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# Economics and Human Biology

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## Introduction

The dramatic increase in obesity among Americans is no secret. According to the [Center for Disease Control and Prevention](#) over one-third of the adult population in the United States is obese (2012). This is double the prevalence that existed 30 years ago, and it comes with staggering costs to the health care system, the broader economy, and the general health and well-being of the population. As of 2008, the medical costs of obesity alone were \$147 billion (CDC, 2012). Furthermore, obesity lowers economic success, mental health, life satisfaction, and life expectancy (Tunceli et al., 2006; Cawley, 2004; Carr and Friedman, 2005; Carr et al., 2007; Latner et al., 2005; Park, 2004; Puhl and Brownell, 2003; Crandall and Martines, 1996). Similar trends are also occurring among obese teenagers and children, although these trends have different implications during these stages of the life course than in adulthood (Ge et al., 2001; Strauss, 2000; Strauss and Pollack, 2003).

Where are all these extra pounds coming from? Some things we know for sure: babies cannot feed themselves, toddlers do not go grocery shopping, and 10-year-olds do not drive the family car to the fast food joint. Moreover, from the earliest days of life through childhood, adolescence, and the various stages of adulthood, humans tend to eat together, often in family settings. Eating, activity, and other factors in rising obesity rates are inherently social phenomena and, more specifically, family phenomena. They need to be studied that way.

Consider that the food children consume reflects behavior of parents, both in terms of foods purchased and offered to children. Besides providing basic food needs for children, families also establish routines and traditions that are heavily influenced by food. Food traditions bind families together through generations, food is used to attract mates and ease social interactions, and, just as secret family recipes are handed down to the next generation, so too are prejudices, habits, and genes. Also consider how obesity influences family relationships. Body shape and size are strong determinants of sexual attraction, which leads to union formation and, quite often, children. Family relationships provide a resource for members to draw upon for

support in a world that is often cruel to overweight and obese people. Family members deal with these negative consequences by providing support while coping with undesirable socioeconomic and health consequences that result from obesity. Conversely, family members are sometimes the *source* of the verbal abuse and stigma that youth and adults experience as a result of a body shape that fails to measure up to some hypothesized ideal.

The family, therefore, is intricately intertwined with the issue of obesity, and, consequently, the family needs to be front and center in research efforts to understand the so-called obesity epidemic. In the spring of 2009 a group of scholars convened to do just that, discussing ideas related to obesity and the family with the support of the Family Studies Center at Brigham Young University. The group reconvened a year later to present papers and further their conversation. By design, it was an interdisciplinary group covering economics, sociology, and psychology with varying interests and methods. The articles in this volume are the ultimate products of those conversations. The topics are varied, but they are tied together by the notion that the family is the right place to start to understand the causes and consequences of obesity.

### 1. Family and body weight across the life course

A logical first question to ask before initiating a research agenda linking family to obesity is whether the observed variation in body weight leaves room for family influences beyond simple genetics. This is the question addressed by the opening article of this volume by Price and Swigert. They document the extent to which childhood obesity varies across different types of sibling groups. If the family impact on body weight were primarily genetic, the differences in body weight between two identical twins would be small, while differences between two siblings who are non-identical twins would look much like non-twin siblings. But this is not the case. In terms of the inter-sibling correlation, fraternal twins look much more like identical twins than they look like non-twin siblings. In

short, the evidence they present indicates a strong component of body weight that is family based, but not genetic.

The results presented in the Price and Swigert article suggest that family-related differences in body weight cannot be explained by genetic differences alone. This implies that the effect of family variables on BMI values should be examined carefully if we are to understand the current prevalence of this threatening epidemic. The remaining articles in the issue seek, in an interdisciplinary fashion, to understand better how family is connected to obesity across the life course.

### 1.1. Childhood

For young children, obesity is often viewed as influenced by parents' experiences, choices, and circumstances. Several articles in this volume added to our understanding of such parent effects. In an important 2003 study, Anderson et al. (2003) identified a significant causal relationship between maternal employment and childhood obesity. In this issue, Anderson takes up the question again with an aim of understanding more of the underlying mechanisms. Here, she finds that family routines such as regular meal times that are positively related to healthy diet and physical activity are negatively associated with the intensity of maternal employment. The unresolved puzzle is that these routines and behaviors do not explain the estimated impact of maternal employment on child BMI. Thus, we are left to look elsewhere to understand how maternal employment affects child obesity, since family routines and behaviors do not seem to be the pathway.

Cawley and Liu also look for a greater understanding of the mechanisms underlying the maternal employment effect using the American Time Use Survey. They show how working mothers spend less time with their children than families with a stay-at-home parent. In spending fewer minutes at home, working mothers do not spend the same amount of time meal planning, eating with their children, playing with them, and caring for their families. More specifically, by spending less time involved with meal planning, family dinner, and activities it becomes more difficult to nurture the habits of healthy eating and a healthy lifestyle. Although Cawley and Liu cannot identify a causal association between maternal employment and child obesity, their work unpacks maternal time use in great detail and illustrates the tradeoffs that parents often make (knowingly or not) between time spent working and time investing in their children.

Fiese et al. consider more specifically the intersection of regular family meal time and socioeconomics and cultural context by recording and analyzing minute-by-minute observations of 200 family meals. With this highly detailed observational data, they can look significantly beyond whether a family simply eats together or not. They find that families with a child of healthy weight spend more time engaged with each other during the meal, express more positive communication, and consider mealtime more important than families with overweight or obese children. The authors also note that, since poor families face greater limitations in creating family meal experi-

ences, we need better policies to encourage family meal experiences that promote healthy body weight among children.

### 1.2. Adolescence

As adolescents move more into the larger world, expand their social networks, and grapple with developmental issues of identity, individuation, and belonging, they face many of the non-health consequences of being obese. As a result, obesity research on adolescence often focuses on issues involving social relations, mental health, and schooling. This shift changes how families are conceptualized – less as agents of healthy habits (or not) for youth and more as sources of social or instrumental support (Crosnoe, 2011; Strauss and Pollack, 2003). Several of the articles in this volume addressed this issue on obesity and families in adolescence.

For example, Crosnoe connects two important social trends that are not often examined together: increasing family stability and increasing adolescent obesity. He posits that family instability undermines the family attachments that protect adolescent health against the threat of the social stigma known to result from obesity. Using the Add Health data he finds evidence for this hypothesis, but only among girls in the upper end of the BMI distribution. In particular, for girls in the first two years of high school, obesity is only associated with socioemotional problems when coupled with a history of family structure instability. No similar effect was found for boys. His conceptual model emphasizes that recently pubescent girls have a heightened concern about being overweight and how that concern is internalized depends on social feedback. Support and stability at home may help provide resilience against adversely internalizing the negative perceptions associated with obesity.

As another example, using data from the nationally representative Health Behavior in School-Aged Children Survey, Vander Wal further explores how family provides important social support to adolescents. Like Crosnoe, she points to the research on social support and how it acts as a buffer against negative stress. In this case, the focus is on unhealthy weight control behaviors. Obese boys and girls are more likely to use unhealthy weight control behaviors than their healthy weight peers, a tendency that appears to be exacerbated by difficult communication with parents or low levels of parental support. Poor classmate relationships and a low number of friendships also are associated with more unhealthy behaviors among girls. She finds that both obese boys and girls are more likely to use unhealthy weight measures if they lack a strong peer group. However, this finding is qualified in that a strong peer group may also lead to unhealthy weight measures due to peer pressure.

Moving past the family context, other research on adolescence looked at the extra-familial ecologies that youth traverse when they leave the family home while still being connecting to their parents. In this volume, von Hinke Kessler Scholder and her colleagues examine the implications or adiposity for the educational performance of early adolescents using data from the United Kingdom. Their methodologically robust work pays particular

attention to the possibility that unobserved factors leading to weight gain among may be the same factors leading to lower educational performance. Given their exceedingly rich data set, which includes both precise measure of adiposity and information on genetic markers, the authors are able to explore different instrumental variable models. They include in their analysis a large set of family controls, including education of parents and grandparents, family structure, maternal employment, and maternal health behavior, such as smoking and breastfeeding. Although they end up quite skeptical that obesity has an independent effect on educational performance, their estimates clearly indicate that family variables (observed and unobserved) are intimately connected to both child obesity and education performance.

Using data from the same sample as Vander Wal, Forste and Moore study the association between body weight and life satisfaction among high school students with a focus on school contexts as well as families. They find, consistent with previous research, that overweight and obese teenagers rate themselves as less attractive, report more bullying, and perceive lower evaluations by teachers. They also feel less accepted by peers and have a greater difficulty talking with parents. Little difference exists between boys and girls with respect to the negative relationship between body size and perceptions by themselves or others. The effects of those perceptions upon life satisfaction, however, are stronger for girls. The authors also find that almost all the negative relationship between body weight and life satisfaction is mediated by perceptions of others, including parents. Again, we see how family and peer support play an important role in mitigating the negative effects of obesity on the lives of adolescents.

### 1.3. Adulthood

For adults, the focus of obesity research shifts yet again to consider more closely the health (physical and mental) consequences of obesity and, when connected to the family, the link between obesity and marriage, the primary family relationship during this stage of the life course. The last two articles in this volume illustrate each of these issues.

Carr and Jaffe find that higher BMI is significantly related to negative psychological well-being, including frequent negative mood, unkind treatment by strangers, less frequent good mood, lower self-acceptance and lower satisfaction with one's self. Interestingly, they note that high BMI is more distressing to those who enjoyed a normal or slim body weight during their formative years. Analysis of detailed interviews suggest that people who have been consistently overweight throughout their adult years accept being obese as part of their identity, while those who were once thin have a difficult time adjusting to weight gain. They do not find, however, that the strength of parent-child relationship in early life mediates the negative relationships between obesity and life satisfaction in adulthood.

The final study by Wilson asks the question of whether marriage promotes a health body weight in later life. Using nine waves of data from the Health and Retirement

Study, he shows that even though the basic health investment model suggests that marriage should be advantageous, it is actually associated with weight gain for both men and women. His research also casts doubt on the recently developed "crisis theory" of marriage, which points to marital transitions as the cause of health changes, rather than marital status *per se*. The longitudinal evidence shows only modest effects of marital transitions in later adulthood on body weight. However, sharp gender-based differences in the cross-section suggest powerful sorting effects of the marriage market earlier in life, a finding which is also supported by the negative impact of high BMI on women's marriage probability in later adulthood.

## 2. Future directions

Our discussion so far has been organized around stages of the life course, reflecting the stage-specific foci of the articles in this volume. In this way, this volume is representative of the larger field of research on obesity in general and on the link between obesity and the family in particular. We know much more about how this link plays out within discrete units of time organized by major life course stages than we do about how it unfolds, changes, and recalibrates from stage to stage. How do parental influences on eating and physical activity change as children grow into adolescents and then ultimately leave home? Are marital dynamics linked to obesity influenced or conditioned by spouses' relations with their parents around issues of obesity years earlier? How much is coping with obesity in the later years a function of cumulative experiences across life? These questions are challenging to answer empirically (given the obvious data constraints), but they are important to explore if we want to get a handle on families as a context of obesity during an era of great secular growth in obesity rates.

Collectively, the articles in this volume speak to the value of need for interdisciplinary research on obesity and the family moving forward. Not surprisingly, articles from authors of different disciplines tended to demonstrate the strengths of those respective traditions. The economists, for example, paid careful and praiseworthy attention to issues of causal inference. Contrast the instrumental variable and sibling approaches in the work by Price and Swigert and by von Hinke Kessler Scholder and colleagues with the more conventional regression-based approaches employed in other studies in the volume. At the same time, psychologists tended to do an admirable job of measuring the everyday aspects of people's lives, relationships, and interactions, which, in turn, provided much better leverage in efforts to understand the mechanisms of family effects and, in the process, answer the important "why?" questions. Consider the rich family process data utilized by Fiese, Hammon, and Grigsby-Toussaint in their study of family eating compared to the more blunt survey measures featured in other studies. Imagine if single studies drew on these varied strengths at once. This volume should be considered a call for more of that cross-disciplinary collaboration (interdisciplinary, not just multi-disciplinary) in the future.

As part of this call for future interdisciplinary perspectives, much more work is needed that incorporates biological processes into the population, social, and interpersonal approaches taken by the articles in this volume and that are reflective of the field more generally. As we pointed out earlier, obesity is not entirely genetic, yet, a large part of it is. Consequently, we need to know more about how that hereditary – biological in nature – is facilitated by family processes and circumstances; in other words, what is the gene–environment interaction? At its core, obesity is the product of an intricate metabolic process. To understand the role of families in obesity, therefore, we need to understand how it affects this process. Exploring this exchange between what happens inside and outside the body is, almost by definition, beyond the bounds of any one discipline, but it needs to be done.

We also need to better understand the role that social, ethnic and racial variables play in the connection between obesity and family. The papers presented here do not touch significantly on these issues. Sharp differences in obesity rates between black women and white women, for instance, may be a function of childhood environments, educational attainment, discrimination, cultural norms, marriage opportunities and a variety of other factors. As future work explores these directions, family-centered explanations are likely to be key.

With these future directions in mind, we can conclude by admitting that the articles in this volume raise more questions than they answer. Yet, we also think that this is a good thing, as it helps to set a future agenda of work to do, work that will build a much firmer scientific basis for efforts to do something – interventions and policies designed to take action to reduce obesity rates as well as to buffer against the negative consequences of obesity.

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