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Neighborhood disadvantage and obesity across childhood and adolescence: Evidence from the NLSY children and young adults cohort (1986–2010)

Steven Elías Alvarado

Cornell University, Ithaca, NY, United States

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ABSTRACT

Previous research suggests that youth who grow up in socioeconomically disadvantaged neighborhoods face higher odds of becoming obese. Neighborhood effects scholars, meanwhile, have suggested that contextual influences may increase in strength as children age. This is the first study to examine whether developmental epochs moderate the effect of neighborhood disadvantage on obesity over time. I use thirteen waves of new restricted and geo-coded data on children ages 2–18 from the National Longitudinal Survey of Youth, Children and Young Adults. Bivariate and pooled logistic regression results suggest that neighborhood disadvantage has a stronger impact on adolescents' likelihood of becoming obese. Fixed effects models reveal that after adjusting for observed and unobserved confounders, adolescents continue to face higher odds of becoming obese due to the conditions associated with living in disadvantaged neighborhoods. Moreover, as research on adults suggests, girls experience larger impacts of neighborhood disadvantage than boys.

1. Introduction

Obesity rates in the United States have more than doubled among young children and have quadrupled among adolescents in the past 30 years (National Center for Health Statistics, 2012; Ogden et al., 2014). These troubling trends have motivated public officials to develop national campaigns to intervene in this health crisis beginning at an early age (see Michelle Obama's "Let's Move" campaign: http://www.letsmove.gov/). Theoretically, individual-level (e.g., family socioeconomic status [SES] and genes) and contextual-level resources (e.g., food deserts and peer social capital in the neighborhood) may combine to impact obesity at all ages. However, neighborhood-level resources may become increasingly salient as children get older and interact more with neighborhood actors and institutions, perhaps contributing heavily to the observed spike in obesity among adolescents.

This is the first paper to study the impact of neighborhood context on obesity across childhood and adolescence using longitudinal data at the national level. Although researchers have firmly established a link between individual-level SES and adult obesity, very little work has been able to establish a link with neighborhood SES and childhood obesity at any age. As a consequence, although scholars have observed childhood, and especially adolescent, obesity increasing during the past few decades, there is little research that has assessed the independent role of neighborhood disadvantage in either childhood or adolescent obesity. Moreover, by studying the link between neighborhood context and obesity at different stages of development, this paper represents a key departure from most of the "neighborhood effects" literature that assumes that neighborhoods are static entities whose characteristics and effects do not vary as children age (Sampson et al., 2002).

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The implications of childhood and adolescent obesity for the life-course are difficult to overstate. Not only does obesity impact self-perceptions (Crosnoe et al., 2008), stigma (Mustillo et al., 2012), peer comparisons (Mueller et al., 2010), and schooling (Crosnoe, 2007; Crosnoe and Muller, 2004; Datar and Sturm, 2006; Datar et al., 2004; Sabia, 2007; Cawley and Spiess, 2008; Kaestner and Grossman, 2009), but it can also impact physical and psychological health later in life (Granberg et al., 2009; Carr and Friedman, 2005; Dave and Rashad, 2009; Ferraro and Kelley-Moore, 2003), can incur a penalty in the labor market (Cawley, 2004; Pagan and Davila, 1997; Glass et al., 2010), and can affect health-related expenditures in adulthood (Monheit et al., 2009). Gaining increased clarity on whether structural conditions, such as growing up in a disadvantaged neighborhood, impacts childhood obesity is crucial to circumvent the exacerbation of inequality that will affect the life-chances of millions in coming decades.

Sociologists have long argued that neighborhoods are salient structural spheres of influence for children's development because the norms and values of residents can influence youth behavior by conditioning the *psychosocial contexts* in which they grow up (Jencks and Mayer, 1990; Crane, 1991). Cultural norms, exposure to chronic stressors, and the physical environment may permeate obesity in a disadvantaged neighborhood by creating an "obesogenic" environment (Harrington and Elliott, 2009; Ross, 2000) that can have an especially negative impact on youth because of the important physical and psychological development stage they are in. In addition, researchers have further argued that social capital (e.g., social connectedness), food insecurity, and physical inactivity are likely mechanisms through which neighborhoods may impact obesity (Kawachi and Berkman, 2003; Drewnowski and Specter, 2004). Yet, while scholars have paid considerable attention to adult obesity, to date there is little research in the sociological literature that unites the "neighborhood effects" literature and skyrocketing trends in childhood and adolescent obesity. Despite heightened concerns about food deserts, excess weight gain, and sedentary lifestyles for youth and decades of research of neighborhood effects on adult health, researchers still know surprisingly little about whether neighborhood SES context actually affects obesity among children, and if it does, if the association varies by age.

What scholars do know on this topic comes from a collection of disjointed local samples or national samples that have only examined very short time periods (e.g., one to only a few years). Most previous studies have also been limited in their ability to control for unobserved factors that may affect estimates of neighborhood effects on childhood obesity. Most importantly, previous scholars have fallen short of providing a developmental conceptualization of how neighborhoods may impact childhood obesity as children age. Perhaps unsurprisingly, the literature on neighborhood effects and childhood obesity is filled with mixed results. One thing, however, is clear: to my knowledge, scholars have yet to analyze the changing impact of neighborhood SES on obesity throughout childhood and adolescence.

This paper will fill these gaps in the literature and provide an analysis of the impact of growing up in a disadvantaged neighborhood on childhood obesity. In this way, I will provide evidence for a link between neighborhood disadvantage and obesity that varies as children age. I will also introduce a new data set into this literature: the restricted National Longitudinal Survey of Youth, Child and Young adult cohort (NLSY:CYA).[1] These data are only accessible via a federal clearance procedure and on-site analysis at the Bureau of Labor Statistics in Washington, DC. This is the ideal data set to study obesity in developmental context because it provides thirteen waves of national data that tie neighborhood conditions, family background, and children's obesity together for youth who were between the ages of 2 and 18 at any point between 1986 and 2010. This will also be the first paper to examine neighborhood effects on obesity over time for the cohort of children and adolescents whom have grown up during the period in which childhood obesity rates have exploded. This study therefore has the potential to improve our understanding of the link between neighborhood disadvantage and obesity among youth and perhaps even guide us toward more useful policy to reduce obesity among children and adolescents.

2. Background

Sociologists have established that children in the U.S. grow up within a highly stratified socioeconomic residential landscape (Wilson, 1987; Massey and Denton, 1993). Making the theoretical link between neighborhood ecologies and individual outcomes is a first-order task before estimating the quantitative impact of neighborhood disadvantage (Jencks and Mayer, 1990). One way that neighborhoods can impact youth outcomes is through the adoption of behaviors between peers and friends. Youth who grow up in disadvantaged neighborhoods where crime, gangs, and lacking social services are normative may pass unhealthy behaviors to one another through familial or peer networks. Another way is through normative boundaries and expectations that adults can enforce through the monitoring of youth behaviors. In disadvantaged neighborhoods, unhealthy influences in the form of negative social capital may flow between residents through the approval of unhealthy behaviors that may then lead to negative outcomes (Portes, 1998; Bourgois, 1995). Relatedly, collective efficacy (i.e., the ability of residents of a neighborhood to influence the behavior of children and other residents toward a set of desired goals such as safety and public order) could also transmit the influence of neighborhood context to children (Sampson and Raudenbush, 1999). If the transmission of influence from the neighborhood to the individual works through social contact, then it may make sense to consider how that contact may increase as children age and how neighborhood effects may vary across the early life-course.

[1] I completed all analyses of these restricted NLSY:CYA data on-site at the Bureau of Labor Statistics in Washington, D.C.