

## Overweight in Low-income African American and Latino Children

Dawson-McClure, S., Brotman, L.M., Rosenfelt, A., & Gouley, K.K. Overweight in Low-income African American and Latino Children. Society for Research on Child Development, April 2007.

In an effort to inform obesity prevention efforts for low-income, ethnic minority children, the present study examines 1) rates of overweight in an at-risk sample, 2) continuity of overweight from preschool to preadolescence, and 3) prenatal tobacco exposure as a risk factor for overweight. The prevalence of smoking during pregnancy is approximately 12% in the US and rates are significantly higher among mothers without a high school diploma. Several large epidemiological studies have documented prenatal tobacco exposure as a significant risk factor for child overweight, and there is only a limited reduction when this risk is adjusted for a variety of confounding factors (e.g., SES, race, gender, birth weight, parent obesity). However, these studies have not considered aspects of the home environment or individual child factors that may explain this association.

Several mechanisms through which prenatal tobacco exposure may increase risk for overweight have been suggested, including that nutritional deprivation may affect the hypothalamic centers that regulate food intake and growth as well as insulin signaling and metabolism, and nicotine may alter the neurotransmitter systems related to impulse control which may result in poor self-regulation of food intake. In addition, difficult infant temperament may result in disruptions in the caregiving relationship in general and the feeding relationship in particular.

Participants were 99 preschoolers at familial risk for conduct disorder. 61% were African American, 24% Latino, 15% mixed/other ethnicity. 60% of families had yearly incomes below \$15,000 and 43% of caregivers did not have a HS diploma. Children were assessed 4 times during the preschool period (from ages 4 to 6) and 1 time during preadolescence (mean age 10.47).

**Rates of overweight.** 13% of children were perceived by their parents to be overweight by age 6. Based on objective measures of height and weight in preadolescence, 54% of children were overweight or at risk of overweight (based on 95<sup>th</sup> and 85<sup>th</sup> percentiles for BMI, standardized by age and sex). 20% of the preadolescents who were overweight had high blood pressure.

**Continuity of overweight.** Parent perception of child overweight in preschool was significantly related to BMI, blood pressure, and parent and child perception of overweight in preadolescence. 100% of the overweight preschoolers remained overweight in preadolescence, and 47% of the overweight preadolescents had been overweight in preschool.

**Prenatal tobacco exposure.** 46% of the sample was exposed to tobacco in utero (based on mother report in preschool). Prenatal tobacco exposure was significantly related to overweight in preschool (parent perception) and preadolescence (BMI, parent perception,

child perception). In preadolescence, 50% of children exposed to tobacco were overweight compared to 19% of children not exposed.

The following potential explanatory factors were considered: *biological* (maternal weight gain, birth weight, maternal obesity), *home environment* (parent current mood or anxiety disorder, parent antisocial personality disorder, harsh parenting practices, stressful life events), *individual* (infant difficult temperament, preschool conduct problems). Prenatal tobacco exposure was associated with parental antisocial personality disorder, harsh parenting practices, and infant difficult temperament. The only factor that predicted overweight was birth weight, such that children with low and high birth weights had higher BMIs. Thus, none of these factors explained the association between prenatal tobacco exposure and child overweight.

**Conclusions.** This sample of low-income African American and Latino children at familial risk of conduct disorder evidenced elevated rates of overweight in preadolescence (54% vs. 43% for New York City public school children). Overweight was markedly stable from preschool to preadolescence, and overweight preadolescents were at risk for high blood pressure. Prenatal tobacco exposure predicted overweight in preschool and preadolescence, and this association was not explained by biological, home environment, or individual factors. This finding is consistent with the interpretation that prenatal tobacco exposure confers risk for overweight through physiological mechanisms. Moreover, prenatal tobacco exposure appears to be an important target for obesity prevention effects, as well as a marker for children who are in need of preventive services.