



Influences of Child Temperament and Household Chaos on Preschoolers' Emotional Eating

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Abstract

Background: Emotional eating has been linked to child temperament and family environment factors, such as household chaos. However, few studies have examined how child and home characteristics independently and together influence children's overeating and undereating in response to negative emotions.

Objective: The current study examined associations among child temperament, household chaos, and emotional eating in children 18–24 months of age, and interaction effects were also tested.

Methods: The study included an analysis sample of 371 families participating in the larger STRONG Kids2 longitudinal birth cohort study ($N=468$). The Early Childhood Behavior Questionnaire was used to assess child temperament at 18 months, and the Confusion, Hubbub, and Order Scale was used to assess disorganization in the household at 24 months. Child emotional eating at 24 months was assessed using parental reports of the Child Eating Behavior Questionnaire.

Results: Negative affectivity and household chaos were independently associated with child emotional overeating. Negative affectivity, effortful control, and household chaos were significantly associated with emotional undereating. No significant interactions were found.

Conclusions: Child temperament and household environment independently influence emotional eating in young children, highlighting the need to consider these factors in early prevention. Longitudinal studies are warranted to determine mechanisms that may be involved in these relations.

Keywords: child obesity; child temperament; eating behaviors; emotional eating; household chaos; self-regulation

Introduction

Emotional overeating is defined as food consumption to manage negative emotional states regardless of the presence of physical hunger.¹ It is considered an obesogenic eating behavior, or behavioral marker of appetitive traits that predict obesity.^{2–9} Conceptual approaches to emotional eating have focused on child reactivity and self-regulation processes that affect satiety and food responsiveness, as well as family living environments affecting child (dys)regulation. Less is known about the

potential interplay between child characteristics and family environment factors, affecting capacities to self-regulate, in the development of emotional eating. To address this gap in the literature, the current study examined the independent and interactive influences of child temperament and family household chaos on young children's emotional eating.

Child Temperament and Emotion Eating

Temperament is defined as biologically based individual differences in reactivity and regulation in the domains of

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affect, attention, and behavior.^{10,11} Rothbart and colleagues identified three underlying dimensions of temperament: negative affectivity, effortful control, and surgency. Negative affectivity refers to emotionality marked by fear, frustration, sadness, and discomfort.^{12,13} Effortful control refers to the ability to suppress dominant reactivity/attention to execute nondominant responses; and surgency is characterized by positive anticipation, approachability to novelty, and impulsivity. Based on these temperament dimensions, there have been efforts to determine whether early individual characteristics impact distinctive responses to food-related cues and regulated eating behaviors.^{14,15}

Negative affectivity has been found to be associated with a variety of dysregulated eating behaviors, typically accompanied by increases in food intake.^{3,16,17} However, attempts to understand emotion-based motivations to food consumption have revealed that children with negative emotionality are likely to engage in both emotional overeating and undereating.^{18–20} In contrast, self-regulation has been identified as crucial for developing healthy eating behaviors from early childhood,^{14,21} contributing to children's attention to satiety cues, behavioral inhibition of food consumption, and regulation of negative emotions.²² In support of this notion, higher levels of effortful control have been shown to predict lower emotional overeating in children.^{18,23}

With respect to surgency, some findings suggest that surgency is related to high appetitive motivation with impulsivity and pleasure seeking, and that it is associated with children's food approach behaviors, including emotional eating.^{24–26} However, there is contradictory evidence from a previous study revealing that children tend to approach food with an intention to terminate unpleasant sensations rather than with positive anticipation for the food stimuli.²⁷ More research is needed to examine how all three temperament dimensions might affect emotional eating.

Family Home Environment: Household Chaos

Household chaos is characterized by disorder and lack of routines in the family environment accompanied by noise, crowding, and situational traffic patterns.^{28,29} There is a well-established link between household chaos and obesogenic eating behaviors, including emotional overeating.^{30–32} A chaotic household may not only present a series of unpredictable stimuli that make it more challenging for children to attend, but also impose obstacles for learning adequate regulatory strategies.^{33–36} Therefore, efforts to understand early engagement in emotional eating should include environmental characteristics that increase the likelihood that children will engage in emotion-driven overeating while being unable to employ more adequate self-regulatory strategies.

Altogether, the extant data suggest that both child temperament and household chaos affect child emotional

eating, but few findings are available addressing the independent or interactive effects of these factors on early emotional eating. The impact of children's dispositional phenotypes (*e.g.*, high negative reactivity to environment) on emotional eating may depend on the nature of the household environment. Under relatively high chaotic environments, the effect of higher negative reactivity on emotional eating may be greater, whereas lower chaos may buffer the effects of high reactivity on emotional eating. Examining both independent and moderation effects is important for determining those aspects of the environment and behavior that are most amenable to modification to reduce dysregulated eating behaviors.

The Present Study

The primary objective of this study was to identify the independent and interactive effects of early temperament and household chaos on children's emotional eating. We hypothesized that high negative affectivity would predict both emotional overeating and undereating. It was also expected that children with higher effortful control would be less likely to engage in emotional overeating and more likely to engage in emotional undereating. Although there are inconsistencies in research findings, we predicted that higher surgency would be associated with greater emotional overeating. With respect to household chaos, we hypothesized that children under more chaotic household environments would be more likely to engage in emotional overeating and emotional undereating. Finally, we examined whether household chaos moderated the relations between child temperament and eating behaviors. We hypothesized that more chaotic environments would exacerbate the influences of child negative affectivity and lower effortful control on emotional eating, whereas lower household chaos would reduce these effects.

Methods

Participants

The participants of this study were a subset ($n=371$) of the STRONG Kids 2 longitudinal birth cohort study ($N=468$),³⁷ aimed to investigate multilevel predictors of early childhood dietary habits and weight trajectories. Women in their third trimester of pregnancy were recruited from central Illinois between 2014 and 2017. The current study includes data collected when children were at 18–24 months of age, and the analysis sample includes children with complete data on study variables. The study was approved by the University of Illinois Institutional Review Board.

Measures

Demographic variables. Parents were asked to report on children's age, sex, and race/ethnicity. Information regarding family income and education level was also obtained through parent report (Table 1).

Table 1. Descriptive Statistics for Study Variables

	<i>n</i>	%	<i>M</i>	<i>SD</i>	Range
Child gender					
Male	142	52.0			
Female	154	48.0			
Child race/ethnicity					
White	262	77.3			
Black	16	4.7			
Asian	18	5.3			
American Indian/Alaska Native	1	0.3			
Hispanic/Latino	2	0.6			
More than one race	40	11.8			
Household income					
\$3000 and under	75	20.8			
\$3001 to \$5000	108	29.7			
\$5001 and above	142	39.1			
Parent education					
Some high school	1	0.3			
High school graduate	10	2.7			
Some college or technical school	60	16.4			
College graduate	122	33.4			
Postgraduate work	172	47.1			
Emotional overeating (CEBQ)	371		1.60	0.54	1.00–4.75
Emotional undereating (CEBQ)	371		2.99	0.86	1.00–5.00
Child temperament					
Negative affectivity (ECBQ)	371		2.72	0.57	1.17–5.00
Effortful control (ECBQ)	371		5.15	0.69	2.58–4.61
Surgency (ECBQ)	371		5.16	0.67	3.00–6.55
CHAOS score	371		26.58	7.07	13.00–48.00

N sizes differ due to missing data.

CEBQ, Child Eating Behavior Questionnaire; CHAOS, Confusion, Hubbub, and Order Scale; ECBQ, Early Childhood Behavior Questionnaire; SD, standard deviation.

Dependent variables

Emotional eating. At 24 months of age, parents completed the Child Eating Behavior Questionnaire (CEBQ).³⁸ In this article, the emotional overeating and undereating subscales were used. Emotional overeating includes four items assessing overeating under negative emotions (*e.g.*, “My child eats more when worried”; $\alpha=0.76$). The emotional undereating subscale includes four items describing undereating behaviors (*e.g.*, “My child eats less when angry”; $\alpha=0.78$). All items were rated on a 5-point scale ranging from 1 (never) to 5 (always). Average composite scores for each subscale were calculated such

that higher scores indicate more frequent engagement in emotional overeating ($M=1.60$, $SD=0.54$) and undereating ($M=2.99$, $SD=0.86$).

Independent variables

Temperament. Child temperament at 18 months was assessed through parent report on the Early Childhood Behavior Questionnaire Very Short Form (ECBQ VSF).³⁹ The ECBQ includes 36 items and 3 subscales (12 items each) assessing the dimensions of (a) negative affectivity (*e.g.*, “When s/he was upset, how often did your child become easily soothed?”; $\alpha=0.64$), (b) effortful control

(e.g., “When told no, how often did your child stop the forbidden activity?”; $\alpha=0.72$), and (c) surgency (e.g., “When encountering a new activity, how often did your child get involved immediately?”; $\alpha=0.68$). Statements are evaluated on a 7-point scale ranging from 1 (never) to 7 (always). According to scoring protocols, some items were reverse coded, and items were averaged to create composite scores for each temperament dimension. Higher scores indicate greater negative affectivity, effortful control, and surgency.

Household chaos. The Confusion, Hubbub, and Order Scale (CHAOS)²⁹ was used to assess caregiver perceptions of chaos and disorganization in the family environment at 24 months. The measure consists of 15 statements describing home environment characteristics (e.g., “It is a real zoo in our home.”; $\alpha=0.86$). Statements are evaluated on a 4-point scale ranging from 1 (very much like my home) to 4 (not at all like my home). Some items were reverse coded, and an average composite score was computed such that the higher scores represent more disorganization in the household.

Results

Data Analyses

All analyses were conducted using SPSS software version 27.0. Associations between continuous study variables were assessed using Spearman correlations considering non-normally distributed variables included in the analysis (Appendix Table A1). Multiple regressions were carried out to test study hypotheses. To create parsimonious models in hypothesis testing, demographic variables that were found to be significantly associated with dependent variables in preliminary analyses were included as statistical controls. For each regression analysis, statistical controls were entered on the first step, followed by child temperament variables in Model 2, household chaos in Model 3, and interaction terms in Model 4.

The variance inflation factor indicated that there is no significant concern with multicollinearity. The independent variables were grand mean centered in the regression to further reduce the impact of high correlations between the study variables.⁴⁰ The result from Little’s Missing Completely at Random (MCAR) test indicates that data included in the analysis were not missing in systematic pattern [$\chi^2(11)=18.37, p=0.073$]. Missing cases were treated with listwise deletion, and the variables had between 24.3% and 31.2% missing data from the sample.

Preliminary Analysis

Descriptive statistics. Table 1 displays the descriptive statistics, including the means, standard deviations (SDs), and range of all the variables included in the analysis. The participants were 52.0% male, and 77.3% of the participants identified as White, 11.8% as multirace, 4.7% as

Black, 5.3% as Asian, 0.6% as Hispanic, and 0.3% as American Indian/Alaska Native. The parents were well educated, with 96.9% having some college or higher degree in education. The average emotional overeating score was 1.60 (SD=0.54, range: 1.00–4.75), indicating that caregivers perceived their children engaging in emotional eating in low prevalence. On average, children had moderate-to-high emotional undereating scores ($M=2.99, SD=0.86, \text{range: } 1.00\text{--}5.00$). Children had low levels of negative emotionality ($M=2.72, SD=0.57, \text{range: } 1.17\text{--}5.00$). Effortful control ($M=5.15, SD=0.69, \text{range: } 2.58\text{--}6.64$) and surgency scores ($M=5.16, SD=0.67, \text{range: } 3.00\text{--}6.55$) were moderate to high. Household chaos was moderate, on average, in the current sample ($M=26.58, SD=7.07, \text{range: } 13.00\text{--}48.00$).

Preliminary analyses. ANOVAs were used to examine differences in emotional eating by demographic variables. There was a significant difference in emotional overeating scores based on child race/ethnicity [$F(3, 361)=3.79, p=0.01$]. *Post hoc* test using Bonferroni correction indicated that children whose race was reported as Asian ($M=1.96, SD=0.85$) scored significantly higher on emotional overeating compared with children whose race was reported as White ($M=1.56, SD=0.51$). Children whose parents had postgraduate work ($M=3.10, SD=0.82$) were also more likely to emotionally undereat compared with those with parents who completed some (1–3 years) college education ($M=2.72, SD=0.96$), [$F(4, 373)=2.47, p<0.05$]. Child gender and parent income were not significantly associated with outcome variables. Based on these findings, child race/ethnicity and parental education were included as statistical controls in regressions examining emotional overeating and undereating, respectively.

Hypothesis Testing

Regression

Emotional overeating. Based on the preliminary analysis, child race/ethnicity was included as a covariate in Model 1 (Table 2). In Model 2, child temperament was found to account for 4.0% of additional variation in emotional overeating beyond that of child race/ethnicity [$\Delta F(3, 362)=5.01, p=0.002$]. In Model 3, negative affectivity ($\beta=0.13, SE=0.05, p=0.016$) and household chaos ($\beta=0.12, SE=0.004, p=0.02$) were found to be significantly associated with child emotional overeating, holding all other variables constant. For every 1 SD unit increase in negative affectivity, emotional overeating increased by 0.13, and for every 1 SD unit increase in the CHAOS score, emotional overeating increased by 0.12. The interaction term was not found to be significant (Model 4). These results are visually depicted in Figure 1.

Emotional undereating. Emotional undereating was regressed by temperament variables and household chaos (Table 3). Parent education was included in Model 1 as a

Table 2. Multiple Regression Analyzing Associations among Child Temperament, Household Chaos, and Emotional Overeating

Variable	Model 1		Model 2		Model 3		Model 4	
	B (SE)	β (p)	B (SE)	β (p)	B (SE)	β (p)	B (SE)	β (p)
Constant	1.59 (0.03)	(0.000)	1.59 (0.03)	(0.000)	1.59 (0.03)	(0.000)	1.59 (0.03)	(0.000)
Race/ethnicity								
Black	-0.02 (0.14)	-0.01 (0.87)	-0.02 (0.13)	-0.01 (0.91)	-0.03 (0.14)	-0.01 (0.81)	-0.03 (0.14)	-0.01 (0.85)
Asian	0.38 (0.13)	0.15 (0.004)	0.33 (0.13)	0.13 (0.013)	0.33 (0.13)	0.13 (0.012)	0.33 (0.13)	0.13 (0.011)
American Indian/Alaska Native	1.67 (0.53)	0.16 (0.002)	1.61 (0.53)	0.15 (0.002)	1.63 (0.52)	0.16 (0.002)	1.63 (0.52)	0.16 (0.002)
Hispanic/Latino	0.04 (0.38)	0.01 (0.92)	0.07 (0.38)	0.01 (0.86)	0.12 (0.37)	0.02 (0.75)	0.12 (0.37)	0.02 (0.74)
More than one race	-0.06 (0.09)	-0.03 (0.50)	-0.06 (0.09)	-0.04 (0.49)	-0.06 (0.09)	-0.04 (0.49)	-0.06 (0.09)	-0.03 (0.54)
Negative affectivity	—	—	0.14 (0.05)	0.15 (0.005)	0.12 (0.05)	0.13 (0.016)	0.12 (0.05)	0.12 (0.022)
Effortful control	—	—	-0.09 (0.04)	-0.12 (0.033)	-0.08 (0.04)	-0.10 (0.075)	-0.08 (0.04)	-0.10 (0.068)
Surgency	—	—	0.02 (0.04)	0.03 (0.63)	0.02 (0.04)	0.02 (0.66)	0.02 (0.04)	0.02 (0.65)
Household chaos	—	—	—	—	0.01 (0.004)	0.12 (0.02)	0.01 (0.004)	0.12 (0.019)
Negative affect \times household chaos	—	—	—	—	—	—	0.003 (0.01)	0.03 (0.59)
R ²	0.05		0.09		0.10		0.10	
ΔR^2	0.05		0.04		0.01		0.001	
F	3.81		4.34		4.51		4.08	
ΔF	3.81		5.02		5.43		0.29	
P	0.002		0.002		0.02		0.02	

Bolded lines indicate statistically significant findings ($p \leq 0.05$); N = 371 list wise.

Dependent measure is Emotional Overeating.

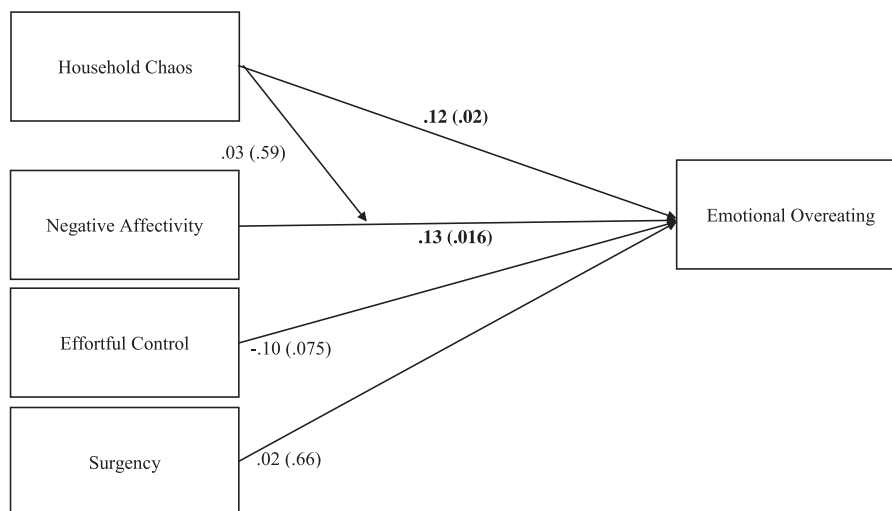


Figure 1. Standardized regression coefficients of the relations among early child temperament, household chaos, and emotional overeating. Statistically significant associations are bolded. *p*-Values in parentheses. Estimates were statistically adjusted for child race/ethnicity.

statistical control with postgraduate education as the reference. The final model revealed that child negative affectivity ($\beta=0.16$, $p=0.002$), effortful control ($\beta=-0.14$, $p=0.01$), and household chaos ($\beta=0.10$, $p=0.05$) were significantly associated with child emotional undereating, holding all other variables in the analysis constant (Model 3). For every 1 SD unit increase in negative affectivity, emotional undereating score is expected to increase by 0.16, whereas emotional undereating is expected to decrease by 0.14 with a 1 SD unit increase in effortful control. For every 1 SD unit increase in the chaos score, emotional undereating is expected to increase by 0.10 ($\beta=0.10$, $p=0.05$). No significant interactions were found (Model 4). These results are visually depicted in Figure 2.

Discussion

Based on Rothbart's temperament model⁴¹ and the literature on household environmental influences on eating behaviors,^{30–32} we hypothesized a moderation effect of household chaos on the relations between child temperament and emotional eating. This hypothesis was not supported by our findings. Instead, the analyses revealed independent influences of child temperament and household environment on emotional eating. Children with higher temperamental negative affectivity and lower effortful control were more likely to engage in dysregulated eating behaviors under negative emotions. Still, the development of dysregulated eating behaviors cannot be solely attributed to temperament characteristics, as having a more chaotic household environment, as perceived by caregivers, was found to also impact children's emotional eating.

We examined children's underlying emotionality and overall ability to self-regulate, which may bifurcate pathways of patterned emotional eating behaviors.^{14,21,23} In

line with the literature, having higher negative affectivity could lead to either more food approach or withdrawal behaviors in response to distress.¹⁸ Having higher emotional reactivity may require greater demands to regulate negative emotions, which could lead to reduced consumption according to physiological responses to emotions or increased approach to food to relieve discomforts.^{18,42} These findings highlight the importance of promoting emotion regulation strategies in early childhood that minimize dysregulated eating risks, especially for children who are temperamentally reactive.

The results suggest that children higher on effortful control are less likely to engage in emotional undereating, even after accounting for negative affectivity. Children with higher self-control may sustain the typical amount of food consumption, even under the experience of negative emotions. This finding supports previous studies proclaiming the importance of self-regulation as a key component in managing healthy eating behaviors from early childhood.^{14,21} It is possible that emotional reactivity has different implications for emotional overeating or undereating in accordance with one's ability to self-regulate. It is also notable that despite a positive correlation between effortful control and surgency, emotional eating was not predicted by temperamental surgency. This is consistent with research showing that emotional overeating and undereating behaviors are driven by negative emotionality and punishment sensitivity, not necessarily approach-related tendencies.²⁷ Future research should consider how temperament profiles, combined with different environmental characteristics, contribute to mechanisms of how children learn to employ their regulatory abilities in emotional overeating over time.

Household chaos and negative affectivity were also found to be significantly associated, suggesting that caregivers who report their households as more chaotic are

Table 3. Multiple Regression Analyzing Associations among Child Temperament, Household Chaos, and Emotional Undereating

Variable	Model 1		Model 2		Model 3		Model 4	
	B (SE)	β (p)	B (SE)	β (p)	B (SE)	β (p)	B (SE)	β (p)
Constant	3.10 (0.07)	(0.000)	3.10 (0.07)	(0.000)	3.11 (0.07)	(0.000)	3.13 (0.07)	(0.000)
Parent education								
Some high school	-0.097 (0.87)	-0.006 (0.91)	0.04 (0.86)	0.002 (0.96)	-0.04 (0.86)	-0.002 (0.96)	-0.09 (0.86)	-0.01 (0.91)
High school grad	-0.05 (0.28)	-0.009 (0.87)	-0.02 (0.27)	-0.004 (0.94)	-0.06 (0.27)	-0.01 (0.82)	-0.07 (0.28)	-0.01 (0.80)
Some college	-0.37 (0.13)	-0.16 (0.005)	-0.38 (0.13)	-0.16 (0.003)	-0.41 (0.13)	-0.18 (0.001)	-0.42 (0.13)	-0.18 (0.001)
College grad	-0.09 (0.10)	-0.05 (0.37)	-0.07 (0.10)	-0.04 (0.49)	-0.09 (0.10)	-0.05 (0.38)	-0.09 (0.10)	-0.05 (0.39)
Negative affectivity	—	—	0.28 (0.08)	0.18 (0.001)	0.25 (0.08)	0.16 (0.002)	0.26 (0.08)	0.17 (0.002)
Effortful control	—	—	-0.20 (0.07)	-0.16 (0.003)	-0.18 (0.07)	-0.14 (0.011)	-0.17 (0.07)	-0.13 (0.02)
Surgency	—	—	0.11 (0.07)	0.08 (0.13)	0.10 (0.01)	0.08 (0.15)	0.10 (0.08)	0.08 (0.14)
Household chaos	—	—	—	—	0.01 (0.01)	0.10 (0.05)	0.01 (0.01)	0.10 (0.057)
Negative affect \times household chaos	—	—	—	—	—	—	-0.01 (0.01)	-0.05 (0.36)
Effortful control \times household chaos	—	—	—	—	—	—	0.01 (0.01)	0.04 (0.45)
R ²	0.02		0.08		0.09		0.10	
ΔR^2	0.02		0.06		0.01		0.01	
F	2.01		4.70		4.63		3.88	
ΔF	2.01		8.12		3.89		0.89	
P	0.09		0.000		0.05		0.41	

Bolded lines indicate statistically significant findings ($p \leq 0.05$); N=365 list wise (the difference in N from previous regression is due to missing data).
 Dependent measure is Emotional Undereating.

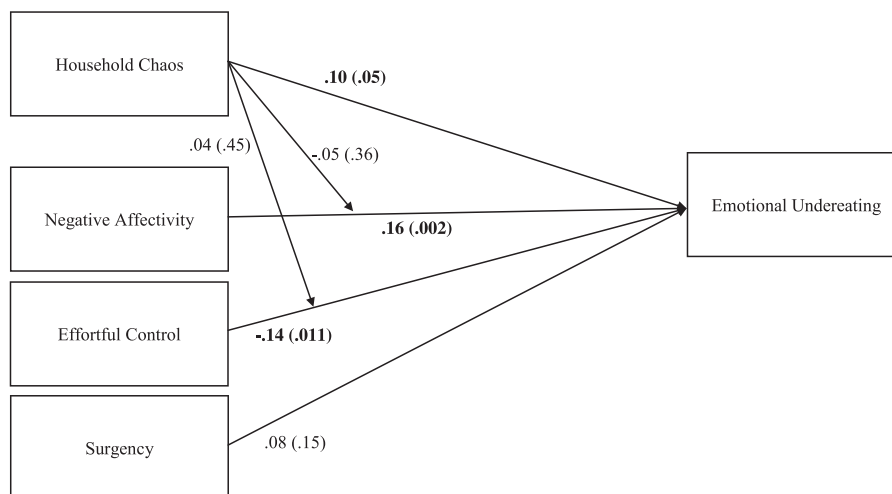


Figure 2. Standardized regression coefficients for the associations among child temperament, household chaos, and emotional under-eating. Statistically significant associations are bolded. *p*-Values in parentheses. Estimates were statistically adjusted for parent education.

more likely to report that their children are higher on negative emotionality. Household chaos was not found to exacerbate or buffer the influence of child temperament on emotional overeating and undereating in this analysis. However, the independent influence of household chaos on emotional eating suggests that the disorganization and lack of routines in the household may be a stressor that shapes emotion induced eating patterns in children. In future research, it will be important to further identify what aspects of a child's negative emotionality and household chaos explain the development of emotional eating behaviors, and the transactional nature of these associations.

It should also be noted that, in our final model, associations between emotional overeating and children's race/ethnicity remained significant. Specifically, Asian children and American Indian/Alaska Native children scored significantly higher on emotional overeating as compared with White children. These findings may reflect systemic social inequalities, discrimination, and oppressions experienced by indigenous and people of color in the United States that may impact stress exposure and emotional eating.^{43,44} More studies are needed to identify how patterns of self-regulatory and emotion-related eating behaviors develop from early childhood in racially/ethnically diverse family contexts. In addition, children whose parents had postgraduate education scored higher on emotional undereating as compared with those with parents who completed some college education, suggesting that food withdrawal in response to negative emotion may be salient in children with higher educated parents. The influence of parenting on children's eating behaviors in combination with child and home environmental characteristics is thus a promising path for future research.

Strengths and Limitations

This study had several notable strengths. There are currently no published studies that have examined the

combined influences of child temperament and household chaos on emotional overeating and undereating in children at 18–24 months of age. The assessment of child temperament was also at an earlier time point from the moderator and outcome variables. However, there are also limitations to our study. First, the findings are based solely on caregiver reports, in a sample that is not racially/ethnically diverse, and some of the effect sizes are small. Despite the nonsignificant MCAR test, there could have also been a selection bias due to missing data. The findings should be replicated using other measurement methods and in more diverse populations. Moreover, emotional overeating was not commonly reported in our sample ($M = 1.6$, $SD = 0.54$), which may reflect the age of the children or that it is a nonclinical sample. Regardless, however, hypothesized associations were found to be significant. Future studies should further investigate how effortful control and the manifestation of eating (dys)regulation in early childhood impact long-term health consequences, including child obesity.

Conclusion

The findings from this study contribute to the literature by showing that children's emotional reactivity, ability to self-regulate, and early household environment have implications for emotional eating in 18–24-month-old children. Temperamental negative affectivity and effortful control were identified as important child characteristics that may contribute to the development of emotional eating patterns. Moreover, the current study lends support to the ongoing efforts to identify and target modifiable parts of the family environment to promote healthy eating behaviors.⁷ Based on our findings, we emphasize the importance of providing children with a home environment marked by routines and organization to foster healthy self-regulation strategies in children.

Authors' Contributions

S.J.: Conceptualization, methodology, validation, formal analysis, investigation, writing—original draft, writing—review and editing.

S.I.: Methodology, validation, writing—review and editing.

B.F.: Methodology, writing—review and editing, supervision, funding acquisition.

B.M.: Methodology, writing—review and editing, supervision, funding acquisition.

K.F.B.: Conceptualization, methodology, validation, formal analysis, investigation, writing—original draft, writing—review and editing, supervision, funding acquisition.

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Author Disclosure Statement

No competing financial interests exist.

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Appendix Table A1. Spearman Correlations among Study Variables

		1	2	3	4	5	6
1	CEBQ emotional overeating (n = 400)	—					
2	CEBQ emotional undereating (n = 400)	0.38***	—				
3	Negative affectivity (ECBQ) (n = 380)	0.17***	0.17***	—			
4	Effortful control (ECBQ) (n = 380)	-0.14**	-0.19***	-0.13*	—		
5	Surgency (ECBQ) (n = 380)	-0.01	-0.01	-0.09	0.29***	—	
6	CHAOS score (n = 391)	0.18***	0.11*	0.20***	-0.17***	-0.01	—

Statistically significant correlations are bolded (*p ≤ 0.05, **p ≤ 0.01, ***p ≤ 0.001).

CEBQ, Child Eating Behavior Questionnaire; CHAOS, Confusion, Hubbub, and Order Scale; ECBQ, Early Childhood Behavior Questionnaire.