

## **The Intergenerational Production of the Health Gradient: Evidence among Immigrant Families**

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Socioeconomic-based health disparities are perhaps one of the most ubiquitous patterns of modern inequality. The socioeconomic gradient in health has been documented in resource-poor and resource-rich nations alike. In the United States, the gradient has been found in array of physiological and psychological conditions among a diverse set of subpopulations, including children, the elderly, rural residents, and ethnic minorities (Adler and Rehkopf 2008; Chen et al. 2005; Marmot 2006; Smith 2004).

One striking counterexample exists. Among first generation Hispanic, black, and Asian immigrants, the education gradient in a number of health outcomes is remarkably flat (Kimbrow et al., 2008; Goldman et al. 2006). The finding has puzzled researchers. The population of each of these immigrant groups is considerably heterogeneous (e.g., Suro 2005). Yet, variation in education appears to be weakly correlated with health outcomes. The puzzle is further complicated by studies documenting socioeconomic gradients in health among the populations of countries of origin and among second and later generations of immigrant families in the United States (e.g., Evans et al., 2001; Smith and Goldman 2007; Winkelby and Cubbin 2003).

A few recent studies have helped to shed light on the origins of the flat health gradient. To study this pattern among Mexican immigrants, Buttenheim and colleagues (2010) find that social gradients in smoking and obesity are less steep in the high migrant areas of Mexico, suggesting that migrants may be selected from areas in which education and income have lower health returns. Further, Jackson and colleagues (2010) have demonstrated that education obtained in the United States has higher economic returns than does education obtained abroad. Among immigrants, the reduced variance in material resources may be correlated with reduced variance in health outcomes.

We approach this puzzle from a different angle, arguing that a key question remains unanswered. Regardless of the origins of the flat gradient, the presence of a SES-health correlation among second-generation implies that a fascinating intergenerational process is

taking place: one in which a health gradient is produced in a single generation. In this sense, the families of U.S. immigrants present an unusual opportunity to consider the social processes that drive socioeconomic variation in health.

Our project has two aims:

1. To assess how early in life socioeconomic patterns in health among second generation children begin to diverge from the socioeconomic patterns in health among their parents.
2. To test competing hypotheses about the intergenerational mechanisms that produce a health gradient among children in the absence of a similar gradient among parents.

At least three processes might explain the intergenerational differences in health patterns. As Jackson and colleagues (2010) have demonstrated, education obtained in the United States has higher returns than does education obtained abroad. Even if the intergenerational transmission of education is high in immigrant families, we may observe that the second-generation exhibits wider variation in economic outcomes than does the first generation because the returns to schooling are contextually driven. These, in turn, may fuel the health disparities observed in the second generation. Alternatively, immigrants with higher levels of socioeconomic status may exhibit patterns of investments in health that differ from immigrants of lower socioeconomic status. Given similar health outcomes, we would expect health behaviors (such as dietary intake and smoking behavior) to be similar across groups; however patterns of investment in children's health (such as provision of dietary needs or providing access to preventative health care) may be different. This finding would be striking, because it would imply a lower correlation among investments in personal health and in the health of children among those with higher levels of education and income. Finally, it is also possible that the returns to similar investment patterns may differ across socioeconomic groups. For example, it is possible that use of preventative health care for children is similar across groups, but that the quality of care received is sufficiently different across groups to fuel health disparities among children.

To look for evidence of these pathways, we analyze data from two longitudinal, population-representative U.S. samples – the first follows young children and the second follows

adolescents. We believe that by shedding light on this interesting puzzle, the results will also inform our understanding of the origins of health disparities in the United States.

## **Method**

Data for this study come from the Early Child Longitudinal Study – Birth Cohort (ECLS-B) and the National Longitudinal Study of Youth – 97 (NLSY-97).

The ECLS-B is a population-representative sample of over 10,000 children born in the United States in 2001. Over a fifth of these children have at least one immigrant parent. The data set includes information from the children's birth certificates as well as interviews conducted with parents (whether or not they lived with children) and primary care providers when children were, roughly, 9 months, 2 years, 4 years, and 5.5 years old. In each round of data collection, interviewers collected a series of assessments of children's physical, emotional, and cognitive development. Unlike most nationally-representative, longitudinal studies in the United States, the ECLS-B includes objective measures (versus caregiver reports) of children's health. In addition, extensive information on children's food security, access to health insurance, as well as access to preventative and curative health care, is collected in each round.

The NLSY-97 is an ongoing longitudinal population-representative sample that follows a cohort of roughly 9,000 adolescents who were ages 12-16 at the end of 1996. Data from parents were collected in 1997; adolescents were interviewed in 1997 have been re-interviewed every subsequent year. Over fifteen percent of these children have at least one parent who immigrated to the United States. Information on parental health is collected in the first wave; information on adolescent health is collected in each survey round.

In combination, the data sets provide an opportunity to observe behaviors and outcomes among two generations at the beginning of children's lives and as they complete education and transition into adulthood. Further, in both surveys, we have information to measure parents' own material conditions as children and adolescents, allowing us to examine differences in the variance of childhood conditions among immigrants and the variance of childhood conditions among their offspring. Although many aspects of health could be considered, our study will emphasize on height, weight, chronic health conditions, and activity-limiting illness. These measures are collected from both parents and children in both the ECLS-B and NLSY-97 data sets.

We begin the analysis by measuring the differences in the gradient between children and parent generations. This extends previous research looking at cross-sectional samples of immigrant and native born adults in the United States (e.g., Kimbro et al. 2008) by (a) explicitly establishing the puzzle as one involving parents and children and (b) documenting the age at which the gap between patterns among parents and patterns among children materializes. We then consider evidence for the origins of these patterns. We focus on three potential pathways: (1) variance differences in education and material conditions between the first and second generation. (2) socioeconomic-based differences in the ways that parents invest in their own health versus the ways that they invest in the health of their children, and (3) socioeconomic-based differences in the health *returns* to parental investments.

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