

Associations of Parental Control of Feeding with Eating in the Absence of Hunger and Food Sneaking, Hiding, and Hoarding

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Abstract

Background: Overweight children as young as 5 years old exhibit disturbances in eating behaviors.

Methods: Using follow-up data from 419 participants in High Five for Kids, a randomized controlled trial of overweight children, the prevalence of (1) eating in the absence of hunger and (2) food sneaking, hiding, and hoarding was estimated and cross-sectional associations of parental control of feeding and these behaviors were examined using covariate-adjusted logistic regression models.

Results: At follow-up, mean [standard deviation (SD)] age of the children was 7.1 (1.2) years; 49% were female; 16% were healthy weight, 35% were overweight, and 49% were obese. On the basis of parental report, 16.5% of children were eating in the absence of hunger and 27.2% were sneaking, hiding, or hoarding food; 57.5% of parents endorsed parental control of feeding. In adjusted models, children exposed to parental control of feeding were more likely to eat in the absence of hunger [odds ratio (OR) 3.37, 95% confidence interval (CI) 1.66, 6.86], but not to sneak, hide, or hoard food (OR 1.43, 95% CI 0.87, 2.36).

Conclusions: Disturbances in eating behaviors are common among overweight children. Future research should be dedicated to identifying strategies that normalize eating behaviors and prevent excess weight gain among overweight children.

Introduction

Studying eating behaviors among overweight children may provide important insight into the etiology of current weight status and risk for subsequent disordered eating behaviors and excess weight gain.¹ Inquiry into such behaviors must begin early because the risk for the onset of eating disturbances accelerates through infancy and early childhood.² Eating disturbances that emerge during childhood appear to be a function of certain parental eating behaviors and child characteristics, including BMI.² Young overweight girls, in particular, are at risk for dietary re-

straint,¹ weight concerns,¹ greater weight gain,¹ and eating in the absence of hunger.³ Similarly, binge eating, a correlate of eating in the absence of hunger,⁴ appears to be common in middle childhood, especially among overweight children, and is predictive of excessive weight gain.⁵ Although food sneaking or hiding have been included in proposed modified criteria for binge eating disorder in children,⁶ this construct remains understudied and poorly described among children.⁶ Furthermore, data on the prevalence of correlates of binge eating in children, such as eating in the absence of hunger and food sneaking, hiding, and hoarding,⁶ among racial/ethnic minority youth and boys is lacking.

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The aims of the present study were to (1) estimate the prevalence of eating in the absence of hunger and food sneaking, hiding, and hoarding among a diverse sample of overweight/obese young boys and girls, and (2) examine if parental control of feeding is associated with eating in the absence of hunger and food sneaking, hiding, and hoarding.

Methods and Procedures

Study subjects were children participating in the High Five for Kids Study, a cluster-randomized, controlled trial to reduce obesity among children of ages 2–6.9 years and taking place in 10 primary care offices (5 intervention sites, 5 usual care controls) of Harvard Vanguard Medical Associates in Eastern Massachusetts.⁷ Children were eligible for the study if they had a BMI \geq 95th percentile. Children with a BMI between the 85th and 94th percentiles were also eligible if they had at least one overweight (BMI \geq 25) parent. Children had to receive their primary care at one of the 10 study sites and have English- or Spanish-speaking parents. Children in foster care or those who did not have at least one parent who was able to follow study procedures for 2.5 years were excluded. Families for whom the primary care clinician thought the intervention was inappropriate and children with chronic conditions that could substantially interfere with growth, physical activity, or dietary recommendations were also excluded. Participants were enrolled once their BMI was confirmed at a scheduled well-child care visit, and parents completed written informed consent. All study procedures were approved by the human subjects committee of Harvard Pilgrim Health Care.

Two years after enrolling in the study, parents completed a survey that included questions about eating in the absence of hunger (Does your child ever eat large amounts of food, even when he or she is not hungry?⁸) and food sneaking, hiding, or hoarding food (Does your child ever sneak, hide, or hoard food?⁹). Parental control of feeding was also assessed on the 2-year survey by asking parents how much they agreed with the following statement “I have to be careful that my child does not eat too much” adapted from the Child Feeding Questionnaire.¹⁰ Parental control of feeding was defined as agreeing or strongly agreeing (vs. disagreeing/strongly disagreeing) with the statement.

Of the 475 children enrolled in the study, 30 participants who were missing 1-year BMI values, 23 participants who were missing 2-year BMI values, and 3 participants with missing data on eating in the absence of hunger, food sneaking, hiding, and hoarding, and parent control of feeding were excluded. Of the remaining 419 participants who were included in the present analysis, 231 were in the intervention group and 188 were controls.

The distributions of eating in the absence of hunger and food sneaking, hiding, or hoarding overall and by intervention status were examined, followed by the bivariate associations of these behaviors with possible correlates including parental education (some college or less, college graduate or more); child sex, race/ethnicity (black, His-

panic, white, other), BMI (normal weight, overweight, obese); and household income (\leq \$50,000, $>$ \$50,000). To examine cross-sectional associations of parental control of feeding with the two eating behaviors, logistic regression models adjusted for parental education; child sex, age, BMI, race/ethnicity; household income; and intervention status were used. PROC GLIMMIX was used to account for clustering by practices. Analyses were conducted using SAS version 9.3 (SAS Institute, Inc, Cary, North Carolina).

Results

At the 2-year follow up, the mean [standard deviation (SD)] age of High Five for Kids Study participants was 7.1 (1.2) years. Approximately half the participants (49%) were female; 57% of participants were white, 18% were black, 17% were Latino, and the remaining 8% identified as “other.” Although all participants were overweight or obese at enrollment, 16% were healthy weight, 35% were overweight, and 49% were obese at the 2-year follow-up. On the basis of parental report, 16.5% of children were eating in the absence of hunger. There was a significant difference in the prevalence of eating in the absence of hunger based on intervention status with children in the intervention group significantly less likely ($p=0.02$) to eat in the absence of hunger (12.6%) than children in the control group (21.3%). On the basis of parental report, 27.2% of the sample was sneaking, hiding, or hoarding food, with no significant differences ($p=0.68$) seen between the intervention and control groups. More than half (57.5%) of parents endorsed parental control of feeding, with 53.2% of parents in the intervention group and 62.8% of parents in the control group endorsing parental control of feeding ($p=0.05$).

In bivariate analyses conducted among the entire sample, eating in the absence of hunger was positively correlated with parental control of eating. Eating in the absence of hunger was also significantly associated with child sex and race/ethnicity, with higher rates seen among girls compared to boys and lowest rates seen among black children. Food sneaking, hiding, and hoarding were not associated with parental control of eating or any of the potential correlates considered.

Results of the logistic regression are shown in Table 1. In adjusted models, children exposed to parental control of feeding were more likely to eat in the absence of hunger [OR 3.37, 95% confidence interval (CI) 1.66, 6.86], but not to sneak, hide, or hoard food (OR 1.43, 95% CI 0.87, 2.36).

Discussion

Among a diverse sample of presently or previously overweight young children, eating in the absence of hunger (16.5%), food sneaking, hiding, and hoarding (27.2%), and parental control of feeding (57.5%) were common. Eating in the absence of hunger and parental control of feeding were lower among families receiving an intervention that

Table 1. Odds of Eating in the Absence of Hunger and Food Sneaking, Hiding, and Hoarding among Children Whose Parents Report Controlling Their Child's Eating

	Unadjusted OR (95% CI)	p value	Adjusted OR ^a (95% CI)	p value
Eating in the absence of hunger	4.29 (2.22, 8.28)	<0.0001	3.37 (1.66, 6.86)	<0.001
Food sneaking, hiding, or hoarding	1.43 (0.91, 2.24)	0.12	1.43 (0.87, 2.36)	0.15

^aAdjusted for parental education; child sex, age, BMI, race/ethnicity; household income; intervention status.

OR, odds ratio; CI, confidence interval.

Referent group is children whose parents do not report parental control of feeding.

promoted a nonrestrictive approach to weight management. Although eating in the absence of hunger was more common among children with parents who endorsed parental control of feeding, no differences in food sneaking, hiding, or hoarding were seen based on parental control of feeding.

Study findings are consistent with studies conducted among middle class, exclusively non-Hispanic white families that found an association between restrictive feeding practices and eating in the absence of hunger.^{3,11} This present study is supported by two studies of secretive eating, a construct related to food sneaking, hiding, and hoarding, among youth. A longitudinal study of infants followed for the first 5 years of life reported an 18.1% cumulative hazard for the onset of secretive eating during the 5-year period,² and a study conducted among overweight and obese adolescents found that one-third endorsed at least one episode of secretive eating in the month prior to the survey.¹² The study of food sneaking conducted among young children also highlighted the significance of maternal characteristics in the onset of secretive eating among youth; however, feeding practices were not examined in that study.² Because secretive eating appears to be common, particularly among overweight youth, and because it is a proposed diagnostic feature of binge eating disorder among youth,⁶ ongoing studies are needed to identify modifiable risk factors for this behavior. Furthermore, the association between this behavior and subsequent weight gain and the onset of eating pathology should be explored in prospective studies.

The present analysis is subject to limitations. The cross-sectional design does not allow for conclusions to be made about temporality of the association between parental control of feeding and eating in the absence of hunger, an association that is likely bidirectional.¹³ Longitudinal analyses could not be conducted because baseline measures of the eating behaviors were not collected in the High Five for Kids study. As such, eating behaviors of children earlier in childhood could not be controlled for in the analyses. An additional limitation is that eating in the absence of hunger, food sneaking, hiding, and hoarding, and parental control of feeding were assessed using a single-item, parent-report measure, which provides less robust information than comprehensive, empirically validated scales. The single-item question may be particularly problematic

for assessing the “food sneaking, hiding, and hoarding” variable, which may represent three distinct constructs. Although the parental control of feeding question was designed to measure restrictive feeding practices,¹⁴ the construct validity of this measure has not been established. Thus, findings should also be reviewed with the caveat that this measure does not directly assess parental behavior related to control of feeding, but rather parental concern with child's eating.

Conclusion

Eating in the absence of hunger and food sneaking, hiding, or hoarding are common behaviors among overweight children. Study findings highlight the importance of promoting healthful, nonrestrictive messages about child feeding to parents and suggest that this may help avert the development of eating in the absence of hunger behaviors among young children. Although parental control of feeding is associated with eating in the absence of hunger, no potential predictors of food sneaking, hiding, and hoarding were identified. The presence of such behavior, however, could indicate that these children feel ashamed about their eating or are preoccupied with food. Future inquiry should be dedicated to elucidating the etiology and clinical significance of this poorly understood, but potentially problematic, behavior.

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Author Disclosure Statement

The authors have no competing interests.

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