Child Disinhibition, Parent Restriction, and Child Body Mass Index in Low-income Preschool Families

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ABSTRACT

Objective: To examine both unique and interactive effects of parent restrictive feeding and child disinhibited eating behavior on child body mass index (BMI) in low-income Latino and African American preschoolers.

Methods: The sample included 229 parent–child pairs, the majority of whom were low-income and Latino (57%) or African American (25%). Parents completed self-report measures, and researchers collected anthropometric data.

Results: Multiple regression analysis indicated a restriction–disinhibition interaction; high restriction/high disinhibition predicted higher BMI, and high restriction/low disinhibition predicted lower BMI.

Conclusions and Implications: Although limited by the observational, cross-sectional design, results indicate that parent and child behaviors interact to produce maladaptive weight outcomes, and practitioners should consider both when counseling families.

Key Words: overweight, parenting, child, eating, minority groups (*J Nutr Educ Behav*. 2013;45:82-85.)

INTRODUCTION

African American, Latino,[1] and poor[2] children are particularly at risk for obesity and subsequent health problems. A number of studies have found an association between parental restriction, the practice of limiting a child's access to desirable food, and higher weight in children.[3] Although a longitudinal relationship has been observed between restriction and child weight status in middle class white families,[4] longitudinal and cross-sectional investigations of diverse families have yielded equivocal results. In 1 study,[5] baseline parental restriction did not predict change in body fat mass in African American children followed longitudinally for 2-5 years. There was no relationship between restrictive feeding practices and child weight in large, ethnically and socioeconomically diverse samples of American infants and preschoolers.[6] Among low-income African American and Latino preschoolers, highly demanding parental feeding practices, including restriction, were associated with lower child body mass index (BMI).[7] In contrast, another study of low-income African American preschool families found that for obese mothers, maternal restriction was positively associated with child BMI.[8]

The equivocal relationship between restrictive feeding and child weight in participants from diverse backgrounds[5-8] may be because few studies have assessed both parent feeding and child eating behaviors. Eating in response to environmental cues (eg, the presence of palatable food) and emotional cues (eg, sad mood)[9] rather than in response to internal cues of hunger and satiety may lead to higher weight in children. These behaviors together define a disinhibited eating style.[9] Children of obese parents were found to be more susceptible to environmental and emotional cues than children of normal-weight parents.[10] Disinhibited eating has been associated with higher child BMI in Australian[9] and English samples.[11]

Parental restriction may be harmful only for children who exhibit disinhibited eating behavior. If restriction is connected to higher BMI only for children who tend to overeat, the failure to measure child eating behavior could account for the contradictory relationship between restriction and BMI in studies of African American and Latino children.[5-8] High child disinhibition coupled with high parental restriction may represent a pattern associated with adverse weight outcomes. Children who are sensitive to environmental and emotional cues to eat, that is, children with a disinhibited eating style, may also be more prone to overeat restricted food, whereas parental restriction may not be problematic in less disinhibited children. Previous investigations of low-income African Americans and Latinos have not considered the interaction of parent feeding and child eating behavior. This is the first study to examine the moderating effects of child disinhibited eating on the relationship between parental restriction and child BMI in this population.

The aim of this study was to elucidate the relationship between parental restriction, child disinhibition, and child BMI in a low-socioeconomic-status African American and Latino sample. It was predicted that disinhibition moderates the relationship between parental

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restriction and child BMI, controlling for parent BMI and child sex. It was further hypothesized that highly disinhibited children with highly restrictive parents will have higher BMI than their low-disinhibition, high-restriction counterparts.

METHODS

Participants

A convenience sample of 229 primary caregivers of 2- to 5-year-old children enrolled in New York City-area Head Start preschools was recruited. Researchers approached local schools to invite their participation and conducted the study in the schools that responded. Head Start is a federally-funded program for low-income children up to age 5. As 90% of the children served at a particular facility must come from families below the poverty line, it is likely that the sample is socioeconomically similar to the larger population of Head Start preschool families.

Measures

Measures were available in both Spanish and English. Each instrument was translated into Spanish and back-translated into English by different bilingual translators. Participants provided demographic information, including age, marital status, ethnicity, income, educational attainment, family structure, and relationship to the child enrolled in Head Start. They completed the Children's Eating Behaviour Questionnaire,[12] a 35-question parent-report measure assessing 7 dimensions of children's eating behavior. Parents rate each item on a 5-point Likert-type scale with word anchors. Disinhibition was measured by the Disinhibition subscale,[13] which consists of 6 items reflecting eating more in the presence of negative emotions and eating regardless of internal hunger state. The Cronbach α for the current sample was .77.

Participants also completed the Child Feeding Questionnaire,[14] a 31-item self-report measure assessing 7 dimensions of parent feeding beliefs, attitudes, and strategies rated on a 5-point Likert-type scale with word anchors for each point. The present study used the Restriction subscale, which consists of 8 items assessing parents' tendency to limit children's access to certain food items (sample item: I have to be sure that my child does not eat too many sweets). The mean of the 8 items constitutes the subscale score, and higher values correspond to more restriction. The Cronbach α for the restriction scale in the present sample was .75.

Finally, trained research assistants measured children's and parents' height and weight in duplicate using a calibrated medical balance beam scale with attached stadiometer (model 438, Detecto, Webb City, MO). Body mass index was calculated for parents and children, and child BMI values were converted to BMI *z* scores (BMIz).[15]

Procedure

This study was approved by the Institutional Review Board of Fairleigh Dickinson University. It was part of a larger research project investigating the relationship between food habits, feeding behavior, and weight in Head Start preschool families. Parents provided written informed consent on behalf of themselves and their preschoolers. Participants completed pencil-and-paper measures, and parents and children were called individually to a private area for weighing and measuring. After participants completed the measures, researchers presented a brief, interactive program on encouraging healthy eating. Parents who completed the study were entered into lotteries to receive a food basket and a DVD player.

Data Analysis

A multiple linear regression model (SPSS; version 17.0, SPSS, Inc, Chicago, IL, 2008) was estimated to investigate the interaction between restriction and disinhibition in predicting child BMIz. First, restriction and disinhibition values were transformed into mean-centered variables by subtracting the respective means from each subject's scores. Then an interactive term was created by multiplying the transformed restriction and disinhibition scores. Finally, sex, parent BMI, mean-centered restriction, mean-centered disinhibition, and the restriction–disinhibition interaction term were entered into a model predicting child BMIz. The analysis was run with the full sample and with only biological mother–child pairs and yielded similar findings, so only results for the entire sample are reported. Listwise deletion was used in cases of missing data.

RESULTS

The majority of caregivers were female (90.8%) and the child's biological mother (78.6%). Most participants were Latino (57.2%) or African American (24.5%), and the remaining subjects were white (6.1%), Asian (2.2%), or interracial/other (7.8%). Two thirds reported an annual household income of $20,000 or less. The mean age of the children (54% female) was 3.89 years (standard deviation = 0.75). Obesity was prevalent in children (28.8%) and parents (45.9%).

Pearson's correlations revealed significant, positive relationships between parent BMI and child BMIz ($r = 0.216$, $P = .002$) and restriction and disinhibition ($r = 0.222$, $P = .001$). Results for the regression model were significant ($F[5,187] = 5.269$, $P < .001$), with the model accounting for 12.3% of the variation in child BMIz. Regression residuals were graphed on a probability–probability plot, which indicated a normal distribution. There was a significant unique effect for parent BMI (Table) and no significant unique effects for restriction and disinhibition. In addition, there was a significant restriction–disinhibition interaction. In order to interpret the interaction, analyses were run for children high and low in disinhibition, defined as 1 standard deviation above and below the mean, respectively.[16] As shown in the Figure, high restriction was associated with higher BMIz for children high in disinhibition. Tests of simple slopes showed that the relationship between child BMIz and restriction was significant for children high in disinhibition, $B = .287$, $P = .05$, and for children low in disinhibition, $B = -.375$, $P = .01$. In the latter case, children low in disinhibition with less restrictive caregivers had higher BMI *z* scores.

DISCUSSION

As predicted, child disinhibition moderated the relationship between