

The Midlife Health of Immigrants Who Attended US Schools
Emily Lybbert and Chandra Muller, University of Texas at Austin

For the children of immigrants in the United States, there is a well-established link to higher educational achievement and attainment.¹ Other recent work has also established a link between education of all children, including experiences and achievements in high school, and midlife health². Because of the relationship between education and health, it is important to consider educational attainment as a pathway through which parental immigration affects health. Furthermore, much attention has been paid to the growing racialized health disparity in the U.S. and while some studies have sought to observe the generational effects of race on health³ there is still more to be understood about how racial disadvantage is transmitted over time. This study examines the health effects of parental immigration and growing up in the U.S. We are interested in understanding whether there are midlife health differences between the children of immigrants and the children of native born citizens who grow up together. We also question how this relationship is influenced by race, ethnicity, and education.

To answer these questions, we utilize all waves of the High School and Beyond (HS&B) survey. Recent work using this data set has established a link between high school course taking and midlife health.² The HS&B survey has questions regarding immigration, ethnicity, and language ability that have been utilized in other work, but these measures have yet to be applied to predicting midlife health and could yield valuable results. The longitudinal and cohort structure of the HS&B data also provides opportunities for fixed-effects and comparisons between and within groups. Finally, the HS&B survey has an oversampling of Hispanics of which the majority fall into three main ethnicities: Cuban, Mexican, and Puerto Rican. We use this oversample to examine differences between Hispanic ethnicities to further evaluate the role that immigrant background and race have on health. We hypothesize that:

H1: The children of immigrants have better midlife health than the children of native born citizens.

Data and Methods

We use data from all waves of the HS&B Survey, including the 2014 Midlife Follow-Up. We include both the Senior and Sophomore cohorts of the study and standardize sample weights accordingly. Table 1 displays descriptive statistics for the combined sample of 15630, rounded. We measure variation in self-reported health from the 2014 Midlife Follow-up using multinomial linear regression. This health measure is scaled from 1-5 with higher values indicating excellent

¹ Levels, Mark, Jaap Dronkers, and Gerbert Kraaykamp. 2008. "Immigrant Children's Educational Achievement in Western Countries: Origin, Destination, and Community Effects on Mathematical Performance." *American Sociological Review* 73(5):835-53.

² Carroll, Jamie M., Chandra Muller, Eric Grodsky, and John Robert Warren. 2017. "Tracking Health Inequalities from High School to Midlife." *Social Forces* 96(2):591-628.

³ Williams, David R. and Michelle Sternthal. 2010. "Understanding Racial-Ethnic Disparities in Health: Sociological Contributions." *Journal of Health and Social Behavior* 51(1_suppl):S15-27.

Table 1. Means and Proportions of Measures Used in Analysis

	Mean (SD) & Proportion
Self-Reported Midlife Health	3.694 (0.998)
Parental Immigration	
Native Parents	0.826
One Immigrant Parent	0.077
Two Immigrant Parents	0.097
Respondent Immigration	
Native Born	0.912
Immigrated Before School	0.052
Immigrated During School	0.036
Bilingual	0.155
Female	0.546
Race	
Hispanic	0.209
Asian	0.03
Black	0.159
White	0.579
Other	0.023
Parental Education	
Less than HS	0.133
HS Grad	0.424
Some College or Tech	0.224
College	0.22
Respondent Education	
HS or Less	0.424
Some College or Tech	0.182
College	0.394
N*	15630

*. Sample size has been rounded per NCES specifications.

health and lower values indicating poor health. Overall, our sample reports generally fair/good health with a mean self-reported health of 3.694. Our key independent variables are parental immigration and respondent immigration. The measure of respondent immigration is concerned not only with whether the respondent is an immigrant but the timing of their migration. 82.6% of the sample claimed both parents were native US citizens and 91.2% of respondents reported that they were native-born US citizens. We include academic measures that have been associated with positive health gains such as curriculum tracking during high school, the respondent's belief that they will attend college, and a standardized measure of locus of control. Pre-existing health and environmental measures are also included in our analyses and include measures from high school (if the respondent was overweight, depressed, or had a physical disability) and midlife

(employment status and county stroke death per 100,000). For this preliminary stage, missing values in predicting measures have been mean imputed with missing flags included in analysis.

Preliminary Results

Table 2 displays the preliminary linear regression results. Parental immigration is associated with better midlife health while respondent immigration is associated with negative midlife health, especially if the respondent has immigrated to the U.S. prior to kindergarten/ first grade (Both measures are compared to native-born groups). While the black-white health gap persists throughout, the Hispanic-white health gap shrinks once academic and health context measures are included. Surprisingly, Hispanic midlife health is higher than what white respondents report when adjusted for health context measures. Finally, increases in parental and respondent education were associated with a significant increase in respondents' self-reported midlife health. Other analyses using this sample have found that parental immigration status has a strong, positive relationship with college degree attainment. In response to H1, it appears that native born respondents with immigrant parents do have better midlife health, but if a respondent is themselves an immigrant, the health benefit of parental immigration is canceled out.

What we hope to accomplish next with this project is to 1) tease out the differences in health between Hispanic ethnic groups and 2) develop a more causal model to reveal how immigration status affects health through educational attainment. Regarding our first goal, it appears that there is no significant difference in health between ethnic groups, which has significance in understanding the racialized processes in the U.S. that actively work to lump Hispanic ethnic groups into one racialized category. However, this may be due to a lack of power and more clarifying analyses will need to be conducted. And finally, the relationships between health and education, education and immigration are well-established, but the remaining question of our research is how immigration status affects health through educational achievement. The answer to this question would prove valuable to understanding the overall relationship between immigration and health in the United States.

Table 2. Preliminary Linear Regression results to predict Midlife Self-Reported Health with Controls

	1	2	3	4	5	6
Parental Immigration Status						
One Immigrant parent	-0.0124 (0.0418)	0.00421 (0.0426)	0.0257 (0.0431)	0.0208 (0.0426)	0.0187 (0.0418)	0.0127 (0.0407)
Two Immigrant parents	0.0922* (0.0455)	0.141** (0.0516)	0.173** (0.0547)	0.170** (0.0548)	0.133* (0.0530)	0.0999~ (0.0512)
Respondent Immigration Status						
Immigrated Before School		-0.114* (0.0554)	-0.103~ (0.0550)	-0.134* (0.0552)	-0.137* (0.0541)	-0.116* (0.0509)
Immigrated During School		-0.0873 (0.0762)	-0.0784 (0.0790)	-0.0912 (0.0802)	-0.0754 (0.0771)	-0.0423 (0.0740)
Bilingual			-0.0321 (0.0447)	-0.0128 (0.0444)	-0.0283 (0.0431)	-0.0396 (0.0426)
Female			0.0301 (0.0227)	0.0419~ (0.0225)	0.0165 (0.0224)	0.0672** (0.0219)
Race						
Hispanic			-0.143*** (0.0385)	-0.0859* (0.0386)	-0.0130 (0.0384)	0.0298 (0.0372)
Asian			0.0801 (0.0837)	0.0716 (0.0837)	0.00953 (0.0789)	0.0389 (0.0869)
Black			-0.268*** (0.0347)	-0.231*** (0.0350)	-0.210*** (0.0349)	-0.159*** (0.0329)
Other			0.127 (0.0875)	0.138 (0.0876)	0.157~ (0.0850)	0.161~ (0.0827)
Parental Education						
HS grad				0.141*** (0.0388)	0.0982** (0.0378)	0.0680~ (0.0352)
Some College or Tech				0.278*** (0.0404)	0.153*** (0.0401)	0.131*** (0.0375)
College				0.418*** (0.0402)	0.182*** (0.0411)	0.173*** (0.0389)
Respondent Education						
Some College or Tech					0.1000** (0.0318)	0.0922** (0.0300)
College					0.325*** (0.0286)	0.257*** (0.0272)
Academic Measures	No	No	No	No	Yes	Yes
Health Context	No	No	No	No	No	Yes
Missing Flags Included	Yes	Yes	Yes	Yes	Yes	Yes
Observations	15630	15630	15630	15630	15630	15630
R-squared	0.015	0.015	0.024	0.039	0.075	0.162

Robust standard errors in parentheses, sample size has been rounded per NCES specifications.

*** p<0.001, ** p<0.01, * p<0.05, ~ p<0.1