



# Predictors of BMI in African American Preschoolers

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## Background

The prevalence of childhood obesity and the risk of secondary complications is on the rise especially among ethnic minorities.

Several factors are associated with the development of obesity including genetics, socioeconomic status, race, and environment.

## Objective

To investigate the impact of familial factors and maternal feeding behaviors on childhood weight status (CWS) in a sample of low income African American preschoolers using constructs with demonstrated links to CWS in Caucasian populations

Table 1. Caregiver's Characteristics

N = 299	Mean	SD
Caregiver's age	27.9	7.6
	Frequency	Percent
Survey Self-administered	294	98
Currently in School	79	26
Currently Employed	128	43
Currently pregnant	44	15
Current smoker	68	23
Obese (BMI ≥ 30 kg/m <sup>2</sup> )	127	43
<b>Education</b>		
High School or Less	198	67
Some College	80	27
College Graduate	9	3
Graduate Degree	6	2
<b>Marital Status/Living Arrangements</b>		
Married living with spouse	18	6
Married not living with spouse	27	9
Living with significant other not married	44	15
Not married or living with significant other	207	70
<b>BMI Category</b>		
Underweight	6	2
Normal Weight	74	25
Overweight	86	29
Obese	127	43

Table 2. Child's Characteristics

N = 299	Mean	SD
Child's age (months)	41.4	9.9
	Frequency	Percent
Gender (male)	156	52.2
Race (African American)	295	98.7
Currently in Daycare	156	52.2
<b>Youth Weight for Height Percentile</b>	<b>1978*</b>	<b>2000**</b>
	Frequency (%)	Frequency (%)
WHP < 5 <sup>th</sup> %ile	12 (4%)	16 (5%)
WHP 6-84 <sup>th</sup> %ile	217 (73%)	207 (70%)
WHP 85-94 <sup>th</sup> %ile	30 (10%)	45 (15%)
WHP ≥ 95 <sup>th</sup> %ile	37 (13%)	28 (10%)
<b>Collapse of groups</b>		
Normal weight	217(73%)	207(70%)
Overweight/At risk	67 (23%)	73 (25%)

\*Based on 1978 CDC growth data

\*\*Based on 2000 CDC growth data

## Questionnaire Design

□The Preschool Feeding Questionnaire (PFQ2) is a 39 closed-ended item feeding instrument that yields scores for seven constructs.

□PFQ2 was adapted from three validated feeding instruments; \*Children's Eating Behavior Questionnaire, <sup>b</sup>Parental Feeding Style Questionnaire and the 'Child Feeding Questionnaire.

□Additional items were included in the PFQ2 to gather demographic information including child's height and weight and self reported caregiver height and weight.

□Primary caregiver was defined as biological mother or female legal guardian.

## Questionnaire Administration

□PFQ2 questionnaire was administered between April 2003 and October 2003 to the primary caregivers of low income African American children (M age = 3.4yrs).

□Participants were enrolled in Hamilton County, Ohio Specialty Supplemental Nutrition Program for Women, Infants and Children (WIC), a federally funded program that provides supplemental food and nutrition counseling to low income women and children.

□Participants (caregivers) were approached during scheduled WIC visits and asked to complete the PFQ2.

□All caregivers were at least 18 years of age and signed informed consent forms in accordance with federal HIPAA guidelines.

--Total of 307 subjects were approached

--7 declined to participate (2%)

--1 did not meet inclusion criteria

a. Wardle, J, Guthrie, C, Sanderson, S, Rapoport, L. Development of the children's eating behaviour questionnaire. *J Child Psychol*, 2001;42:963-970.

b. Wardle, J, Sanderson S, Guthrie CA, Rapoport L, Plomin R. Parental feeding style and intergenerational transmission of obesity risk. *Obesity Research*, 2002;10:453-462.

c. Birch LL, Fisher JO, Grimm-Thomas K, Markley ON, Sawyer R, Johnson SL. Confirmatory factor analysis of the child feeding questionnaire: a measure of parental attitudes, beliefs, and practices about child feeding and obesity proneness. *Appetite*, 2001;36:201-210.

Table 3. Descriptive Statistics for Feeding Constructs

Construct	Mean	SD	Range	Items	Alpha	Correlation	Correlation
						with child weight status	with Mom BMI
Maternal Control	3.99	.491	1-5	10	.68	.102	-.069
Child Food Responsiveness	1.50	.815	0-4	5	.74	-.006	-.044
Child's Desire to Drink	2.61	1.07	0-4	2	.77	-.075	.027
Maternal Restriction	3.78	.82	1-5	8	.64	.006	-.003
Maternal Pressure to Eat	3.59	.88	1-5	4	.54	-.179*	-.073
Maternal Concern for Child's Weight	2.44	1.37	1-5	3	.81	.081	.003
Structured Feeding	2.86	.441	0-4	7	.47	.077	-.010

\*p < .05

## Hierarchical Multiple Regression Analyses

□ Child's gender and age were added in the first step.

□ Caregiver's education level, caregiver's employment, household income, child's daycare status, caregiver's living arrangements, and number of people in the home were added in the second step.

□ Caregiver's BMI was added in the third step.

□ Maternal feeding behaviors were added in the fourth step.

## Results

The overall model was significant

F(12,298) = 3.19, p<.05

Variance in CWS

The model accounted for 12% of the variance in childhood weight status.

Significant associations with Child weight status included:

BETA

.14, p<.05 Household income

.19, p<.01 Caregiver's body mass index

-.21, p<.01 Maternal pressure to eat

## Implications

□Findings support the roles of genetics and environment in the etiology of childhood obesity.

□Findings do not appear to implicate feeding practices in relation to childhood obesity in this sample of African American preschoolers.

□Caution is advised when interpreting these results as it is possible that the constructs used to evaluate feeding practices may not be valid for use with African Americans.

## Future Research

Further research needs to be conducted to ensure accurate assessment of feeding practices in multicultural populations before concluding that there is no association with CWS.