

Mothers of Obese Children Use More Direct Imperatives to Restrict Eating

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ABSTRACT

Objective: To examine the association of mother and child characteristics with use of direct imperatives to restrict eating.

Methods: A total of 237 mother–child dyads (mean child age, 70.9 months) participated in a video-recorded, laboratory-standardized eating protocol with 2 large portions of cupcakes. Videos were reliably coded for counts of maternal direct imperatives to restrict children’s eating. Anthropometrics were measured. Regression models tested the association of participant characteristics with counts of direct imperatives.

Results: Child obese weight status and maternal white non-Hispanic race/ethnicity were associated with greater levels of direct imperatives to restrict eating ($p = .0001$ and $.0004$, respectively).

Conclusions and Implications: Mothers of obese children may be using more direct imperatives to restrict eating so as to achieve behavioral compliance to decrease their child’s food intake. Future work should consider the effects direct imperatives have on children’s short- and long-term eating behaviors and weight gain trajectories.

Key Words: body mass index, eating, maternal language, mother–child interaction, obesity (*J Nutr Educ Behav.* 2017;■■:■■–■■.)

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INTRODUCTION

Parent–child feeding interactions have been identified as a target for childhood obesity prevention and intervention efforts.¹ Guidelines^{2–4} recommend that parents support their children’s healthy eating through role modeling and by providing a variety of healthy foods for the child to choose. Parents are advised not to

restrict or limit their child’s eating directly.² Rather, parents are encouraged to draw from a constructivist⁵ or nondirective feeding approach, use scaffolding, learning through teachable moments, and influence eating indirectly by providing a healthy food environment without unhealthy foods so that the child will not be tempted to overeat.⁶ These recommendations stem from the theory

that direct restriction can lead to overeating caused by interference with internal hunger and satiety cues⁷ or to disordered eating behaviors in adolescence.⁸

Whereas the constructivist or nondirective approach has been linked with positive outcomes,⁹ employing more direct imperatives is also linked with positive outcomes in some situations and for some children. The use of clear, direct imperatives results in improved child compliance and behaviors^{10,11} and is encouraged in evidenced-based parenting interventions.^{10,12–14} Direct imperatives are thought to result in improved child behavior because they are easier for children to interpret.^{15,16} The use of directive imperatives is associated with better health outcomes for children with chronic health conditions.^{17,18} However, no studies to date have examined parental use of direct imperatives in the context of restricting a child’s intake of unhealthy food.

Therefore, this study sought to examine parental use of direct imperatives to restrict children’s intake of a dessert. It was hypothesized that mothers of obese children would use more direct imperatives to restrict

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eating. This hypothesis was informed by Social Learning Theory,^{19,20} which states that to increase a desired behavior, clear expectations must be set and enforced; it was also informed by findings in the general parenting literature²¹ showing that parents of children with more challenging behaviors use more direct imperatives. This work was conducted in a low-income sample, given that children in low-income families are disproportionately affected by obesity.²² In addition, prior work has shown that mothers of different socioeconomic backgrounds think about child feeding and obesity in different abstract ways,^{23,24} and therefore interventions may need to be specifically tailored to this population.

METHODS

The sample consisted of 237 low-income, female primary caregiver-child dyads (mean child age, 70.9 months; range, 48.3–96.8 months) from Michigan enrolled in a longitudinal study examining contributors to children's obesity risk. Dyads were invited to participate in a study seeking to understand how mothers feed their children. Participants are referred to in this article as mothers (95% were biological mothers, the remainder were grandmothers, stepmothers, etc). Exclusion criteria for the child included gestational age <35 weeks, significant neonatal complications, serious medical problems that may have affected eating or growth, food allergies, or foster care. Eligible mothers were able to participate in English, had less than a 4-year college degree, and had no food allergies or intolerances. The study was approved by the University of Michigan Institutional Review Board. Mothers provided written informed consent, children provided assent, and dyads were compensated \$60 for participation.

Mothers reported the child's birth date, child's sex, maternal race/ethnicity, and maternal highest level of education achieved. Heights and weights of children and mothers were measured according to standardized procedures.²⁵ Body mass index (BMI) was calculated. Children were categorized as being obese (BMI \geq 95th percentile for age and sex) or not based

on the US Center for Disease Control and Prevention growth charts.²⁶

The researchers measured maternal restriction of child food intake in a standardized laboratory-structured eating protocol, (additional details on methods can be found in the [Supplementary Data](#)). In this videotaped protocol, the child and mother were seated at a table alone in a quiet room and were sequentially presented with 4 different foods (chocolate cupcakes [familiar dessert], green beans [familiar vegetable], halva [unfamiliar dessert], and artichoke [unfamiliar vegetable]). This analysis focused only on the 4-minute videotaped segment of the protocol during which the child and mother were presented with identical portions of 2 cupcakes [Hostess Chocolate Cupcakes, 104.96 \pm 0.5 g, 340 kcal, 42 g sugar], because prior work²⁷ indicated that this palatable, less-healthy food elicited restrictive feeding behaviors from the mothers, whereas the other foods rarely did so. The laboratory eating protocol demonstrated good test-retest reliability across approximately 2.5 years, with correlations for maternal discouragements to eat desserts ($r = .28$) and maternal encouragements to eat vegetables ($r = .33$), amount of dessert ($r = .24$) and vegetables ($r = .20$) eaten by the child ($P < .05$ for all statistics reported) (data not shown, available from first author upon request).

A coding scheme was developed to reliably code maternal direct imperatives to restrict eating. Direct imperatives to restrict eating were defined as direct commands from the mother, directed toward the child with the intent of limiting the child's intake of the cupcake. These statements often included use of the second person singular (*you*); however, these statements could also be direct commands or imperatives (eg, *Don't eat that*, or use of the child's name in a way to regulate behavior as long as it was directed at the child: for instance, *Jaden! Stop eating!*). Coders were trained to reliability; then, 2 coders independently coded 20% of the video segments (Cohen's kappa²⁸ = 0.94, indicating almost perfect agreement between raters) and the remaining videos were coded by a single coder.

Statistical analyses were conducted using SAS software (version 9.3, SAS Institute, Inc, Cary, NC). Child age, sex, and weight status and maternal race/ethnicity, education, and BMI were entered simultaneously into a Poisson regression model predicting direct imperatives to restrict eating.

RESULTS

[Table 1](#) presents characteristics of the sample. Children with obesity ate (mean \pm SD) 50.1 \pm 31.4 g of cupcakes and children without obesity ate 42.9 \pm 26.2 g. Mothers with obesity ate 38.4 \pm 28.0 g of cupcakes and mothers without obesity ate 27.8 \pm 20.1 g. Mothers made 2.27 \pm 2.21 statements to restrict eating (range, 0–11), of which 1.37 \pm 1.83 (range 0–11) were direct imperatives to restrict eating. [Table 2](#) presents examples of direct imperatives to restrict eating. As shown in [Table 3](#), mothers of children with obesity used 97% more direct imperatives to restrict eating (relative ratio = 1.97; 95% confidence interval, 1.54–2.51; $P < .001$) compared with mothers of nonobese children. Non-Hispanic white mothers used 67% more direct imperatives to restrict eating (relative ratio = 1.67; 95% confidence interval, 1.25–2.22; $P = .001$) compared with mothers of other racial/ethnic groups.

DISCUSSION

To the best of the authors' knowledge, this study is the first to describe direct imperatives regarding restriction of child food intake by mothers of young children. Direct imperatives to restrict eating were relatively common and were used more frequently by mothers of obese children and non-Hispanic white mothers. These findings were supported by prior work using maternal self-report measures about their own feeding behaviors, which found heavier child weight^{1,29,30} to be associated with higher levels of maternal restriction in general. Strengths of this study include the observational nature of data collection.

The observation that mothers of obese children used more direct imperatives to restrict their children's intake compared with mothers of

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