Parental Perceptions of Weight During the First Year of Life

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The authors have no conflicts of interest to disclose.
Clinical Trial Registration: Addressing Health Literacy and Numeracy to Prevent Childhood Obesity (GreenLight); NCT01040897.
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Received for publication November 6, 2015; accepted March 11, 2016.

ABSTRACT

BACKGROUND: More than half of parents underestimate their overweight child's weight; however, previous research focuses on children older than 2 years of age. The objective of this study was to assess whether parents of 2- to 12-month-old infants are able to accurately perceive their children's weight status.

METHODS: We performed a cross-sectional analysis of data collected from the Greenlight study, a cluster randomized obesity prevention trial, at 4 pediatric clinics serving diverse and low-income populations. Infants' length and weight were measured at well-child checks, and parents completed questionnaires including demographic characteristics and perception of their children's weight. Weight-for-length (WFL) percentile at the fifth to ≤95 was considered healthy weight and WFL percentile >95th was considered overweight. We used chi-squared tests to compare accuracy according to weight category and performed logistic regression analysis to assess accuracy at each time point.

RESULTS: Approximately 85% to 90% of infants (n = 853 at 2 months, n = 563 at 12 months) were at a healthy WFL at all measurement times, and parents of these infants were more likely to have an accurate perception of their child's weight (accuracy 89%–95%) than overweight children (accuracy 7%–26%; $P < .001$ across time points). Approximately 10% of healthy weight infants were perceived as underweight by their parents at all time points. At 12 months, mothers who were overweight were significantly more likely to underestimate their child's weight status ($P = .008$).

CONCLUSIONS: In our diverse and low-income sample, parents of overweight infants infrequently know that their infants are overweight. Future studies should examine how perception is related to feeding habits and weight status over time.

KEYWORDS: growth; infant; overweight; perception; weight

ACADEMIC PEDIATRICS 2016;16:558–564

WHAT'S NEW

Most parents of overweight infants do not perceive their child as overweight; many parents of healthy weight infants are concerned that their child is underweight. At 12 months, overweight mothers are significantly more likely to underestimate their child's weight status.

MORE THAN HALF of parents underestimate their overweight or obese child's weight between the ages of 3 and 10 years.[1–5] Parents who do not recognize that their children are overweight are less likely to be concerned about their children's health and to take steps toward a healthier weight.[6–8] In contrast, parents who believe that their children's weight is above average are significantly more likely to be willing to make healthy changes in their family.[9] Parental perceptions tend to be less accurate when children are younger,[4] when parents are overweight themselves,[1,2] when the child is male,[2] and when parents are Latino or African-American.[5] One previous study of children aged 6 to 27 months reported that most parents (who were predominantly white and had at least a high school education) of children who weighed in the lowest quartile believed that their child weighed too little, and most parents of children who weighed in the top quartile believed that their child's weight was appropriate.[10] Another qualitative study of 76 overweight Hispanic children aged 14 to 47 months of age reported that most parents believed their child was healthy, and half were unconcerned about their child's weight.[11] However, most previous work on parents' weight perceptions has focused on children older than 2 years, because this is the age at which obesity is first defined using standard body mass index (BMI) charts.[12] Establishment of a healthy weight trajectory during infancy is essential, because excessive weight gain during infancy has been associated with increased obesity and cardiometabolic risk later in life.[13–17] Little

is known about parental weight perception during the infant and toddler periods—a time when parents look for feeding advice and growth information, visit their pediatric care providers frequently for preventive health services visits, and establish lifestyle patterns that might determine the child's future feeding habits.

The goal of this study was to assess whether parents of 2-, 4-, 6-, 9-, and 12-month-old infants are able to accurately perceive their children's weight status in a poor and diverse population of 4 safety net clinics participating in the Greenlight Study. Anticipating findings similar to what has been found in the literature for older children, we predicted that parents will have less accurate perceptions if they are overweight themselves, are Hispanic or African American, have a male child, and have less education.

METHODS

GREENLIGHT INTERVENTION STUDY

We performed a cross-sectional analysis of data collected from the Greenlight Intervention Study,[18] a cluster randomized trial of a low-literacy, primary care intervention to prevent early childhood obesity. Two-month-old infants were enrolled at 4 US pediatric primary care clinics in academic medical centers in North Carolina, Tennessee, Florida, and New York from 2010 to 2013. Participants were enrolled if parents spoke English or Spanish and were older than 18 years of age at the time of the infants' 2-month well child check. Infants were excluded from participation in Greenlight if they were born before 34 weeks gestational age, had a birth weight <1500 g or were currently under the third percentile per World Health Organization (WHO) growth charts, or had any chronic medical condition that could affect weight gain patterns, such as cardiac heart defects or failure to thrive.

Infants' weight and recumbent length were measured at preventive health services visits using procedures that were standardized across all 4 study sites.[19] Age- and sex-specific weight-for-age and weight-for-length (WFL) were calculated for each time point. Improving weight perception was not a goal of the intervention. More details about the Greenlight methods have been previously published.[18]

DEFINITIONS

On the basis of the WHO criteria for this age group,[20] WFL percentile from the fifth to <95th were considered healthy weight and WFL percentile ≥95th were considered overweight. Although we considered this our primary definition of overweight for this study, we acknowledge that there are no standard definitions for overweight or obesity in infants. Therefore, we compared results using this definition to alternative definitions of WFL ≥99th percentile per WHO growth charts and weight-for-age ≥95th percentile per WHO growth charts (see the section on Statistical Analysis).

MEASURES

At the initial 2-month visit parents completed questionnaires including demographic information (such as parental education, income, and weight) and history of the pregnancy, birth, and first 2 months of life, including breastfeeding status. The type of feeding was assessed by asking the question, "What type of milk does [child's first name] drink now?" with answer choices of "formula only," "mostly formula and some breast milk," "equal formula and breast milk," "mostly breast milk but some formula," and "breast milk only." Additional exact questions and measurement protocols are previously reported.[18,21] At the initial and all subsequent visits parents answered a question regarding their perception of their children's weight status ("Right now, do you think [child's first name] is underweight, healthy weight, or overweight?"). Parental weight perception was classified as underestimated, accurate, or overestimated depending on their assessment of their child's weight status categories and the child's actual measured WFL percentile. Parental weight perception was classified as accurate if parents correctly assessed their child's weight status (eg, a healthy weight child with WFL from the fifth to <95th percentile was perceived as healthy weight) or inaccurate if they misperceived their child's weight status (eg, an overweight child with WFL ≥95th percentile who was perceived as healthy weight).

Maternal height and weight were self-reported by questionnaire. Maternal BMI was calculated by dividing weight in kilograms by height in meters, squared. Per standard definitions, a BMI of <18.5 was considered underweight, 18.5 to 24.9 was considered healthy weight, 25 to 29.9 was considered overweight, and >30 was considered obese. Maternal perception of her weight was obtained by asking "Do you consider yourself…underweight, healthy weight, overweight, or obese?"

STATISTICAL ANALYSIS

We used chi-squared tests to compare parents' accuracy of weight perception at each time point according to weight category. Multivariable logistic regression was performed at 12 months to assess accuracy adjusting for study site, sex, race/ethnicity, income, and parent weight. Because very few parents overestimated their child's weight status at 12 months (n = 13), we examined predictors for underestimating their child's weight status (vs having an accurate perception) in our logistic regression model. All reported *P* values were based on 2-tailed tests and compared with a significance level of .05. All statistical analyses were performed using Stata version 13.1 (StataCorp, College Station, Tex).

There is no consensus as to how to define overweight in the first year of life, so we wanted to examine our logistic regression model using different definitions of overweight. Our model was initially run using a definition of overweight as WFL ≥95th percentile per WHO growth charts. The model was repeated using alternate definitions of WFL ≥99th percentile per WHO growth charts and weight-for-age ≥95th percentile per WHO growth charts. We compared results of the 3 models using receiver operating characteristic curves.