

Risk Profiles of Overweight/Obesity among Preschoolers

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Introduction

A small number of studies has established risk profiles of childhood obesity by examining the combined effect of pre-and-postnatal maternal childhood overweight/obesity. factors as well as children's characteristics on

Purpose

(CART) analysis to examine the combined effect of maternal and child factors in generating risk profiles for overweight/obesity among This study used classification and regression tree

Methods

used. The sample was comprised of Study-Birth Cohort (ECLS-B) study were Preschool children (≈4 years old). Data from The Early Childhood Longitudinal

OUTCOME VARIABLE

percentile) and overweight/obese (≥ 85ti definitions for normal BMI (5th to< 85th were constructed based on the CDC was calculated. Two BMI-for-age categories Children's body mass index (BMI)-for-age

PREDICTORS

breastfeeding duration, child's gender, pregravid BMI, parity, tobacco use gestational age, birth weight, BMI at age 2 Maternal race, age, SES, marital status.

STATISTICAL ANALYSIS

and CART analyses were conducted effects and oversampling. Logistic regression Data were weighted to account for design

produce homogenous subgroups. The using the CART software. classification tree in this study was built subsamples by seeking variable splits that divides the entire sample space into binary CART is a recursive partitioning method that

Descriptive Analysis

Table 1. Distribution (%) of maternal and child characteristics

	Chi	Children's BMI status	
	Normal	Overweight/ Obese	P-value
Maternal race/ethnicity	(44)	(10)	0.00
White	85.8	34.2	
Black	61.6	38.4	
Hispanic	55.4	44.6	
Maternal age			0.55
<20 yrs	61.8	38.2	
20-34	63.1	36.9	
>34	85.4	34.6	
Marital status			0.00
Married	65.4	34.6	
Not Married	58.9	41.1	
SES			0.00
Low	58.8	41.2	
Medium	62.0	38.0	
High	71.4	28.6	
Parity prior to current pregnancy			0.70
0	62.6	37.4	
_	63.2	36.8	
≥2	64.6	35.6	
Pregravid BMI			0.00
Normal	66.1	33.9	
Overweight/obese	53.6	46.4	
Smoking			0.02
No	64.2	35.8	
Yes	56.1	43.9	
Breastfeeding duration*	1.9 (2.7)	1.7 (2.5)	0.04
Child's gender			0.94
Male	63.1	36.9	
Female	63.3	36.7	
Birth weight			0.00
<2500 grams	72.9	27.1	
2500-3900 grams	64.1	35.9	
≥4,000 grams	48.7	51.3	
Gestational age			0.00
< 37 weeks	0.88	34.0	
≥37 weeks	62.9	37.1	
BMI at age 2 years			0.00
Normal	75.6	24.4	
Overweight/obese	39.9	60.1	

Key Findings

overweight/obese compared to those born to white or black

A higher proportion of children born to Hispanic mothers were

Overweight/obese children were more likely to have mothers who prior to pregnancy, and smoked during pregnancy were not married, belonged to low SES, were overweight/obese

Conclusion

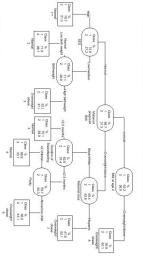
- Normal-BMI preschoolers had been breastfed longer than their overweight/obese counterparts
- A greater proportion of children whose birth weight was ≥ 4,000 low birth weight children. grams were overweight/obese at age four years than normal or

pre-and-postnatal maternal and child characteristics. preliminary risk profiles that are structured within the context of knowledge of preschool overweight/obesity by providing Classification tree analysis confirms and extends current

Results

CART Analysis

Figure 1. Classification tree identifying profiles of overweight/obese preschoolers. Class 1 indicates normal and class 2 indicates overweight/obese preschoolers. The single asterisk indicates the class name, while the double asterisk indicates the terminal node (a node that cannot be subdivided any further)



Key Findings

- Children who were overweight/obese at two years of age had an increased risk of being overweight/obesity at four years of age
- overweight/obese by age fcur, even if their BMI at two years of age was Children born to overweight/obese mothers were more likely to be
- Children with high birth weight (≥ 4000 gm.) were also more likely to be pregravid BMI but were of a lower SES. overweight/obese at age four if they were born to mothers with a normal
- a high pregravid BMI, breastfeeding duration and parity played an Among preschoolers whose mothers were black or white and who had important role in determining their risk of being overweight/obese.

Logistic Regression Analysis

Table 2. Odds Ratios and 95% CI of Overweight/Obesity among

	OR (95% CI)	P-value
Maternal race/ethnicity		
White	1.00	
Black	1.36 (0.95, 1.94)	0.09
Hispanic	1.44 (1.05, 1.98)	0.02
Maternal age		
<20 yrs	0.77 (0.51, 1.18)	0.23
20-34	1.00	
×24	1.00 (0.71, 1.41)	0.99
Marital status		
Married	1.00	
No Married	1.15 (0.87, 1.53)	0.32
SES		
Low	1.59 (1.03, 2.46)	0.04
Medium	1.35 (0.98, 1.86)	0.07
High	1,00	
Parity		
0	1.54 (1.13, 2.11)	0.01
1	1.45 (1.07, 1.97)	0.02
≥2	1.00	
Maternal pregravid BMI		
Normal	1.00	
Overweight/abese	1.60 (1.26, 2.03)	0.00
Smoking		
No	1.00	
Yes	1.21 (0.83, 1.77)	0.32
Breastfeeding duration	1.00 (0.95, 1.04)	0.88
Child's gender		
Male	0.96 (0.76, 1.20)	0.69
Female	1.00	
Birth weight		
<2500 grams	0.61 (0.33, 1.12)	0.11
2500-3999 grams	1.00	
≥4,000 grams	1.87 (1.27, 2.74)	0.00
Gestational age		
< 37 weeks	0.97 (0.62, 1.52)	0.89
≥37 weeks	1.00	
BMI at age 2 years		
Normal	1.00	
Overweight/ghese	102 2 00 00 00 0	900

Key Findings

- Findings from logistic regression analyses demonstrate some comparable results to those found by CART
- Children who were overweight/obese at age two years were primary splitter in the classification tree. by the time they were four years old. This finding parallels the found to be four times more likely to be overweight and obese
- Similarly, mothers who were overweight/obese before overweight/obese at age four years. pregnancy were more likely to have children who were
- Children of Hispanic mothers were found to have a greater predict greater risk.

Low SES and birth weight ≥ 4,000 grams also were found to

- risk than children of white or black mothers.
- As in the classification tree analysis, parity was a significant age four years. prior pregnancies were more likely to be overweight/obese at predictor, that is, children born to women with fewer than two