

Parental Influence on Child Diet and Weight Outcomes

Though in recent years there has been a strong effort to determine what is causing the stark rise in obesity, there is still much to be considered. When looking at the outcome of body weight as a function of total energy expenditure and total energy intake, the equation looks quite simple. However, there are many biological, financial, and social determinants of each of these variables. This paper takes a step to examine the foods children are consuming, whether this consumption follows recommended guidelines, and the interaction of nutritional knowledge with income-to-needs ratios. By focusing on the widely used United States Department of Agriculture (USDA) food group guidelines for diversity in diet, we can begin to inform the question of whether parental nutritional guideline knowledge has an impact on child diet, and in turn on a child's obesity status, and the role that social and economic factors play in modifying these relationships.

The research questions that this project examines relate to how the differences in nutritional knowledge and diet affect individual outcomes. Is the outcome of childhood obesity based on a misunderstanding of nutrition requirements, the ignorance of potential illnesses connected to obesity in the long-run, or simply the lack of resources to properly feed and teach their children how to live a healthy lifestyle? Many of these lines of inquiry have been considered separately, but this study will comprehensively measure many demographic variables, as well as using intergenerational and longitudinal analysis techniques. The literature on this topic spans several fields of study including sociology, economics, public health, medicine, and nutrition, and is global in scale. It is potentially of great benefit to adopt a comprehensive life course approach, so as to disentangle the association between obesity and a wide range of plausibly related factors.

There are many decisions and conditions that affect later in life outcomes, each of which can do so in direct, indirect, and interconnected ways. O'Rand discusses these types of connections as cumulative advantage or disadvantage, showcasing the additive effects of resources, opportunities, and constraints over an individual's life.¹ These effects are also passed on through generations from parent to child, which is something that is directly considered when looking into parental nutritional knowledge and child diet and weight outcomes. The habits that

¹ O'Rand, 1996

are shaped by parents are also cemented by the children themselves as they transition into adulthood and have more authority over their own decisions. This is also true for adults going through the aging process from young adulthood to older adulthood, since they themselves are products of their early life environments, circumstances, and choices.² This theory also strongly informs the types of data and methods that are not only useful, but imperative, for considering these research questions.

Selected Literature Review

In the example of the United States, the result of a non-diverse diet is often found to be obesity.³ Having a low dietary diversity has been connected to diets that contain more calorie dense foods, as well as higher incidence of fatty foods, which have been associated with childhood obesity.⁴ Though these children may be overweight or obese, they are still malnourished due to a lack of proper nutrition.

Studies have also focused on parental influence on child diet, noting that parents can decide much of the early food choices and nutritional training for children and adolescents. Though some studies have not been able to find statistical significance linking parental nutritional knowledge to overweight status of children,⁵ others have seen positive associations between greater parental nutritional knowledge and increased height for age.⁶ Past research has also shown that while nutritional knowledge is often directly taught to children in school, race, ethnicity, and socioeconomic status remain key factors as to whether or not that knowledge is translated into better diets at home.^{7,8,9} All of these different facets of the existing literature show that there is still much to be learned about the nutritional knowledge of the parent and child, and its connection to diet.

Another debate within the existing research is how to best quantify nutritional knowledge as well as dietary diversity. Several studies have looked into different dietary indexes that take type of food, caloric value, and ratios of different nutrients in the diet into consideration.^{10,11} The

² Sørensen, 1986

³ Kennedy, 2004

⁴ Poskitt, 2005

⁵ McCooey, 1995

⁶ Arimond & Marie, 2004

⁷ Kelly, 1981

⁸ Kozłowska-Wojciechowska et al, 2002

⁹ Vereecken & Maes, 2010

¹⁰ Larissa et al, 2007

USDA has worked with the ‘Healthy Eating Index’ in order to further classify different types of diets, and which can be used to allow individuals to gauge how well they are eating. This index has also been used to look at connections to obesity, and associations have been found between unbalanced diets and higher Body Mass Index (BMI) scores in adults.¹² While it is difficult to distinguish which measure is best, it is clear that connections are continually being made between diverse diets and health outcomes.

Though there have been several studies looking into the themes of parental nutritional knowledge and dietary diversity, few are able to look into longitudinal effects or utilize data that allow for appropriate temporal assumptions to be considered. By using data from two points in time, using adult and child survey instruments, as well as objective bio-measures, this paper will combine several areas of thought into a single narrative.

Data and Methods

This paper will utilize data from parents in 1999 from the Panel Study of Income Dynamics (PSID) main interview and will be linked to child variables in 2002 from the Child Development Supplement (CDS) of the PSID. The CDS began in 1997 where “information on PSID children ages 0-12 was obtained through extensive interviews with the child, their primary caregiver, secondary caregiver, absent parent, teacher, and school administrator. Information was collected again in 2002/2003 and 2007/2008 for children in this cohort who remained under 18.”¹³ Information includes, but is not limited to, physical health, time use, nutrition, and well-being.

The sample consists of over 1,600 parent-child pairs. Each child in the sample has a corresponding family unit and parent in the PSID sample, from whom questions have been asked as part of the full PSID main interview. By linking parent and child variables into one set of data, it is possible to look directly at the intergenerational associations between how family income-to-needs ratios, parental education, parental weight status, race, child sex, and child age are associated with child diet and childhood obesity. By utilizing logistic regression methods, it will be possible to look at these factors, as well as interaction effects, to see which items are most likely to be associated with childhood obesity. In order to facilitate this research, two key

¹¹ Patrick et al, 2004

¹² Kennedy et al, 2001

¹³ <http://psidonline.isr.umich.edu/Studies.aspx>

indexes are created in order to capture both parental nutritional knowledge and dietary diversity for each child.

Several steps are taken to get from the raw variables to the final results. First, the empirical analysis begins by creating three indexes, namely ‘Parental Nutritional Guideline Knowledge’, ‘Child Dietary Diversity’, and ‘Child Weight Status’. Each of these three key indexes is discussed below. After taking a look at trends using descriptive statistical methods, logistic regression will be utilized to examine the odds-ratios related to the outcome of obesity.

The ‘Nutritional Guideline Index’ is the key independent variable of interest in this paper. Information for this index was collected from the interview respondent in the 1999 PSID interview, in the nutrition supplement of the main set of interview questions. These questions were not asked in reference to children, but rather as general nutrition questions. A total of eight questions are combined to create the varying degrees of nutritional knowledge of the adult or parent in the household.

The ‘Child Dietary Diversity Index’ is created by combining six separate questions asked of children in the CDS interview who were 10 years of age or older. The children answered these questions independently, without the help of their parents or other household members. The questions did not ask about specific serving sizes or caloric intake, but rather the number of days in the past week that they consumed different food groups. The five food groups included are dairy, fruit, vegetables, grains, and protein (both meat and non-meat). A child is categorized as having a ‘high diverse diet’ if they are eating a majority of the food groups a majority of days of the week. Those with a ‘high’ and ‘medium’ diverse diet will be compared to those with a ‘low’ diverse diet.

‘Child Weight Status’ is based on the Centers for Disease Control’s (CDC) weight-for-age percentiles, which take into consideration a child’s sex, age, height, and weight.¹⁴ This is the most commonly used calculation for weight categorizations in children. In this analysis the CDC’s convention of obese status is used. Children are considered obese if their weight-for-age is equal to or greater than the 95th percentile. The weight and height for each child was measured in the in-person interview by a trained interviewer.

¹⁴ http://www.cdc.gov/healthyweight/assessing/bmi/childrens_bmi/about_childrens_bmi.html

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