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### Publication Date

2014-09-01

### DOI

10.1016/j.appet.2014.04.017

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Peer reviewed



## Research report

# Associations between child emotional eating and general parenting style, feeding practices, and parent psychopathology



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## ARTICLE INFO

## Article history:

Received 14 July 2013

Received in revised form 17 March 2014

Accepted 11 April 2014

Available online 26 April 2014

## Keywords:

Emotional eating

Parenting

Child obesity

## ABSTRACT

Emotional eating is the tendency to eat in response to negative emotions. Prior research has identified a relationship between parenting style and child emotional eating, but this has not been examined in clinical samples. Furthermore, the relationship between specific parenting practices (e.g., parent feeding practices) and child emotional eating has not yet been investigated. The current study examined relationships between child emotional eating and both general and specific parenting constructs as well as maternal symptoms of depression and binge eating among a treatment-seeking sample of overweight children. Participants included 106 mother–child dyads who attended a baseline assessment for enrollment in a behavioral intervention for overeating. Ages of children ranged from 8 to 12 years old. Mothers completed self-report measures of their child's emotional eating behavior, their own feeding practices, and symptoms of depression and binge eating. Children completed a self-report measure of their mothers' general parenting style. A stepwise regression analysis was conducted to identify the parent variable that was most strongly related to child emotional eating, controlling for child age and gender. Emotional feeding behavior (i.e., a tendency to offer food to soothe a child's negative emotions) was the parent factor most significantly related to child emotional eating. Findings suggest that emotional feeding practices in parents may be related to emotional eating in children. Treatment with overweight children who engage in emotional eating may be improved by targeting parent feeding practices.

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## Introduction

Emotional eating, or eating in response to negative emotional states, has been identified as an “obesogenic” trait that contributes to weight gain and, ultimately, obesity (Crocker, Cooke, & Wardle, 2011) in both children (Braet & Van Strien, 1997) and adults (Geliebter & Aversa, 2003). In one sample of children enrolled in a healthy eating and activity intervention, 63% endorsed emotional eating (Shapiro et al., 2007). Children who eat for emotional reasons may eat in response to feelings of anger, anxiety, frustration, or depression (Tanofsky-Kraff et al., 2007), and emotional eating may function as an “escape” from negative affect (Heatherton & Baumeister, 1991). Emotional eating appears to be associated with overeating (Van Strien, Engels, Van Leeuwe, & Snoek, 2005) and eating foods

high in energy density (Nguyen-Michel, Unger, & Spruijt-Metz, 2007) among adolescents. Among children, emotional eating is associated with eating in the absence of hunger (Moens & Braet, 2007) and loss of control eating, a symptom of eating disorder psychopathology (Goossens, Braet, Van Vierberghs, & Mels, 2009). Despite this, the relationship between emotional eating and weight status among children is unclear. A comparison of emotional eating among samples of underweight, normal weight, overweight, and obese children indicated that emotional eating was most prevalent in the obese, clinical sample (Crocker et al., 2011). Other studies have confirmed a significant positive relationship between emotional eating and BMI in children (Braet & Van Strien, 1997; Webber, Hill, Saxton, Van Jaarsveld, & Wardle, 2008); however, this relationship was not supported in two additional samples (van Strien & Bazelier, 2007; van Strien & Oosterveld, 2008).

Since parents are the primary socialization agents of their children, it seems likely that aspects of parent behavior may be related to emotional eating in children. Substantial evidence indicates that

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parenting has a powerful impact on child body weight, food choices, and physical activity (Sleddens, Gerards, Thijs, de Vries, & Kremers, 2011), in addition to genetic factors that influence weight status and eating. Recent research has emphasized the importance of examining parenting and obesity-related behaviors in children (Power et al., 2013). In this literature, distinctions have been made between general parenting styles and specific feeding practices (Patrick, Hennessy, McSpadden, & Oh, 2013). General parenting styles describe how parents interact with their children (e.g., level of warmth, acceptance, and control) and specific feeding practices address what parents do to influence their children's eating behavior (e.g., limiting sweets). Among children, emotional eating may be related to both general parenting style and specific feeding practices.

Three previous studies have examined the relationship between child emotional eating and parenting style, all in nonclinical samples of children. Among children aged 8–11, children who endorsed emotional eating tended to perceive their parents as “disregarding” and their relationship with their parents as “contradictory” (Schuetzman, Richter-Appelt, Schulte-Markwort, & Schimmelmann, 2008). Topham et al. (2011) found that parents who tended to minimize their children's negative emotions (e.g., “I tell my child not to make a big deal out of missing the party”) were likely to have children who were engaging in emotional eating. Similarly, among Dutch adolescents, emotional eating was related to low maternal support, high psychological control, and high behavioral control (Snoek, Engels, Janssens, & Van Strien, 2007). Although these three studies support the potential impact of general parenting style on emotional eating in nonclinical samples of children, examination of parenting style and emotional eating in a treatment-seeking, overweight sample of children has not been conducted.

In addition to general parenting style, emotional eating in children may be related to specific feeding practices. Parenting practices related to children's eating behaviors (i.e., feeding practices) have been investigated as relevant factors associated with child weight and eating habits (Hurley, Cross, & Hughes, 2011). Although parents may be well-intentioned, certain feeding practices may inadvertently promote child weight gain by removing the child's opportunity to learn to eat based on physical cues of hunger and satiety (Birch & Fisher, 1998). For example, using food as a reward to shape a child's behavior (e.g., offering a cookie if the child eats everything on the dinner plate) may decrease the child's ability to self-regulate his/her intake based on satiety and rely instead on external cues of when and what to eat (Birch, Birch, Marlin, & Kramer, 1982; Birch, McPhee, Shoba, Steinberg, & Krehbiel, 1987; Newman & Taylor, 1992). Furthermore, children whose parents offer food as an emotional regulation strategy may be prone to overeating. Results from an experimental study showed that children whose mothers offered food for emotion regulation consumed more cookies in a lab paradigm, as compared with children whose mothers did not use emotional feeding practices (Blissett, Haycraft, & Farrow, 2010). In these circumstances, it is possible that children could learn to associate food with pleasure, potentially leading to an increased reliance on food as an emotion regulation strategy and a decreased tendency to eat based on nutritional needs.

Another parent-related factor that may be associated with emotional eating in children is maternal psychopathology. Maternal psychopathology significantly impacts child development, including child behavioral and emotional functioning (Goodman et al., 2011), and child eating behaviors, more specifically. Maternal psychopathology, including eating disorders, depression, and anxiety, is associated with child feeding problems (Coulthard, Blissett, & Harris, 2004; Coulthard & Harris, 2003), and this relationship has been found in children as young as age 4 (Whelan & Cooper, 2000). Specific eating disorder symptoms, including maternal disinhibited eating, hunger, body dissatisfaction, bulimic symptoms, restraint, and drive for thinness are associated with child eating behavior in the first 5

years of life (Stice, Agras, & Hammer, 1999). Similarly, overeating behavior in mothers (e.g., binge eating and night eating) has been found to be significantly related to unhealthy eating patterns in children, including binge eating and night eating (Lamerz et al., 2005). Furthermore, observed rates of maternal psychopathology are high in samples of obese, treatment-seeking children. For example, in one sample of obesity treatment-seeking families, 25% of the mothers endorsed moderate levels of binge eating (Epstein, Myers, & Anderson, 1996), while in another sample, 8% of mothers endorsed high levels of depression (Epstein et al., 1996). Interestingly, maternal depression and binge eating were more strongly associated with child psychosocial functioning than the child's overweight status (Epstein et al., 1996). Given the association between maternal psychopathology and general child feeding problems and the high rates of maternal binge eating and depression in samples of overweight children, maternal psychopathology may also be an important factor related to child emotional eating. Children who are exposed to psychopathology in their parents may observe parents eating in response to their own negative emotions, contributing to child emotional eating and eventual overweight.

Given the high rates of emotional eating in treatment-seeking, overweight samples of children, and its association with other eating disorder behaviors, there is a need to further evaluate factors that may be related to its development. To date, there is no published research that examines child emotional eating and general parenting style in a clinical sample of overweight children. Additionally, prior research has not investigated the relationship between child emotional eating and specific parent feeding practices, as well as parent psychopathology. Based on these gaps in the literature the primary aim of the present study is to: 1) Identify the parent variable (i.e., general parenting style, parent feeding practices, and maternal binge eating and depression) that is most strongly related to child emotional eating. Clarification of parent-level factors that are associated with child emotional eating may highlight intervention and prevention targets.

## Method

### Participants

Participants included 106 mother–child dyads who were part of a larger sample ( $n = 117$ ) of parent–child dyads who attended a baseline assessment for enrollment in a behavioral intervention for overeating (NCT01442142) (Boutelle et al., 2011). In the present study, parent–child dyads with a participating father ( $n = 11$ ) were excluded in order to control for any effects of parent gender. Ages of the children ranged from 8 to 12 years. Participants were recruited from Minneapolis, Minnesota with the use of direct mailings, media announcements, advertisements, and physician referrals. After completing an initial phone screen, potential participants were invited to attend the baseline assessment if the parent reported that their child was overweight or obese (BMI percentile  $\geq 85$ th%) and had high eating in the absence of hunger (Boutelle et al., 2011, 2014). Eating in the absence of hunger was screened over the phone by asking the parent two questions: 1) “Imagine your child just finished a meal. How often does your child start or keep eating because the food looks, tastes, or smells so good?”; 2) “After a full meal how often does your child start or keep eating because others are still eating?” These questions were borrowed from a parent self-report version of the Eating in the Absence of Hunger Questionnaire (Shomaker et al., 2010). Exclusion criteria included concurrent enrollment in a weight loss program, use of medications that affected appetite, and the presence of a psychiatric diagnosis that could interfere with treatment (e.g. eating disorder, substance dependence). The study was approved by the University of Minnesota

Institutional Review Board. Parents provided written informed consents and children provided assents.

## Measures

### Anthropometry

Standardized measurement procedures were implemented. Children's weight were measured using a calibrated scale and height was measured with a standard stadiometer. Height and weight were measured in duplicate, and an average measurement for each was calculated. Body mass index (BMI) percentile scores, based on the child's gender and age were calculated, using recommendations from the Center for Disease Control growth charts (Kuczmarski et al., 2000).

### Demographics

Demographic information was collected for each parent–child dyad participating in the study including ethnicity, marital status, parent education, and income level.

### Measures completed by the parent

#### Emotional Overeating Subscale of the Child Eating Behavior Questionnaire (CEBQ)

The Emotional Overeating Subscale of the Child Eating Behavior Questionnaire (CEBQ; Wardle, Guthrie, Sanderson, & Rapoport, 2001) was used to assess child emotional eating. The CEBQ is a 35-item parent-report measure that was designed to measure individual differences in child eating behaviors. The CEBQ has demonstrated good internal consistency and test–retest reliability (Wardle et al., 2001). The CEBQ yields eight subscales representing eating styles purported to contribute to underweight and overweight. The Emotional Overeating Subscale is comprised of the mean of four items, and item scores range from never (1) to always (5). Sample items include “my child eats more when worried” and “my child eats more when annoyed.” The Emotional Overeating Subscale is significantly related to higher BMI z-scores among children (Viana, Sinde, & Saxton, 2008) and has demonstrated stability throughout childhood (Ashcroft, Semmler, Carnell, van Jaarsveld, & Wardle, 2008). In the current study, Cronbach's alpha for the emotional eating subscale was .75.

#### Parent Feeding Style Questionnaire (PFSQ)

The Parent Feeding Style Questionnaire (PFSQ; Wardle, Sanderson, Guthrie, Rapoport, & Plomin, 2002) is a 27-item parent-report measure that assesses parent feeding practices. The PFSQ includes four subscales: control over eating (e.g., “I decide how many snacks my child should have”); prompting/encouragement (e.g., “I praise my child if he/she eats a new food”); instrumental feeding (e.g., “I reward my child with something to eat when he/she is well behaved”); and emotional feeding (e.g., “I give my child something to eat to make him/her feel better when he/she has been hurt”). Response options include “I never do; I rarely do; I sometimes do; I often do; and I always do,” and scores range from 1 to 5 with higher scores reflecting a higher frequency of the feeding behavior occurring. The PFSQ has demonstrated adequate internal consistency and test–retest reliability (Carnell & Wardle, 2007; Wardle et al., 2002). In the current study, PFSQ subscales demonstrated good internal consistency: emotional feeding  $\alpha = .88$ ; instrumental feeding  $\alpha = .78$ ; control  $\alpha = .76$ ; and encouragement  $\alpha = .76$ .

#### Center for Epidemiologic Studies of Depression Scale (CES-D)

The Center for Epidemiologic Studies of Depression Scale (CES-D; Radloff, 1977) is a widely used, self-report measure of depression that was administered to parents in the current study. The CES-D includes 20-items evaluating feelings and behaviors from the past

week including “I thought my life had been a failure” and “I felt lonely.” Response options range from “rarely or none of the time” to “all of the time.” Higher scores indicate greater symptoms of depression. In the present sample, internal consistency for the CES-D was good:  $\alpha = .87$ .

#### Binge Eating Scale (BES)

The Binge Eating Scale (BES; Gormally, Black, Daston, & Rardin, 1982) is a 16-item measure that evaluates behaviors, thoughts, and feelings associated with a binge episode. In the present study, the BES was administered to parents to evaluate symptoms associated with binge eating disorder. Possible scores range from 0 to 46 with higher scores indicating more severe symptoms of binge eating. The BES has demonstrated good interrater reliability, distinguishing between groups classified by trained interviewers as having no symptoms of binge eating (scores <17), moderate binge eating (scores  $\geq 18$  and  $\leq 26$ ), and severe binge eating (scores  $\geq 27$ ; Gormally et al., 1982). Higher scores on the BES are significantly related to higher levels of psychiatric symptoms (Telch & Agras, 1994). Cronbach's alpha for the BES in the current sample was .89.

### Measures completed by the child

#### Child Report of Parent Behavior Inventory (CRPBI-30)

The Child Report of Parent Behavior Inventory (CRPBI-30) is a 30-item child self-report measure in which children endorse items that describe parent behavior. Children are asked to report on mothers and fathers, separately. In the present study, children were asked to report parenting style, as opposed to parents, because child perceptions of parenting style are associated with child food and activity outcomes, whereas parent perceptions of parenting style are not (Taylor, Wilson, Slater, & Mohr, 2011). The scale was adapted from the original 108-item original measure (Schludermann & Schludermann, 1988). The first subscale, Psychological Control versus Psychological Autonomy, measures the degree to which a parent employs guilt, love, withdrawal, avoidance, and other psychological methods with the intent to control child behaviors. The parental Acceptance versus Rejection subscale evaluates child perception of the parent–child relationship along those domains. The third subscale, Firm versus Lax Control, examines the level of parental involvement and influence that parents have in the child's life. Internal consistency was adequate for all three subscales in the present sample: psychological control vs. psychological autonomy  $\alpha = .79$ ; acceptance vs. rejection  $\alpha = .85$ ; firm control vs. lax control  $\alpha = .79$ . Responses range on a three-point scale from “not like” to “a lot like” to describe how closely the statement matches the parent's behavior. The CRPBI has adequate test–retest reliability and construct validity (Collins & Repinski, 1990; Schludermann & Schludermann, 1988). Previous investigations have used the CRPBI-30 in samples of children aged 7–15 (Yeganeh, Beidel, & Turner, 2006) and 8–10 (Ryan, Schechter, & Brennan, 2012).

### Procedures

After completing the initial phone screen, mother–child dyads were scheduled for an on-site assessment to provide informed consent and evaluate eligibility for the intervention. The on-site assessment consisted of anthropometric measures, interviews, self-report questionnaires, and behavioral tasks. Mothers and children completed computer versions of the self-report questionnaires.

### Statistical analyses

Descriptive statistics were initially calculated to examine sample demographics and means and standard deviations for study measures. Correlations and *t*-tests were used to examine associations

**Table 1**  
Means and standard deviations for study measures.

Measure	M	SD
Emotional Overeating Subscale of the CEBCQ	2.75	.75
Center for Epidemiologic Studies of Depression Scale (CES-D)	11.50	9.00
Binge Eating Scale (BES)	12.88	8.53
Parent Feeding Style Questionnaire		
Control feeding	4.80	3.41
Prompting/Encouragement feeding	3.42	.62
Instrumental feeding	6.46	2.35
Emotional feeding	8.39	3.04
Child Report of Parent Behavior Inventory (CRPBI-30)		
Psychological control vs. autonomy	22.37	4.47
Parental acceptance vs. rejection	12.84	3.58
Firm vs. lax control	19.14	3.30

between child emotional eating and demographic characteristics, in order to identify variables to control for in the regression models. Next, intercorrelations were calculated between parenting constructs to examine whether any variables were correlated above .7. Due to the high intercorrelation between emotional feeding and instrumental feeding, instrumental feeding was not included in the final regression analysis. A stepwise regression model was performed to identify the parent variables most significantly associated with child emotional eating, controlling for child age and gender. The criterion for statistical significance was set at  $P < .05$ . All calculations were performed using SPSS 20.0 ([www.SPSS.com](http://www.SPSS.com)).

## Results

Preliminary analyses examined characteristics of the study sample. Just over half of the child participants were female (54.7%), with an average age of 10.34 ( $SD = 1.31$ ) years and BMI percentile of 97.26 ( $SD = 2.44$ ). The majority (70.8%) of participating mothers identified themselves as white and married or partnered (67%). Over half (59.4%) of the mothers stated that they had a bachelor's degree or higher. Approximately half of the mothers reported a yearly household income below 75,000 dollars, 39.6% reported a yearly household income of  $\geq 75,000$  dollars, and 7.60% did not report income data. Average BMI of participating mothers was 31.61 ( $SD = 7.07$ ). Most (69.23%) mothers denied binge eating symptoms, almost one-quarter (23.08%) endorsed moderate binge eating symptoms, and few (7.69%) reported severe symptoms of binge eating.

Means and standard deviations were calculated for study measures (see Table 1). Next, we evaluated associations between child emotional eating and demographics (child BMI percentile, age, gender, parent BMI). Emotional eating was significantly related to older age ( $r = .20$ ,  $P < .05$ ). Emotional eating was not significantly related to child BMI percentile ( $r = -.03$ ,  $P = .73$ ) or parent BMI ( $r = .13$ ,  $P = .19$ ). Parents were significantly more likely to endorse emotional eating in girls ( $M = 2.91$ ,  $SD = .76$ ) as opposed to boys ( $M = 2.55$ ,  $SD = .70$ ;  $t(104) = -2.49$ ,  $P = .01$ ). Intercorrelations were also calculated between parenting constructs. Emotional feeding and instrumental feeding were highly correlated ( $r = .72$ ,  $P < .001$ ).

A stepwise regression analysis was calculated to examine associations between general parenting style, feeding practices, maternal psychopathology, and child emotional eating, controlling for child age and gender. The final model from the stepwise analysis included two predictor variables, emotional feeding and child gender. Emotional feeding behavior accounted for 14.8% (Adjusted  $R^2 = .15$ ) of the variance in child emotional eating. The inclusion of child gender added an additional 5.7% of the variance ( $R^2$  change = .06). The final model, that included emotional feeding and child gender, accounted for 19.5% (Adjusted  $R^2 = .20$ ) of the variance in child emotional eating which was significant ( $F = 10.94$ ,  $P = .00$ ). Significant variables are shown in Table 2.

**Table 2**

Stepwise regression analysis examining relationships between child emotional eating and parent variables, controlling for child age and gender.

Predictor variable	B	P
Emotional feeding	.40	.00
Child gender	.24	.02

Note: General child age, parenting style, maternal psychopathology, and additional feeding variables were not significant in this model.

## Discussion

The current study examined associations between child emotional eating and general parenting style, maternal feeding practices, and maternal psychopathology in a sample of overweight, treatment-seeking children. When all relevant variables were entered into a regression model, controlling for child age and gender, an emotional feeding style was the only parent factor significantly associated with child emotional eating.

The present study builds on previous literature by examining associations between child emotional eating, general and specific parenting constructs, and maternal psychopathology, in a clinical sample of overweight children. In the regression analysis, after controlling for child age and gender, emotional feeding was the parent-related variable most significantly associated with child emotional eating. Previous research has found similar relationships between emotional feeding practices and child eating behavior as well. In a sample of 6 to 7-year-old Dutch children, an emotional feeding style was related to increased snacking in children (Sleddens, Kremers, De Vries, & Thijs, 2010). In another sample of 3- to 5-year-old children, emotional feeding predicted consumption of more cookies in the eating in the absence of hunger paradigm; and consumption was even greater when the child experienced a negative mood induction (Blissett et al., 2010). These studies suggest that parents who offer food to soothe their children's emotions may be unintentionally teaching them to eat food when they are not physically hungry, thereby contributing to weight gain. Our study extends these previous findings by demonstrating that emotional feeding practices in mothers may be closely related to emotional eating behaviors in children, after accounting for additional parent factors known to be associated with child eating disturbances (i.e., depression and binge eating) (Coulthard et al., 2004; Coulthard & Harris, 2003). Our findings suggest that parent emotional feeding practices are closely linked with a child's tendency to use food to soothe emotions. It is possible that children who are most susceptible to the immediate, mood enhancing effect of food, elicit and reinforce emotional feeding behaviors in their parents. Thus, parents may learn that their child is highly motivated to obtain food for pleasure, or that food has a calming effect on the child, resulting in increased reliance on encouraging food when the child is distressed. Nevertheless, our findings suggest that it may be useful for parents to modify their use of emotional feeding strategies, given its relationship with child emotional eating. However, longitudinal studies are needed to examine the causal pathway linking child emotional eating and parent emotional feeding style, particularly since the findings of the current study are based on cross-sectional data.

In the current study, child emotional eating was not associated with general parenting style. The lack of association between child emotional eating and parenting style is somewhat surprising given that previous studies have demonstrated a relationship between emotional eating and general parenting styles, as reported by both children (Schuetzman et al., 2008; Snoek et al., 2007) and parents (Topham et al., 2011). However, most of these studies were conducted in nonclinical samples of children who were normal weight to obese. Thus, parenting style may be highly relevant to child eating behavior among community samples of children, but less so among treatment-seeking populations. Present findings provide further

evidence that general parenting style and parent feeding practices are unique constructs that have differential impacts on child eating behaviors and weight outcomes. While some studies highlight the importance of general parenting style in the development of obesity or other weight-related eating behaviors (Rhee, Lumeng, Appugliese, Kaciroti, & Bradley, 2006), this study suggests that parent feeding practices, specifically emotional feeding, are more salient and may be more proximal to the understanding of emotional eating.

This study adds to the current literature around emotional eating by examining both parenting constructs and parent psychopathology, including specific parent feeding practices, general parenting style, and maternal symptoms of depression and binge eating. Furthermore, the present study examined these relationships in a sample of overweight, treatment-seeking children, who are likely at high risk for emotional eating. Study limitations include the cross-sectional design, which does not allow for interpretation of causality and how parenting factors and child emotional eating relate over time. In addition, the study is limited by the use of self-report measures completed by both children and their mothers. In the current study, child emotional eating was assessed with the use of a parent self-report measure which may be subject to bias. Although this may be a limitation, children's reporting of their own emotional eating could be affected by difficulties understanding emotional eating questions and poor self-awareness. Furthermore, mothers frequently observe their children's eating behavior outside of a laboratory setting and may be able to report on it more accurately than using a one-time assessment using a laboratory-based procedure. In addition, general parenting style was reported by children, which may be another limitation of the study findings. However, child perceptions of parenting style are more closely linked with weight related outcomes than parent reported parenting style (Taylor et al., 2011), suggesting that child perceptions are integral to the understanding of child behavior.

In conclusion, child emotional eating appears to be closely associated with their mother's emotional feeding practices. Future research should utilize longitudinal designs to elucidate the causal direction of these relationships. Findings have implications for clinical interventions and prevention programs targeting childhood obesity. Clinicians may consider focusing on the assessment and treatment of emotional eating in children, a behavior that contributes to obesity over time. An emotional feeding style should be addressed among parents of overweight children, particularly because of its relationship to emotional eating and subsequent weight gain, making treatment of obesity difficult. Clinicians can also validate the difficulty inherent in feeding a child who is highly motivated by food and eating. In addition, interventions can directly address child emotional eating behavior by teaching children alternative, adaptive strategies of managing negative affect. Finally, prevention programs to educate parents about effective feeding practices may also be beneficial in reducing the onset of emotional overeating among children.

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