Published in final edited form as:
Soc Sci J. 2012 September 1; 49(3): 325–329. doi:10.1016/j.soscij.2012.01.004.

Importation, SES-selective Acculturation, and the Weaker SES-health Gradients of Mexican Immigrants in the United States[Φ]

Fernando Riosmena[*] and **Jeff A. Dennis**
University of Colorado at Boulder

University of Texas of the Permian Basin

Abstract

Previous studies find U.S. immigrants have weaker socioeconomic gradients in health relative to non-Hispanic whites and their U.S.-born co-ethnics. Several explanations have been advanced but few have been tested empirically. We use data from the Mexican Family Life Survey and the U.S. National Health Interview Survey, including longitudinal data in the former measuring SES and health previous to emigration, to test if 1) immigrants "import" their gradients from the sending country, or if 2) they may be changing as a result of SES-graded acculturation among Mexican migrant men in two health indicators: obesity and current smoking. We find evidence consistent with the first hypothesis: the gradients of migrants measured prior to coming to the U.S. are not statistically different from those of non-migrants, as the gradients of each are relatively weak. Although the gradients for obesity and smoking appear to weaken with time spent in the U.S., the differences are not significant, suggesting little support for the selective acculturation hypothesis.

Keywords

international migration; health; socioeconomic gradients; acculturation; importation; obesity; smoking; Mexico; United States; MxFLS; NHIS

1. Introduction

Socioeconomic differences in health are indicators of inequality and how structural features of a society affect disease. While health disparities across different socioeconomic statuses (SES) are pervasive in the U.S., particularly among non-Hispanic (NH) whites, they are less marked among U.S.-born Hispanics and other people of color (Banks, Marmot, Oldfield, & Smith, 2006; Goldman, Kimbro, Turra, & Pebley, 2006; Pampel, Krueger, & Denney 2010; Kimbro, Bzostek, Goldman, & Rodríguez, 2008). Most notably, socioeconomic differences in health are particularly flat for Hispanic immigrants, particularly those from Mexico (Buttenheim, Goldman, Pebley, Wong, & Chung, 2010; Goldman et al., 2006; Kimbro et al., 2008; Turra & Goldman, 2007). These differences are also known as SES-health gradients, the social gradient or, simply, gradients.

[Φ]We have benefited from conversations with Katharine Donato, Katherine Eggert, Mara Goldman, Harry Surden, and Richard Rogers. We also thank Nancy Mann for thorough editing assistance. This research was funded by a developmental grant from the Eunice Kennedy Shriver NICHD-funded University of Colorado Population Center (grant R21 HD51146). The content of this manuscript is solely the responsibility of the authors and does not necessarily represent the official views of NIH or NICHD. We also thank the Center for Research and Creative Writing and the Center to Advance Research and Teaching in the Social Sciences at the University of Colorado for additional support.

[*]Corresponding author. Fernando Riosmena, fernando.riosmena@colorado.edu. 483 UCB. Boulder, CO. 80309. Tel. (303) 492-1476 Fax (303) 492-6924..

While some explanations for weak gradients related to both contexts of emigration and reception have been advanced, few have been tested (Goldman et al., 2006; Buttenheim et al. 2010). In this note, we test for gradient importation and SES-selective acculturation hypotheses by comparing the SES-health gradients in obesity and smoking status of Mexican-born adults according to their level of U.S. migration experience. We also look at those of U.S.-born Mexican-Americans, NH whites in the U.S., and non-migrants in Mexico as relevant comparison groups for these tests. We focus on obesity and smoking given their prevalence and relevance as major disease and death risk factors (Krueger, Rogers, Hummer, & Boardman, 2004; Rogers, Hummer, Krueger, & Pampel, 2005). These indicators also tend to change during the epidemiological transition and throughout the process of adaptation to U.S. society (Monteiro, Moura, & Conde, 2004; Akresh, 2007; Singh & Siahpush, 2002).

2. Previous Research

The weak social gradient in health among migrants has been observed for a variety of outcomes and sources. Goldman et al. (2006) find weak education gradients for Mexican-born individuals in smoking, binge drinking, overweight/obese status, work limitations, and symptoms of depression relative to U.S.-born whites. Kimbro et al. (2008) confirm these results for a broader set of ethnic groups, finding that foreign-born whites, Blacks, Hispanics, and Asians have weaker SES-health gradients than their U.S.-born co-ethnics. Turra and Goldman (2007) suggest that the mortality advantage typically found for Hispanic immigrants relative to NH whites is concentrated primarily among people of low SES, which results in flat SES-mortality gradients among migrants (for more on this mortality advantage, see Markides & Eschbach, 2011).

Latin American migrants come from nations with high inequality (Londoño & Székely, 2000). Yet, social gradients in health may be weaker in places of origin due to the more recent onset of the nutrition and epidemiological transitions in sending areas (Monteiro et al., 2004). Socioeconomic gradients in chronic health conditions -such as cardio-metabolic diseases-and their associated risk factors -such as obesity, smoking, and lack of physical activity-change from positive to negative during the transition, appearing weak in between (Monteiro et al., 2004).

The fact that immigrant SES differentials in health are weak because they may reflect the transitional stage of the social gradient in health in sending areas has thus come to be known as the *gradient importation* hypothesis. Using data of Mexican-born individuals from surveys in the United States and Mexico, Buttenheim et al. (2010) found that migrant smoking-schooling and, to a lesser extent, obesity-schooling gradients in the U.S. survey are not statistically different from those of non-migrants in the Mexican survey. While we are thus not the first to compare immigrant gradients with those prevalent in Mexico, we are the first to use longitudinal data that allows us to measure both health and SES before emigration and thus, before they are altered by the migration process.

Moreover, we test for an alternative explanation within the same research design not tested before. Even if migrants do import gradients from Mexico initially, it is hard to conceive they would remain untouched by the migration process and the structural conditions of the host country. It is well documented that the health of immigrants deteriorates with ongoing U.S. experience or measures of acculturation to the socio-cultural mainstream (Lara, Gamboa, Kahramanian, Morales, & Bautista, 2005). Among many other outcomes, duration and acculturation measures are positively associated with higher smoking and obesity prevalence (Lara et al., 2005; Singh & Siahpush, 2002; Akresh, 2007). As such, adapting to

life in the U.S. may imply an even faster nutrition transition than the one depicted above. This process has been labeled negative acculturation.

These processes might take place in a different manner and pace across SES levels. As immigrants with higher SES may acculturate more smoothly to the U.S. mainstream (Portes & Böröcz, 1989), the prevalence of obesity and smoking may increase more rapidly among these individuals as by-products of this swifter adaptation. Assuming SES-health gradients among migrants upon arrival to the U.S. are negative, uneven changes in health behaviors across SES groups may result in less marked gradients among more experienced immigrants compared to those with less experience. We know of no study testing for SES-graded acculturation even though it may partially explain the less marked gradients of immigrants (Goldman et al., 2006: p. 2191).

3. Data and Methods

3.1 Data

We use data from the Mexican Family Life Survey (MxFLS) and the National Health Interview Survey (NHIS). The MxFLS is a nationally representative longitudinal study with a baseline survey in 2002 and a follow-up fielded in 2005. The baseline survey of 35,677 individuals in 8,440 households located in 150 different communities is a multi-stage probability sample of the Mexican population stratified by region with regional urban/rural conglomerates as primary sampling units (Rubalcava & Teruel, 2007). As the vast majority of Mexican migrants are younger men, our working sample is composed of adult males ages 18 to 49, about 4% of whom emigrated to the U.S. in the inter-wave period (Table 1). Sample attrition rates between waves were low: 91.1% of the 6,449 men in this age range interviewed at the MxFLS baseline were re-interviewed or accounted for as internal or international migrants. However, complete information in all our health, SES, migration, and socio-demographic variables of interest was available for 4,120 of the 5,874 individuals who were relocated.

To test for SES-graded acculturation, we look at foreign-born Mexican gradients for ages 18-49 using data from the adult sample of the NHIS, while including those of Mexican-Americans and NH whites for comparison. The NHIS is fielded by the National Center for Health Statistics, Centers for Disease Control and Prevention since the late 1950s. Each annual cross-section is a nationally-representative multi-stage, stratified sample of the U.S. population in which Hispanics are over-sampled (NCHS, 2008). We pool the 1997-2007 waves to increase the precision of our estimates and adjust sampling weights to reflect the multi-year pooling (NCHS, 2008: Appendix III). The age selection yields a sample of 5,498 foreign-born Mexicans, 4,194 Mexican-Americans, and 48,930 NH whites (Table 1).

3.2 Variables

We estimate obese status as individuals with BMI over 30 kg/m^2 (height and weight measured in MxFLS, self-reported in NHIS). Following other studies, we classify individuals who reported smoking regularly as current smokers (Goldman et al., 2006; Singh & Siahpush, 2002). For our measure of SES, we use years of formal schooling calculated from the highest grade and level attained by the respondent, which enters our models linearly. In the NHIS data and for our SES-graded acculturation tests, we group foreign-born Mexicans according to their time in the U.S.: less than one year, 1-14 years, and 15+ years. Note that the results discussed below are similar whether we use these duration categories or expand the 1-14 group into the three original groups available in the NHIS (1-4, 5-9, and 10-14 years).

3.3 Analytical Strategy

We estimate obesity and smoking logistic regressions for the main effects of age and gender, and the main effects and interactions between SES and ethnic/nativity/migration status/experience. In other words, we allow the schooling effect to be different between NH whites, Mexican-Americans, and foreign-born Mexicans according to their level of U.S. experience in the NHIS, and also for migrants and nonmigrants in the MxFLS. We present the 95% confidence interval of the odds ratios for the schooling effect by nativity/migration status, as well as predicted values along the inter-quartile range in the educational attainment distribution of each ethnic/nativity/migration status/duration group.

4. Results

Table 2 shows results from our multivariate models with MxFLS data in Panel I. We find evidence consistent with the gradient importation hypothesis as 1) the SES-health gradients of non-migrants are relatively weak and 2) the gradients of migrants are not statistically or substantially different from those of non-migrants. SES obesity gradients are not statistically significant among nonmigrants, while they are weak and negative in the case of smoking: an increase in one year of schooling is associated with 3% lower odds of being a smoker. The differences between the gradients of migrants and non-migrants are not statistically significant in either of these outcomes.

Panel II in Table 2 presents similar statistics for the NHIS sample for various ethnicity/nativity/U.S. experience groups. We find no conclusive evidence consistent with the SES-graded acculturation hypothesis. First, the Mexican-American and NH white reference group gradients are significant and negative, with 8% lower odds of obesity for each additional year of education for both groups and 14%/26% lower odds of being a smoker for Mexican-Americans and NH Whites respectively. Even though the gradients are weaker for more experienced relative to less experienced migrants, the differences in gradients across duration groups are not statistically significant. There is no significant SES gradient for migrants with less than one year of experience, whereas each additional year of education reduces the odds of being a smoker by 3-4 per percent among those with both 1-14 and 15+ years in the U.S.

5. Discussion

We find evidence consistent with the gradient importation hypothesis. Measuring SES and health before emigration, Mexican immigrants have weak SES-health gradients partly as these gradients may reflect the ongoing nutrition and epidemiological transitions in Mexico. Although our migrant sample is small (n=172), we believe our general conclusion is not driven by lack of power as both nonmigrant and migrant gradients are weak relative to those in the U.S. On the other hand, our findings do not strongly support our second hypothesis, as increased duration in the U.S. does not indicate measurable SES graded acculturation. Although the prevalence of obesity rises considerably with duration in the U.S. (Table 2, Panel 2), these changes may occur somewhat uniformly across SES groups. We do not believe lack of power is driving our conclusions as our sample sizes for migrants with 1-14 and 15+ years in the U.S. are large (n=3,047 and n=1,805). Although the sample size of the group of immigrants with less than one year of U.S. experience is much smaller (n=238), acculturation processes that affect smoking and obesity do not tend to operate in such a short term (Akresh, 2007; Singh & Siahpush, 2002). Yet, further research should explore SES-selective acculturation while specifically looking at socioeconomic status.

We also offer a final reflection. Although it is valid to question if migrants adapt to the host society in outcomes such as health, the fact that most immigrant groups observed to date

have weaker gradients should not only motivate research on the explanations of weak immigrant gradients, but also on the mechanisms by which U.S.-born individuals are marked relative to those prevalent in other industrialized nations (Banks et al., 2006).

REFERENCES

Akresh IR. Dietary assimilation and health among Hispanic immigrants to the United States. Journal of Health and Social Behavior. 2007; 48(4):404–417. [PubMed: 18198687]

Banks J, Marmot M, Oldfield Z, Smith JP. Disease and disadvantage in the United States and in England. JAMA-Journal of the American Medical Association. 2006; 295(17):2037–2045.

Buttenheim A, Goldman N, Pebley AR, Wong R, Chung C. Do Mexican immigrants "import" social gradients in health to the US? Social Science & Medicine. 2010; 71(7):1268–1276. [PubMed: 20692753]

Goldman N, Kimbro RT, Turra CM, Pebley AR. Socioeconomic gradients in health for white and Mexican-origin populations. American Journal of Public Health. 2006; 96(12):2186–2193. doi: 10.2105/ajph.2005.062752. [PubMed: 17077396]

Kimbro RT, Bzostek S, Goldman N, Rodríguez G. Race, ethnicity, and the education gradient in health. Health Affairs. 2008; 27(2):361–372. [PubMed: 18332490]

Krueger PM, Rogers RG, Hummer RA, Boardman JD. Body Mass, Smoking, and Overall and Cause-Specific Mortality Among Older U.S. Adults. Research on Aging. 2004; 26(1):82–107. doi: 10.1177/0164027503258518.

Lara M, Gamboa C, Kahramanian MI, Morales LS, Bautista DEH. Acculturation and latino health in the United States: A review of the literature and its sociopolitical context. Annual Review of Public Health. 2005; 26:367–397. doi: DOI 10.1146/annurev.publhealth.26.021304.144615.

Londoño JL, Székely M. Persistent poverty and excess inequality: Latin America, 1970-1995. Journal of Applied Economics. 2000; 3(1):93–134.

Markides, KS.; Eschbach, K. Hispanic paradox in adult mortality in the United States. In: Rogers, RG.; Crimmins, EM., editors. International handbook of adult mortality. Springer Publishers; New York: 2011. p. 225-238.

Monteiro CA, Moura EC, Conde WLP, Barry M. Socioeconomic status and obesity in adult populations of developing countries: A review. Bulletin of the World Health Organization. 2004; 82(12):940–946. [PubMed: 15654409]

NCHS. 2007 National Health Interview Survey Public Use Data Release: NHIS Survey Description. N. C. f. H. S. Division of Health Interview Statistics. , editor. Centers for Disease and Control, U.S. Department of Health and Human Services; Hyattsville, MD: 2008.

Pampel FC, Krueger PM, Denney JT. Socioeconomic disparities in health behaviors. Annual Review of Sociology. 2010; 36:349–370.

Portes A, Böröcz J. Contemporary immigration: Theoretical perspectives on its determinants and modes of incorporation. International Migration Review. 1989:606–630. [PubMed: 12282796]

Rogers RG, Hummer RA, Krueger PM, Pampel FC. Mortality attributable to cigarette smoking in the United States. Population and Development Review. 2005; 31(2):259–292.

Rubalcava, LN.; Teruel, G. User's Guide for the Mexican Family Life Survey: First Wave. 2007. Retrieved from www.mxfls.uia.mx

Singh GK, Siahpush M. Ethnic-immigrant differentials in health behaviors, morbidity, and cause-specific mortality in the United States: An analysis of two national data bases. Human Biology. 2002; 74(1):83–109. [PubMed: 11931581]

Turra CM, Goldman N. Socioeconomic differences in mortality among US adults: Insights into the Hispanic paradox. Journals of Gerontology: Series B. 2007; 62(3):S184–S192.

Table 1

Descriptive statistics for Men ages 18–49 by select ethnicity/nativity/US experience groups

	2002 Mexican Family Life Survey		Pooled 1997-2007 U.S. National Health Interview Surveys				
			Foreign-born Mexicans				
	Non-migrants Mean (S.E.)	2002-2005 Migrants Mean (S.E.)	In the U.S. for < 1 year Mean (S.E.)	In the U.S. for 1-14 years Mean (S.E.)	In the U.S. for 15+ years Mean (S.E.)	U.S.-born Mexican-Americans Mean (S.E.)	U.S.-born NH Whites Mean (S.E.)
Obese (BMI>=30 kg/m^2)	0.194 (0.006)	0.145 (0.027)	0.058 (0.02)	0.143 (0.01)	0.243 (0.010)	0.303 (0.007)	0.195 (0.002)
Currently smokes	0.234 (0.007)	0.209 (0.031)	0.263 (0.04)	0.235 (0.01)	0.243 (0.010)	0.261 (0.007)	0.315 (0.002)
Age	32.3 (0.15)	26.6 (0.63)	29.2 (0.66)	30.5 (0.12)	39.9 (0.12)	31.7 (0.14)	34.9 (0.04)
Years of schooling	8.2 (0.06)	7.3 (0.24)	8.5 (0.37)	9.1 (0.07)	8.8 (0.09)	12.7 (0.03)	13.8 (0.01)
N	3,948	172	238	3,047	1,805	4,194	48,930

Source: 2002 Mexican Family Survey in Mexico and pooled 1997-2007 National Interview Surveys in the U.S.

Notes: Weighed estimates

Table 2

Odds ratios of the effect of schooling and range of predicted values in health indicators along the inter-quartile range of educational distribution by migration status/ethnicity/nativity, Men 18-49

	I. 2002 MEXICAN FAMILY LIFE SURVEY			
	A. Obese (BMI ≥ 30 kg/m^2)		B. Currently smokes	
	Odds ratio (95% C.I.)	Predicted values along SES IQR	Odds ratio (95% C.I.)	Predicted values along SES IQR
Non-migrants	1.01 (0.99, 1.03)	(0.217, 0.226)	0.97 (0.95, 0.99)	(0.31, 0.28)
2002-2005 migrants	1.03 (0.89, 1.18)	(0.238, 0.257)	0.99 (0.88, 1.11)	(0.30, 0.29)
	II. 1997-2007 U.S. NATIONAL HEALTH INTERVIEW SURVEY			
	A. Obese (BMI ≥ 30 kg/m^2)		B. Currently smokes	
	Odds ratio (95% C.I.)	Predicted values along SES IQR	Odds ratio (95% C.I.)	Predicted values along SES IQR
Foreign-born Mexicans				
In the U.S. < 1 year	1.09 (0.92, 1.29)	(0.06, 0.08)	0.92 (0.84, 1.01)	(0.32, 0.25)
In the U.S. 1 -14 years	1.00 (0.97, 1.03)	(0.18, 0.18)	0.97 (0.95, 0.99)	(0.27, 0.24)
In the U.S. 15+ years	0.98 (0.95, 1.01)	(0.26, 0.25)	0.96 (0.94, 0.99)	(0.28, 0.25)
U.S.-born Mexicans	0.92 (0.90, 0.94)	(0.34, 0.31)	0.86 (0.84, 0.89)	(0.30, 0.24)
U.S.-born NH Whites*	0.92 (0.91, 0.93)	(0.21, 0.16)	0.74 (0.73, 0.75)	(0.44, 0.19)

Sources: (I) 2002 Mexican Family Life Survey in Mexico and (II) pooled 1997-2007 U.S. National Health Interview Surveys in the U.S.

Notes: Predicted values calculated for people with 6 and 10 years of education.