

# Sweetened Food Purchases and Indulgent Feeding Are Associated With Increased Toddler Anthropometry

Virginia Chaidez, PhD, RD<sup>1</sup>; Scott McNiven, MS<sup>2</sup>; Stephen A. Vosti, PhD<sup>2</sup>; Lucia L. Kaiser, PhD, RD<sup>1</sup>

## ABSTRACT

**Objective:** To explore the role of feeding practices and food purchases in toddler dietary intake and anthropometry.

**Methods:** A convenience sample of Latino mother and toddler pairs were interviewed at baseline and at 6-month follow-up. Data on feeding practices, toddler dietary intake, anthropometry, and food purchases were collected using the Toddler-Feeding Questionnaire; 24-hour recalls; measurements of weight, height, and/or length; and food purchase receipts.

**Results:** Indulgent feeding scores and high intake of sweetened beverage were associated with a 0.52 increase ( $P = .03$ ) and 0.46 increase in toddler weight-for-height  $z$ -score ( $P = .05$ ), respectively. Households with 10 percentage points of more sweetened food and beverage expenditures were associated with increases in weight indicator  $z$ -scores.

**Conclusions and Implications:** Indulgent feeding, high intake, and purchase of sweetened beverage are associated with weight gain in Latino toddlers. Programs should target food purchasing decisions and provide concrete guidance for the division of responsibility around feeding.

**Key Words:** Hispanics, Latinos, child feeding, overweight, sweetened beverage (*J Nutr Educ Behav.* 2014;46:293-298.)

Accepted May 22, 2013. Published online November 1, 2013.

## INTRODUCTION

Childhood obesity is a grave concern in the United States (US), particularly among minorities, for whom an estimated 49.2% of African American children and 44.0% of Hispanic children aged 5–18 years are overweight or obese, compared with 32.3% of Caucasian children.<sup>1</sup> The etiology of childhood obesity is related to genetic, cultural, psychosocial, socioeconomic, and environmental factors. This research investigates the role of the household food environment in Hispanic families and the mediating effects of food purchases and feeding practices on child obesity risk.

The US Department of Agriculture Nutrition Evidence Library and other recent reviews concluded that sweetened beverages contribute to adult

and child obesity.<sup>2-5</sup> Excessive consumption of sweetened beverages and even fruit juice has been linked to obesity risk in young Mexican children.<sup>6,7</sup> Moreover, data from the Feeding Infants and Toddlers study found that intake of sweetened beverages begins in infancy and is more likely to occur in Hispanic infants and toddlers than non-Hispanic infants and toddlers.<sup>8</sup> Based on this evidence, it is apparent that interventions targeting early childhood obesity are needed.

Despite the documented connections between consumption of sweetened foods and child obesity, there is little evidence connecting the types of foods purchased at the household level and child obesity. The types of food that a child eats at home are affected by the parents' and/or caregivers' deci-

sions about food availability and accessibility. First, at a grocery store, the caregiver must decide which foods to buy and how much to purchase of each food (availability). Second, the caregiver decides which of the purchased foods the child is allowed to consume (accessibility). Two potential mechanisms through which mothers could improve toddlers' diets were explored in a Mexican American population: feeding practices and food purchases. Previously in this same sample, indulgent feeding practices were associated with increased energy consumption and higher intakes of total fat and sweetened beverages in a cross-sectional design using baseline data.<sup>9</sup> The objectives of this follow-up study conducted 6 months later were to examine the respective roles of household food purchases and toddler feeding practices in determining toddler dietary intake and anthropometry.

## METHODS

### Study Design and Protocol

The study involved an observational cohort design, with baseline and 6-month follow-up data collection.

<sup>1</sup>Nutrition Department, University of California–Davis, Davis, CA

<sup>2</sup>Department of Agricultural and Resource Economics, University of California–Davis, Davis, CA

Address for correspondence: Virginia Chaidez, PhD, RD, University of California CalFresh Nutrition Education Program State Office, University of California–Davis, 1103 Meyer Hall, Davis, CA 95616; Phone: (530) 754-7796; Fax: (530) 752-1107; E-mail: [vachaidez@ucdavis.edu](mailto:vachaidez@ucdavis.edu)

©2014 SOCIETY FOR NUTRITION EDUCATION AND BEHAVIOR

<http://dx.doi.org/10.1016/j.jneb.2013.05.011>

The Institutional Review Board at the University of California–Davis approved the Human Subjects Protocol. Parents signed informed consent forms. Second-generation Mexican Americans with moderate proficiency conducted interviews in participants' preferred language (English or Spanish).

### Study Sample

A convenience sample of 94 Latino mother and child pairs was obtained largely through the Supplemental Nutrition Program for Women, Infants, and Children (WIC); 67 women were interviewed at follow-up. Study criteria were that: (1) the mother self-identified as Latina, and (2) the family had a toddler child between the ages of 12 and 24 months at baseline. All participants interviewed were the mothers of the toddlers. The authors obtained informed written consent at the first scheduled interview.

### Construction and Validation of Survey Instrument

Findings from earlier formative research were used to develop the Toddler-Feeding Questionnaire (TFQ).<sup>10</sup> The final draft of the questionnaire contained 34 items and was similar in formatting and Likert-type responses to the Caregiver Feeding Style Questionnaire of Hughes and colleagues.<sup>11,12</sup> Development and validation of the instrument were described elsewhere.<sup>9,10</sup> The TFQ was composed of items that were expected to measure indulgent and authoritative feeding practices. Indulgent feeding is defined here as a caregiver style that caters to the child and offers little or no structure, guidance, or limit-setting.<sup>11</sup> In contrast, authoritative feeding is defined as a caregiver style that offers structure, guidance, and positive modeling of eating behaviors.<sup>11</sup>

### Anthropometric Measurements

The researchers measured the height and weight of mothers and the child's length (or height if the child had reached 2 years of age).<sup>13</sup> Toddler anthropometry was measured twice:

at baseline and 6 months later. Height/length was assessed using a portable stadiometer (Model PE-AIM-101, Perspective Enterprises, Portage, MI) and weight was measured using a calibrated scale (Model 1582 Digital Scale; Tanita, Arlington Heights, IL). Because the 2006 World Health Organization growth standards had recently been adopted for use in the US for children 0–24 months, both the World Health Organization standards and the Centers for Disease Control growth reference were used in this study.<sup>14</sup> Anthropometric outcome variables included 6-month change in z-scores for toddler weight for height ( $\Delta$ WHZ), weight for age ( $\Delta$ WAZ), height for age ( $\Delta$ HAZ), body mass index ( $\Delta$ BAZ), and rapid growth. Change in z-scores was calculated by subtracting anthropometric z-scores at baseline from follow-up z-scores; rapid growth is defined as a change in  $\Delta$ WHZ > 0.67.

### Dietary Assessment

Details on the dietary assessment are provided in more detail elsewhere.<sup>9</sup> Briefly, dietary intake was collected at baseline and 6 months later for toddlers, using 2 24-hour dietary recalls administered to the mothers at each time point (4 in total). Methods for using 2 days of 24-hour dietary recalls followed procedures as used in the Feeding Infants and Toddlers study and the Continuing Survey of Food Intakes by Individuals.<sup>15</sup> The authors analyzed dietary intake data using Nutrition Data System for Research software (Nutrition Coordinating Center, University of Minnesota, Minneapolis, MN, 2007). Dietary outcome variables included total energy (kilocalories), total fat (grams), added sugars (grams), and percentage of kilocalories from fat and added sugar. Only dietary variables that were significantly related to toddler feeding practices at baseline were used in analyses at the 6-month follow-up.<sup>9</sup>

### Food Purchases

Participants were asked to collect and save receipts for all household food purchases for an entire month at baseline, and again at the 6-month

follow-up. Food purchases included trips to the grocery stores, or any type of store that sold foods items; foods consumed at restaurants, from street vendors, and so forth, were not included. Food expenditures were grouped into 6 categories: (1) fresh fruits and vegetables, (2) proteins, (3) canned foods, (4) cereals, (5) sweetened foods and beverages, and (6) miscellaneous foods. Sweetened beverages did not include 100% fruit juice. To reduce the effects of household size and incomplete receipt records, the percentage of food expenditures in each category was used in analyses.

### Statistical Procedures

The authors analyzed descriptive statistics for all variables. To examine bivariate relationships, the following procedures were used: Spearman's rank correlation for ordinal or non-transformable variables, *t* tests, and Mann-Whitney U/Wilcoxon rank-sum test for variables that were not normally distributed. Simple linear regressions and multivariate regressions of anthropometry outcomes (with changes in WHZ, WAZ, and BAZ as dependent variables) were also conducted using toddler feeding practices; dietary variables; and food expenditure category percentages. In the food purchases analyses, TFQ indulgent and authoritative scores and the 34 TFQ items were standardized to have a mean of 0 and standard deviation of 1. The researchers conducted statistical analyses using SAS (version 9.1, SAS Institute Inc, Cary, NC, 2002–2003) or Stata (version 10, StataCorp LP, College Station, TX, 2007), with statistical significance designated at  $P < .05$ .

## RESULTS

### Characteristics at Follow-up

A total of 67 women were interviewed at follow-up. Women at follow-up were older and a larger proportion were foreign-born than were women lost to follow-up. No other differences were noted (Table 1). Average age of toddlers at follow-up was 27.7 months ( $\pm$  3.11 months). Median follow-up time was 6.11 months, with a range of 5.49–7.45 months after baseline interview. Approximately 11% ( $n = 7$ )

Download English Version:

<https://daneshyari.com/en/article/361133>

Download Persian Version:

<https://daneshyari.com/article/361133>

[Daneshyari.com](https://daneshyari.com)