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Williams, Natalie A.; Dev, Dipti A.; Hankey, Maren; and Blitch, Kimberly A., "Role of food preoccupation and current dieting in the associations of parental feeding practices to emotional eating in young adults: A moderated mediation study" (2017). *Faculty Publications, Department of Child, Youth, and Family Studies*. 141.
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Published in *Appetite* 111 (2017), pp 195–202. doi:10.1016/j.appet.2017.01.003
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Submitted 9 August 2016; revised 13 December 2016; accepted 5 January 2017; published online 6 January 2017.

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Role of food preoccupation and current dieting in the associations of parental feeding practices to emotional eating in young adults: A moderated mediation study

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Abstract
Parental feeding practices reflecting coercive control are related to children's later eating behaviors, but the mechanisms underlying these effects remain poorly understood. This study examined the relationships between recalled childhood experiences of parental pressure to eat and restriction and current food preoccupation, dieting, and emotional eating in a racially diverse sample of college students (N = 711). Results revealed that parental restriction, but not pressure to eat, was associated with more emotional eating (r = 0.18, p < 0.0001). Food preoccupation mediated the association between restriction and emotional eating (95% CI [3.6495–7.2231]); however, a moderated mediation model revealed that the strength of the indirect effect of restrictive feeding on emotional eating through food preoccupation was significantly different for dieters and non-dieters (index of moderated mediation = 1.79, Boot SE = 0.79; 95% bias-corrected bootstrap CI [−3.5490 to −0.4515]). These findings provide unique insight into the mechanisms linking parental feeding practices with emotional eating in young adulthood. Future studies attempting to clarify the processes through which child feeding practices impact later eating behaviors should consider the role of current dieting.

Keywords: Emotional eating, Food preoccupation, Feeding practices, Food craving

1. Introduction

Child feeding practices used by parents are related to both child weight status and eating behaviors during childhood. Feeding practices that reflect coercive control, such as pressuring children to eat, restricting children's access and consumption of unhealthy foods, and using food to influence children's behaviors or regulate their emotions, appear especially detrimental to the development of healthy eating patterns and weight (Lansigan, Emond, & Gilbert-Diamond, 2015; Shloim, Edelson, Martin, & Hetherington, 2015; Vaughn et al., 2016; Ventura & Birch, 2008). Cross-sectional and experimental studies have established associations between these feeding practices and increased child preference for restricted foods, heightened responsiveness to the presence of palatable foods, and eating beyond satiety when restricted foods are made available (Galloway, Fiorito, Francis, & Birch, 2006; Jansen et al., 2012). In longitudinal investigations, coercive control feeding practices have been shown to contribute to excessive weight gain (for restriction only) and problematic eating behaviors during childhood and adolescence (Birch, Fisher, & Davison, 2003; Houldcroft, Farrow, & Haycraft, 2016; Hughes, Power, O'Connor, Orlet Fisher, & Chen, 2016; Rodgers et al., 2013).

Available evidence suggests that childhood feeding experiences continue to adversely affect individuals' food preferences, dietary habits, and eating behaviors into adulthood (Batsell, Brown, Ansfield, & Paschall, 2002; Brunstrom, Mitchell, & Baguley, 2005; Wadhera, Capaldi Phillips, Wilkie, & Boggess, 2015). For example, adults who recollect being forced to clean their plates as children or were frequently rewarded or punished with food are more likely to be overweight and to display obesity-promoting eating behaviors,

such as emotional eating or binge eating (Puhl & Schwartz, 2003). More recently, studies using retrospective reports of parental feeding practices have documented associations between controlling feeding practices and maladaptive eating behaviors in college students. For example, parental pressure to eat during childhood is associated with lower levels of intuitive eating (i.e., less sensitivity to internal hunger and satiety cues) and more disordered eating behaviors, such as binge eating or eating in response to the experience of negative emotions (i.e., emotional eating) (Ellis, Galloway, Webb, Martz, & Farrow, 2016). Parental restriction and using food to influence children's behaviors or regulate their emotions (i.e., emotional regulation feeding; Vaughn et al., 2016) during childhood are also associated with emotional eating in college students (Galloway, Farrow, & Martz, 2010; Tan, Ruhl, Chow, & Ellis, 2016). These findings are concerning, given evidence that emotional eating relates to increased fatty food intake and higher body mass index in adults (Camilleri et al., 2014; Cartwright et al., 2003; Konttinen, Mannisto, Sarlio-Lahteenkorva, Silventoinen, & Haukkala, 2010; van Strien, Herman, & Verheijden, 2012).

Despite emerging evidence of the long-term impact of controlling child feeding practices, we are aware of only one study that has investigated possible mechanisms linking early feeding experiences with maladaptive eating behaviors in young adults. Drawing on restraint theory (Hill, Weaver, & Blundell, 1991; Polivy & Herman, 1985) and empirical evidence associating food restriction, food preoccupation (i.e., obsessively thinking about food and eating) and obesity-promoting eating behaviors, Tan and colleagues examined food preoccupation as a mediator of associations between recalled parental feeding practices during childhood and current emotional eating in a sample of 97 college students (Tan et al., 2016). In their study, food preoccupation was found to mediate the relationship between emotional regulation feeding in childhood and emotional eating in adulthood, but food preoccupation did not account for the association between parental restriction and emotional eating. Replication of this unexpected result is needed given the strong theoretical and empirical basis informing these hypothesized relationships. Moreover, examination of other controlling feeding practices commonly used by parents, such as pressuring children to eat, is needed to advance the currently small literature exploring the role of food preoccupation in the link between childhood feeding experiences and later emotional eating.

Another important next step for research investigating the mechanisms linking childhood feeding experiences with later eating behaviors is to establish not only *how* childhood feeding experiences impact adults' eating behaviors, but also *under what conditions* these meditational processes occur. For example, it is possible that the mediating effect of food preoccupation observed by Tan and colleagues is not universal across all college students, but instead varies as a result of factors that moderate one or more of the associations between parental feeding practices, food preoccupation, and current eating behavior. Considering potential moderators in the context of meditational models examining the long-term effects of parental feeding practices could identify specific subpopulations of young adults at elevated risk and yield novel information to inform the development of targeted interventions to reduce obesity-promoting eating behaviors such as emotional eating (Karazsia, Berlin, Armstrong, Janicke, & Darling, 2014).

One factor that may act as a moderator of these associations is whether or not individuals are currently dieting to lose weight. Positive relationships between dietary restriction and disinhibited eating behavior have been documented via a variety of affective, cognitive, and physiological pathways (Hagan, Chandler, Wauford, Rybak, & Oswald, 2003; Mason, Heron, Braitman, & Lewis, 2016; Mathes, Brownley, Mo, & Bulik, 2009; Sherry & Hall, 2009; Stice, 2001). As such, it is plausible that current dieting may alter the relationship between food preoccupation and emotional eating. Illustratively, because dieting may lead to increased negative affect (Stice, 2001), the association between food preoccupation and emotional eating may be stronger among individuals who are actively dieting with the goal of weight loss compared with nondieters. No prior studies have accounted for the role of current dieting in models exploring the linkages between parental feeding practices and later emotional eating.

This study was designed to advance current understanding of the long-term effects of coercive control parental feeding practices by investigating the conceptual scheme depicted in Figure 1 in a large and racially diverse sample of college students. First, we examined the associations of recalled parental feeding practices to current emotional eating, and tested whether these relationships are explained by food preoccupation. We expected that individuals who recall more parental pressure to eat and restrictive feeding practices during childhood would report higher preoccupation with food, which, in turn, would relate to greater emotional eating. In other words, we expected that the positive associations between parental feeding practices and current emotional eating would be mediated by food preoccupation (Hypothesis 1). Next, we tested whether current dieting to lose weight moderates the relationship between food preoccupation and emotional eating. We anticipated that the association between food preoccupation and emotional eating would be stronger among dieters compared with nondieters (Hypothesis 2). Finally, we integrated our mediation and moderation research questions to investigate the possibility of moderated mediation. Assuming current dieting moderates the association between food preoccupation and emotional eating, it is possible that current dieting will conditionally influence the strength of the indirect relationship between parental feeding practices and emotional eating, demonstrating the pattern of moderated mediation depicted in Figure 1. We anticipated that the mediating effect of food preoccupation would be stronger among dieters compared with non-dieters (Hypothesis 3). In other words, food preoccupation would be more strongly associated with emotional eating when individuals are currently dieting, and as such individuals who experienced high levels of restriction and pressure to eat as children are more likely to engage in emotional eating when they are attempting to lose weight.

2. Methods

2.1. Participants and procedure

Participants included 711 undergraduate students aged 18–23 years attending a mid-sized public university located in the southern United States. Participants were recruited through the Psychology Research Participation System at the university where the research was conducted. This system provides a mechanism for undergraduate students to participate in studies and earn research credits, which they can assign to one or more of their psychology courses in order to receive extra credit points in the course(s). Students who were interested in participating in the study signed up electronically, and were emailed a link to a secure website to provide informed consent and participate in the study. The survey included a demographic questionnaire and measures assessing participants' recollections of how their parents approached feeding them as a child and their current experience of food cravings and eating habits. Participants also provided self-reports of their current height and weight, which were used to determine body mass index (kg/m^2).

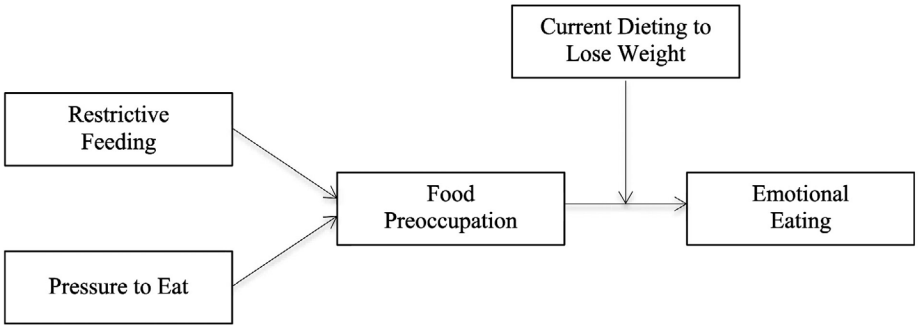

Figure 1. Hypothesized model depicting food preoccupation as a mediator between recalled parental feeding practices and current emotional eating; it is hypothesized that currently dieting to lose weight moderates the indirect effect.

2.2. Measures

2.2.1. Parental feeding practices

The Retrospective Child Feeding Practice Questionnaire (RCFQ; Lev-Ari & Zohar, 2013) was used to assess college students' perceptions regarding their parents' feeding practices when they were children. The RCFQ was adapted from the widely used Child Feeding Questionnaire (Birch et al., 2001) and has been shown to have similar structure and internal consistency. On the RCFQ, respondents are instructed to think of the person who was most often responsible for feeding them when they were younger and rate the extent to which they recollect that caregiver using various feeding strategies using a 5-point Likert scale (ranging from 1 = never to 5 = always). The current study focused on the 4-item pressure to eat subscale and the 8-item restriction subscale. Cronbach's alphas for the pressure to eat and restriction subscales in the current sample were acceptable ($\alpha = 0.65$ and 0.81, respectively).

2.2.2. Food preoccupation

The General Food Cravings Questionnaire-Trait (G-FCQ-T) (Nijs, Franken, & Muris, 2007) was used to measure food preoccupation. Using a 6-point Likert scale (ranging from 1 = never or not applicable to 6 = always), respondents indicated the degree to which each of six statements included on the food preoccupation subscale reflects their experience. Higher scores indicate greater food preoccupation. The G-FCQ-T has been shown to have adequate internal consistency, satisfactory test-retest reliability, and good construct validity (Nijs et al., 2007). In the current sample, Cronbach's alpha for the food preoccupation scale was 0.90.

2.2.3. Emotional eating

Emotional eating was assessed using the Three-Factor Eating Questionnaire (TFEQ-R18) (Stunkard & Messick, 1985; de Lauzon et al., 2004). The TFEQ-R18 is an 18-item self-report questionnaire that assesses three aspects of eating behaviors, including emotional eating. Participants respond to items using a 4-point scale indicating the extent to which an item is true for them (1 = definitely true, 2 = mostly true, 3 = mostly false, 4 = definitely false). Responses are summed into scale scores, then scale scores are transformed to a 0–100 scale [(raw score – lowest possible raw score)/possible raw score range) × 100]. Higher scores indicate more emotional eating. The psychometric properties of the TFEQR18 are well established (de Lauzon et al., 2004) and the emotional eating scale had acceptable internal reliability in the current sample ($\alpha = 0.87$).

2.3. Data analysis

SAS v.9.4 was used to conduct all statistical analyses. Preliminary analyses included data screening for outliers and to confirm that continuous variables adhered to a normal distribution (Tabachnick & Fidell, 2013). Values for skewness and kurtosis, as well as results of tests for normality (i.e., Shapiro-Wilk test), were examined to ensure that the continuous study variables adhered to a normal distribution. All values were within acceptable ranges to infer normality. Bivariate associations among study variables were examined using Pearson correlations for continuous variables and Spearman rank order correlations for indicator variables to determine potential cofounders.

The study hypotheses were tested in two interlinked steps. First, a simple mediation model with restrictive feeding and pressure to eat passing their effects directly to emotional eating, and indirectly through food preoccupation, was estimated using Ordinary Least Squares regression with bootstrapping to test Hypothesis 1 (Hayes, 2013). This procedure yields a bias-corrected confidence interval for the total and specific indirect effect of the mediator. If the upper and lower bound confidence intervals do not include zero, then the researcher can conclude that there is a mediating effect [for a practical discussion of integrating moderation and mediation we refer readers to Karazsia et al., 2014]. Including both feeding practices in the mediation model simultaneously (versus estimating separate models for each feeding practice) yields estimates of the indirect and direct effects that are unique to each feeding practice. To generate the indirect effects for both feeding practices, the mediation model was run twice, first specifying restriction as the independent variable and including pressure to eat as a covariate, and then specifying pressure to eat as the independent variable and including restriction as a covariate. The bootstrap confidence intervals for both runs were based on the same set of 5000 resamples from the data.

Next, we integrated the moderator variable (i.e., current dieting) into the regression model to test Hypotheses 2 and 3. The statistical approach used to integrate moderation and mediation is referred to as moderated mediation analysis, or conditional process analysis (Hayes, 2013). In the present study, we examined a model of moderation mediation in which dieting was included as a moderator of the direct effect of food preoccupation on emotional eating (Figure 1). Sex, body mass index, and race/ethnicity were included as controls. For this analysis, we utilized the PROCESS procedure developed by Hayes. An advantage of this macro is that it implements the recommended bootstrapping procedures and automatically computes post hoc probing for moderating effects. Predictor variables were mean-centered prior to creation of the interaction term, and the model was estimated using 5000 bootstrapped samples. To evaluate the moderating role of current dieting, we examined the significance of the cross-product term between food preoccupation and dieting in the prediction of emotional eating and used conventional procedures for plotting simple slopes for dieters and non-dieters.

To evaluate moderated mediation, the significance of the conditional indirect effect was estimated at the two values of the moderator. Confirmation of moderated mediation was based on the index of moderated mediation (Hayes, 2015). Similar to traditional moderation analyses where a significant interaction suggests that the simple slopes are different from each other (Aiken & West, 1991), a significant index of moderated mediation indicates that the moderator is linearly related to the indirect effect and implies that the conditional indirect effects defined by the two different values of the moderator are statistically different. Significance of the index of moderated mediation (i.e., evidence of moderation of the indirect effect of parental feeding practices by dieting) is established when the bootstrap confidence interval for the index of moderated mediation does not include zero.

3. Results

Socio-demographic characteristics of participants are summarized in Table 1. On average, students were 19 years of age (M = 19.41, SD = 1.43) and female (79.2%). The racial/ethnic composition of the sample reflected the larger student population of the university, with 61% of participants identifying as Caucasian and 39% identifying as African American. With respect to BMI category, 4.2% of participants were classified as underweight, 59.6% were normal weight, 19.3% were overweight, and 16.9% were obese based on the Centers for Disease Control and Prevention guidelines (underweight = BMI ≤ 18; normal weight = BMI >19 to ≤25; overweight = BMI = > 25 to ≤ 30, and obese = BMI > 30). Nearly one-third (30.7%) of students surveyed reported currently being on a diet to lose weight.

Table 2 presents the intercorrelations among study variables. Restrictive feeding and pressure to eat were both positively associated with food preoccupation (r's = 0.28 and 0.42, $p < 0.0001$). Food preoccupation was positively associated with emotional eating (r = 0.53, $p < 0.0001$). Sex, BMI, race/ethnicity, and two aspects of dieting history (ever dieted and the number of times the individual has lost 5 pounds or more while on a diet) were significantly associated with key study variables and consequently were included as covariates in models testing the study hypotheses. Results indicated no associations between age and the key variables (i.e., restriction, pressure, food preoccupation, positive outcome expectancy, and emotional eating). To avoid reducing statistical power and biasing estimates, age was not included as a covariate in the regression models.

Table 3 presents results for the simple mediation model estimating the direct, indirect (through food preoccupation), and total effect of restriction and pressure to eat on emotional eating. Restriction was positively associated with food preoccupation (unstandardized regression coefficient = 2.48, $p < 0.0001$). The positive relationship between food preoccupation and emotional eating, controlling for parental restrictive feeding, was also significant (B = 2.18, $p < 0.0001$). Finally, restrictive feeding was found to have a significant indirect effect on emotional eating (5.42), as indicated by a bias-corrected bootstrapped 95% confidence interval around the indirect effect not containing zero [3.6495–7.2231]. Thus, results indicated that the association between childhood restrictive feeding and emotional eating was mediated by food preoccupation. In contrast, pressure to eat was not significantly associated with food preoccupation (B = −0.20 *ns*) or emotional eating (B = −0.47 ns).

Table 4 summarizes results of the model testing the moderation and moderated mediation hypotheses. Pressure to eat was included as a covariate in this model to ensure that estimates of the direct, indirect, conditional indirect effects reflect the unique contribution of restriction; however, the indirect effects of pressure to eat were not estimated due to the lack of simple mediation with this feeding practice as the independent variable. Results indicated that the overall model was significant, F (10, 699) = 29.67, $p < 0.0001$, and accounted for approximately 30% of the variance in emotional eating. The cross-product term between food preoccupation and dieting was significant (B = −0.77, $p < 0.01$), indicating that the association between food preoccupation and emotional eating is moderated by current dieting. To further understand the nature of this interaction, conditional effects (i.e., simple slopes) were plotted at the two values of the moderator. As shown in Figure 2, food preoccupation was significantly and positively related to emotional eating for both dieters and non-dieters, but the effect was stronger among non-dieters compared with dieters.

Although the results show that food preoccupation interacted with current dieting to influence emotional eating, presence of a significant interaction term does not directly assess for the presence of moderated mediation. Therefore, we examined the conditional indirect effect of restrictive feeding on emotional eating (through food preoccupation) for dieters and non-dieters. Results indicated that the conditional indirect effect was statistically significant for both groups, indicated by the bias-corrected bootstrapped 95% confidence interval around these indirect effects not containing zero (see lower half of Table 4). Moderated mediation was further confirmed by the index of moderation mediation, which was significant and negative (Index= −1.79, Boot SE = 0.79; 95% bias-corrected bootstrap CI [−3.5490 to −0.4515]). This indicates that although the conditional indirect effects of restrictive feeding on emotional eating through food preoccupation was significant for dieters as well as non-dieters, these values were statistically different from one another. The negative value of the index of moderated mediation indicated that the indirect effect of restrictive feeding on emotional eating through food preoccupation is a decreasing function of dieting. Thus, we conclude that the mediating effect of food preoccupation in the association of restrictive feeding and emotional eating varies depending on whether or not the individual is currently dieting to lose weight.[1]

4. Discussion

An emerging literature utilizing retrospective reports of parental feeding practices suggests that parents' use of feeding practices characterized by coercive control have lasting negative implications for their children's dietary patterns and eating behaviors (Ellis et al., 2016; Galloway et al., 2010; Tan et al., 2016; Wadhera et al., 2015). However, most existing studies have included primarily White, middle class samples, which limits generalizability. Moreover, because only one prior study has specifically tested potential mechanisms linking early feeding experiences with later eating behavior, the processes underlying these effects are poorly understood. The purpose of the present study was to build this literature by examining both parental pressure to eat and restriction in relation to later emotional eating in a racially diverse sample of college students, and to further elucidate the processes through which these feeding practices may influence later eating behavior by testing food preoccupation as a mediator and current dieting as a moderator in these associations. We found that parental restriction during childhood, but not pressure to eat, was associated with more emotional eating in college students. Additionally, food preoccupation was found to play an important mediating role in the relationship between parental restriction and emotional eating, particularly for individuals who are *not* currently dieting to lose weight.

1 To address the possibility of a suppression effect in our moderated mediation model, we ran a series of univariate regression models to examine the regression coefficients between each independent variable and the dependent variables without other variables in the model, and compared these results with the moderated mediation results. In these analyses, we observed no changes in the sign of the regression coefficients and a consistent pattern of reduced variance accounted for when comparing the univariate versus multivariate models. Together, these results suggest that the moderated mediation findings are not due to a suppression effect.

Table 1. Participant characteristics and descriptive statistics for study variables (N = 711).

Variable	*n* (%)	*M (SD)*	Range
Age (years)		19.41 (1.43)	18–23
Gender (% female)	563 (79.2)		
Race/ethnicity			
Black	279 (39.24)		
White	432 (60.76)		
BMI Category			
Underweight	30 (4.42)		
Normal weight	424 (59.63)		
Overweight	137 (19.27)		
Obese	120 (16.88)		
Body Mass Index		24.88 (5.77)	15.35–55.60
Currently on a diet to lose weight	218 (30.66)		
Ever been on a diet	357 (50.21)		
Number of times dieted and lost 5 pounds or more[a]		1.31 (2.78)	0–22
Restriction		2.64 (0.72)	1–5
Pressure to eat		2.76 (0.82)	1–5
Emotional eating		36.29 (26.60)	0–100

Table 2. Bivariate associations among study variables (N = 711).

Variable	1	2	3	4	5	6	7	8	9	10
1. Race/ethnicity[a]										
2. Sex[b]	—0.04									
3. Age	–0.09*	–0.09*								
4. Body mass index	–0.22****	–0.11**	0.16****							
5. Dieting[c]	–0.07	0.04	0.08*	0.33****						
6. Ever dieted[d]	0.11**	0.11**	0.07	0.33****	0.31***					
7. Times lost ≥5 pounds	0.06	0.07	0.10*	0.29****	0.18****	0.42***				
8. Restriction	0.02	–0.09*	0.03	0.09*	0.06	0.11**	0.13**			
9. Pressure to eat	0.04	–0.05	–0.01	–0.07	–0.10**	–0.03	–0.04	0.42***		
10. Food preoccupation	0.05	–0.07	0.03	0.04	0.08*	0.14**	0.07*	0.28***	0.09*	
11. Emotional eating	–0.09*	–0.04	0.02	0.07	0.07	0.14**	0.01**	0.18***	0.05	0.53***

Point biserial correlations are reported for associations between binary and continuous variables. a) 1 = Black, 2 = White; b) 1 = male, 2 = female; c) 0 = not currently on a diet to lose weight, 1 = currently on a diet to lose weight; d) 0 = no, 1 = yes;
*p < 0.05, **p < 0.01, ***p < 0.001, ****p < 0.0001

Table 3. Regression results for simple mediation.

Antecedent	Consequent					
	Food preoccupation			Emotional eating		
	B	*SE*	*p*	*B*	*SE*	*p*
Restriction	2.48	0.35	<0.0001	1.29	1.35	0.3389
Pressure to eat	–0.20	0.30	0.5051	–0.47	1.14	0.6796
Food preoccupation	—	—	—	2.18	0.14	<0.0001
	Bootstrap results for indirect effects					
	Effect	*SE*	LL 95% CI	UL 95% CI		
Restriction	5.42	0.83	3.6495	7.2231		
Pressure to eat	–0.44	0.67	–1.8258	0.9200		

Unstandardized regression coefficients reported. Body mass index, race, sex, ever dieted, and number of times lost –5 pounds were included as covariates in the model. Bootstrap sample = 5000. LL = lower limit. CI = confidence interval. UL = upper limit. Bootstrap confidence intervals were based on the same set of 5000 resamples from the data for estimation of the indirect effects.

Overall, our findings add to the literature documenting the detrimental effects of restrictive child feeding practices. In support of the dietary restraint model, it appears that the use of overt restriction practices (e.g., parents limiting their child's consumption of certain foods during feeding interactions because they are concerned that their child will overeat) may, over time, lead some individuals to experience an intense and constant longing for food. This finding replicates prior work (Tan et al., 2016; Tapper, Pothos, & Lawrence, 2010) implicating high levels of food preoccupation as a risk factor for emotional eating, perhaps because it contributes to greater negative emotionality, which is alleviated through eating. However, it is noteworthy that the present findings are at odds with the only other published study that has tested mechanistic effects linking childhood feeding experiences with later emotional eating (Tan et al., 2016). In this prior investigation, significant effects for restriction were not observed in

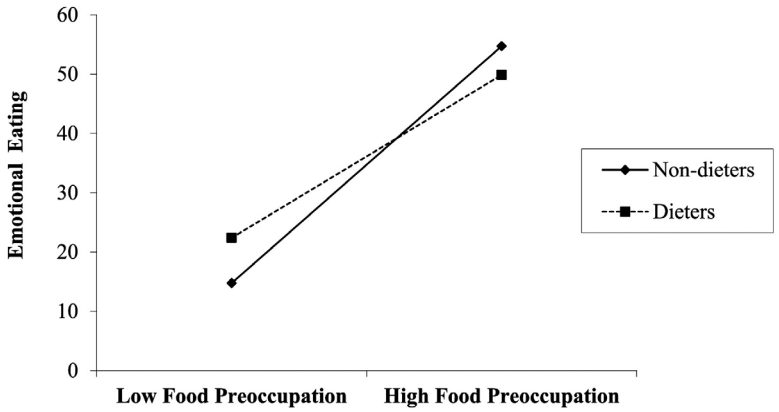

Figure 2. Emotional eating predicted by food preoccupation moderated by dieting. The positive association between food preoccupation and emotional eating is stronger among individuals who are not currently dieting to lose weight.

Table 4. Regression results for model testing conditional indirect effect.

Antecedent	Consequent					
	Food preoccupation			Emotional eating		
	B	*SE*	*p*	*B*	*SE*	*p*
Restriction	2.33	0.35	<0.0001	1.11	1.36	0.4122
Food preoccupation	—	—	—	2.20	0.14	<0.0001
Dieting	—	—	—	0.30	2.00	0.8820
Food preoccupation x dieting	—	—	—	–0.77	0.28	0.0063

	Conditional indirect effects at the two levels of the moderator			
	Effect	Boot SE	Boot LL 95% CI	Boot UL 95% CI
Non-dieters	5.6824	1.05	3.7192	7.8855
Dieters	3.8891	0.83	2.4429	5.732

Unstandardized regression coefficients reported. B Body mass index, race, sex, ever dieted, number of times lost ≥5 pounds, and pressure to eat were included as covariates in the model. Bootstrap sample = 5000.

multivariate models that controlled for similar participant characteristics as well as emotional regulation feeding. Because we did not assess emotion regulation feeding in our study, it is unknown whether the effects we observed for restriction would persist if emotion regulation feeding had been included as a simultaneous predictor in our models. The divergent results may also be due to methodological differences across the studies, including the use of different scales to measure parental restriction and differences in sample size and composition. Future studies that examine both types of feeding practices in larger and more diverse samples would help to clarify these mixed findings.

Extending previous work, results of our moderated mediation analyses reveal that whether or not an individual is currently dieting to lose weight plays an important role in the demonstrated relationships between parental restriction, food preoccupation, and emotional eating. However, the direction of the observed effect was unexpected. We anticipated that the mediating effect of food preoccupation would be stronger for current dieters compared with non-dieters, but the opposite pattern was found — food preoccupation was more strongly associated with emotional eating for individuals who were not restricting their food intake to lose weight. It is possible that individuals who reported currently dieting at the time of the survey were able to reduce their emotional eating because of other factors associated with actively trying to lose weight, such as closely monitoring their food intake or making behavioral modifications that lessened their risk for emotional eating (e.g., avoiding stressful situations, making foods that are typically eaten to cope with their emotions less easily accessible). It is also plausible that individuals who are attempting to lose weight are engaging in more physical activity, which could reduce the risk for emotional eating by increasing positive mood states (Penedo & Dahn, 2005). Future studies attempting to clarify the processes through which child feeding practices impact later eating behaviors should consider how current dieting affects these relationships. Evaluation of patterns of dieting behavior across time may also be informative. For example, although we found a slightly reduced risk for emotional eating in current dieters compared with non-dieters, it is possible that individuals who exhibit repeated cycles of weight loss and regain may be at elevated risk for emotional eating in the context of high levels of food preoccupation. Additional research is needed to evaluate this possibility.

Finally, although prior studies have documented negative long-term effects of pressuring children to eat, such as less intuitive eating, more disordered eating behavior, and decreased liking of nutritious foods (Ellis et al., 2016; Wadhera et al., 2015), parental pressure was not associated with later food preoccupation or emotional eating in this sample. In general, this result highlights the importance of considering the unique long-term effects of specific feeding practices that are encompassed within the broader construct of coercive control (Vaughn et al., 2016). Future research evaluating the consequences of pressure to eat should explore possible mechanisms that may link variables associated with parental pressure to eat. For example, individuals who experienced more parental pressure to eat as children may be less sensitive to their internal hunger and satiety cues (i.e., demonstrate lower intuitive eating), which in turn is associated with more disordered eating behaviors.

4.1. Limitations

Several limitations of the present investigation should be noted. First, this study used a retrospective design in which college students reported on their recollections of their parents' feeding practices used when they were children. Although prior studies have demonstrated reasonable agreement between parents' and their adult children's reports of childhood feeding experiences (Galloway et al., 2010), it is possible that students' retrospective reports were biased by a number of factors that could affect the results, including certain feeding practices being more salient than others, inaccurate memories of feeding interactions, and social desirability bias. Future studies using longitudinal designs with multiple informants and methodologies (i.e., combining self-report and observations of child feeding interactions) would yield a more accurate understanding of the long-term effects of parental feeding practices. Second, the survey was administered only to undergraduates enrolled in psychology courses. As such, the results may not generalize to other college students or young adults who are not attending college. Third, we only asked participants if they were currently on a diet. It is possible that an individual were not dieting at the time of the study but recently finished a diet, which may impact their experiences food preoccupation or emotional eating. Finally, our sample consisted predominately of females who were healthy weight. Given prior research suggesting that gender and weight status may influence both parental feeding practices and individuals' eating behaviors, future studies that include more equal numbers of males and females, and have samples that are more representative of the population in terms of overweight and obesity, may result in more variability in the predictor and outcome variables of interest and yield more conclusive findings.

5. Conclusions

The present study provides novel insight into the mechanisms linking parental feeding practices during childhood with emotional eating in young adulthood. Our results highlight the role of restrictive feeding on later emotional eating via its impact on food preoccupation, but suggest that the mediating effect of food preoccupation is attenuated in the context of current dieting. Therefore, the explanatory effect of food preoccupation in the relationship between restriction and emotional eating may be reduced for individuals who are dieting. Given the association between parental restrictive feeding and emotional eating is mediated by factors such as food preoccupation, within the context of dieting, the focus of research and intervention strategies should also be on these and other mediating factors (parental feeding style, stress, obesity risk, resources, child eating behaviors) rather than simply on parental feeding practices.

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