



ELSEVIER

Contents lists available at ScienceDirect

## Economics of Education Review

journal homepage: [www.elsevier.com/locate/econedurev](http://www.elsevier.com/locate/econedurev)

## Effects of weight on children's educational achievement

Robert Kaestner<sup>a,b,\*</sup>, Michael Grossman<sup>b,c</sup><sup>a</sup> Institute of Government and Public Affairs, University of Illinois, 815 West Van Buren Street, Suite 525, Chicago, IL 60607, USA<sup>b</sup> National Bureau of Economic Research, USA<sup>c</sup> City University of New York Graduate Center, 365 Fifth Avenue, 5th Floor, New York, NY 10016-4309, USA

## ARTICLE INFO

## Article history:

Received 19 May 2008

Accepted 13 March 2009

## JEL classification:

I19

I21

## Keywords:

Human capital

Educational economics

## ABSTRACT

In this paper, we investigate the association between weight and children's educational achievement, as measured by scores on Peabody Individual Achievement Tests in math and reading, and grade attainment. Data for the study came from the 1979 cohort of the National Longitudinal Survey of Youth (NLSY), which contains a large, national sample of children between the ages of 5 and 12 between 1986 and 2004. We obtained estimates of the association between weight and achievement using several regression model specifications that controlled for a variety of observed characteristics of the child and his or her mother, and time-invariant characteristics of the child. Our results suggest that, in general, children who are overweight or obese have achievement test scores that are about the same as children with average weight.

© 2009 Elsevier Ltd. All rights reserved.

## 1. Introduction

Growing rates of childhood obesity and the potential long-term health consequences of obesity have focused public attention on identifying the causes of and solutions to obesity. While the health consequences of obesity are potentially serious, obesity may also adversely affect other dimensions of child well-being that have long-term and equally important consequences. Specifically, obesity may reduce educational achievement. There is a large literature on the stigma and discrimination that overweight and obese students face and these societal influences may adversely affect student performance. Discriminatory behavior towards overweight and obese children may also bring on depression and cause children to adopt coping mechanisms (e.g., substance use) that could further harm educational achievement. Moreover, obesity may directly reduce cognitive achievement because of physio-

logical consequences of obesity such as sleep apnea and asthma.

Despite plausible mechanisms linking obesity (weight) to educational achievement there has been relatively little research that has investigated the effect of obesity on children's educational achievement. From a public policy point of view this is unfortunate because there are several potential justifications for government action. First, if size (weight) discrimination is the cause of reduced educational achievement, then the government should arguably take action to eliminate or offset the effects of such discrimination so that children and parents undertake the appropriate amount of investments in education. Second, several government policies related to food prices (e.g., farm subsidies), the built environment (e.g., transportation and zoning), and physical activity (e.g., school programs) may be partly responsible for the growth in obesity. If obesity deters human capital investment, current and future government policies that potentially affect obesity need to consider this consequence. Finally, given the firmly documented positive relationship between education and health, enhancing the educational achievement of overweight and obese children may decrease the future social costs of obesity-related health problems.

\* Corresponding author at: Institute of Government and Public Affairs, University of Illinois, 815 West Van Buren Street, Suite 525, Chicago, IL 60607, USA. Tel.: +1 312 996 8227; fax: +1 312 996 1404.

E-mail address: [Kaestner@uic.edu](mailto:Kaestner@uic.edu) (R. Kaestner).

The purpose of this paper is to provide evidence of the association between weight status and children's educational achievement. We focus on children between the ages of 5 and 12, and data come from the National Longitudinal Survey of Youth (1979 children cohort), which cover the period from 1986 to 2004. We conduct a number of cross-sectional and longitudinal analyses that compare the achievement test scores of overweight and obese children to the achievement scores of normal weight children. We find little evidence that overweight and obese children's educational achievement has been adversely affected by their weight.

## 2. Previous literature

There are relatively few studies of the effects of obesity on educational achievement.<sup>1</sup> Taras and Potts-Datema (2005) reviewed nine recent studies and reported that all nine showed at least one negative association between obesity and school performance, but that this was not a uniform finding of this research. Moreover, these studies varied significantly in size and quality ranging from a study of 65 obese children ages 8–13 in Brazil, to 60,000 Finnish adolescents, to 12,537 persons aged 23 who were born in England and Scotland the week of March 3–9, 1958. As Sigfusdotirr, Kristjansson, and Allegrante (2006) noted in their recent paper, well-designed empirical studies of the relationship between obesity and academic achievement are scarce.

Studies of adolescents often find negative associations between obesity and educational achievement (see for example, Canning & Mayer, 1967; Crosnoe & Muller, 2004; Falkner et al., 2001; Gortmaker, Must, Perrin, Sobol, & Dietz, 1993; Sabia, 2007; Sigfusdotirr et al., 2006). Studies of the effect of obesity on children's educational achievement are particularly scarce. We know of only three studies that used a large, geographically broad-based sample. Edwards and Grossman (1979) used data on children aged 6–11 from the Cycle II of the National Health Examination Survey. They found that overweight kids had lower scores on the Wechsler Intelligence Scale for Children (WISC) and the Wide Range Achievement Test (WRAT) than children of normal weight. However, these effects were not statistically significant. Datar and Sturm (2006) analyzed the association between becoming overweight (>95 percentile of BMI), and changes in math and reading tests scores and grade repetition between kindergarten and third grade using data from the Early Childhood Longitudinal Study (ECLS). Results indicated that girls who became overweight had lower math and reading scores than girls who were never overweight. For boys, becoming overweight had no statistically significant effect on achievement. Averett and Stifel (2007) is the closest study to ours, as they used the same data and studied children of similar ages (6–13). They found that being overweight is associated with lower reading scores, but

not lower math scores. They also examined underweight and found that being underweight is associated with lower math scores, but not lower reading scores.

While the findings from previous studies suggest that obesity has an adverse effect on children's educational achievement, there are several reasons why more study is warranted. First, given that there are only three previous studies, additional studies of the effect of obesity on educational achievement of young children are needed. Second, there is a need for more research that addresses the probable confounding from omitted variables. Children's weight is likely to be correlated with several hard-to-measure determinants of educational achievement. Therefore, cross-sectional analyses that adjust for a limited number of covariates are unlikely to provide an accurate estimate of the effect of obesity on children's educational achievement. Consider the results from Falkner et al. (2001). Unadjusted odds ratio indicated that obese girls were 114 percent more likely to be held back a grade than normal weight girls, but after adjusting for grade, race and parental socioeconomic status, this obesity disadvantage decreased to 51 percent—approximately a halving of the effect size. Third, existing research in this area has not incorporated important theoretical developments that have been made more generally in the literature on education production functions (Todd & Wolpin, 2003, 2007).

To summarize, there are several potential pathways through which weight and obesity may adversely affect children's educational achievement. However, there has been little study of the issue, particularly for young children. The paucity of research in this area is significant given the importance of education to lifetime well-being. Here we begin to address this shortfall by providing an analysis of the effect of weight on children's educational achievement using a large, national sample of children aged 5–12. We obtain age- and gender-specific estimates of the association between weight status (e.g., overweight) and educational achievement. Other contributions of this research are the attention paid to model specification and justification, and the use of methods to control for unobserved factors that may confound the association between obesity and children's educational achievement.

## 3. Causal pathways

To motivate our empirical analysis, we rely on standard economic theories of the household and child quality (Becker, 1965; Becker & Lewis, 1973; Grossman, 1972). In these models, consumption goods that produce utility (well-being, satisfaction) for family members are produced by the household using time and market purchased goods. Money to buy goods is earned by household members in the labor market. One of the most important goods produced by the household is child quality, in this case, educational achievement. However, child health is another aspect of child quality that is particularly relevant to our study because weight and obesity are related to child health.

A core aspect of these household models is the production function for household consumption goods, which is the relationship between inputs—the quantities of market goods and time used to produce household

<sup>1</sup> There is a somewhat larger, although still relatively small, literature on the effects of child health on educational achievement and some of these papers use weight as an indicator of child health (e.g., Blau & Grossberg, 1992; Edwards & Grossman, 1979; Kaestner & Corman, 1995; Korenman, Miller, & Sjaastad, 1995; Levine & Schanzenbach, 2009; Rosenzweig & Wolpin, 1994; Shakoto, Edwards, & Grossman, 1981).

Download English Version:

<https://daneshyari.com/en/article/354864>

Download Persian Version:

<https://daneshyari.com/article/354864>

[Daneshyari.com](https://daneshyari.com)