



Parental employment and children's body weight: Mothers, others, and mechanisms



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ABSTRACT

A robust body of literature spanning several countries indicates a positive association between maternal employment and child body mass index (BMI). Fewer studies have examined the role of paternal employment. More importantly, little empirical work examines the mechanisms that might explain the relationships between parental employment and children's BMI. Our paper tests the relationship between the cumulative experience of maternal and spouse employment over a child's lifetime and that child's BMI, overweight, and obesity at age 13 or 14. We further examine several mechanisms that may explain these associations. We use data from the U.S. National Longitudinal Survey of Youth (NLSY79) merged mother–child file on cohorts of children who were born during a period of dramatic increase in both childhood obesity and maternal employment. We find that the number of hours that highly-educated mothers work over her child's lifetime is positively and statistically significantly associated with her child's BMI and risk of overweight at ages 13 or 14. The work hours of mothers' spouses and partners, on the other hand, are not significantly associated with these outcomes. Results suggest that, for children of highly-educated mothers, the association between maternal work hours and child BMI is partially mediated by television viewing time.

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Introduction

Childhood obesity is a key public health concern. According to the Centers for Disease Control, 16.9% of U.S. children were obese in 2007–2008. Obesity among children has almost tripled since 1980, with the vast majority of the increase occurring between 1976 and 2000¹ (Ogden & Carroll, 2010). Childhood obesity is linked to a range of adverse outcomes in childhood and adulthood. Among children, elevated Body Mass Index (BMI; a measure of weight-for-height) is associated with greater internalizing problems (Bradley et al., 2008), an increase in depression among girls (Needham & Crosnoe, 2005), and lower academic achievement (Crosnoe & Muller, 2004). Excess weight in childhood is a risk factor for excess weight in adulthood (Strauss, 1999), and the effects of obesity on chronic conditions have been found to be even larger than those of current or past smoking and problem drinking (Sturm, 2002). Finally, research suggests stigma against overweight

individuals are commonplace, including in the workplace (Cawley, 2004), in the health care system, and in schools (reviewed in Puhl & Brownell, 2001).

At the same time that childhood obesity has increased in the U.S., so too have rates of maternal employment. In 2010, 50.1% of mothers of infants were employed, as were 63.9% of mothers with children under age 6 and 76.5% of those whose youngest child is aged 6–17 years old (Bureau of Labor Statistics, 2011). Interestingly, trends in maternal employment follow a similar pattern to those of childhood obesity, with a dramatic increase in maternal employment between 1976 and 1990 that subsequently leveled off. For example, in 1968 only 16.8% of new mothers were working 12 months after giving birth. This rate increased to 60.8% by 1990 but has remained level since that time (Johnson, 2008). In contrast, rates of paternal employment have remained above 90%, irrespective of the age of household children (Bureau of Labor Statistics, 2011).

The dramatic increase in childhood obesity in recent decades has spawned a burgeoning line of research seeking to understand the factors that may have caused such a change. Several possible social determinants of childhood obesity have been examined, from the built environment (Sallis, Adams, & Ding, 2011), to food assistance programs (Ver Ploeg, 2011), to socio-economic status

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¹ Data on trends in childhood obesity come from the National Health and Nutrition Examination Surveys (NHANES), which uses measured height and weight among U.S. children, and in which obesity is defined as having a Body Mass Index (BMI) at or above the 95th percentile of sex-specific BMI growth charts.

(McLaren, 2011), or the availability of healthy food (Beydoun, Powell, & Wang, 2008). For children, a key environment that may influence childhood obesity is the family. Parental employment represents an important aspect of family life that may be an important social determinant of childhood obesity.

Much work in this area focuses exclusively on maternal employment, and finds a positive association between maternal employment and children's BMI (summarized in Anderson, 2011). Our study contributes to this literature in several ways. First, we take a longer view of childhood than most studies by measuring employment starting in the year prior to birth and going through the end of his or her 13th or 14th year. Second, we consider the employment of mothers' partners (many of whom are fathers of the children we study). Third, we examine whether associations between parental employment and child BMI differ by maternal education. Fourth, we estimate models designed to account for omitted variable bias. Finally, we test several theoretically-derived factors that may account for the associations between parental employment and child BMI. We do so using data from a cohort of children born during the periods that saw the most dramatic increases in both childhood obesity and maternal employment.

Parental employment and children's body mass index

The association between maternal employment and child BMI has been widely reported in the economics, psychology, and sociology literatures. Anderson, Butcher, and Levine (2003) were the first to examine such linkages, finding that, among families with 3–11 year-olds in the National Longitudinal Survey of Youth (NSLY), ten additional weekly hours of maternal employment over the child's life increase children's obesity by 1.0–1.5 percentage points. Since that time, several others have documented a positive relationship between additional maternal work hours and children's BMI or risk of overweight (Chia, 2008; Fertig, Glomm, & Tchernis, 2009; Morrissey, 2012; Morrissey, Dunifon, & Kalil, 2010; Phipps, Lethbridge, & Burton, 2006; Ruhm, 2008), and evidence suggests that the relationship between maternal employment and child BMI may be stronger among families with more advantaged mothers (Anderson et al., 2003; Fertig et al., 2009; Hawkins, Cole, & Law, 2008; Ruhm, 2008). Further, several studies have identified high intensity maternal work (e.g., full-time work) as particularly deleterious for children's BMI (Phipps et al., 2006; Ruhm, 2008; Scholder, 2008). Finally, as noted by Anderson (2011), research finding a link between maternal employment and childhood obesity is not limited to the U.S. Studies from Canada, Australia, the UK, Germany and the Netherlands have found similar associations as well.

In contrast, among the smaller number of studies that have also included spouse's or fathers' employment in predicting body weight during early adolescence (i.e., Hawkins et al., 2008; Morrissey, 2012; Phipps et al., 2006; Ruhm, 2008), not only does the inclusion of spouse's work hours do little to change the association between maternal employment and children's body weight but fathers' work hours are not associated with children's body weight in such regressions. This may be due to the limited variation in fathers' work hours (Brown, Broom, Nicholson, & Bittman, 2010) or to gender-specific time allocation patterns within households in which mothers spend more time than fathers in the role of primary caregiver (Bianchi, 2000), thus making the relationship between employment and child development more salient for mothers.

Theoretical perspectives and linking mechanisms

Several theoretical perspectives underlie potential linkages between parental employment and child BMI. Many studies linking

parental employment and children's BMI control for family income (see, e.g., Anderson et al., 2003; Morrissey et al., 2010). Because employment involves a trade-off between time and money, such findings imply that the impact of parental employment on children's BMI relates to time use—either that of the parent, the child, or both. Parents' employment patterns may be associated with both the quality and quantity of children's time with parents, key ingredients in healthy development (Shonkoff & Phillips, 2000). Increased work involvement may impose a burden on parents' time, resulting in poorer supervision or care of children and less time available to provide emotional support or foster the child's involvement in activities. Time-diary data confirm that working reduces the time mothers spend with children, although research suggests that mothers protect quality time with children by cutting back least on activities directly engaging children (Bianchi, 2000; Sandberg & Hofferth, 2001).

Working mothers also spend less time in meal preparation and rely more heavily on fast foods or prepared foods, which generally are high in fat and calories, than do non-working mothers (Cawley & Liu, 2007; Crepinsek & Burstein, 2004; Ziol-Guest, DeLeire, & Kalil, 2006). Additionally, school-aged children of working mothers may be more likely to rely on school-provided meals, rather than bringing their lunch from home (Datar & Nicosia, 2010). This could be associated with obesity, as evidence shows that children who eat school meals are more likely to be obese than those who bring a lunch from home (Schanzenbach, 2009).

Parental employment may be associated with children spending less time getting physical exercise than do other children, perhaps because they have less active recreational time, given their greater participation in child care, lack of parental time available to drive children to sports or other physical activities, or because it is more common for working parents to drive their children to school en route to work (Anderson & Butcher, 2006). Cawley and Liu (2007) found that employed mothers spent less time playing with their children than those who do not work.

Children with working parents may spend more time watching TV (Crepinsek & Burstein, 2004), possibly because they are more often in self-care or in the care of someone who does not adequately supervise their TV consumption (Fertig et al., 2009). Brown et al. (2010) show that children of part-time working mothers watch less TV than those of full-time or non-working mothers, and Fertig et al. (2009) show that time spent watching TV partially accounts for the associations between maternal work hours and child BMI. There are several possible ways that television viewing time may affect weight (Dietz & Gortmaker, 1985). Television time may crowd out time spent in physical activity. Additionally, increased television watching has been linked to increased preference for and consumption of calorically-dense foods commonly advertised on television (e.g., snack foods or fast food; Weicha et al., 2006). Third, time in front of the television may be accompanied by snacking.

There is also reason to think that the associations between maternal employment and child BMI may differ by families' socioeconomic status (SES). On one hand, more advantaged parents may be better able to purchase healthy inputs for their children to compensate for the time they lose by being at work—such as purchasing healthy prepared foods, hiring high quality child care, or enrolling their children in health-promoting activities. If this is the case, the linkages between parents' employment and child BMI would be concentrated among the disadvantaged. On the other hand, children may benefit more directly from the time they spend with more advantaged parents, and may suffer more when that time is reduced, compared to the children of less-advantaged mothers. This would be the case if higher SES parents were better able to promote child health through their knowledge and

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