ORIGINAL RESEARCH

CURRENT DEVELOPMENTS IN NUTRITION

Eating Behavior and Qualitative Assessments

A Structural Equation Modelling Approach to Understanding Influences of Maternal and Family Characteristics on Feeding Practices in Young Children

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Abstract

Background: The family environment is influential for a child's healthy development through parent and sibling influences on feeding practices. Multiple-child households may protect against unhealthy feeding practices, but additional children contribute to higher maternal stress. Households of married parents may decrease maternal stress by sharing parental demands.

Objective: We aimed to evaluate the collective influence of maternal stress, marital status, and number of children on feeding practices.

Methods: Mothers of 2- to 5-y-old children ($n = 278$) were recruited mainly on a university campus and completed an online survey to examine associations between maternal stress (Depression, Anxiety, Stress Scale), number of children, marital status, and feeding practices (restriction and pressure to eat; Child Feeding Questionnaire). Relationships were examined through the use of multivariate regression and structural equation modelling.

Results: A mainly married (85%) and Caucasian (73%) sample participated, with most mothers reporting multiple children [2 children (45%) or ≥3 children (24%)]. Marital status was not associated with either feeding practice, i.e., restriction and pressure to eat ($P < 0.05$). In adjusted models, maternal stress ($\beta = 0.04$, SE = 0.01, $P = 0.003$) and number of children ($\beta = 0.24$, SE = 0.08, $P = 0.003$) in the household individually contributed to higher feeding restriction; their interaction resulted in lower feeding restriction ($\beta = -0.01$, SE = 0.05, $P = 0.005$). In stratified models, maternal stress was associated with restriction in single-child households ($\beta = -0.03$, SE = 0.009, $P = 0.002$), but not multiple-child households ($\beta = -0.004$, SE = 0.005, $P = 0.40$).

Conclusions: Number of children had no effect on feeding practices individually, but may contribute to a less restrictive feeding environment. Additional investigation into creating less stressful and more positive feeding environments for all mothers can lead to healthier mothers and families. *Curr Dev Nutr* 2018;2:nzy061.

Introduction

Obesity is a major health problem, which can lead to many other chronic diseases including cardiovascular disease, type 2 diabetes, and depression (1). Early childhood obesity can lead to later childhood obesity and adult obesity (2, 3). Establishing lifestyle behaviors early in life is essential for healthy growth and development of young children (3). Before the age of 5 y, most children learn obesity prevention behaviors and preferences through their interpersonal relationships, including with their mothers and siblings (4). These early relationships can influence a child's preference for healthy foods, perceived fullness, and eating tendencies (5). Therefore, it is important to understand the collective influence of mothers and siblings in the household on young children's eating behavior and development.

Keywords: childhood obesity, eating behavior, maternal nutrition, child siblings, latent class analysis

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Abbreviations used: CFQ, Child Feeding Questionnaire; DASS, Depression, Anxiety, Stress Scale; SEM, Structural Equation Modelling.

Mothers are influential in their children's development of healthy eating behaviors (6). However, maternal perceptions of child weight status, concerns about the child's weight, and feeding practices may interfere with a child's ability to self-regulate and respond to their body's satiety cues, leading to unhealthy eating behaviors (7, 8). More specifically, higher maternal concern for their child's weight, perception of the child as overweight or underweight, and greater use of controlling feeding practices have been associated with a higher prevalence of children with overweight and obesity (9–11). Concern for child weight is proposed to increase the use of controlling feeding practices, such as pressure to eat and restriction of certain foods (10). This increase in controlling feeding practices results in inappropriate consumption of foods (9, 11). Emerging evidence has focused on maternal controlling feeding practices owing to the increase in available feeding information via social media (12) and the strong influence of the mother on the child (13). It is important to consider the perception of child weight in conjunction with controlling feeding practices, because mothers who perceive their child as overweight may restrict their child's food, whereas mothers who perceive their child as underweight may pressure them to eat more food (6).

Other factors, including maternal stress, marital status, and the number of children in the household, contribute to maternal feeding practices. Higher maternal stress is associated with greater use of controlling feeding practices (14–16). Conversely, married mothers may have lower maternal stress and use controlling feeding practices less often (15, 17). Single mothers often report higher levels of stress than do married mothers (18). The presence of more parents in the household (e.g., in the case of married mothers) may ameliorate the additional burdens felt by mothers of multiple children (18, 19). In addition, the presence of ≥2 children in the household is associated with healthier obesity prevention behaviors (less TV viewing time and infrequent family meals) (20, 21), protection against unhealthy feeding practices (22), and lower BMI *z* scores (23, 24). Further, siblings can offer encouragement about healthy eating (24), serve as role models for healthy eating (25), and replicate and reinforce parental feeding practices (24). Siblings may also act as additional caregivers in the household, which lessens parental time commitments and stress (26). One theory to explain this difference in health behaviors between children with siblings and children without siblings is that with additional children in the family, there is less time for the parent to monitor behaviors of the individual children and provide individual care, which leads to the development of poor behaviors (27). The other theory is the opposite, theorizing that siblings serve as an additional caretaker, including supervision in parental absence, peer-level support, and reinforcement of parental behavior teachings, preventing the development of poor behaviors (28). Currently, there is mainly evidence of this second mechanism, including multiple-child families exhibiting healthier eating patterns than families with 1 child (29), but overall evidence is limited. Further multiple children and younger-age children may contribute to higher maternal stress (30).

The factors that determine maternal feeding practices are complex. Family structure and demographics may also influence feeding practices, in that parents who are nonwhite, less educated, and earn lower household income may exhibit more controlling feeding practices owing to social traditions and access to resources (31). Because maternal feeding practices are critical to the development of healthy eating habits for young children, developing a greater understanding of these competing influences of maternal stress, marital status, and number of children in the household is essential to inform research and practice. Although researchers have examined how these factors individually influence outcomes, it is currently unclear how maternal stress, marital status, and number of children in the household *collectively* influence maternal feeding practices. The purpose of this study is to examine the collective influence of maternal stress, marital status, and number of children on maternal feeding practices. It is hypothesized that among mothers there would be less restriction and pressure to eat with more parents and children in the household.

Methods

A cross-sectional sample of mothers was recruited via the University of Oklahoma Health Sciences Center email system. The email was sent from research administration to the entire campus targeting staff and faculty, and invited mothers of children ages 2–5 y to participate in an online survey about stress, work status, and feeding. Email recipients were informed that they could forward the online survey to others, regardless of university affiliation or location. To be eligible for participation, the mother had to be ≥18 y old, with ≥1 child between 2 and 5 y old, and the child had to be free from chronic health conditions, which could be associated with higher levels of maternal stress. The online survey was anonymous and included questions about the number of children in the household, age of children in the household, maternal ethnicity, maternal age, marital status, child sex, maternal work status, maternal stress, and maternal feeding practices. The survey took ∼20 min to complete. If participants wished to receive an online gift card, they were directed to a different survey where they could enter their email address. Anonymous survey responses and email addresses for gift card receipt could not be attached. The first 75 respondents received the gift card. Marital status had the response options of married, single, separated, or divorced. Separated and divorced were combined owing to the small sample size and the similar influence of parents in such households (32). Number of children in the household was self-reported as a continuous measure. All study procedures were approved by the University of Oklahoma Health Sciences Center Institutional Review Board.

Maternal stress was assessed with the use of the Depression, Anxiety, Stress Scale short form (DASS-21) (33, 34). The DASS is a self-report questionnaire containing statements related to depression, anxiety, and stress. Participants were asked how much a statement applied to them over the past week, with response options of never, sometimes, often, or always, with a more frequent choice contributing more points. The stress score was calculated by summing the total of 7 questions (each worth up to 3 points), and then doubling that total, which created a maximum score of 42. A stress score was calculated as a part of the DASS-21, and could be categorized into 5 categories: normal (score 0–14), mild (score 15–18), moderate (score 19–25), severe (score 26–33), and extremely severe (score 34–42) (33). The continuous stress score was used as a variable in analyses. The internal consistency of the previously validated (35) DASS-stress portion is 0.85–0.95 (33).

Maternal feeding practices were assessed with the Child Feeding Questionnaire (CFQ) (34), which has been validated (35, 36). As a

part of the CFQ, we assessed individual factor scores by averaging the responses to questions for 4 factors regarding the index child, including: concern for child's weight (3 questions), perceived child weight (3 questions), pressure to eat (4 questions), and restriction (8 questions). All questions were assessed with the use of integer options from 1–5. Each set of questions had their own scale; concern for child's weight evaluated levels of concern (1 = unconcerned, 5 = very concerned), pressure to eat and restriction evaluated agreement with the statement (1 = disagree, 5 = agree), and perceived child weight responses indicated the mother's thoughts on weight at differing times in the child's life (1 = markedly underweight, 5 = markedly overweight). The internal consistency of the CFQ is 0.70–0.92 (36). Index child age, child sex, maternal age, maternal ethnicity, maternal work status, and household income were covariates included for adjustment.

Descriptive statistics (frequencies and means ± SDs) were calculated. Independent associations of maternal stress, marital status, number of children, concern for child weight, and perceived child weight with controlling feeding practices (pressure to eat and restriction) were examined with the use of univariate linear regression. There were no covariates that significantly contributed to either controlling feeding practice, including child age, child sex, maternal age, maternal ethnicity, maternal work status, or household income ($P > 0.05$). Multivariate linear regression assessed the combined relation between maternal stress, number of children, marital status, and an interaction term [maternal stress score (0–48) multiplied by number of children in household (1–5)] with controlling feeding practices (pressure to eat and restriction). Maternal stress, number of children, marital status, concern for child weight, perceived child weight, and the interaction term were independent variables included in the model. Aside from maternal stress, number of children, and marital status, covariates and variables that were statistically significant ($P < 0.05$ for main effects, $P < 0.10$ for interaction term) in both of the multivariate models, with controlling feeding practices, were included in the confirmatory structural equation modelling (SEM). The rationale for including significant variables in either model was consistency. SEM was used as a confirmatory factor analysis and accounts for the unobservable "latent" variables used in the model (maternal stress, concern for child weight, perceived child weight, restriction, and pressure to eat), because these latent variables may have different measurement error than do the observed variables. The model was then tested for goodness of fit ($P < 0.05$) with indicators of good fit being a Root Mean Square Error of Approximation <0.05 and Comparative Fit Index >0.95. Variables included in the final model included were maternal stress, number of children, the interaction term, and concern for child weight. Because the interaction term was significant, additional linear regression models were conducted stratified by single-child and multiple-child households for controlling feeding practices to evaluate the differences between households.

TABLE 1 Descriptive characteristics, maternal stress, concern for child weight, perceived child weight, and controlling feeding practices of mothers of 2- to 5-y-old children in Oklahoma ($n = 278$)

Variables	Mean ± SD or %
Descriptive characteristics	
Child age, y	4.1 ± 2.2
Child sex, male	50.5
Maternal age, y	32.5 ± 5.1
Race/Ethnicity	
Caucasian	73
African American	5
Hispanic	6
Other/mixed	16
Employment	
Full-time	70
Part-time	13
Unemployed	12
Student	4
Household income, $	
≤19,000	3
20,000–49,000	30
50,000–100,000	37
>100,000	30
Number of children	
1	31
2	45
≥3	24
Marital status	
Married	85
Separated/divorced	5
Single	10
Maternal stress, concern for child weight, perceived child weight, and controlling feeding practices	
Stress score	14.8 ± 9.2
Stress category (score)	
Normal (0–14)	56
Mild/moderate (15–25)	28
Severe/extreme (26–48)	15
Feeding factors	
Concern for child weight[1]	1.78 ± 0.90
Perceived child weight[2]	2.94 ± 0.28
Pressure to eat[3]	2.46 ± 0.95
Restriction[3]	3.41 ± 0.76

[1]Scale of 1–5, with higher scores indicating more concern.
[2]Scale of 1–5, indicating (1) perceived child underweight to (5) perceived child overweight.
[3]Scale of 1–5, with higher scores indicating more frequent use of the controlling feeding practice.

Results

Descriptive results

Descriptive characteristics and mean values for maternal stress, concern for child weight, perceived child weight, and controlling feeding practices are shown in Table 1. In total 412 persons attempted the survey, although after removing persons who indicated they were male ($n = 20$) and those with incomplete responses ($n = 114$), 278 participants (67.4%) completed all measures (demographics, DASS, and CFQ). The majority of women indicated they were married (85%), Caucasian (73%), and employed full time (70%). Most mothers had 2 (45%) or ≥3 (24%) children. Most mothers were mildly concerned for child weight (1.78 ± 0.90), perceived that their child was normal weight (2.94 ± 0.28), used pressure with the child to eat moderately (2.46 ± 0.95), and often restricted food (3.41 ± 0.76). In general, the mothers felt their child was growing normally and were mainly not concerned about their child's weight status across his or her life stages.

TABLE 2 Crude and adjusted associations between maternal stress, number of children, marital status, concern for child weight, and perceived child weight with controlling feeding practices in mothers of 2- to 5-y-old children ($n = 278$)[1]

	Pressure to eat		Restriction	
Variables	**$\beta \pm$ SE**	***P* value**	**$\beta \pm$ SE**	***P* value**
Unadjusted				
Maternal stress	0.009 ± 0.006	0.11	0.01 ± 0.004	0.001*
Number of children	0.05 ± 0.06	0.34	0.03 ± 0.05	0.513
Marital status				
Married	Referent	Referent		
Separated/divorced	−0.24 ± 0.25	0.33	0.22 ± 0.205	0.26
Single	0.14 ± 0.19	0.47	−0.007 ± 0.156	0.96
Concern for child weight	0.13 ± 0.06	0.038*	0.23 ± 0.049	0.001*
Perceived child weight	−0.48 ± 0.19	0.013*	0.12 ± 0.160	0.45
Adjusted model				
Maternal stress	0.006 ± 0.01	0.66	0.04 ± 0.01	0.003*
Number of children	0.077 ± 0.11	0.48	0.24 ± 0.08	0.003*
Marital status				
Married	Referent		Referent	
Separated/divorced	−0.24 ± 0.24	0.33	0.18 ± 0.19	0.33
Single	0.14 ± 0.19	0.45	−0.10 ± 0.14	0.47
Stress × children interaction	−0.001 ± 0.05	0.98	−0.01 ± 0.05	0.005*
Concern for child weight	0.13 ± 0.06	0.043*	0.19 ± 0.05	0.001*
Perceived child weight	−0.50 ± 0.19	0.010*	0.10 ± 0.15	0.48

[1] All models assessed via linear regression. *$P < 0.05$, 2-tailed.

Mothers pressured children as much as they allowed children to regulate themselves, and restricted food some to most of the time.

Associations between maternal stress, family structures, child weight, and feeding practices

Crude associations between maternal stress, number of children, marital status, concern for child weight, perceived child weight, and controlling feeding practices are shown in **Table 2**. Maternal stress was significantly associated ($\beta = 0.01$, SE = 0.004, $P = 0.001$) with restriction. Number of children and marital status were not significantly related to restriction or pressure to eat. Concern for child weight was significantly associated with pressure to eat ($\beta = 0.13$, SE = 0.06, $P = 0.038$) and restriction ($\beta = 0.23$, SE = 0.04, $P = 0.001$). In individual associations, child weight perception was associated with pressure to eat ($\beta = -0.48$, SE = 0.19, $P = 0.013$), but not restriction. In multivariate models, child weight perception was not associated with both pressure to eat ($P > 0.05$) and restriction ($P > 0.05$); hence, it was omitted from the final model.

Multivariate models examining maternal stress, number of children, marital status, concern for child weight, perceived child weight, and the interaction term with both controlling feeding practices are shown in Table 2. In adjusted models, concern for child weight was the only independent variable to be associated with both pressure to eat ($\beta = 0.13$, SE = 0.06, $P = 0.043$) and restriction ($\beta = 0.19$, SE = 0.05, $P = 0.001$).

Confirmatory factor analysis

Taking the final models of pressure to eat and restriction as a guide, the SEM model was created. Because marital status can contribute to maternal stress (18), the SEM model was stratified by married ($n = 236$) and nonmarried ($n = 42$) to compare the change in coefficients of the separate models. There were no significant differences in model coefficients between married and nonmarried ($P > 0.05$) participants. The final SEM model included participants of all marital statuses. The final SEM results are shown in **Figure 1**. The model used mean-centered variables and exhibited appropriate fit (Root Mean Square Error of Approximation = 0.0326, Comparative Fit Index = 0.964, $\chi^2 = 289.9$, df = 224, $P = 0.001$). Concern for child weight was the only variable

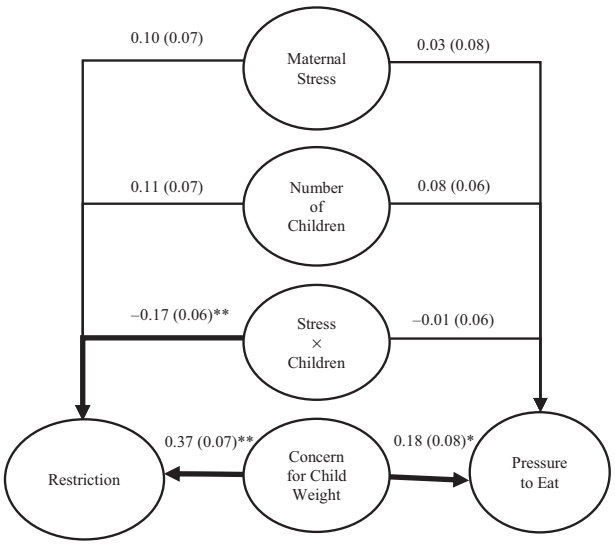

FIGURE 1 Structural equation modelling with the use of a latent variable model for maternal controlling feeding practices ($n = 278$). Values are presented as standard regression coefficients (β). Values in parentheses correspond to the SE. **$P < 0.01$, *$P < 0.05$, 2-tailed.

TABLE 3 Single-child and multiple-child home stratified associations between maternal stress, marital status, concern for child weight, perceived child weight, and controlling feeding practices in mothers of 2- to 5-y-old children ($n = 278$)[1]

	Pressure to eat		Restriction	
	$\beta \pm$ SE	*P* value	$\beta \pm$ SE	*P* value
Single-child households ($n = 86$)				
Maternal stress	−0.005 ± 0.01	0.68	0.031 ± 0.009	0.002*
Marital status				
Married	Referent		Referent	
Separated/divorced	−0.04 ± 0.47	0.92	0.05 ± 0.34	0.86
Single	0.22 ± 0.01	0.68	−0.11 ± 0.24	0.62
Concern for child weight	0.22 ± 0.12	0.06	0.19 ± 0.08	0.029*
Multiple-child households ($n = 192$)				
Maternal stress	0.010 ± 0.007	0.14	0.004 ± 0.005	0.40
Marital status				
Married	Referent		Referent	
Separated/divorced	−0.28 ± 0.30	0.35	0.30 ± 0.23	0.20
Single	0.08 ± 0.25	0.72	−0.007 ± 0.19	0.96
Concern for child weight	0.07 ± 0.07	0.31	0.21 ± 0.06	0.006*

[1]Assessed via linear regression. *$P < 0.05$, 2-tailed.

to contribute to both pressure to eat ($\beta = 0.18$, SE = 0.08, $P < 0.05$) and restriction ($\beta = 0.37$, SE = 0.07, $P < 0.01$). The interaction term significantly contributed to restriction ($\beta = -0.17$, SE = 0.06, $P < 0.01$). No other variables significantly contributed to the controlling feeding practices in the SEM model.

Accounting for the latency of variables in the SEM, certain relationships were maintained between maternal stress, concern for child weight, and the controlling feeding practices. Similar to the adjusted multivariate linear regression model, in the SEM model concern for child weight contributed to both pressure to eat and restriction. The interaction term of maternal stress and number of children significantly contributed to restriction in both the final multivariate linear model and the SEM model, but not pressure to eat. The interaction term contributing to a decrease in restriction is expected under the theory that multiple-child households have healthier behaviors. There may be differing feeding practices of restriction between mothers with 1 child in the household and mothers with multiple children in the household. The maternal stress and number of children interaction term contributed to a significant reduction in restriction. All other findings from the multivariate model were confirmed in the SEM model, including the lack of association between maternal stress, number of children, the interaction term, and pressure to eat.

With a significant interaction term, a final linear regression model was run separated by single-child and multiple-child households. There was no difference in restriction score (single child: 3.27 ± 0.81; multiple child: 3.44 ± 0.75, $P = 0.12$) or pressure to eat score (single child: 2.35 ± 1.0; multiple child: 2.47 ± 0.92, $P = 0.34$) between the 2 groups. As shown in **Table 3**, it was found that maternal stress did not contribute to restrictive feeding practices in multiple-child homes but did in single-child households ($P = 0.002$). When adding child weight perception into the model, the only change was that concern for child weight became a significant contributor ($\beta = 0.25$, SE = 0.12, $P = 0.043$) to the pressure to eat, which is similar to the unstratified models. When considering restrictive feeding practices, in multiple-child households maternal stress did not influence these feeding practices, but in single-child households maternal stress was significantly associated with restriction. Concern for child weight was associated with restriction in both types of household, but may only contribute to pressuring feeding practices in single-child households. Overall, there was no difference in controlling feeding practices between single-child and multiple-child households, but there are different factors that contribute to the mothers' controlling feeding practices depending on the number of children in the household.

Discussion

The findings confirmed that there is a collective influence of maternal stress, marital status, and number of children on maternal feeding practices. The number of children in the household may mediate the relationship between maternal stress and restrictive feeding practices. Moreover, mothers with more stress and more children exhibited less restriction. Marital status did not contribute to any feeding practice, including restriction and pressure to eat, even when assessed together with number of children and maternal stress. There may be a better way to capture the impact of caregivers in the household, such as examining the number of caregivers, which may include grandparents or other adults. Overall, it is important to consider the family environment, including number of children in the household, when working with mothers to prevent childhood obesity.

Consistent with previous research, maternal stress was associated with restriction (14–16). However, there were no associations between maternal stress and pressure to eat in our age group. In slightly older populations (5–7 y old), previous studies have that reported maternal depressive symptoms are related to pressure to eat (37) and stressful life events with parents pressuring children to eat (38), although we did not find any association with maternal stress and pressure to eat. Because restrictive feeding practices are associated with children who

have obesity (6), the lack of a significant association with pressure to eat may be because of the lower sampling of underweight children. Oklahoma has a higher obesity prevalence than the national average in the age range that we sampled (39); thus, there is a possibility that more children in the present study had obesity than reported, and more feeding restrictions may have occurred.

In addition, concern for child weight was associated with both obesogenic feeding practices, similar to others' findings (9, 34). Along with other research, perceived child weight was associated with pressuring feeding practices; however, contrary to previous findings, it was not associated with restrictive feeding practices (6). In follow-up analyses, the range of perceived child weight was 1.6–4.0, which represents categoric answers (1 = markedly underweight, and 5 = markedly overweight) to 3 questions about the perceived weight of the child in the first 5 y of life. The lack of association between perceived child weight and restriction may be because of social desirability bias among mothers who may not have wanted to report their child was markedly overweight, but may still practice restrictive feeding for their markedly overweight child. Because child weight data were not collected, there is also a possibility that children were not overweight or obese and the mothers would not be concerned about child weight. Further, it is well documented that parents tend to underestimate their child's own weight status, with parents of children that are overweight or obese commonly perceiving their child as normal weight (40). In older children it has been shown that parents who have multiple children have a lower chance of underestimation of child weight (41). In results stratified by single- and multiple-child households, there was no association between perceived child weight and restriction, suggesting that at this early age the mother's perception of their child's weight has not increased enough to warrant more restrictive practices (41).

Another important household factor is marital status, which was not found to be influential in this sample. Marital status was not associated with controlling feeding practices, alone or when evaluated together with maternal stress and number of children. This finding disputes previous evidence that suggests that households of married couples may have less controlling feeding practices (15, 17, 18). Participants in the current study were primarily married mothers (85%). Therefore, a more diverse sample of single and divorced or separated mothers may better elucidate any associations. Although marital status was not significant in any of the analyses, evaluating the parents in the household instead of marital status may prove beneficial in the future and parental structure is still an important factor to consider for maternal stress and the household environment.

In contrast to previous work, the number of children in the household did not contribute to restrictive feeding practices or pressure to eat (22). Increasing children in the household may not be the mechanism through which restrictive feeding practices change. The overall household environment of maternal stress, marital status, and multiple children may, however, influence restrictive feeding practices. In multiple-child households, maternal stress did not contribute to restriction. Therefore, the number of children may not drive controlling feeding practices, but overall the multiple-child household may allow for other factors to contribute to controlling feeding practices of restriction, compared with single-child households. This finding lends credence to the hypothesis that siblings serve as an additional caregiver, and can alleviate some of the parenting stress by monitoring children (28). The lack of associations with pressure to eat may be similarly because of the previously hypothesized low sampling of parents with underweight children in the present study. Because number of children was influential on maternal feeding practices and siblings may be seen as a composite of parental preferences, together these findings further strengthen the importance of parents in the household to establish healthy lifestyle behaviors for all children. More examination into the multiple-child household on maternal feeding practices and family nutrition is warranted to support this hypothesis.

Strengths and limitations of this study warrant discussion. Strengths include the use of previously established measures, i.e., the CFQ and the DASS. The use of SEM and latent variable modelling also allowed the latent characteristics of the data to be addressed in the analyses. However, most of the mothers who participated were married; therefore, a sample with more single and divorced/separated mothers may allow more variables to be addressed. The similarities in the sample also limit generalizability to other types of families. The present study did not include parent or child BMIs or physical activity, which are important factors in childhood obesity (3). Further, information on other family members, including fathers, siblings, and extended family, was not collected, although these other members could influence feeding practices. Finally, there was no family health or family function variable, which assumed the same family function within each group of marital status and number of children.

In future research, it would be beneficial to ask about the number of primary caregivers that live within the household along with the marital status of the mother. The number of caregivers may account for any grandparents or other family members who may help with child-rearing and ameliorate any stress associated with feeding the child. In addition, exploring the mealtime environment with multiple children compared with lone children may provide more insight into the interplay of stress, feeding practices, and family composition. Further, we did not collect information on whether the sibling was younger or older relative to the 2- to 5-y-old, but investigation into sibling dynamics (age difference, birth order, and relationship) may help elucidate their influence on feeding practices and the meal environment. Moreover, exploring the impact of number of children on healthy practices may be beneficial. In the present study, it was found that maternal stress did not contribute to restriction in multiple-child homes; however, it is not known whether having more children in the home leads to more healthy practices or decreases unhealthy practices. Accordingly, the present study was conducted in the United States and with a mainly educated and potentially urban population (inferred via household income estimates), factors which lead to support of the sibling as a caregiver hypothesis and healthier behaviors. However, the influence of number of children may lead to a different household environment in less developed countries or more rural areas compared with the current sample (27) and may support the sibling as a competitor hypothesis. Hence food security and socioeconomic status may better investigate the different influence of multiple children in the household.

In summary, it is important to account for the number of children in the household when addressing maternal stress and obesogenic feeding practices. In multiple-child homes, maternal stress was not related to restrictive practices, although single mothers are still at risk of restrictive

practices with more maternal stress. The number of children in the household may not protect against unhealthy feeding practices, but may contribute to an environment in which other factors contribute to restrictive feeding practices. Marital status did not contribute to either controlling feeding practice (restriction or pressure to eat), but is still an important factor when addressing the home environment. Working with mothers and families to reduce obesogenic feeding practices and create healthy environments for children to thrive and grow is vital.

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