Differences in the Progression of Disability: A U.S.-Mexico Comparison

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PRELIMINARY DRAFT

Introduction

The accelerated declines in fertility and mortality rates caused by the demographic and epidemiological transitions have resulted in an increase in the speed of population aging (Kinsella & He 2009). However, these transitions cannot be applied to every country. Developing countries like Mexico began their transitions far more recently than developed ones like the United States and faced declining mortality rates in less time as well (Dyson 2001). In addition, the former also have to face scarce economic resources and lack of access to health care for a vast segment of the population.

However, poor health is not limited to poor conditions as health follows a gradient that affects all socioeconomic statuses and varies across and even within nations (Marmot, Friel, Bell, Houweling, & Taylor 2008). Developed nations experienced these changes mainly because of development and economic growth while developing nations had a combination of some economic growth and the creation of relatively inexpensive health programs that targeted larger sections of the population (Dyson 2001; Weeks 1986). Further, the appearance of chronic and degenerative diseases in combination with infectious and parasitic diseases still prevalent in marginalized areas brought attention to the older age groups.

Disability is a topic that has become more relevant with population aging. It is a process that is affected by societal and individual conditions and it presents a unique opportunity to identify cultural and societal differences across nations (Chan, Kasper, Brandt, & Pezzin 2012). These transitions from healthy aging to illness and disability are linked to socioeconomic conditions like poverty in a two-way road: disability increases poverty and poverty increases the chances of being disabled (Mitra, Posarac, & Vick 2011). Countries with low income inequality (particularly developed countries) have the ability to provide more resources, more social capital, and better overall quality of life (Deaton 2003). As a result, they are able to generate societies with more social cohesion and larger social networks that are better suited to deal with physical limitations (Wilkinson 1992, 1996, 2000).

International comparative studies bring attention to the challenges that developing and developed countries face when inequalities are present (Mackenbach et al. 2008). Mexico and the United States present a unique opportunity to analyze how socioeconomic differences in education, income, and access to health services affect the progression of disability over time since the prevalence of disability is different in each country and estimates from developed countries do not apply to developing nations (Elwan 1999).

Both countries possess a vastly different socioeconomic, political, and cultural environment along with being in different stages of their demographic and epidemiological transitions (Gerst, Michaels-Obregón, Wong, & Palloni 2011). However, we still have no knowledge of how the disablement process progresses in a country like Mexico compared to the disablement process in the United States. The relevance of this research focuses on the socioeconomic differences in each country and how these have an impact on disability,

especially when the majority of this type of research comes from developed nations (Femia, Zarit, & Johansson 2001; National Research Council 2001).

The objective of this paper is to focus on determining the progression of disability that fits Mexico as persons are living longer but are also living more disabled (Putnam 2002). The goals are: to establish if the progression of disability in Mexico is different from the progression of disability in the US or not and to examine possible reasons for these differences (if any) to occur. We achieve these goals by using data from Mexico and from the US that includes two waves of longitudinal information from large national samples of older adults. We hypothesize that because of the socioeconomic conditions that older adults in Mexico and in the US face over time, the disablement process will differ between each country.

Data and Methods

Sample

The first source of data comes from the Mexican Health and Aging Study (MHAS), a nationally representative study of health and aging in Mexicans born in 1951 or earlier. Participants were first interviewed in 2001 in a stratified sample representative of the national population. The baseline data, consisting of 15,186 in-person interviews, were collected in 2001 with a follow-up in 2003 (with a 93% response rate). The MHAS provides detailed health characteristics such as limitations with basic and instrumental activities of daily living, cognition, depression, and mobility (Mexican Health and Aging Study 2001, 2003).

Our MHAS sample consists of 6,373 respondents aged 65 years or older. We exclude 2,368 respondents who did not have complete information regarding ADL, IADL, and mobility limitations at baseline and who were not directly interviewed. Respondents who were deceased at the 2003 follow-up were included in the analysis only if they had disability information at baseline. The sample for our descriptive analysis included 4,005 respondents.

The second source of data comes from the Health and Retirement Study (HRS), a nationally representative panel of Americans aged 50 or older that contains information on health, housing, disability, and others. Baseline data collection for the HRS began in 1992 and included over 15,000 in-person and telephone interviews of individuals born between 1931 and 1941. We use data from the 2000 (88% response rate) and 2002 (88% response rate) follow-ups because these years are the closest in time to the years the MHAS surveys were conducted (Health and Retirement Study 2003, 2006).

Our HRS sample consists of 10,713 respondents aged 65 years or older. We exclude 4,458 respondents who did not have complete information regarding ADL, IADL, and mobility limitations in 2000 and who were not directly interviewed. Respondents who were deceased at the 2002 follow-up were included in the analysis only if they had disability information in 2000. The sample for our descriptive analysis included 6,255 respondents.

Measures

Dependent Variable

Our variable measuring disability in 2002 (HRS) and 2003 (MHAS) includes the same five categories: Respondents with no ADL, IADL or mobility limitations (= 0); respondents with a limitation only in mobility (= 1); respondents with limitations in both mobility and IADL but

not in ADL (= 2); respondents with limitations in mobility and ADL but not in IADL (= 3); respondents with limitations in mobility, ADL, and IADL (= 4). All other possible combinations (limitation only in ADL, limitation only in IADL, and limitations in both IADL and ADL) are combined as "other" (= 5) due to the small number of cases in these three categories.

For the MHAS, from the 4,005 respondents that had full functional assessments, 5.4% reported limitations in both mobility and IADL and 6.7% reported limitations in both mobility and ADL. Additionally, to avoid selection bias due to mortality (302 cases) or sample attrition (171 cases who were lost to follow-up), these cases are included in our descriptive analysis with an outcome in the hierarchy of disablement states (dead = 6 and lost to follow-up = 7).

For the HRS, from the 6,255 respondents that had full functional assessments, 5.0% reported limitations in both mobility and IADL and 5.6% reported limitations in both mobility and ADL. In addition, 1,387 respondents died between 2000 and 2002 and 212 respondents were lost to follow-up and are also included in our descriptive analysis.

Three health-related measures were used to construct the hierarchy of disablement: A modified version of the Katz Index of Activities of Daily Living (Katz, Ford, Moskowitz, Jackson, & Jaffe 1963) in the form of a score (0-5) measuring if the respondent needed help to bathe, get dressed, eat, use the toilet, and transfer in and out of bed. A similar score (0-4) for the Instrumental Activities of Daily Living (IADLs) measuring if the respondent needed help preparing meals, taking medications, shopping for groceries or clothes, and managing money. Finally, the *Rosow-Breslau Functional Health Scale* was also included as a mobility score (0-3) measuring if the respondent needed help to climb a flight of stairs, walk one-half mile, or lift heavy objects (Rosow & Breslau 1966).

Each activity variable was dichotomized and the respondent was assigned a value of 0 if help was not required. If the respondent received any help to perform these activities a value of 1 was assigned. For ADLs and mobility tasks, respondents who answered "cannot do" or "does not do" were recoded as 1 if they could not or did not perform these activities and received help from their spouse or someone else to perform them, and 0 otherwise. For IADLs, respondents who answered "cannot do" or "does not do" were recoded as 0 if they could not or did not perform these activities because of a non-health related problem, and 1 otherwise. After recoding these three measures of health and function, we created the dependent variable measuring type of limitation. If respondents received a value of 1 in any of the ADLs, IADLs or mobility variables, then they were identified as having a limitation.

Covariates

Progression of disability at baseline: five dichotomous variables measuring: a) no limitations (reference), b) limitation in mobility only, c) limitations in both mobility and IADL, d) limitations in both mobility and ADL, and e) limitations in mobility, ADL, and IADL.

Age: dichotomous variables of respondents 65-69 years old (reference), respondents 70-74 years old, and respondents 75 years or older. *Education:* both countries have significantly different education means. The Mexican sample averaged around 4 years of schooling while the American sample had slightly over 11 years of education. Thus we created two sets of dichotomous variables measuring no education (reference), 1-5 years of schooling, 6 years of schooling, and 7 or more years of schooling in the MHAS and less than 9 years of schooling (reference), 9-11 years of schooling, 12 years of schooling, and 13 or more years of schooling in the HRS. *Gender*: dichotomous variable (women = 1). *Level of Urbanicity*: dichotomous variable

(communities of less than 100,000 inhabitants = 1). *Social support:* coded as 1 if the respondents answered "yes" to either receiving help from their neighbors/friends or receiving help from their spouse/children, 0 otherwise. These questions were combined to consider the respondent's marital status and living arrangements.

Monthly Income: for the MHAS, dichotomous variables for respondents who were indebted or had no income (reference), that earned less than 5,000 Mexican Pesos (less than $380 at current exchange rates), that earned between 5,000 and 9,999 Mexican Pesos (approx. between $380 and $760 at current exchange rates), and that earned 10,000 Mexican Pesos or more (over $760 at current exchange rates). MHAS imputed values were used to avoid missing information (Wong & Espinoza 2004). For the HRS, dichotomous variables for respondents who were indebted or had no income (reference), that earned less than US$10,000, that earned between US$10,000 and US$19,999, and that earned US$20,000 or more. HRS imputed values were used to avoid missing information (Moldoff et al. 2013). It is worth noting that since income in both countries is vastly different, we created categories that had similar distributions for each nation. *Insurance:* for the MHAS, a dichotomous variable measuring whether the respondents have insurance from any of the public health institutions in Mexico and/or from a private company or not. For the HRS, a dichotomous variable measuring whether the respondents have insurance a private company and/or any of the public programs created by the government, or not. The cost of health insurance for a person with disabilities varies dramatically depending on the limitation and out-of-pocket expenditures will be different in the US and in Mexico (Sesma-Vázquez, Pérez-Rico, Sosa-Manzano, & Gómez-Dantés 2005).

Center for Epidemiologic Studies of Depression (CES-D) score: for the MHAS, respondents answered an abbreviated version of the original CES-D scale (Radloff 1977) with 9

symptoms that include feeling depressed, feeling that everything was an effort, restless sleep, feeling happy (reversed coded), feeling lonely, feeling that life was enjoyable (reverse coded), feeling sad, feeling tired, and feeling energetic (reverse coded). Each of the 9 symptoms were dichotomized and then added to generate a score (0-9). For the HRS, one of the symptoms (feeling depressed) is not included in the questionnaire so each of the 8 symptoms were dichotomized and then added to generate a score (0-8). *Self-rated health:* measured as poor versus all other values (excellent, very good, good, or fair). *Cognition:* for the MHAS, respondents were asked to repeat all the words they could remember from a list of 8 possible words and then recall these words later in the interview. For the HRS, the list consists of 10 possible words but follows the same procedure as the MHAS. In both cases, we included an average of the two cognition tests (range 0-8 for the MHAS and 0-10 for the HRS) based on previous works (Lei, Hu, McArdle, Smith, & Zhao 2012; McArdle, Fisher, & Kadlec 2007).

Analytic Strategy

Descriptive statistics were stratified by gender. In our analyses, disability is treated as a polychotomous outcome and expressed as an ordinal logistic regression (Kleinbaum & Klein 2010; Long 1997) that has been used to evaluate health outcomes before (Ananth & Kleinbaum 1997; Das & Rahman 2011; Walters, Campbell, & Lall 2001).

We computed three ordinal logistic regression models for each country to assess the association of the covariates in 2000 (HRS) and 2001 (MHAS) with the 2002 (HRS) and 2003 (MHAS) level of disability. Model 1 includes the levels of disability at baseline which will indicate the hierarchy followed in the disablement process. Model 2 introduces the sociodemographic variables such as age, gender, education, insurance coverage, level of

urbanicity, income, marital status, and social support. Finally, Model 3 adds the health-related variables such as self-rated health, CES-D score, and the average combined verbal recall score.

In the regression analysis for the MHAS, we further excluded 44 subjects who fell in the "other" category of limitations (limitation in ADL only, limitation in IADL only, or limitations in both ADL and IADL), 171 respondents who were lost to follow-up in 2003, and 507 respondents with missing information in multiple covariates so STATA 13.1 could not include them in the regression. The sample for the regression analysis included 3,283 respondents.

In the regression analysis for the HRS, we further excluded 295 subjects who fell in the "other" category, 212 respondents who were lost to follow-up in 2002, and 723 respondents with missing information in multiple covariates. The sample for the regression analysis included 5,025 respondents.

Results

Table 1 presents descriptive characteristics of the respondents aged 65 or older by gender in 2000 for the HRS and in 2001 for the MHAS where several interesting points emerge:

First, only 1.0% of the women and 1.4% of the men did not receive any education compared to the nearly 40% of the women and almost 36% of the men in the MHAS who did not receive any education. Second, in the HRS, 5.7% of the men and 3.6% of the women had between 1 and 5 years of education. In contrast, in the MHAS, 38.7% of the men and 34.5% of the women had between 1 and 5 years of schooling. Third, the U.S. sample reported very small percentages of zero or negative monthly income in 2000 (1.1% for the men and 1.0% for the women) whereas the Mexican sample reported much larger percentages in 2001 (19.2% for men and 27.9% for women). Fourth, in the MHAS women reported 2.8% more insurance coverage

than men. In the HRS this difference was only 0.1% between men and women with virtually every single older adult aged 65 or older receiving some sort of insurance coverage in the United States. Finally, in the MHAS females reported worst self-rated health and higher CES-D score than men, and an average combined verbal recall score 0.3 points higher than men. In the HRS, females reported better self-rated health than men and also had a higher average combined verbal recall score but women had higher CES-D scores as well.

[TABLE 1 AROUND HERE]

Table 2a presents an ordinal logistic regression for covariates of the hierarchy of disability in 2003 for the MHAS, stratified by gender. Model 1 introduces disability in 2001 and presents evidence of a different progression of disability (compared to Mexican males) with the reported odds ratios of 7.81 for being dependent in both mobility and IADL and 4.47 for being dependent in both mobility and ADL versus 5.54 and 7.23 for men, respectively. Model 2 introduces the sociodemographic and economic variables (age, level of urbanicity, social support, education, income, and insurance). In general, being 75 years or older seems to have a bigger impact for both genders than for those aged 65-69, in other words, the older the respondent, the higher s/he will be in the hierarchy of disability. Higher education (7 or more years of education) is associated with a lower level of disability for women, while living in a rural area (less than 100,000 inhabitants) along with the effects of income and being insured are not significant.

Model 3 introduces health-related variables including poor self-rated health, CES-D score, and the combined verbal recall score. Women that receive help from neighbors and/or children (social support) have a better chance of being at a higher position in the hierarchy of

disability. The effects of living in a rural environment remain not statistically significant. All three health-related variables are statistically significant, with depressive symptoms (odds ratio of 1.07 for men and 1.09 for women) and poor self-rated health (odds ratio of 1.55 for men and 1.67 for women) being linked to a higher position in the hierarchy of disability. The effect is the opposite for the average combined verbal recall scores where the higher the score, the less likely to be disabled for both men and women. The effects of income, health insurance, and years of schooling are not present in this model.

[TABLE 2a AROUND HERE]

Table 2b presents an ordinal logistic regression for covariates of the hierarchy of disability in 2002 for the HRS, stratified by gender. Model 1 introduces disability in 2000 and presents evidence of a similar progression of disability for both men and women moving from no limitations to limitations in mobility only to limitations in both mobility and ADL to limitations in both mobility and IADL to limitations in all three to death. Model 2 presents similar results than the Mexican case with old age having a bigger impact for both genders than for those aged 65-69. Living in a rural area (less than 100,000 inhabitants) has a negative impact for women but in contrast, receiving support from neighbors and/or family seems to help reduce their progression along the hierarchy of disability. The effects of education seem to benefit women more than men with more years of schooling representing a lower progression in the hierarchy of disability. In contrast, the effects of monthly income and being insured are not significant.

Model 3 shows a few differences with the inclusion of the health-related variables. The effects of living in a rural environment are eliminated for women but now seem to have a beneficial effect on men. All three health-related variables are statistically significant and have

similar effects to those seen in the Mexican case. The effects of income, health insurance remain not significant and the effect of education among women has been eliminated with the inclusion of the health-related variables.

[TABLE 2b AROUND HERE]

From Tables 2a and 2b, it is clear that the order of the categories in the hierarchy of disability for Mexican women aligns with the model found in the American sample. In contrast, for Mexican men, the middle categories of the hierarchy (mobility and IADL and mobility and ADL) are reversed. It is worth noting that, in the MHAS, the reverse pattern for men and women obtained in model 1 still remains in models 2 and 3, after all controls are included while in the HRS the pattern is consistent for both genders in all three models.

Discussion and Conclusions

The epidemiologic and demographic transition in developing countries including Mexico brought a faster pace of population aging compared to developed countries like the US. In addition to rapid aging, developing countries face the added impact of inefficient infrastructure and an inadequate health system to support the needs of older adults. Income inequalities further complicate this issue by limiting the access to health services and even isolating the rural population (Cutler 2001).

The progression of disability is a topic that provides a unique opportunity for a cross-national comparison because it is a process that is affected by inequalities and poverty. Countries like Mexico and the US are perfect examples of two countries that face different socioeconomic- and health-related conditions thus affecting the progression of disability at a different pace.

We used ordinal logistic regression to examine and compare the progression of disability in a sample of older adults in Mexico and in the US, stratified by gender. Several relevant points emerge from the analyses.

First, our results suggest that the progression of disability in Mexico might differ when compared to the progression of disability previously estimated for developed countries (see for example, Barberger-Gateau, Rainville, Letenneur, & Dartigues 2000; Wahl, Fänge, Oswald, Gitlin, & Iwarsson 2009). Results for the MHAS data showed that the progression of disability between 2001 and 2003 is consistent with the progression of disability between 2000 and 2002 observed for both genders in the HRS data.

Simply put, elderly Mexican men and both elderly American men and women go from having no limitations to limitations in mobility to limitations in both mobility and IADL to limitations in both mobility and ADL to limitations in all three, and finally to death. The major difference occurs when analyzing elderly Mexican women where the progression of disability begins with a status of no limitations, followed by limitations in mobility, followed by limitations in both mobility and ADL, followed by limitations in both mobility and IADL, and then death.

This study closes a gap in the literature by providing a longitudinal analysis of the progression of disability in a developing country like Mexico when all previous research has come primarily from the US and some Western European countries. Gender differences in the progression of disability in Mexico seem to be particularly important in IADLs. Men have more problems while dealing with household-related IADLs and women seem to have while dealing with handling money and managing medications (Millán-Calenti et al. 2010). Further, cultural

and gender interactions in a predominantly male-dominated society might be alter how social networks interact with those who need help to perform IADLs or ADLs.

This study comes with limitations. IADL or ADL scores might be underreported in Mexico since social norms could make men hesitant to ask for help in case of a limitation (Hammer, Vogel, & Heimerdinger-Edwards 2013). Further, gender roles are different in each country and are affected by a myriad of factors during the life cycle. Socioeconomic and health conditions during childhood, adolescence, adulthood, and late life change depending on these roles and, as a result, might change the progression of disability (Spitzer 2005). Finally, this study is only intended to show the possibility of different progressions of disability between a developing and a developed country but it is not intended to draw absolute conclusions or to establish these progressions as definitive.

Additional research is needed to confirm these findings by comparing the results from Mexico and the US to other developing and developed countries. The inclusion of a new wave of information in the MHAS in 2012 might verify the gender differences in the progression of disability in Mexico for men and women by having an eleven-year period to study.

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Table 1 – Characteristics of the Health and Retirement Study (HRS) and the Mexican Health and Aging Study (MHAS) Cohorts Aged 65 or Older in 2000 and 2001

	MHAS		HRS	
Characteristic	**Men**	**Women**	**Men**	**Women**
Sociodemographic and Economic				
Age (%)				
65-69 years old	38.0	39.6	27.8	24.7 *
70-74 years old	26.9	27.5	25.8	25.2 *
75 years or older	35.1	32.9	46.4	50.1 ***
Level of Urbanicity (%)				
100,000 inhabitants or more	43.4	48.5 ***	30.6	30.3
Social Support				
Get help from neighbors and/or children	79.7	80.4	88.1	89.5
Education (%)				
No education	35.5	39.5 ***		
Between 1 and 5 years of schooling	38.7	34.5 **		
6 years of schooling	11.5	12.5		
7 or more years of schooling	14.3	13.5		
Less than 9 years of schooling			24.3	19.6 ***
Between 9 and 11 years of schooling			15.4	17.0 ***
12 years of schooling			28.6	35.6 ***
13 years or more of schooling			31.7	27.8 ***
Monthly Income (%)				
Zero or negative income	19.2	27.9 ***		
Less than 5,000 Mexican Pesos	64.7	61.3 *		
Between 5,000 and 9,999 Mexican Pesos	10.0	5.9		
10,000 Mexican Pesos or more	6.1	4.9		
Zero or negative income			1.1	1.0
Less than US$10,000			22.5	52.3 ***
Between US$10,000 and US$19,999			40.6	32.3 ***
US$20,000 or more			35.8	14.4 ***
Insurance (%)				
Any coverage	56.3	59.1	99.2	99.3
Health				
Poor self-rated health (%)	21.7	22.1 **	14.6	13.4
CES-D score	3.5	4.4 ***	2.0	2.4 ***
Average combined verbal recall score	4.1	4.4	4.0	4.6 ***
Unweighted Sample Size	1,895	2,110	2,008	4,247

Note: Weighted data and unweighted sample size totals. CES-D score has a range of 0-9 for the MHAS and 0-8 for the HRS. The average combined verbal recall score has a range of 0-8 for the MHAS and 0-10 for the HRS.
Significance: $^{*}p \leq .05$; $^{**}p \leq .01$; $^{***}p \leq .001$.Chi-square differences by gender for each country.
Source: Author's calculations with data from the Mexican Health and Aging Study (2001, 2003) and the Health and Retirement Study (2003, 2006).

Table 2a – Odds Ratios for 2003 Hierarchy of Disability by Gender for Adults Aged 65 or Older in the Mexican Health and Aging Study

Variables	Model 1		Model 2		Model 3			
					Odds Ratio		95% C.I.	
	Males	Females	Males	Females	Males	Females	Males	Females
Disability								
At baseline (Ref.: no disability)								
Mobility only	3.07***	2.82***	2.76***	2.46***	2.49***	2.10***	1.96-3.17	1.68-2.63
Mobility and IADL	5.54***	7.81***	5.03***	6.32***	3.52***	4.64***	2.07-5.99	3.18-6.78
Mobility and ADL	7.23***	4.47***	6.21***	3.89***	4.78***	3.00***	3.31-6.90	2.10-4.28
All three	22.30***	16.20***	19.68***	14.63***	13.38***	8.96***	9.00-19.91	6.51-12.33
Socioeconomic Variables								
Age (Ref.: 65-69 years old)								
70-74 years old			1.10	1.33**	1.12	1.27*	0.87-1.44	1.02-1.58
75 years or older			1.99***	2.10***	1.87***	1.99***	1.47-2.39	1.59-2.47
Level of Urbanicity								
Rural			1.24	1.11	1.16	0.95	0.91-1.48	0.73-1.22
Social Support								
Help from neighbors and/or children			0.97	1.21	0.97	1.28*	0.75-1.24	1.01-1.61
Education (Ref.: no education at all)								
1-5 years of schooling			0.99	0.98	1.13	1.10	0.90-1.43	0.89-1.35
6 years of schooling			0.94	0.82	1.14	0.90	0.82-1.59	0.67-1.22
7 or more years of schooling			0.74	0.71*	0.89	0.89	0.61-1.29	0.64-1.23
Monthly Income								
(Ref.: no or negative income)								
Less than 5,000 Mexican Pesos			1.03	0.98	1.08	0.95	0.84-1.38	0.77-1.17
Between 5,000 and 9,999 Mexican Pesos			0.90	0.95	0.94	0.99	0.63-1.41	0.67-1.45
10,000 Mexican Pesos or more			0.77	0.69	0.79	0.67	0.49-1.25	0.44-1.02
Insurance								
Any Coverage			1.16	1.06	1.17	1.06	0.94-1.47	0.87-1.30
Health and Function Variables								
Poor self-rated health					1.55***	1.64***	1.21-2.00	1.32-2.02
CES-D score					1.07**	1.09***	1.03-1.12	1.05-1.13
Combined verbal recall score					0.91**	0.92*	0.85-0.98	0.87-0.99
Cut-off Points								
Cut #1	0.78	0.31	1.01	0.59	1.02	0.63		
Cut #2	2.19	1.94	2.46	2.26	2.49	2.34		
Cut #3	2.45	2.41	2.73	2.73	2.75	2.83		
Cut #4	2.90	2.88	3.17	3.21	3.22	3.33		
Cut #5	3.49	4.01	3.81	4.36	3.82	4.50		
Unweighted N	1,527	1,756	1,527	1,756	1,527	1,756		
Pseudo-R^2	0.08	0.07	0.10	0.09	0.10	0.10		

Note: Unweighted results; $^{*}p \leq .05$; $^{**}p \leq .01$; $^{***}p \leq .001$.
Source: Author's calculations with data from the Mexican Health and Aging Study (2001, 2003).

Table 2b – Odds Ratios for 2002 Hierarchical Model of Disability by Gender for Adults Aged 65 or Older in the Health and Retirement Study

Variables	Model 1		Model 2		Model 3 Odds Ratio		Model 3 95% C.I.	
	Males	Females	Males	Females	Males	Females	Males	Females
Disability								
In 2000 (Ref.: no disability)								
Mobility only	3.98***	5.73***	3.65***	5.28***	3.18***	4.84***	2.48-4.07	4.05-5.79
Mobility and IADL	14.94***	34.89***	12.45***	25.92***	8.40***	19.18***	5.54-12.75	14.31-25.69
Mobility and ADL	8.71***	16.64***	7.70***	14.96***	5.98***	12.32***	4.21-8.50	9.62-15.78
All three	25.25***	60.36***	20.59***	48.51***	11.06***	31.96***	7.59-16.12	24.83-41.14
Socioeconomic Variables								
Age (Ref.: 65-69 years old)								
70-74 years old			1.16	1.00	1.07	0.94	0.83-1.38	0.80-1.12
75 years or older			2.22***	2.11***	1.92***	1.88***	1.52-2.41	1.61-2.19
Level of Urbanicity								
Rural			0.83	1.15*	0.82	1.11	0.67-1.01	0.97-1.28
Social Support								
Help from neighbors and/or children			0.95	0.80*	1.01	0.83	0.75-1.37	0.68-1.02
Education (Ref.: less than 9 years)								
9-11 years of schooling			0.89	1.00	1.06	1.11	0.77-1.46	0.89-1.37
12 years of schooling			0.78	0.64***	1.00	0.79*	0.75-1.33	0.65-0.95
13 or more years of schooling			0.82	0.65***	1.16	0.86	0.86-1.58	0.70-1.05
Monthly Income								
(Ref.: no or negative income)								
Less than US$10,000			1.34	1.20	1.47	1.21	0.81-2.69	0.62-2.36
Between US$10,000 and US$19,999			1.30	1.14	1.42	1.16	0.79-2.56	0.59-2.26
US$20,000 or more			1.01	1.06	1.19	1.13	0.66-2.14	0.57-2.25
Insurance								
Any Coverage			0.40	1.44	0.44	1.42	0.13-1.52	0.59-3.40
Health and Function Variables								
Poor self-rated health					1.52**	1.63***	1.15-2.01	1.33-2.00
CES-D score					1.17***	1.07***	1.11-1.24	1.03-1.10
Combined verbal recall score					0.83***	0.87***	0.78-0.89	0.84-0.90
Cut-off Points								
Cut #1	0.31	0.33	-0.39	0.59	-0.53	0.15		
Cut #2	1.71	2.32	1.05	2.66	0.97	2.26		
Cut #3	1.98	2.75	1.33	3.10	1.26	2.71		
Cut #4	2.48	3.40	1.86	3.77	1.81	3.39		
Cut #5	3.32	4.85	2.73	5.27	2.71	4.93		
Unweighted N	1,497	3,528	1,497	3,528	1,497	3,528		
Pseudo-R^2	0.10	0.15	0.12	0.16	0.13	0.17		

Note: $^{*}p \leq .05$; $^{**}p \leq .01$; $^{***}p \leq .001$.
Source: Author's calculations with data from the Health and Retirement Study (2003, 2006).