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Relationship between maternal parenting and eating self-efficacy in overweight children when stressed

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Abstract

Background—Emotional eating is associated with negative eating habits and obesity. Parents may be able to decrease the risk of emotional eating in children by promoting greater self-efficacy to engage in healthy eating behaviors. Our goal was to determine the relationship between certain parenting behaviors and eating self-efficacy (ESE) to consume healthy foods during times of emotional stress in a population of overweight/obese children.

Methods—Eighty children (60% female; mean BMI percentile = 98.4%; 79.2% White) completed a survey that assessed their ESE when stressed, feeling down, or bored. Children also reported on mothers' parenting behaviors coded along three factors: acceptance-based parenting (AC), psychological control (PC), and firm control (FC). Correlations and multiple linear regression models were used for analysis.

Results—AC was positively correlated with ESE when stressed. PC and FC were inversely correlated with ESE when feeling down. In the multivariate regression, only FC was significantly inversely associated with ESE when feeling down.

Conclusion—Results suggest that overweight children who perceive their mothers to exhibit firm control have lower ESE to make healthy choices when feeling sad. These results suggest that pediatric obesity programs should place a stronger focus on decreasing firm control behaviors among parents in order to help children engage in healthier eating behaviors.

Keywords

Parenting style; parenting behaviors; childhood obesity; self-efficacy; eating behaviors; emotional eating

INTRODUCTION

Emotional eating, or eating in response to negative emotions and emotional arousal, appears to be related to overeating,(1) eating foods high in energy density,(2) and obesity.(3) Many groups, including college age students and bariatric patients, report eating because of stress or boredom as a contributor to weight gain.(4, 5) These eating behaviors have been observed in both overweight and normal weight children,(6) and in some studies, is related to binge

eating(7) and bulimia nervosa.(8) Understanding the factors associated with emotional eating could lead to new methods for limiting or preventing emotional eating from developing, and may decrease the potential for future eating disorders and weight gain in young children.

Parents may play an important role in preventing emotional eating in children by promoting self-efficacy (belief or confidence in one's ability) to eat healthily during these situations. Parents play an important role in the development of child eating behaviors,(9) and can influence the child's social-emotional development and competence in emotion regulation. (10) Authoritative parenting style, i.e. one that is characterized by acceptance and responsiveness, including high levels of support, emotional connection, and democratic behavioral control (where children are involved in the decision-making process even though parents have the ultimate say), has been related to several child outcomes including decreased risk-taking behavior, improved school achievement, and increased self-regulatory ability.(11, 12) With regards to emotional eating, authoritative parenting and family expressions of affection were inversely associated with emotional eating in 6- to 8- year-old children.(13) In a sample of Dutch teens, low maternal support and high psychological and behavioral control were related to increased emotional eating.(14) While the underlying mechanism behind this relationship is not defined, authoritative parenting may help children develop better emotion regulation and decrease the use of eating to relieve negative feelings.

Healthy eating self-efficacy can be defined as the confidence in one's ability to successfully engage in certain behaviors, e.g. healthy eating during challenging situations and emotional stress. Self-efficacy to engage in healthy eating or physical activity has been linked to decreased consumption while experiencing high levels of negative affect(15) and to efforts to engage in healthy behaviors.(16) A recent study also showed that child self-efficacy to engage in physical activity and healthy eating behaviors was related to lower waist circumference and triceps skinfold thickness.(17) Overweight children have lower self-efficacy scores for eating healthy foods(17) and engaging in weight-bearing physical activity(18) compared to normal weight children. Focusing on increasing self-efficacy to engage in healthy eating behaviors may help to increase desired behaviors and decrease emotional eating.

At this time, the relationship between parenting style and child eating self-efficacy is not well studied. In a study conducted with Dutch adolescents, subjects with an authoritative parent had higher self-efficacy to eat fruit and perceived more social support to engage in this behavior.(19) However, these behaviors were not evaluated when children were emotionally challenged or stressed. Increasing a child's self-efficacy to refrain from eating or consume healthy foods in emotionally challenging situations may prove to be beneficial for the child and prevent unhealthy eating habits from developing. Since parents appear to influence child eating behaviors and emotion regulation, we were interested in examining the relationship between parenting style and child self-efficacy to make healthy dietary choices when emotionally challenged. We were particularly interested in examining this relationship among overweight children, a population in which the prevention of emotional eating could have great benefits. We hypothesized that authoritative parenting, particularly the dimensions of warmth and affection that were associated with emotional eating in previous reports,(13, 14) would be related to greater child eating self-efficacy (ESE) to consume healthy foods when emotionally stressed.

METHODS

Participants

Data from the Parents as the Agent of Change for Childhood Obesity (PAAC) study was used for analysis.(20) Overweight/obese children (BMI \geq 85th percentile) between the ages of 8 and 12 years and their parents were invited to participate in a behavioral weight control intervention comparing the efficacy of a parent-only (PO) treatment program to a parent and child (PC) treatment program. All participating families were recruited through media announcements, advertisements, direct mailing and physician referrals in Minneapolis/St. Paul, MN and San Diego, CA. Eighty parent and child dyads (66 in Minnesota, 14 in California) were enrolled. All study procedures were approved by the Institutional Review Board at the University of Minnesota and the University of California, San Diego. For this analysis, only baseline data were included.

Procedures

At baseline, parents and children completed self-report questionnaires and had height and weight measured. Parents completed demographic information. Children completed self-report measures of their eating self-efficacy when emotionally challenged and a survey reporting on parenting behaviors. Child report of parenting behavior was used because parent report of their own behaviors may not be similar to how children perceive these behaviors and therefore not accurately reflect the impact of parenting behaviors on child development. Both parent and child questionnaires were administered on the computer. If a child had difficulty reading the items, research assistants were on hand to read the questions out loud to the child.

Measures

The 56-item Child's Report of Parental Behavior Inventory (CRPBI),(21) which is a revised version of the 108-item CRPBI,(22) was used to assess the child's perception of his/her mother's general child-rearing behaviors. The factor structure of the 56-item CRPBI has been shown to be comparable to the 108-item CRPBI and has been validated for use in 4th to 6th grade children.(21) The inventory has six scales (measuring Acceptance, Control through Guilt, Child-centeredness, Instilling Persistent Anxiety, Non-enforcement, and Lax Discipline) that form three major dimensions ("Acceptance" versus Rejection, "Psychological Control" versus Psychological Autonomy, and "Firm Control" versus Lax Control). While the dimensions of "Acceptance" and "Psychological control" can be combined to create the 4 traditional parenting styles (authoritative, authoritarian, permissive, and neglectful), all three dimensions of the inventory were used independently to examine specifically which domains of parenting were associated with ESE. In this study, only baseline reports of maternal behaviors were used for analysis since more than three quarters of participating parents were mothers.

Eating self-efficacy was measured using questions developed from Project EAT (Eating Among Teens).(23) Child eating self-efficacy was assessed using the question, "If you wanted to, how sure are you that you could eat healthy foods when you are: a) stressed out, b) feeling down, or c) bored?" Children rated their responses on a 5-point Likert scale. Response choices ranged from 1="not sure at all" to 5="very sure". Cronbach's alpha in the original Project EAT sample was 0.85.(23) Responses for each domain were used separately as dependent variables in analysis. However, the 3 items as a scale had an internal reliability of 0.793, indicating that the items could be combined into a general self-efficacy scale. Therefore, the combined scale was also used as a dependent variable in the regression model.

Demographic data for parents and children were obtained through parent report. Race was dichotomized into White versus other. Parents reported their education as less than high school, high school, vocational school, some college, college graduate, or advanced degree.

Parent and child height and weight were obtained by trained research staff using standardized protocols. Height was measured to the nearest 1 mm using a portable Schorr height board (Schorr Inc, Olney, MD). Body weight was measured to the closest 0.1 kg using a Tanita Digital Scale (model WB-110A). These values were used to calculate body mass index using the formula $BMI=kg/m^2$.

Analysis

Multiple linear regression models were estimated using SPSS version 19 (SPSS Inc., Chicago, IL, 2011). Missing data were imputed using multiple imputation. The analysis model consisted of self-efficacy to consume healthy foods when stressed, feeling down, or bored, and the combined self-efficacy scale as dependent variables and the three parenting domains (acceptance, psychological control, firm control) as independent variables. Child age was included in the model since studies have found that child self-efficacy to consume fruits and vegetables varies by age.(24, 25) Child gender was also included in the model as a covariate.

RESULTS

A sample of 80 children (mean age 10.2; 60% female; 79% white; mean BMI percentile=98.4) (Table 1) completed surveys that assessed ESE in specific emotional situations (when stressed, feeling down, or bored) and perceptions of their mother's parenting behavior in terms of three factors: acceptance (AC), psychological control (PC), and firm control (FC). Mean values of child ESE and parenting behaviors are presented in Table 1.

In the simple correlations, AC was positively correlated with ESE when stressed ($r=0.30$, $p<0.05$). However, ESE when feeling down was negatively correlated with PC ($r=-0.28$, $p<0.05$) and FC ($r=-0.37$, $p<0.01$). ESE when bored was not related to any parenting behaviors.

Regression models for each ESE domain included all three parenting factors and controlled for child age and gender. Greater FC was associated with lower ESE when feeling down ($b = -0.070$, $p=0.038$, $d = .641$) (Table 2). Parenting style was not significantly related to ESE when bored or stressed. While it did not reach statistical significance, there was also a trend towards AC being associated with higher ESE when stressed ($b = 0.046$, $p=0.086$, $d = .417$) (Table 2).

DISCUSSION

In this study, we found that overweight children who perceived their mothers to exhibit more firm and controlling parenting behaviors had decreased confidence to make healthy food choices when feeling sad. Interestingly, there was also a trend towards acceptance-based parenting being associated with greater self-efficacy to make healthy food choices when emotionally stressed. These results suggest that firm/controlling parenting behaviors can have negative consequences for child ESE while more accepting parenting behaviors may help children utilize healthier eating practices when feeling stressed.

Parenting behaviors have been a factor of interest with regards to the development of child eating behaviors. While a few studies have found a relationship between parenting style and

healthier eating practices,(26, 27) we are unaware of any studies that have evaluated the relationship between these parenting dimensions and eating self-efficacy. Other studies have shown that children exposed to greater variety of foods had higher self-efficacy to eat healthy foods(28) and that health and nutrition education can impact adolescent eating self-efficacy.(29) While we were able to show a positive correlation between maternal acceptance-based parenting and eating self-efficacy when stressed, this relationship did not bear out in the multivariate analysis. Therefore we cannot say definitively that acceptance-based parenting promotes greater eating self-efficacy in overweight children. However, this information may be useful in guiding future research on acceptance-based parenting and how it may affect eating self-efficacy in overweight children. On the other hand, we did find that controlling parenting behaviors had a negative effect on child ESE to consume healthy foods when feeling sad. Therefore, decreasing this type of parenting, while increasing nutrition education and exposure to a variety of foods, may be important to promote in future weight loss interventions so as to help overweight children develop healthier eating habits.

Current family-based behavioral treatment programs for overweight youth focus on the parental use of praise and positive reinforcement for the healthy behaviors that children display. These skills are often used in acceptance-based or authoritative parenting styles and have been related to greater decreases in percent overweight among children in a 6-month treatment program and at follow-up.(30) It is believed that parental support and modeling of healthy, new behaviors encourage the child to practice and gain confidence to engage in these behaviors themselves.(31) Therefore, focusing on increasing acceptance-based parenting behaviors and decreasing firm or psychological control behaviors during parent training may be beneficial for the child at multiple levels. Not only would the child be supported to adopt healthier eating and activity behaviors for weight loss, but they would gain the confidence to engage in these behaviors during difficult emotional situations.

This study has several strengths and weaknesses. First, a well-validated measure of general parenting was used to evaluate parent behaviors. However, data were cross-sectional and we were unable to say definitively that parenting style influenced the development of ESE. It may be that children displayed a certain level of ESE, eating behavior, or temperament which caused the parent to respond with accepting or controlling behaviors. In addition, the relationship between acceptance-based parenting and ESE when stressed did not reach statistical significance. This may have been due to the small sample and limited number of items assessing child ESE, which may have affected the accuracy of the measure. Nevertheless, the effect size was moderate and future studies that assess these variables in a larger sample may result in significant findings. Assessing other variables like child temperament, eating experiences, and food availability may also help to clarify this relationship. Finally, all results were based on child self-report data. Whether or not children were biased when they reported on their ESE and whether or not the perception of their abilities is reflective of actual behaviors in real-life situations is unknown. Studies that relate parenting style with observed eating behaviors are needed to confirm the relationship between parenting style and dietary habits when children are stressed, feeling down, or bored.

Conclusions

Several studies have shown that authoritative parenting style is related to lower risk of obesity(32, 33) and emotional eating(13, 14) in children. Mechanisms for this relationship have not been well understood. This study suggests that controlling parenting behaviors decrease child self-efficacy to engage in healthy eating behaviors during difficult emotional situations. Future studies using behavioral measures of child eating behaviors and direct observations of parenting behaviors would help to confirm our findings. Future efforts could

also focus on parenting interventions to decrease this type of parenting behavior and help children develop greater eating self-efficacy. Parent behaviors that directly limit unhealthy behaviors have been associated with greater fruit and vegetable consumption and less screen time among 5 year old children.(34) Including training on acceptance-based parenting and decreasing controlling behaviors may also be useful in the prevention of unhealthy eating habits and emotional eating, particularly in overweight children.

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Table 1

Parent and Child Demographics

	Means and Frequencies (n=80)
Parent/Mothers	
<u>Frequency (%):</u>	
Race:	
White	80.8
Other	19.2
Education:	
Less than high school	1.2
High school degree	16.7
Some college or more	82.1
Income:	
≤ \$40,000	12.8
\$40,001 – \$60,000	16.7
≥ \$60,001	64.1
Don't know	6.4
<u>Mean (S.D.):</u>	
Age (years)	42.8 (5.3)
BMI	31.2 (7.9)
Parenting style:	
Acceptance	64.6 (6.1)
Psychological control	27.1 (8.4)
Firm control	25.4 (6.3)
Child	
<u>Frequency (%):</u>	
Gender:	
Male	40.0
Female	60.0
Race:	
White	79.2
Other	20.8
<u>Mean (S.D.):</u>	
Age (years)	10.0 (1.3)
BMI-P	98.4 (1.6)
BMI-Z	2.3 (0.4)
BMI	29.5 (5.5)
Eating self-efficacy when:	
Stressed	3.0 (1.3)
Feeling down	3.0 (1.4)
Bored	3.3 (1.3)

S.D = Standard deviation

Table 2

Multiple linear regression of the association between child eating self-efficacy to consume healthy foods when stressed, feeling down, or bored and parenting behaviors.

	ESE Stressed			ESE Feeling down			ESE Bored			Combined ESE scale		
	b (SE)	p-value	d	b (SE)	p-value	d	b (SE)	p-value	d	b (SE)	p-value	d
Acceptance	.046 (.027)	.086	.417	.036 (.026)	.170	.310	.011 (.025)	.676	.100	.031 (.022)	.164	.328
Psych Control	-.037 (.024)	.121	.440	-.032 (.025)	.197	.364	-.006 (.023)	.806	.076	-.025 (.020)	.217	.349
Firm Control	.022 (.033)	.511	.200	-.070 (.033)	.038	.641	-.024 (.031)	.446	.232	-.024 (.028)	.387	.258
R ²	0.123			0.190			0.073			0.128		

ESE = Eating self-efficacy

b = Unstandardized coefficient

SE = Standard error

d = Cohen's d, standardized effect size (interpreted as small ~ .20, medium ~ .50, large ~ .80)

All models adjusted for child age and gender.