Maternal Employment and Children's Body Mass Index: A Developmental Perspective

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Abstract

Objective: We investigated whether mothers' employment patterns across a child's lifetime were associated with their children's body mass index (BMI) and overweight at adolescence, and whether children's time use explained this association.

Methods: We conducted multivariate regression analyses predicting children's BMI at 15 years of age from their mothers' work hours at different developmental periods: prenatal, infancy, preschool, middle childhood, and adolescence using longitudinal data from the NICHD's Study of Early Child Care and Youth Development (N = 773).

Results: Mothers' average weekly work hours across a child's lifetime was associated with a small increase in children's BMI at age 15. This is driven by the middle childhood period. Children whose mothers worked during middle childhood (6-10 years of age) had higher BMI z-scores and were more likely to be overweight at age 15 than those whose mothers were not employed during that period. The time children spent in self-care, watching TV, or in physical activity did not to mediate these associations. Maternal employment during other developmental periods was unrelated to child BMI at adolescence.

Conclusions: Middle childhood appears to be a sensitive developmental period for children's weight outcomes in relation to maternal employment.

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Maternal Employment and Children's Body Mass Index: A Developmental Perspective

Childhood obesity is an important public health problem. Between 1980 and 2008, child obesity rates in the United States grew from 5% to 17% (U.S. Surgeon General, 2010). Excess weight in childhood is a risk factor for obesity 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). On average, in 2002, an obese adult and an overweight adult spent an additional $395 and $125 in health care costs per year, respectively, than healthy-weight individuals (Sturm, 2002). In addition to the physical health and economic consequences as adults, being overweight as a child has social-emotional implications. In adolescence, overweight status is associated with lower academic achievement (Crosnoe & Muller, 2004). Among girls, overweight and high body mass index (BMI; a measure of weight-for-height) are associated with an increase in depression (Needham & Crosnoe, 2005) and a reduction in dating (but not in having sex; Cawley, 2001; Cawley, Joyner, & Sobal, 2006).

Body mass index is a function of caloric intake and energy expenditure (i.e., physical activity); however, where and how children eat and spend their time is shaped by a variety of factors in their environment (Committee on Integrating the Science of Early Childhood Development, 2000). The growing rate of maternal employment over the past few decades has dramatically changed where and how children spend their time. In 2010, 64% of mothers with children under age 6 and 77% of those whose youngest child was 6-17 years old were employed (Bureau of Labor Statistics, 2011). Increased maternal work involvement may contribute to greater family income, but may also impose constraints on mothers' time, resulting in poorer supervision of activities, including nutrition and activities related to energy expenditure such as

physical activity and television watching or computer use, that affect children's weight, as well as mothers having less time to prepare healthy meals.

Like most studies in this area, the current paper focuses exclusively on maternal, no paternal, employment. Evidence suggests that mothers, even those who work outside of the home, continue to play the key role of caregivers and managers of their children's time (Bianchi, 2000). Mothers spend more time on child care and housework than do fathers, even in dual-career households (Bianchi, Milkie, Sayer, & Robinson, 2000), and while employed mothers perform fewer household and child-related tasks than do those who stay at home, this is not offset by increased time contributions at home from husbands (Cawley & Liu, 2007). Thus, there is evidence that mothers continue to perform the majority of household tasks related to children and family functioning, and that when they are not there to do so, the quantity (and perhaps quality) of time spent on household routines and child development may decline. As such, there is reason to believe that maternal employment could have particular implications for children.

Research using time-diary data indicates that employment reduces the time mothers spend with children (Cawley & Liu, 2007), although mothers protect quality time with children by cutting back least on activities directly engaging children (Bianchi, 2000; Sandberg & Hofferth, 2001). Instead, employed mothers tend to reduce their time spent on housework, including meal preparation (Sayer, 2005). Families in which all parents work spend less of their food budget on fruits, vegetables, and protein, and rely more heavily on fast foods or prepared foods (Ziol-Guest, DeLeire, & Kalil, 2006), which generally are high in fat and calories (Crepinsek & Burstein, 2004). There is some direct evidence that the intensity of maternal

employment (e.g., hours worked) is associated with poorer nutritional intake, particularly skipping breakfast (Fertig, Glomm, & Tchernis, 2009).

Over the past decade, several studies have documented a positive relationship between additional maternal work hours and children's BMI (Anderson & Butcher, 2006; Anderson, Butcher, & Levine, 2003; Chia, 2008; Fertig et al., 2009; Miller, 2011; Phipps, Lethbridge, & Burton, 2006; Ruhm, 2008), and between the cumulative amount of time a mother is employed over her child's lifetime and her child's BMI (Morrissey, Dunifon, & Kalil, 2011). Anderson and colleagues (2003) estimate that increases in maternal employment account for 11 to 18% of the increase in child obesity. These patterns have been found in the United States as well as international populations, including Canada, the United Kingdom, Australia, and the Netherlands (Brown, Bittman, & Nicholson, 2007; Brown, Broom, Nicholson, & Bittman, 2010; Chia, 2008; Hawkins, Cole, & Law, 2008; Phipps et al., 2006).

There is a growing body of evidence suggesting that the influence of mothers' work on children's BMI may be stronger during certain periods in a child's lifetime. Older children may have more independence and less adult supervision over their time use and food choices than younger children; thus, maternal employment during middle childhood or adolescence may precipitate poorer food choices and more sedentary activity if children during this age period are more likely to be left alone or under poor quality supervision when their mothers work. Morrissey et al. (2011) showed that the association between maternal employment and children's BMI was strongest when children were in 5^{th} and 6^{th} grades (relative to 3^{rd} grade). Using nationally representative data from the National Longitudinal Study of Youth (NLSY), Miller (2011) examined cross-sectional associations between maternal employment and child overweight, finding that maternal work during middle childhood and adolescence (9-11 and 12-

14 years of age) was associated with increased rates of overweight, and surprisingly, that employment during the early elementary years (6-8 years) was associated with a decreased rate of obesity. Infancy may represent another sensitive period for maternal employment, and much of the literature has focused on this developmental period in examining the impacts of maternal employment on children's cognitive and behavioral development (Brooks–Gunn, Han, & Waldfogel, 2002; Han, Waldfogel, & Brooks-Gunn, 2001; Waldfogel, Han, & Gunn, 2002).

Despite the growing research in this area, the mechanisms underlying the links between mothers' employment patterns and child BMI and overweight, and how these mechanisms may vary with child age, remain unclear. The current study addresses these gaps in the literature in three main ways. First, we consider maternal employment patterns over a child's lifetime and relate these measures to measures of child BMI at adolescence, controlling for a range of variables exogenous to maternal employment. Second, we test whether the influence of maternal employment on children's BMI at adolescence is stronger during certain developmental periods. Third, we test the potential mediating effects of children's time use, specifically their time spent in self-care, watching television or using the computer, and engaged in physical activity. We hypothesize that mothers' work hours over a child's lifetime will be positively associated with their children's BMI at 15 years of age, that maternal employment during infancy and middle childhood will be most strongly associated with child BMI at adolescence, and that children's time use will partially mediate these associations.

Methods

Data

We use data from the National Institute of Child Health and Human Development's Study of Early Child Care and Youth Development (NICHD SECCYD). Data collection in ten sites across the country (Boston, MA; Lawrence, KS; Seattle, WA; Orange County, CA; Little

Rock, AR; Pittsburgh, PA; Philadelphia, PA; Morganton, NC; Madison, WI; and Charlottesville, VA) began in 1991 with an initial sample of 1,364 infants and their families. Details regarding the conditional random sampling plan, recruitment, and retention procedures have been published elsewhere (NICHD ECCRN, 1997). The sample was not intended to be nationally representative; however, the demographic characteristics of the sample are comparable to those of people living in the same geographic areas at the beginning of the study (NICHD ECCRN, 1997). We use data from all four phases of data collection: Phase I (birth-36 months); Phase II (42 months-kindergarten); Phase III (1^{st} grade-6^{th} grade); and Phase IV (7^{th} grade-15 years).

Family background information was gathered at the child's birth and during a home visit 1 month later. From 3 months to 15 years of age, data were collected through a series of telephone and in-person interviews conducted with children and their parents at their site's university lab and in their homes, assessments of children and parents at home or at the lab, and observations at home and at child care. Children's height and weight were measured periodically during lab visits. Information regarding mothers' and fathers' or mothers' partners' employment characteristics and other demographic information was gathered through periodic phone interviews.

Our study includes the 773 children with complete data on BMI at age 15, at least one measure of maternal employment status and hours for each of the six developmental periods we examine (prenatal; the child's first year of life; second year of life; 3-5 years; 6-10 years; and 11-15 years), and family demographic information included as controls.

Measures

Dependent Variable: Children's body mass index. Children's height and weight were measured in the lab at 15 years of age. The child was brought into a room with a scale and a

yardstick. Shoes and heavy clothing that were easily taken off were removed. Body mass index (BMI) was computed as weight in kilograms divided by height in meters squared. BMI is a limited measure of fatness because it does not distinguish fat from muscle (Burkhauser & Cawley, 2008), but is commonly used because the information needed to calculate it is readily available. Our key dependent variable is a BMI z-score, which is a measure of distance from the mean of children of the same age and gender set to standards established by the Centers for Disease Control and Prevention (CDC) in 2000. Z-scores provide a standardized measure of BMI that allow for comparisons across gender and age. A z-score of 0 indicates that the child's BMI is at the recommended CDC level for his or her age and gender; a positive z-score indicates the child's BMI is above the recommended level, whereas a negative z-score indicates the child's BMI is below the recommended level (Kuczmarski et al., 2002). Other analyses use dichotomous indicator variables for overweight and for at risk of becoming overweight, which were coded using the CDC's age-and-gender-specific thresholds for BMI (1 = *overweight* or *risk of becoming overweight*). Specifically, a BMI at or above the 95th percentile is considered overweight, and at or above the 85th percentile is considered at risk for becoming overweight (Kuczmarski et al., 2002).

Independent Variables: Maternal employment. Mothers reported their employment status (1 = *employed and working*) and the number of hours worked per week for all jobs during telephone or in-home interviews at a total of 26 data collection periods (before child's birth, 1, 3, 6, 9, 12, 15, 24, 36, 42, 46, 50, 54, and 60 months, fall of kindergarten, spring of kindergarten, 1st grade, fall of 2nd grade, spring of 2nd grade, 3rd grade, 4th grade, 5th grade, 6th grade, 7th grade, 14 years, and 15 years). We created measures for whether the mother worked at all in the child's lifetime (1 = *employed at least once during child's lifetime*) and a continuous measure of the

average total number of hours worked by the mother across the child's lifetime, beginning in the prenatal period through age 15 (divided by 10 for ease of interpretation). Mothers who never reported they were employed and working were coded as working zero hours. We also created categorical measures of mothers' average weekly work hours across a child's lifetime to represent the *intensity of maternal employment*: 0.1-19.9 hours, 20-34.9 hours, 35-44.9 hours, and 45 or more hours.

To compare the influence of mothers' work at different periods over the child's life, we create additional measures representing whether the mother worked at all in that period, and the average number of hours worked per week during that period: work hours before the child's birth (reported by mothers at 1 month); work hours in the first year after birth (1-12 months); work hours in the second year (15-24 months); work hours in years 3-5 (36-fall of kindergarten); work hours in years 6-10 (spring of kindergarten-5th grade); and work hours in years 11-15 (6th grade-15 years). Mothers who did not work in a given period were coded as working zero hours for that period. In some analyses, continuous measures of mothers' work hours (divided by 10 for ease of interpretation) were used; other analyses used categorical measures of mothers' average weekly work hours, as described above, within each developmental period: 0.1-19.9 hours, 20-34.9 hours, 35-44.9 hours, and 45 or more hours.

Mediating variables. During interviews at 1st, 2nd, 3rd, 4th and 5th grades, mothers were asked to report their children's usual afterschool arrangements on each day of the week (Vandell & Pierce, 2000). The average number of minutes the child spent alone at home was used as a measure of *self-care*. At 3rd, 4th and 5th grades, mothers were asked to report daily hours of children's TV watching for weekdays, for Saturday, and for Sunday. *Total weekly hours of TV* time was calculated by multiplying the daily hours for Monday through Friday by 5, and adding

the hours for Saturday and Sunday. Internal reliability was moderate ($\alpha = .71$). Information about *children's physical activity* was collected in mothers' afterschool activity reports at 3rd, 4th, and 5th grades, and at 3rd and 5th grades, from waist-mounted Activity Monitor from the Ambulatory Monitoring Applications Division of Computer Science and Applications, Inc., a single-channel accelerator designed to collect movement data, worn by each child for 7 consecutive days during a typical school week at 3rd and 5th grades (Janz, Witt, & Mahoney, 1995). Accelerations, measured in mets, are changes in the rate of body movement; thus, acceleration data serve as measures of a participant's total body movement. Physical activity monitor (PAM) accelerometor stability, a measure of reliability, was high (intraclass correlations indicated that 6 days of monitoring resulted in R = .81 to .84). A complete day of physical activity data was defined as beginning with the first nonzero accelerator count after 5:00am until one or more of the following conditions were met: 1) 60 consecutive minutes of zero counts after 9:00pm; 2) 30 consecutive minutes of zero counts after 10:00pm; or 3) the last nonzero count before midnight. The number of nonzero minutes for any given day was calculated, and the total number of accelerator counts was computed; invalid days that did not meet these criteria (activity began prior to 5:00am or 60 consecutive minutes of zero activity well before 9:00pm) were flagged and removed. The number of minutes spent in Moderate (3-5.9 mets), Vigorous (6-8.9 mets), and Very Vigorous (9+ mets) were determined for each child for each day the monitor was worn. The number of minutes spent per day in Moderate, Vigorous, or Very Vigorous activity was summed and then divided by the total number of minutes wearing the monitor to generate a percent of time spent engaged in the various activity levels. This study uses the percent of time and the average number of minutes spent in Moderate, Vigorous, or Very Vigorous activity averaged across the days measured (see NICHD SECCYD Phase III Instrument Documentation).

C**ovariates**. We controlled for a range of child and family characteristics exogenous to maternal employment. Child gender (1 = *male*), age in months when BMI was measured, race (1 = *Black*, 0 = *White or other race*), ethnicity (1 = *Hispanic*), birth order, and birth weight (in kg), mothers' years of education, and whether the child lived with his or her father at birth were collected during the first interview after the child's birth. During the 1 month home visit, mothers completed the Parental Modernity (PM) Scale of Childrearing and Education Beliefs (Schaefer & Edgarton, 1985). The questionnaire included 30 Likert-type items designed to measure parents' traditional authoritarian and progressive democratic beliefs. Two subscores—Progressive Beliefs (reflects attitudes favoring self-directed child behavior) and Traditional Beliefs (reflects attitudes that child behavior should follow adult directives)—were included as controls. Mothers' personality was measured using the NEO Personality Inventory (PI) and NEO Five-Factor Inventory (FFI), administered during the home visit at 6 months. The instrument consisted of three of the five factor subscales: the Neuroticism and Extroversion scales (from the NEO PI) and the Agreeableness scale (from the NEO FFI). The NEO-FFI scales show correlations of .75 to .89 with the NEO-PI factors, and internal consistency values range from .74 to .89 (Costa & McCrae, 1985, 1989). A log of average family income prior to the child's birth was controlled. Finally, the original data collection site was controlled.

Empirical Strategy

We used a series of Ordinary Least Squares (OLS) regressions for the continuous outcome variable (i.e., BMI z-score) and logistic regressions for the binary outcome variables (overweight, obesity) to examine associations between maternal employment over a child's lifetime and child overweight at 15 years of age, controlling for the child and family background characteristics described above. In addition, the mediation variables were tested in OLS models

(Baron & Kenny, 1986). For the sake of simplicity, we focus on the results for the maternal employment variables; results for all other control variables are available upon request.

Results

Descriptive Results

Descriptive statistics for the key dependent variables are provided in Table 1. At age 15, the BMIs of children in our sample were, on average, one-half of a standard deviation above the CDC-recommended level. Thirty percent were considered at risk for overweight, and 15% were overweight. Our key independent variables are described in Table 2. Virtually all mothers in the sample were employed at least once across a child's lifetime, and most were employed at each developmental period. Mothers worked, on average, between 17 and 31 hours per week, with substantial variation around these means. Weekly employment hours increased with child age.

Control variables are presented in Table 3. The sample's characteristics reflect the relatively advantaged nature of the sampling procedure. The majority of children were White, but about 17% were non-Hispanic Black or Hispanic. Mothers averaged 14.5 years of education and were 29 years old when the sample child was born. About 88% of children lived in a two-parent home at the time of their birth.

Regression Results

Results from OLS regression models predicting children's BMI z-scores and logit models predicting risk of overweight and overweight status at age 15 from the mothers' average weekly work hours over the child's lifetime are provided in Table 4. Each additional 10 hours per week a mother worked from the year before the child's birth to age 15 is associated with a 0.07 increase in her child's BMI z-score and a 21% increase in the likelihood of being overweight at

adolescence. Looking at the non-linear measure of work hours, results show that the linkage between maternal employment and BMI grows stronger with increasing work hours.

Table 5 presents models predicting child BMI z-score and overweight status from mean weekly work hours in each developmental period (divided by 10). In most stages of childhood, work hours were not associated with child weight outcomes, with the exception of work hours from 6-10 years of age; here an additional 10 hours of work is associated with a 27% increase in the likelihood the child is overweight at age 15. It is not associated with child BMI or risk of overweight. Similarly, analyses using categorical measure of mothers' average weekly work hours at each developmental period, provided in Table 6, suggest that employment hours during ages 6-10 have the greatest relation to children's later weight outcomes. Compared to children whose mothers were not employed between the ages of 6-10, children whose mothers worked during that period had BMI z-scores at age 15 that are between one-third and nearly one-half of a standard deviation higher, and are about 3 to 6 times more likely to be overweight at age 15.

Mediation

Children's time spent at home alone, watching television, using a computer recreationally, and engaged in physical activity (as reported in the time use survey and using the PAM) as measured during middle childhood (1^{st}-5^{th} grades, 6-10 years) were tested as mediating variables linking maternal employment intensity to child weight outcomes at age 15 (results available from the authors upon request). There was no evidence that average weekly hours of employment through age 10 was associated with children's recreational computer use or with their measures of physical activity. While mothers' work hours was positively associated with the average number of minutes per week the child spent alone and with more time spent

watching TV, these factors did not account for the association between maternal work hours and child overweight status.

Discussion

The goal of this paper was to examine the association between maternal employment across a child's lifetime and children's BMI at adolescence. Further, we considered the developmental timing of the influence of maternal employment on children's later BMI. Finally, we test several potential child-level factors that may explain these links. We find that mothers' average weekly work hours across a child's lifetime was associated with a small increase in standardized measures of their children's BMI scores at age 15, and, as expected, this association appears to be driven by a linkage between maternal employment during the middle childhood period and a higher likelihood that a child is classified as being overweight.

In general, mothers' work hours at most points across childhood are largely unrelated to children's weight outcomes at adolescence. However, the middle childhood period, specifically between 6 to 10 years of age, appears to be a sensitive period during which maternal employment is associated with later measures of child BMI and overweight status. This finding is consistent with previous research emphasizing the importance of this period for later weight outcomes (Miller, 2011; Morrissey et al., 2011; Ziol-Guest, Dunifon, & Kalil, 2012). Children at this age may have more independence regarding their eating and physical activity habits, particularly those in self-care, but may not yet have the maturity or knowledge to adequately regulate these habits. Unlike previous research we did not find that mothers' work hours during early elementary school are associated with lower child BMI at adolescence (Miller, 2011).

This study did not uncover the pathways through which mothers' work intensity across childhood may affect children's weight outcomes at adolescence; that is, the time per week that

the child spent alone at home, engaged in screen time (TV or computer), or in physical activity did not explain the link between maternal employment during middle childhood and child BMI and weight status at age 15. Previous research suggests that child nutrition may be the important mediating factor (Cawley & Liu, 2007; Fertig et al., 2009); however, the NICHD SECCYD dataset used included a brief measure of children's food consumption at 6th grade only; no other measures of nutritional intake were gathered.

Limitations and Future Research

This study has several limitations. First, the associations between maternal employment hours and child weight outcomes presented here cannot be interpreted as causal. While we control for a wide range of child and family characteristics associated with both maternal employment child outcomes, there are likely unmeasured and thus omitted variables that may bias our results. Second, the NICHD SECCYD sample was not designed to be nationally representative, and our analyses include a subsample with non-missing data; thus the generalizability of results is limited. Finally, this study relied on mothers' reports of children's time use, which may not accurately reflect the amount of time child was engaged in the activities measured (e.g., TV watching, physical activity), particularly mothers who are at work when their children are at home. Future research should examine other measures of child time use and additional pathways through which mothers' work during middle childhood may affect children's weight, particularly children's nutritional intake.

Conclusions

This study used rich, longitudinal data that followed children from birth through adolescence to shed light on how the timing of mothers' employment relates to children's weight outcomes at adolescence. We find that maternal work hours during middle childhood are

positively associated with child overweight status at age 15, and that maternal employment during other developmental periods are unrelated to weight outcomes at age 15. Policies that enhance access to healthy foods, such as after-school snacks, and nutrition education to school-age children or that expand access to high-quality afterschool child care or sports programs may help mitigate these associations. More research is needed to identify the pathways through which this association works, and how to best address the link.

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Table 1

*Child Weight-related Outcomes at Age 15 (*N *= 773).*

	Mean (SD) or %
Body mass index (BMI)	22.84 (4.88)
Body mass index (BMI) z-score	0.52 (0.99)
% overweight	14.49%
(at or above 95th percentile for age and gender)	
% at risk for overweight	29.75%
(at or above 85th percentile for age and gender)	

Note: Means and standard deviations are provided for continuous variables; percentages are provided for categorical variables.

Table 2

*Maternal Employment over Childhood (*N=*773).*

	Lifetime		Prenatal Year		First Year		Second Year		Ages 3-5		Ages 6-10		Ages 11-15	
	Mean or %	SD	Mean or %	SD	Mean or %	SD	Mean or %	SD	Mean or %	SD	Mean or %	SD	Mean or %	SD
Any employment	99.74%		86.88%		82.59%		82.94%		98.69%		91.85%		88.95%	
Average weekly hrs	24.01	12.54	30.69	16.63	17.25	14.06	22.82	16.83	23.57	16.84	27.20	16.21	29.14	16.95
None	0.91%		13.45%		21.47%		18.24%		14.35%		10.74%		11.51%	
0.1-19.9 hrs	39.59%		9.7%		34.38%		26.52%		28.72%		21.73%		17.34%	
20-34.9 hrs	35.06%		16.30%		35.45%		20.70%		22.23%		24.84%		23.42%	
35-44.9 hrs	21.99%		45.67%		7.50%		27.43%		27.43%		33.12%		32.86%	
45 or more hrs	2.46%		14.88%		1.29%		7.12%		7.24%		9.57%		14.88%	

Note: Means and standard deviations are provided for continuous variables; percentages are provided for categorical variables.

Table 3

*Descriptive Statistics for Control Variables (*N = *773).*

	Mean or %	SD
Child age in months	181.56	1.66
Child is male	48.25%	
Child birth order	1.80	0.89
Child is White	78.40%	
Child is Black	11.64%	
Child is Hispanic	5.43%	
Child's birth weight (in kg)	3.50	0.51
Mother's education (in years)	14.50	2.36
Mother's age at child's birth (in years)	28.88	5.41
Mother's traditional childrearing beliefs at 1 month	58.86	14.83
Mother's progressive childrearing beliefs at 1 month	32.88	3.51
Mother's neuroticism score at 6 months	29.81	6.93
Mother's extroversion score at 6 months	42.39	5.70
Mother's agreeableness score at 6 months	46.42	5.12
Child lived with father/partner at birth	87.97%	
Average family income before child's birth	$53,767.79	38,771.77
Log of average family income before child's birth	10.61	0.85

Note: Means and standard deviations are provided for continuous variables; percentages are provided for categorical variables.

Table 4

*Regressions of Lifetime Employment: Average Hours (*N = *773)*

	BMI z-score			Risk of Overweight		Overweight		
	B		SE	OR	SE	OR		SE
Average Hours (linear)	0.07	*	0.03	1.11	0.08	1.21	*	0.11
Average Hours (categorical)								
0.1-19.9 hours	0.07		0.37	1.75	2.00			
20-34.9 hours	0.06		0.37	1.32	1.52			
35-44.9 hours	0.25		0.37	2.37	2.73			
45 or more hours	0.46		0.42	3.40	4.26			

Note: *** $p < .001$,** $p < .01$, * $p < .05$, † $p < .10$.

B represents OLS coefficients for continuous variables and odds ratios for dummy variables. A one-unit change corresponds to a 10 hour increase.

Table 5

*Regressions of Developmental Period Employment: Average Hours (*N = *773)*

	BMI z-score		Risk of Overweight		Overweight		
	B	SE	OR	SE	OR		SE
Prenatal	0.02	0.03	1.06	0.07	1.14		0.10
First year	0.03	0.04	1.02	0.10	0.98		0.12
Second year	-0.02	0.04	1.04	0.09	1.11		0.13
Ages 3-5	0.01	0.03	1.01	0.08	0.95		0.10
Ages 6-10	0.05	0.04	1.04	0.09	1.27	*	0.14
Ages 11-15	-0.01	0.03	0.97	0.07	0.85	†	0.08

Note: *** $p < .001$,** $p < .01$, * $p < .05$, † $p < .10$.

B represents OLS coefficients for continuous variables and odds ratios for dummy variables.

Table 6

*Regressions of Developmental Period Employment: Hour Categories (*N *= 773)*

	BMI z-score		Risk of Overweight		Overweight	
	B	SE	B	SE	B	SE
Prenatal						
0.1-19.9 hours	0.07	0.15	0.78	0.31	0.44	0.28
20-34.9 hours	0.14	0.14	1.27	0.46	1.58	0.74
35-44.9 hours	0.12	0.13	1.20	0.39	1.65	0.70
45 or more hours	0.16	0.16	1.35	0.54	1.64	0.84
First year						
0.1-19.9 hours	0.02	0.12	0.84	0.25	0.58	0.22
20-34.9 hours	-.002	0.14	0.81	0.25	0.68	0.31
35-44.9 hours	0.20	0.20	1.33	0.64	0.67	0.40
45 or more hours	0.37	0.35	0.89	0.76	0.53	0.56
Second year						
0.1-19.9 hours	-0.18	0.12	1.03	0.32	1.35	0.55
20-34.9 hours	-0.30 *	0.15	0.81	0.31	0.98	.40
35-44.9 hours	-0.21	0.17	0.96	0.41	1.67	0.90
45 or more hours	-0.06	0.22	1.44	0.77	2.53	1.70
Ages 3-5						
0.1-19.9 hours	-0.06	0.13	0.94	0.30	0.91	0.38
20-34.9 hours	-0.01	0.15	0.95	0.36	0.74	0.36
35-44.9 hours	0.11	0.17	1.15	0.49	0.69	0.38

45 or more hours	0.14		0.21	1.85		0.94	1.31		0.82
Ages 6-10									
0.1-19.9 hours	0.45	**	0.15	2.94	**	1.17	2.63	†	1.50
20-34.9 hours	0.41	*	0.17	2.18	†	0.96	3.93	*	2.39
35-44.9 hours	0.35	*	0.18	1.76		0.83	3.83	*	2.48
45 or more hours	0.45	*	0.22	2.74	†	1.53	6.48	*	4.75
Ages 11-15									
0.1-19.9 hours	-0.13		0.14	0.69		0.25	0.61		0.28
20-34.9 hours	-0.23		0.15	0.55		0.21	0.48		0.23
35-44.9 hours	-0.17		0.16	0.67		0.26	0.49		0.24
45 or more hours	-0.05		0.07	0.63		0.27	0.31	*	0.17

Note: *** $p < .001$,** $p < .01$, * $p < .05$, † $p < .10$.

B represents OLS coefficients for continuous variables and odds ratios for dummy variables.