring in old age, is possibly due to factors such as the misclassification of Hispanic ethnicity, a healthy immigrant effect, ‘salmon bias’, and certain unique features of Hispanic culture (4).

A healthy immigrant effect is one of the most feasible explanations for the Hispanic Paradox, because the immigrant mortality advantage is not confined to Hispanic immigrants, but has been observed among other immigrant groups in the United States as well as in Canada and Australia (5, 6). Previous research indicates that immigrant population composition influences racial/ethnic differences in mortality, as racial/ethnic groups with the highest percentage of foreign-born individuals experience lower mortality than would otherwise be expected (6, 7). Given that immigrants comprise nearly 50% of the Mexican American population in the United States (8), the selection of healthy Mexican immigrants into the country may account for the observed health and mortality patterns.

The evidence of a healthy immigrant effect has been found primarily with regard to a mortality advantage in old age, not in terms of other health indicators or general health. It remains unclear whether disability advantages are present among both men and women immigrants in old age. It is possible that in older Mexican American cohorts, men may be more positively selected in terms of health than women because they were more likely to have immigrated for occupational reasons, while women were more likely to have immigrated for family reasons (9).

The population of the older Mexican Americans is dramatically increasing with high rates of disability due to diabetes and obesity (10-13). However, little research has addressed the issue of sex and nativity on disability in Mexican American's immigrant context. Below we examined sex-nativity differences in ADL and mobility limitations in Mexican Americans aged 75 years and over.

Methods

Study Population

Data were from the Hispanic Established Population for the Epidemiological Study of the Elderly (Hispanic EPESE) (2004-2005), an on-going longitudinal population-based study of non-institutionalized older Mexican Americans aged 65 and over in five southwestern states (Arizona, California, Colorado, New Mexico, and Texas). The sampling procedure assured a sample that was generalizable to approximately 500,000 older Mexican Americans living in the Southwest at baseline in 1993-1994. Baseline sample and its characteristics have been described elsewhere (14, 15). In 2004-2005, 1167 participants from the original cohort aged 75 years and older were re-interviewed. A new sub-sample of 902 respondents aged 75 years and older was added in 2004-2005, using sampling procedures similar to those used in 1993-1994. Both cohorts received identical evaluations at baseline and follow-up (sociodemographics, health conditions, psychosocial characteristics, blood pressure, anthropometric measures and physical function measures) (2). In-home interviews were conducted in Spanish or English depending on the respondent's preference. The present study includes 2,069 participants from the full sample surveyed in the fifth wave of the Hispanic EPESE in 2004-2005.

Measures

Socio-demographic variables included age (continuous), sex (men=0, women=1), years of formal education (continuous), nativity (US-born=0, Mexico-born=1), language of interview (English=0, Spanish=1), marital status [married=0, not married (divorced, widow, separated or never married)=1], household income (\$15,000=0, <\$15,000=1), and living arrangements (living alone=0, living in a household with two or more people=1). Six prevalent common medical conditions were assessed by asking whether participants had ever been told by a physician that they had the following: arthritis, cancer, diabetes, stroke, heart attack, or hip fracture.

Limitations in Activities of Daily Living (ADL) was assessed with the modified version of the Katz Activities of Daily Living (ADL) scale (16) and mobility limitations was assessed with the Rosow-Breslau scale of gross mobility function (17). The seven ADLs included walking across a small room, bathing, personal grooming, dressing, eating, transferring from a bed to chair, and using the toilet. The Rosow-Breslau scale of gross mobility function included walking up and down stairs and walking 1/2 mile. ADL and mobility disability were dichotomized as "no help needed" versus needing help with or unable to perform one or more activities.

Statistical Analysis

Chi-square, analysis of variance (ANOVA), and t test tests were used to examine the distribution of covariates for subjects by sex and nativity. Weighted logistic regression analysis was used to assess the independent effect of sex and nativity on ADL disability and mobility disability, controlling for age, education, marital status, language of interview, household income, living arrangement, and medical conditions (arthritis, diabetes, heart attack, stroke, cancer, and hip fracture). Three models were performed. Model 1 included age, sex, nativity, education, marital status, language of interview, household income, and living arrangement. In Model 2, medical conditions were added to Model 1. In Model 3, an interaction term between nativity and sex was added to the variables in Model 2. All analyses were performed using the SAS 9.2 survey procedures (PROC SURVEYFREQ, PROC SURVEYLOGIST, SURVEYREG) (SAS Institute, Cary, NC) to account for design effects and sampling weight. The selected alpha level for statistical significance was 0.05.

Results

Table 1 shows the descriptive characteristics of sample according to nativity and sex. Approximately 56.3% were U.S. born and 43.7% Mexican born. Similar percentages of women (60%) and men (40%) were U.S. born and Mexican born. Mean age was not significantly different for U.S.-born and Mexican-born men and women. Men were significantly more likely to be married than women, and women were significantly more likely to have an income of less than \$15,000, to live alone, and to report arthritis and hip fracture than men. U.S.-born men were significantly more likely to report having had heart attack than U.S.-born women.

Table 2 shows the numbers and percentage of subjects who reported limitations in ADLs and mobility activities according to nativity and sex. There were no significant differences between U.S.-born men and U.S.-born women in ADL limitations. Mexican-born women were significantly more likely to report limitations in all ADL activities than Mexican-born men except for eating and using the toilet. Women were significantly more likely to report any mobility limitation than men.

Table 3 presents the results of weighted logistic regression analyses of ADL disability and mobility limitation. Mexican-born subjects were 24% less likely than U.S.-born subjects to report ADL disability (odds ratio (OR)=0.76, 95% CI=0.58–0.99) in Model 1. When medical conditions were added to Model 1, Mexican-born subjects (Model 2) were 21% less likely than U.S.-born subjects to report ADL disability (OR=0.79, 95% CI=0.59–1.05). Model 3 shows a significant interaction effect between nativity and sex (OR=0.42, 95% CI=0.24–0.74). Older subjects; those who interviewed in Spanish; those not living alone; and those who reported arthritis, diabetes mellitus, and stroke were significantly more likely to report ADL disability.

Mexican-born subjects were 36% less likely to report mobility disability than U.S.-born subjects (OR=0.64, 95% CI=0.49–0.84) in Model 1. When medical conditions were added to Model 1, Mexican-born subjects were still 36% less likely to report mobility disability than U.S.-born (OR=0.64, 95% CI=0.48–0.86) in Model 2. Model 3 shows a nonsignificant

interaction effect between nativity and sex (OR=0.79; 95 % CI=0.46–1.36). Older subjects; women; and those who reported arthritis, diabetes mellitus, stroke, heart attack, and hip fracture were significantly more likely to report mobility disability. Subjects with a higher level of education were significantly less likely to report mobility disability.

Discussion

This study examined the effect of sex and nativity on ADL disability and mobility limitation in Mexican Americans aged 75 and older. There was a significant effect of the interaction between sex and nativity on ADL disability. Mexican-born men aged 75 and older were less likely to report ADL disability than women and U.S.-born men, after adjusting for all other variables, suggesting that Mexican-born men had less ADL disability than U.S.-born men, whereas the opposite was true for women, but there was nonsignificant effect of the interaction between nativity and sex on mobility limitation.

These findings are consistent with previous research showing that foreign-born immigrants are less likely to have disabilities than native-born immigrants, not only in the United States, but also in other countries (6, 8, 18, 19–21). Hispanic immigrant men and women are more likely to report better health than their U.S.-born counterparts (8), although Mexican Americans in general (regardless of whether they are foreign born or native born) have much higher rates of diabetes mellitus, obesity, disability, and sedentary lifestyle than non-Hispanic whites and non-Hispanic blacks (20, 21). A study showed that recent immigrants in Canada, who are typically from Asian countries, are less likely than their native-born counterparts to have chronic health conditions and disabilities, based on data from the 1994–95 National Population Health Survey (18). Another study showed that immigrants in Australia from non-English-speaking European and non-European countries had better health upon arrival than their Australian-born counterparts (19).

These findings also verify previous hypotheses that there is likely to be a migration selection varying according to sex at least in older Mexican Americans (6, 9). The motivation of migration for foreign-born Mexican-American men was voluntary, to look for jobs, and then women more often follow their spouse and families (6, 9). Thus, men tended to have much better health than women because Mexican-American men should be healthy enough to immigrate for their occupational reasons. Mexican-American men but not Mexican-American women have a health advantage. Using the 2010 U.S. census data, a study showed that age-standardized disability rates for foreign-born individuals aged 65 and older were lower than for U.S.-born individuals for Hispanics, Mexican Americans, and non-Hispanic whites, whereas there were no significant nativity differences between the three groups (9).

This study has some limitations. First, because of the cross-sectional analysis, causality could not be established for risk factors for disability. Second, because medical conditions were self-reported, matters of recall bias may be a limitation, particularly for older participants, but previous research showed that there was positive concordance between self-reported medical conditions and medical chart review (22–24). Third, assessment of ADL disability was also according to self-report. Nevertheless, several studies have demonstrated

a high concordance between self-reported data and direct observations of ADL performance (25–27).

The findings of this study partly support the healthy immigrant effect seen in the Hispanic population. Older Mexican-born men who had immigrated to the United States were less likely to report ADL disability. The healthy immigrant effect is one of the most-feasible explanations for the Hispanic Paradox because the immigrant mortality advantage is not confined to Hispanic immigrants but translates to an immigrant advantage overall. Regardless of racial or ethnic background, new immigrants have better health outcomes, such as less disability and lower mortality risks, than their native-born counterparts in the United States, Canada, and Australia (7). Recent studies have found that Mexican-American men have certain health advantages in general but not Mexican-American women (1). Sex differences have been observed through migration selection, at least in older foreign-born Mexican Americans (1, 6). The motivation to migrate for foreign-born Mexican-American men has been to look for jobs, whereas women have more often followed their spouses and families regardless of their health status or motivational factors (1, 6).

Older Mexican-American women experience more-severe obesity and disability than older foreign-born Mexican-American men, resulting in severe disability overtime (1, 2, 4, 28). Thus, they need long-term care, weight maintenance and diabetes mellitus education programs, and community care support to have better quality of life not only for themselves, but also for their caregivers and family members (29).

Conclusion

A significant effect of the interaction between nativity and sex on disability was found in older Mexican Americans. Mexican-born men reported less disability than U.S.-born subjects, but within the group of Mexican-born subjects aged 75 and older, women were more likely to report disability than men. Future studies should focus on these health disadvantages in older women of Mexican background and U.S.-born Mexican men living in the United States and develop customized health policies and programs to help them have better quality of life in spite of greater disability (29).

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Conflict of Interest: None.

Author Contributions: Nam: study concept, data analysis, data interpretation, primary writer. Al Snih: data analysis; data interpretation, revision of manuscript. Markides: obtaining funding, study supervision, critical analysis of data, revision of manuscript.

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Table 1
Descriptive characteristics of the sample by nativity and sex (N=2,069)

	Total	US-Born N = 1,158		Mexico-Born N = 911	
		Men N (%)	Women N (%)	Men N (%)	Women N (%)
Total	2,069	436 (39.8)	722 (60.2)	360 (40.0)	551 (60.0)
Age (mean ± SD)	2,069	81.4 ± 4.4	81.6 ± 4.8	82.3 ± 5.3	82.6 ± 6.0
Language of Interview					
English	408	125 (36.9)	217 (35.6)	22 (6.4)	44 (7.5)
Spanish	1,661	311 (63.1)	505 (64.4)	338 (93.6)	507 (92.5)
Marital Status					
Married	879	284 (64.8)***	209 (31.1)	248 (69.7)***	138 (25.2)
Not Married	1,185	151 (35.2)	510 (68.9)	112 (30.3)	412 (74.8)
Years of Education (mean±SD)	2,069	6.0 ± 4.3	5.9 ± 4.1	3.4 ± 3.1	3.8 ± 3.5
Household Income					
< 15,000	1,318	243 (52.6)***	484 (70.1)	226 (60.8)**	365 (75.5)
15,000	469	147 (47.4)	147 (29.1)	85 (39.2)	90 (24.5)
Living Alone					
Yes	577	90 (21.2)**	244 (31.9)	52 (12.6)***	191 (34.5)
No	1,492	346 (78.8)	478 (68.1)	308 (87.4)	360 (65.5)
Medical Conditions					
Arthritis	1,225	205 (49.6)***	469 (69.4)	191 (53.3)***	360 (68.8)
Cancer	149	37 (10.2)	56 (8.8)	28 (5.6)	28 (4.9)
Diabetes	690	135 (33.7)	266 (39.5)	113 (31.6)	176 (30.4)
Stroke	282	65 (16.5)	97 (13.7)	53 (13.4)	67 (12.8)
Heart Attack	341	81 (22.4)*	113 (16.2)	64 (16.4)	83 (17.4)
Hip Fracture	144	15 (3.7)*	63 (8.3)	23 (5.9)*	54 (11.4)

Note:

* p < 0.05,

SD=standard deviation
N varies due to missing data. Chi-square and analysis of variance were used.
Frequencies are unweighted frequencies, and the percents are weighted.

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Table 2
Percents of limitations in ADL and mobility activities by nativity and sex (N=2,069)

	Total	Needing help or unable to do N (%)			
		US-Born N= 1,158		Mexico-Born N= 911	
		Men N (%)	Women N (%)	Men N (%)	Women N (%)
Total	2,069	436 (39.8)	722 (60.2)	360 (40.0)	551 (60.0)
ADL Limitation					
Walking across a small room	552	96 (21.9)	209 (25.2)	76 (17.1)***	171 (28.3)
Bathing	520	75 (18.2)	194 (21.6)	75 (17.5)***	176 (30.1)
Personal grooming	294	41 (10.6)	98 (10.3)	48 (11.5)*	107 (17.8)
Dressing	370	53 (12.3)	132 (14.4)	60 (14.8)*	125 (22.4)
Eating	169	29 (8.1)	56 (6.4)	31 (8.7)	53 (8.6)
Transferring	552	105 (22.5)	203 (23.7)	77 (16.6)**	167 (26.8)
Using toilet	338	52 (13.0)	117 (12.3)	56 (14.4)	113 (18.1)
Any ADL Limitation	761	133 (30.7)	283 (34.4)	104 (23.5)***	241 (40.8)
Mobility Limitation					
Walking up and down stairs	1,035	169 (40.2)***	405 (53.1)	149 (37.1)***	312 (53.2)
Walking 1/2 mile	1,044	177 (41.8)***	412 (55.1)	147 (36.1)***	308 (54.2)
Any Mobility Limitation	1,213	202 (47.6)***	473 (62.5)	175 (43.9)***	363 (63.5)

Note:

*
p < 0.05,

**
p < 0.01,

p<0.001

*N' varies due to missing data. Chi-square tests were used.
Frequencies are unweighted frequencies and the percents are weighted.
ADL = Activities of Daily Living

Table 3
Weighted logistic regression analysis on ADL disability and mobility limitation (N=2,069)

	ADL Disability			Mobility Limitation		
	Model 1 N=1,783 OR (95% CI)	Model 2 N=1,741 OR (95% CI)	Model 3 N=1,741 OR (95% CI)	Model 1 N=1,783 OR (95% CI)	Model 2 N=1,741 OR (95% CI)	Model 3 N=1,741 OR (95% CI)
Age, years	1.09 (1.06 1.12)	1.09 (1.06 1.12)	1.09 (1.06 1.12)	1.10 (1.07 1.13)	1.10 (1.06 1.13)	1.10 (1.06 1.13)
Gender (Women)	1.67 (1.26 2.21)	1.54 (1.14 2.08)	1.09 (0.74 1.61)	2.12 (1.58 2.83)	2.03 (1.48 2.78)	1.84 (1.25 2.71)
Education, years	0.97 (0.94 1.01)	0.98 (0.95 1.02)	0.98 (0.94 1.01)	0.92 (0.89 0.96)	0.92 (0.89 0.96)	0.92 (0.89 0.96)
Nativity (Mexico-born)	0.76 (0.58 0.99)	0.79 (0.59 1.05)	1.06 (0.75 1.52)	0.64 (0.49 0.84)	0.64 (0.48 0.86)	0.71 (0.49 1.02)
Language of Interview (Spanish)	1.73 (1.20 2.49)	1.93 (1.32 2.83)	1.91 (1.31 2.78)	1.22 (0.87 1.71)	1.35 (0.94 1.93)	1.34 (0.94 1.91)
Marital status (Not married)	1.24 (0.89 1.72)	1.31 (0.94 1.84)	1.28 (0.92 1.79)	1.03 (0.73 1.44)	0.99 (0.70 1.42)	0.99 (0.69 1.41)
Household income (<\$15,000)	1.25 (0.91 1.73)	1.34 (0.96 1.86)	1.36 (0.97 1.90)	1.11 (0.83 1.48)	1.13 (0.83 1.54)	1.13 (0.83 1.54)
Living arrangement (Living 2+)	1.59 (1.13 2.25)	1.55 (1.08 2.23)	1.57 (1.09 2.26)	1.02 (0.71 1.46)	0.93 (0.63 1.36)	0.93 (0.63 1.37)
Arthritis		1.84 (1.39 2.45)	1.87 (1.41 2.48)		1.89 (1.45 2.48)	1.90 (1.45 2.48)
Cancer		1.26 (0.78 2.03)	1.24 (0.77 1.99)		1.41 (0.83 2.41)	1.41 (0.83 2.39)
Diabetes		1.58 (1.19 2.09)	1.62 (1.22 2.14)		1.64 (1.23 2.19)	1.65 (1.24 2.21)
Stroke		2.56 (1.71 3.83)	2.56 (1.72 3.82)		2.97 (1.88 4.71)	2.95 (1.87 4.67)
Heart Attack		1.44 (0.98 2.14)	1.42 (0.96 2.09)		1.74 (1.18 2.57)	1.72 (1.17 2.54)
Hip fracture		1.17 (0.68 2.04)	1.16 (0.66 2.03)		2.28 (1.19 4.35)	2.27 (1.18 4.35)
Nativity*gender (Mexico-born male)			0.42 (0.24 0.74)			0.79 (0.46 1.36)

OR=odds ratio; CI=confidence interval