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Lifestyle Risk Factors and their Consequences among Older Adults in Mexico and the U.S.

by

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Introduction

Lifestyle risk factors such as obesity, smoking, lack of exercise, or alcohol abuse, are largely preventable and have consequences that become particularly costly in the late stages of the life cycle. It is widely recognized that differences in lifestyles contribute to health differentials in populations. Yet, we know little about how these risk factors impact differently on the individual and social burden of aging across countries that have different demographic and epidemiological profiles and are undergoing economic, social, and institutional changes at different paces. In this paper, we study the determinants and consequences of lifestyle risk factors among older adults, with a comparative perspective between the United States and Mexico. These countries are interesting comparative cases because they are tightly linked geographically, socially, and economically. Yet, the availability of comparable detailed data on older adults for these two countries is fairly recent, and offers a unique opportunity for systematic studies on aging with a cross-national comparative perspective.

We focus on the *determinants* of the following risk factors: smoking tobacco, drinking alcohol, lack of physical activity, and overweight/obesity. We also investigate the *consequences* of these risk factors on: impaired physical activity, catastrophic health care needs (hospitalizations), and mortality. The research hypotheses of the paper are guided by our conceptual framework, which incorporates the life course perspective and the economic model of health inputs. According to this framework, individual and family attributes, as well as the larger context, shape lifestyle decisions throughout the life course. Even though individuals construct their own life course through decisions that they make, historical and social circumstances shape these decisions. A precocious transition to adulthood, for example, increases the number and types of stressors on an individual, which may foster the adoption of risky lifestyles. Early age at first childbearing, age at first employment, divorce, or widowhood, may increase the likelihood of adopting risky lifestyles.

To this general framework that embodies individual lifecycle circumstances and the larger social context, we add the micro-production approach traditionally used in economics to model health and health-related outcomes since Becker (1965) and Grossman (1971). In this model, an old-age outcome such as disability or a catastrophic health problem that requires hospitalization is the result of lifestyle risk factors and other inputs or investments made over the life course. The risk factors undermine the health investments made over the life course; the past and current surrounding context offers

opportunities and imposes constraints on individuals as they move through their lifetime. The net result of this (aging) process is a given health stock or related health outcome in old age. Because we are interested in cross-national comparisons, we highlight the role of the country context in our conceptual framework. The timing and the form of various contextual events during the life cycle influences if, when, and for how long, the lifestyles are adopted over an individual's life course.

Data and Statistical Methods

We use primary survey data from panels of the U.S. Health and Retirement Study (HRS) 2000 and 2002, and the Mexican Health and Aging Study (MHAS) 2001 and 2003. Of key importance for this paper is that the two surveys use identical batteries for smoking and alcohol drinking, including the past patterns and current practices. Both included self-reports of height and weight, physical activity, disability (NAGI and ADL/IADL limitations), and hospitalizations. Both surveys interviewed both spouses in a married couple and included a next-of-kin questionnaire for persons who died over the inter-wave period. The surveys shared an emphasis on economic content, measuring income and wealth, and characteristics of the living environment.

Using our comparable panels, in the first part of the empirical analysis we produce descriptive analyses of the main variables of interest in our study, the lifestyle risk factors and the old-age consequences. For the cases of tobacco and alcohol consumption, we can describe not only prevalence in old age, but also the patterns followed through the life course, as we have exactly the same questions for age at initiation and number of cigarettes smoked.

The second part of the analysis includes the determinants of the lifestyle risk factors. We include as explanatory variables: 1) demographic attributes (age, sex, race/ethnicity for US only, immigrant/migrant status, and urban residence during childhood and currently); 2) social support (age at first marriage, age at first birth, ever divorced/widowed, number of marriages, current marital status, number of children, number of siblings); 3) health inputs (childhood health and access to health care); and 4) socioeconomic influences at several life stages (childhood SES, respondents' completed level of schooling, as well as baseline measures of current income, net worth, ownership of specific assets, and receipt of public assistance).

In the third part of the analysis we examine consequences of lifestyle risk factors. We select outcomes that are comparable across the U.S. and Mexico surveys and that represent major dimensions of the old-age burden of adverse lifestyles. We focus also on old-age outcomes that are likely to be reported without significant recall error: hospitalizations, ADL disability, functional limitations, and mortality. Unlike self-reports of health, for example, these are objective measures of the social and individual burden of aging.

We use multivariate regression models according to the type of dependent variable, in the majority of cases a binary variable (yes/no) or ordered categories (such as current smoker, former smoker, never smoker).

Preliminary Analysis

We use two-wave panels of the MHAS (2001-2003) and HRS (2000-2002) and perform preliminary descriptive and basic analyses of determinants and consequences of lifestyle risk factors (RF) among adults aged 55 and older in both countries. We first examined distributions on a range of demographic, health, and lifestyle risk factor measures for the two samples, and then investigated a small set of key determinants and consequences of lifestyle risk factors using logistic regression models (presented in Tables 1 and 2 below).

With regard to the overall prevalence of risk factors, there is remarkable similarity in the percentage of persons age 55 or over in each country who are current smokers (17% in Mexico vs. 15% in the US), heavy drinkers (7% vs. 8%) and obese (22% vs. 24%). A lower percentage of Mexican adults reports having ever smoked (42% vs. 59% in the US) and being a current drinker (31% vs. 48%). In addition, the prevalence of physical inactivity is higher in Mexico than in the US (67% vs. 55%). Results from the preliminary analyses of determinants (Table 1) point out several interesting similarities and differences between the two countries. Age shows a strong negative association with all of the risk factors in both countries, with the exception of physical inactivity, for which older individuals exhibit higher levels of risk than younger individuals. The age differences are more pronounced in the U.S. than Mexico for smoking and obesity, whereas they are more pronounced in Mexico for heavy drinking and physical inactivity. There also are strong gender differentials in lifestyle risk factors in both countries, but the magnitude of the differential (especially for smoking and heavy drinking) appears much larger in Mexico than the U.S. The effects of socioeconomic status operate differently in the two countries for several risk factors. Higher SES is associated with a lower likelihood of currently smoking and of being physically inactive in the US, whereas it is unrelated to both of these outcomes in Mexico. Likewise, higher income is associated with lower levels of obesity in the US, whereas the reverse is true in Mexico. This preliminary evidence is consistent with the published literature for developed and developing countries. Urban residents in both settings are more likely than those in rural areas to be physically inactive, and those in the US also are more likely to drink heavily.

We also explored the impact of lifestyle risk factors on four health-related outcomes, controlling for basic demographic and socioeconomic factors. Again, the results point up some interesting contrasts and similarities between the two settings, as shown in Table 2. Both former and current smoking is detrimental to all four outcomes in the US, but less so in Mexico. This difference may be due to differences in the length of time smoked or the quantity of tobacco consumed, both of which we will examine in the paper. The effects of drinking also differ between Mexico and the US. In Mexico, moderate drinkers appear to have a slightly higher risk of functional limitation and ADL disability than occasional or heavy drinkers, whereas moderate drinkers show more favorable outcomes across the board, at least compared to non-drinkers and occasional drinkers. Body mass index (BMI) and physical inactivity generally have similar effects on the various outcomes in Mexico and the US. One exception relates to the effect of BMI on hospitalization: in Mexico underweight individuals are at higher risk of hospitalization compared to those of normal weight, whereas in the US both overweight and obese individuals are at higher risk. In summary, the preliminary analysis indicates that there are large differences in the determinants and consequences of lifestyle risk

factors between the two countries that we need to explore further, and that the data we are using have the statistical power to perform these analyses.

Paper outline

The paper is organized as follows: we provide first an overview of the literature on determinants and consequences of health risk behaviors, followed by our conceptual framework, a set of derived testable hypotheses for the cross-national comparison, description of the data and definition of variables, the descriptive analysis, the multivariate models of determinants and consequences of lifestyle risk factors, and limitations of our research. In the latter, we acknowledge aspects such as the possibility of reverse causality and how we address the problem, and the possible endogeneity of lifestyle risk factors in the models of old-age consequences. We follow with a discussion of the results and their implications for the likely burden of aging in countries in disparate stages of economic development.

Table 1. Odds-ratios for the effects of main socioeconomic characteristics on lifestyle risk factors

	Current smoking		Heavy drinking		Obese		Inactivity	
Explanatory Var.	Mexico	US	Mexico	US	Mexico	US	Mexico	US
Age 55-64	--	--	--	--	--	--	--	--
Age 65-74	0.74***	0.53***	0.65***	0.82**	0.76***	0.69***	1.45***	1.02
Age 75+	0.61***	0.18***	0.24***	0.61***	0.49***	0.31***	2.71***	1.60***
Male (vs. female)	3.72***	1.30***	14.08***	3.59***	0.64***	0.93+	0.45***	0.71***
Urban (vs. rural)	0.99	1.03	1.02	1.29***	1.02	0.97	1.36***	1.19***
Education								
Lowest tercile	--	--	--	--	--	--	--	--
Middle tercile	0.96	0.92	0.95	1.29**	1.04	0.88*	1.03	0.79***
Highest tercile	1.12	0.71***	1.00	1.64***	0.73***	0.72***	1.01	0.75***
Income								
Lowest quintile	--	--	--	--	--	--	--	--
2nd quintile	1.08	0.75***	1.10	1.33*	1.26*	0.96	1.08	0.73***
3rd quintile	1.05	0.70***	1.45**	1.62***	1.42***	0.85*	1.09	0.57***
4th quintile	1.09	0.54***	1.51**	1.54***	1.36**	0.77***	1.02	0.51***
5th quintile	0.98	0.38***	1.17	1.95***	1.62***	0.67***	0.98	0.48***
Model χ^2	590.45	744.51	855.16	676.99	167.21	543.28	526.66	834.86
(df)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)

+ p < .10 * p < .05 ** p < .01 *** p < .001

Table 2. Odds-ratios for the effects of lifestyle risk factors on health-related outcomes[a]

	Func. Limitation		ADL Disability		Hospitalization		Mortality	
Explanatory Var.	Mexico	US	Mexico	US	Mexico	US	Mexico	US
Smoking status								
Non-smoker	--	--	--	--	--	--	--	--
Former smoker	1.27***	1.29***	1.16	1.18**	1.18+	1.29***	1.15	1.25**
Current smoker	0.97	1.45***	0.76+	1.36***	0.89	1.25***	1.23	1.29*
Drinking status								
Non-drinker	0.99	1.33***	0.92	1.80***	0.94	1.52***	0.90	1.81***
Occas. drinker	0.87+	1.20**	0.73*	1.48***	0.93	1.23**	0.72	1.37*
Moderate drinker	--	--	--	--	--	--	--	--
Heavy drinker	0.75*	1.01	0.43**	1.08	0.86	1.20*	1.39	1.05
Body mass index								
Underweight	1.16	1.37+	1.24	1.57**	1.50+	1.09	1.62	2.78***
Normal weight	--	--	--	--	--	--	--	--
Overweight	1.22**	1.32***	0.90	1.01	0.94	1.11*	0.66**	0.58***
Obese	1.73***	2.60***	1.38**	1.84***	0.90	1.26***	0.72+	0.47***
Physical activity								
Inactive	1.24***	2.05***	1.67***	2.67***	1.47***	1.42***	2.85***	3.04***
Active	--	--	--	--	--	--	--	--
Model χ^2	374.60	2111.50	337.65	2241.92	81.97	727.51	160.38	1367.28
(df)	(19)	(19)	(19)	(19)	(19)	(19)	(18)	(18)

[a]Models included controls for age, sex, urbanicity, education and income.
+ p < .10 * p < .05 ** p < .01 *** p < .001