
**FACTS
Reports**

Field Actions Science Reports

The journal of field actions

**Special Issue 2 | 2010
Migration and Health**

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Carolyn Zambrano



Electronic version

URL: <http://journals.openedition.org/factsreports/507>

ISSN: 1867-8521

Publisher

Institut Veolia

Electronic reference

Carolyn Zambrano, « Health and Young Adulthood: Does Immigrant Generational Status Matter? », *Field Actions Science Reports* [Online], Special Issue 2 | 2010, Online since 01 October 2010, connection on 19 April 2019. URL : <http://journals.openedition.org/factsreports/507>

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Health and Young Adulthood: Does Immigrant Generational Status Matter?

C. Zambrano

Department of Sociology, University of California, Irvine

Abstract. A substantial body of research in international migration focuses on the “immigrant health paradox” and the health benefits immigrants may experience because of it. Less examined are the health outcomes of immigrants’ children and later generations. Will the protective health benefit apply to child migrants and the children of immigrants? Will it endure as they transition to adulthood? Using two waves of data from the National Longitudinal Study of Adolescent Health, I examine the differences in health outcomes among young immigrants (1.5 generation), children of immigrants (2nd generation), and native-born adolescents with native-born parents (3rd generation+). Self-reported health serves to measure health outcomes. I find that both Hispanic respondents and Hispanic second-generation respondents are more likely to report poor health.

Keywords. Immigrant health paradox, Hispanic, generation, adolescence, downward assimilation.

1 Introduction

International migration scholarship examines many facets of the immigration phenomenon, including who migrates, for what reasons, and how immigrants fare once they arrive in the United States. One facet of immigrant life that is studied is health and how health outcomes, behaviors, and the prevalence of disease change as immigrants remain in the United States. Frequently studied health behaviors include occurrence and frequency of physical exercise (Gordon-Larsen *et al.* 1999), patterns of tobacco and alcohol use (Lopez-Gonzalez *et al.* 2005), and chronic ailments (Escarce *et al.* 2006).

Beyond interest in particular health conditions, many scholars have devoted effort to analyzing and explaining the immigrant “epidemiological paradox” (Markides and Coreil 1986; Rumbaut 1999; Harris 1999; Escarce *et al.* 2006; Read *et al.* 2005a; Palloni and Arias 2004; Smith and Bradshaw 2006). This is the finding that certain immigrant groups have better health outcomes and lower rates of morbidity and mortality than native-born, non-Hispanic white populations. These immigrant groups tend to have less education and to be of a lower socioeconomic status than non-Hispanic whites, and have less access to health care services. Therefore, it is expected that these immigrants would have higher mortality rates and poorer general health.

Numerous studies of the epidemiological paradox were conducted with adult immigrants and focused on the impact of time spent in the United States on migrants’ health outcomes (Read *et al.* 2005a; Palloni and Arias 2004; Smith and Bradshaw 2006; Weeks and Rumbaut 1991). My study will build on existing research about immigrant health in the United

States and research that utilizes the Longitudinal Study of Adolescent Health (Add Health). First, I hypothesize that the first generation will have the greatest health advantage. Second, I hypothesize that the first generation will see a decrease in their positive self-reported health outcomes and an increase in excess weight by Wave III. And third, I hypothesize that the benefits that immigration seems to provide will decrease with each further generation.

Previous studies utilizing Add Health have focused on obesity (Popkin and Udry 1998; Gordon-Larsen *et al.* 1999). Further research utilizing Add Health finds that second- and third-generation Hispanic adolescents are more likely to be obese when compared to the first generation of Hispanic immigrants. Scholars also find that as adolescents age, their health and access to health care decrease, while risky behaviors increase (Harris *et al.* 2006).

Several theories attempt to explain the immigrant paradox (Acevedo-Garcia and Bates 2008). The data artifact theory asserts that a paradox does not exist and that the unusually low rates of mortality or morbidity are due to misreported data. The selectivity argument focuses on the immigrants themselves and argues that any health advantages that exist are due to immigrant self-selection; only the healthiest people immigrate. The socio-cultural explanation focuses on the aspects of immigrant families and communities that may positively affect health or the health behaviors and beliefs immigrants may bring with them to the United States. In this paper, I address the immigrant health paradox by applying the sociocultural explanation.

2 The Sociocultural Explanation

Groups of low-skilled immigrants and refugees tend to stay close to other co-ethnic populations, since these are areas where they have established strong bonds, social ties,

Correspondence to: Carolyn Zambrano
(zambranc@uci.edu)

and co-ethnic networks and where it is easier to find jobs and housing (Portes and Rumbaut 2001). Groups of more highly educated immigrants are less likely to stay in one area, because their skills enable them to find jobs without established social networks. The sociocultural explanation credits features like social support, co-ethnic communities, familism, religion, and norms related to diet and substance use (Acevedo-Garcia and Bates 2008; Durden 2007; Lopez-Gonzalez *et al.* 2005) as explanations for the immigrant health paradox. Consequently, studies crediting the sociocultural explanation focus on analyzing whether and to what degree these protective factors wane as length of time spent in the United States increases.

However, in addition to maintaining strong family ties and strong co-ethnic communities over generations, ties are also formed with other non-immigrant Americans, which can contribute to the adoption of negative health behaviors. For example, children's consumption of fast food has increased at an amazing rate, from 2% of total energy consumption in the late 1970s to 10% in the mid-1990s (Bowman *et al.* 2004). Such behavior patterns may be part of the reason that later generations of immigrants have a lower health "advantage" than first-generation, foreign-born immigrants (Acevedo-Garcia and Bates 2008). Classical theories posit that through the assimilation process, immigrants "acquire the memories, sentiments, and attitudes of other persons and groups and, by sharing their experience and history, are incorporated with them in a common cultural life" (Park and Burgess 1924, in Rumbaut 1997). If this is the "normal" or "mainstream" environment that immigrants are assimilating to, it is easy to see why immigrants lose any protective health effect and adopt more negative health behaviors. Indeed, children may see adopting these behaviors as part of being "American" and seek the approval of their peers by consuming the same foods and treats that their native-born counterparts enjoy (Santora 2006). In this case, we must wonder if assimilation is actually bad for children's health (Rumbaut 1999).

3 The Study

3.1 Data

To examine adolescent health, I utilize the National Longitudinal Study of Adolescent Health. Add Health is a nationally representative study that investigates "the causes of health and health-related behaviors of adolescents and their outcomes in young adulthood" (Harris *et al.* 2006). The study features a multi-survey, multi-wave, interdisciplinary design. Add Health also provides information about parental nativity.

I utilize parental data from Wave I (collected in 1994-1995) and adolescent data from Wave II. Wave II data of Add Health were collected between April and August 1996. Add Health used a multistage, stratified, school-based, cluster sampling design, and sampled students from 80 high schools, both public and private (Perreira *et al.* 2005). Wave III data were collected between July 2001 and April 2002 (Carolina Population Center 2008).

3.2 Wave I Measures

The measures I utilize from Wave I are parental responses to questions about use of public assistance programs. In a series

of six questions, the parent was asked if any member of the household received Social Security, Supplemental Security Income, Aid to Families with Dependent Children, food stamps, unemployment or worker's compensation, or a housing subsidy. I created a dichotomous variable for use of public assistance if the parent indicated that they or someone in their household had participated in any of these programs.

3.3 Wave II Measures

The dependent variable is self-reported general health. General health is a one-item question: "In general, how is your health? Would you say excellent, very good, good, fair, or poor?" The original scale varies from 1 to 5; for this analysis I created a dichotomous variable by collapsing excellent, very good, and good as the reference category (coded as 0); fair and poor were collapsed to create the poor/fair group (coded as 1). I chose to dichotomize the variable because much of the literature follows this protocol when analyzing self-reported general health (Harris 1999; Harris *et al.* 2006; Read *et al.* 2005a, 2005b).

Furthermore, although there is concern about the adequacy and validity of measures of self-reported health, there is a growing recognition and acceptance of the "perceptual" nature of health (Schuster *et al.* 2004). Both epidemiological research and social support research demonstrate that self-rated health is a strong and important measure of health (Idler and Benyamini 1997; Finch and Vega 2003; Harris *et al.* 2006).

The primary independent variable used is generational status, along with ethnicity. Ethnicity is self-identified by the respondent. Participants who identify as Hispanic/Latino are asked to specify their country or regional heritage — Cuba, Mexico, Puerto Rico, Central and/or South America, or "other Hispanic." In order to determine nativity, I created three separate variables. The first identifies "first-generation" immigrants (respondents born outside the United States). The second identifies "second-generation" respondents (native-born but with at least one foreign-born parent). The third identifies the remaining respondents who identified as Hispanic, the "third-plus" generation (respondents who are native-born to native-born parents). This last generational variable is not as specific as would be desirable given that no information exists about the nativity of the respondent's grandparents, so a comparison to a true third generation cannot be made. Families with older histories in the United States will have experiences that are far removed from the contemporary "immigrant experience." Lastly, dichotomous variables identify Hispanic and black respondents, compared to the reference category of non-Hispanic white. Throughout my results, discussion, and conclusion, I refer to respondents born outside of the United States as the "first generation" and the "1.5 generation" interchangeably.

Variables used as controls are characteristics shown to be particularly significant for adolescent health, such as mother's education, family income and use of public assistance, family structure, gender, age, and nativity. Mother's education is measured by four dichotomous variables: less than high school, high school diploma (or equivalent), some college, and bachelor's degree or higher. In the bivariate analysis, I create categories for income. The lowest category is an annual family income of \$34,999 or less. The middle income category is for families

with incomes between \$35,000 and \$69,999. The high-income category includes families with incomes above \$70,000. In the multivariate analysis, I utilize income as a continuous variable. The people with whom the adolescent lives determine family structure: two biological parents, stepparents, mother only, or father only. These are all coded as dummy variables.

3.4 Wave III Measures

The dependent variables for Wave III are the same. All the independent variables used in the analysis for Wave III are the same as those used for Wave II. Mother’s education and family income were utilized in the Wave III analysis in an effort to determine whether early inequalities have a bearing on later life outcomes, as some research suggests (van den Berg 2006).

3.5 Method

The first part of the analysis is at the bivariate level. The analysis seeks to identify differences on key independent and dependent variables using cross tabulations in conjunction with chi-square tests. Next, a multivariate analysis is performed for each dependent variable, using a series of three logistic regressions. Model

0 is an empty model, which includes demographics (race, age, gender) and nativity. Model 1 includes age, gender, race/ethnicity, and generational variables. Dummy variables were created for ethnicity, generation (i.e., first generation, second generation, third generation) and for the interaction between ethnicity and generational status (i.e., first-generation Hispanic, second-generation Hispanic, etc.). Model 2 adds the variables for mother’s education, mother’s occupational status (blue collar/white collar), and family’s use of welfare. Model 3 adds the variables for family structure (nuclear family, stepfamily, or single mother) and for excess weight at Wave II.

4 Findings

4.1 Bivariate Results, Wave II

Table 1 examines selected independent and dependent variables compared across racial categories. At Wave II, there are no significant differences in self-reported health between adolescents of different racial groups. However, there is a significant difference in level of maternal education across racial groups. Hispanic mothers are significantly more likely not to have a high school diploma, and Hispanic mothers are significantly

Table 1. Selected Dependent and Independent Variables, Wave II and Wave III

	Wave II			Wave III		
	White (N = 5536)	Black (N = 2443)	Hispanic (N = 932)	White (N = 5538)	Black (N = 2445)	Hispanic (N = 933)
Self-rated health						
Excellent/very good/good	93.7%	93.5%	92.3%	95.2%	94.9%	94%
Fair/poor	6.3	6.5	7.7	4.8	5.1	6.0
Mother’s education (Respondent’s education at Wave III)						
Less than high school graduate	17.5	17.4	44.2***	15.9	15.2	14.4
High school graduate	37.5	31.8	30.8	32	35.4	33.3
Some college	19.4	22.3	12.8	40.5	38.3	39.7
Bachelor’s degree and higher	25.6	28.6	12.2	11.6	11.1	12.6
Mother’s occupation						
White collar	75.9	72.8	55.2***	—	—	—
Blue collar	24.1	27.2	44.8	—	—	—
Family receiving public assistance (Respondent’s PA use at Wave III)						
No	79.6	61.6	73.2***	89.9	88.1	89.3*
Yes	20.4	38.4	26.8	10.1	11.9	10.7
Family Structure						
Two-parent home	74	44.6	66.6***	—	—	—
Stepfamily	6.2	5.3	7.3	—	—	—
Single parent	19.8	50.1	26.3	—	—	—
Respondent’s marital status at Wave III						
Single	—	—	—	84.4	81.9	82.9^
Married	—	—	—	15.6	18.1	17.1
Ethnicity						
Mexican	—	—	41.8	—	—	—
Cuban	—	—	23.2	—	—	—
Puerto Rican	—	—	15.2	—	—	—
Central/S. America	—	—	10.5	—	—	—
Other Hispanic	—	—	9.3	—	—	—
Age in years ^a	16.1 (1.7) ^b	16 (1.8)	16.4 (1.7)	22.2 (1.6)	22.1 (1.6)	22.2 (1.6)

[^]p = < 0.10, *p = < 0.05, **p = < 0.01, ***p = < 0.000

^a mean scores. ^b standard deviation

less likely to have graduated from college. White mothers are significantly more likely to have a high school diploma.

There is also a significant difference in the use of public assistance between ethnic groups. White students had the highest percentage of families not receiving public assistance, and black students are more likely to be a part of families that are utilizing public assistance. White respondents have the highest rates of two-parent homes; Hispanic respondents also have a very high rate of two-parent homes. In contrast, black respondents have the highest rates of single-parent homes.

4.2 Bivariate Results, Wave III

There is no significant difference in self-reported health between respondents of different ethnic groups at Wave III. However, there are significant differences between respondents of different ethnic groups in use of public assistance. Black respondents are more likely to report the use of public

assistance, while white respondents are the least likely group to use public assistance. Additionally, white respondents are more likely to be single, while black respondents are more likely to be married.

4.3 Multivariate Results, Wave III

Table 2 shows the results of a logistic regression for the odds of reporting fair or poor health at Wave III. At Model 1, second-generation respondents were less likely to report fair or poor health. Second-generation Hispanic respondents were actually more likely to report fair or poor health. Model 2 adds controls for maternal education, family's use of welfare, and maternal occupation, although second-generation respondents remain as likely to report fair or poor health at the same level as in Model 1. However, the likelihood of second-generation Hispanic respondents to report poor health actually increases from Model 1. Finally, Model 3 adds a control for family structure and for re-

Table 2. Logistic Regression Coefficients for Odds of Reporting Fair/Poor Health Using Add Health at Wave III, Controlling for Reporting Fair/Poor Health at Wave II

	Model 0		Model 1		Model 2		Model 3	
	OR	Std. Error	OR	Std. Error	OR	Std. Error	OR	Std. Error
Demographics								
Hispanic	1.42	0.31	1.36	0.37	1.36	0.37	1.59*	0.42
Black	1.16	0.2	1.16	0.37	1.17	0.2	1.2	0.22
(Ref = white)								
Age	0.97	0.04	0.93	0.04	0.97	0.04	0.99	0.44
Female	0.99	0.13	0.99	0.13	0.99	0.13	0.95	0.13
Nativity								
2.0 generation	1.11	0.42	0.01**	0.14	0.01**	0.01	0.02**	0.02
3.0 generation	1.14	0.17	1.14	0.17	1.11	0.16	1.44	0.35
(Ref = 1.5 generation)								
Nativity by ethnicity								
Hispanic 2.0 generation			112.7**	117.3	115.2**	120.0	95.74**	99.3
Hispanic 3.0 generation+			0.81	0.41	0.82	0.42	0.80	0.42
(Ref = Hispanic 1.5 generation)								
Mother's education								
High school diploma					0.95	0.17	0.94	0.17
Some college					0.98	0.24	1.06	0.26
College or beyond					1.15	0.22	1.15	0.23
(Ref = < high school diploma)								
Use of public assistance								
Family receiving public assistance					0.89	0.13	0.87	0.13
(Ref = not receiving public assistance)								
Mother's occupation								
Blue-collar occupation					1.05	0.19	0.93	0.17
(Ref = white-collar occupation)								
Family structure								
Stepfamily							1.65	0.55
Single parent							1.44	0.93
(Ref = two-parent home)								
Self-reported "fair/poor" general health at Wave II							0.95	0.3
Constant	0.08**	0.07	0.08**	0.07	0.08**	0.07	0.04**	0.05
Observations	8933		8933		8933		8667	
DF	6		8		13		16	

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

porting fair or poor health at Wave II; the odds of Hispanic respondents reporting poor health becomes statistically significant.

4.4 Limitations of the Results

I decided to use self-reported general health as a dependent variable, given that perception of health is an important part of overall well-being. In addition, it has been employed by researchers in existing literature (Read *et al.* 2005a; Gorber 2007). Nevertheless, it is far from a perfect way to assess health. The generational variables are imprecise, partly because of my limited sample size and partly because of the survey design. I hope in future studies to differentiate between “2.0 generation” adolescents and “2.5 generation” adolescents (adolescents with one immigrant parent and one foreign-born parent). I also hope to analyze and categorize first-generation immigrants more accurately, perhaps by age at arrival to the United States. Unfortunately, the third-generation variable will remain imprecise, given that questions about the nativity of respondents’ grandparents were not included.

5 Discussion and Conclusion

Prior studies find that foreign-born adolescents enjoy better health outcomes than non-Hispanic whites. I theorized that first-generation immigrants would have better health outcomes because they enjoy the positive effects of strong immigrant social networks. I hypothesized that first-generation adolescents would lose some of this health advantage as they aged. Lastly, I hypothesized that this protective effect would decrease over generations, such that the second generation would have lower positive health outcomes than the first, and the third would have lower positive outcomes than the second.

There is no statistically significant difference between generations for general health in Wave II or Wave III. In the Wave III multivariate analysis (table 2), Hispanic respondents have higher odds of reporting poor health. The first generation does not appear to have higher odds for self-reported health; second-generation respondents are significantly less likely to report poor health. However, second-generation Hispanic respondents have higher odds for reporting poor health.

It is well established that as adolescents age they become more sedentary, and unhealthy habits and behaviors increase (Harris *et al.* 2006). The generational results are very interesting; although the results are not significant, third-generation respondents actually have lower odds of reporting poor health. The story of the Hispanic second generation appears to be one of downward assimilation; many researchers have found evidence for downward assimilation and persistent inequality. Telles and Ortiz (2008) find that acculturation still eludes later generations and that the third and fourth generations do worst of all. However, in the present results the story of the third generation appears to be one of upward mobility—in health, in this case—although this is not necessarily evidence of assimilation to the “mainstream,” since the white mainstream is less healthy.

These conflicting findings demonstrate the need for a more thorough investigation before conclusions can be drawn. This is especially important to keep in mind for the present study, given that the third-generation variable is very imprecise.

There is no way to determine whether the respondents are part of a true third generation—that is, with grandparents who are immigrants and parents who are the children of immigrants—or if they are further removed from any history of immigration. We have no way to ascertain how being Hispanic affects the respondents’ everyday lives or if it is a demographic characteristic that they only experience when asked to state their race on official documents.

Further research is needed to examine the relationship between health and immigrant status. Future research should disaggregate the “Hispanic” ethnic category in order to identify specific health patterns among immigrants of different nationalities and ethnicities. Additionally, specific health behaviors such as physical activity patterns, diet, and beliefs about health among immigrant adolescents should be scrutinized, as well as how these characteristics may change as adolescents mature.

5.1 Policy

Health, obesity, and health care are popular topics in the media and in civic life. Many U.S. states have sponsored anti-obesity measures designed to stimulate physical activity, reduce consumption of high-fat foods, or encourage a healthy and balanced diet. Indeed, Michelle Obama has made it a priority to reduce childhood obesity by encouraging exercise and healthier eating. Childhood obesity can be a predictor for future health problems and chronic illnesses, and Latinos are especially at risk for Type II diabetes. Diabetes has always been viewed as a disease of middle age, but researchers are finding that more children are being diagnosed with Type II diabetes, which can shorten life expectancy by an average of twelve years (Manuel and Schultz 2004). Excess weight can also lead to high blood pressure, heart disease, and myriad other conditions that affect quality of life and overall life expectancy. Latina women are especially at risk for being overweight (Yeh *et al.* 2009). Additionally, women are more likely to lose the protective effect of immigration more rapidly than men (Hao and Kim 2009), so later generations of Latina women are at the highest risk. Only time will tell if early policy interventions in childhood and adolescence will succeed in improving the health and overall quality of life for Americans, immigrants included.

Note:

This research uses data from Add Health, a program project directed by Kathleen Mullan Harris and designed by J. Richard Udry, Peter S. Bearman, and Kathleen Mullan Harris at the University of North Carolina at Chapel Hill, and funded by grant P01-HD31921 from the Eunice Kennedy Shriver National Institute of Child Health and Human Development, with cooperative funding from 23 other federal agencies and foundations. Special acknowledgment is due Ronald R. Rindfuss and Barbara Entwisle for assistance in the original design. Information on how to obtain the Add Health data files is available on the Add Health website (<http://www.cpc.unc.edu/addhealth>). No direct support was received from grant P01-HD31921 for this analysis.”

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