

Reported and Observed Controlling Feeding Practices Predict Child Eating Behavior after 12 Months^{1–3}

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Abstract

Background: Controlling feeding practices are linked to children's self-regulatory eating practices and weight status. Maternal reports of controlling feeding practices are not always significantly related to independently rated mealtime observations. However, prior studies only assessed 1 mealtime observation, which may not be representative of typical mealtime settings or routines.

Objectives: The first aim was to examine associations between reported and observed maternal pressure to eat and restriction feeding practices at baseline (T1) and after ~12 mo (T2). The second aim was to evaluate relations between maternal and child factors [e.g., concern about child weight, child temperament, child body mass index (BMI)-for-age z scores (BMIz)] at T1 and reported and observed maternal pressure to eat and restriction feeding practices (T1 and T2). The third aim was to assess prospective associations between maternal feeding practices (T1) and child eating behaviors (T2) and child BMIz (T2).

Methods: A sample of 79 mother–child dyads in Victoria, Australia, participated in 2 lunchtime home observations (T1 and T2). BMI measures were collected during the visits. Child temperament, child eating behaviors, maternal parenting styles, and maternal feeding practices were evaluated at T1 and T2 via questionnaires. Associations were assessed with Pearson's correlation coefficients, paired *t* tests, and hierarchical regressions.

Results: Reported restriction (T1) was inversely associated with observed restriction at T1 ($r = -0.24$, $P < 0.05$). Reported pressure to eat (T2) was associated with observed pressure to eat (T2) ($r = 0.48$, $P < 0.01$) but only for mothers of girls. Maternal weight concern was associated with reported restriction at T1 ($r = 0.29$, $P < 0.01$) and T2 ($r = 0.36$, $P < 0.01$), whereas observed restriction (T1) was prospectively associated child BMI at T2 ($\beta = -0.18$, $P < 0.05$).

Conclusions: Maternal reports may not always reflect feeding practices performed during mealtimes; it is possible some mothers may not be aware of their practices or observations may not capture covert controlling strategies. *J Nutr* 2015;145:1311–6.

Keywords: childhood obesity, mealtime observations, controlling feeding, child eating, mother–child interactions

Introduction

The preschool years have been shown to be a critical period for the development of life-long eating habits; this is the time when mothers, who are usually the primary caregivers, are involved in socializing their children's attitudes toward food

and eating (1). Maternal feeding practices refer to the strategies parents use to shape their child's eating. Parents may guide their children's eating by exerting control, such as restricting how much their child eats or encouraging the child to eat more. Maternal controlling feeding practices (e.g., pressuring a child to eat, restricting the consumption of a particular food) are linked to childhood overweight/obesity because of their potential to hinder children's ability to develop adequate self-regulatory eating practices that would ordinarily be driven by natural hunger/satiety cues (2). Maternal controlling feeding practices also appear to be influenced by individual factors that children bring to the relationship with their parent, such as their ability, or the

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³ Supplemental Tables 1 and 2 are available from the "Online Supporting Material" link in the online posting of the article and from the same link in the online table of contents at <http://jn.nutrition.org>.

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mother's perception of their child's ability, to self-regulate food intake (3).

The Child Feeding Questionnaire (CFQ)⁷ (4) is a tool that is widely used to measure parental controlling feeding practices, including pressure to eat and restriction. *Pressure to eat* denotes parental enforcement of practices that aim to increase a child's consumption of food. Cross-sectional and longitudinal research has largely shown that maternal pressure to eat is correlated inversely with child eating and weight (4–8). These findings are consistent with experimental evidence (9). In contrast, *restriction* relates to parents limiting the quantity and frequency of child eating. Overall, cross-sectional and longitudinal research shows maternal restriction of child access to certain foods is associated positively with child weight (10–12) and with increased desire and intake of the foods when children have access to them (13). These findings are also consistent with experimental evidence (14, 15).

Most of the studies that have evaluated maternal feeding practices have used self-report measurement tools such as the CFQ (4). To our knowledge only 3 studies have compared maternal reports of feeding practices among preschool aged children with independent observations of parents' mealtime feeding behaviors (16–18). Haycraft and Blissett (16) found no significant associations between mothers' reports and observed feeding practices. However, their findings revealed that more mealtime pressure to eat was observed in parents with a higher BMI. Farrow et al. (17) showed maternal reports were poorly related to independent observations of controlling feeding practices; only mothers of underweight children were accurate in self-reporting their use of pressure compared with independent observations. Their study also revealed a significant inverse association between self-report and independent observation of restriction among mothers of overweight children. The results of these studies suggest that maternal and child weight may influence maternal reports of feeding practices (16, 17); it is possible that parents who provide inaccurate reports may not be aware of their controlling feeding practices or are providing socially desirable responses (17). This relation was also apparent in the study by Lewis and Worobey (18); even though reported and observed practices were not associated, the results showed maternal concern about child weight was correlated significantly with reported, but not observed, maternal restriction.

Although the findings of these 3 studies (16–18) did not reveal direct associations between reported and observed maternal feeding practices, only 1 meal was assessed, sample sizes were relatively small [$n = 23$ (16); $n = 56$ (17); $n = 20$ (18)], and mealtimes were not representative of participants' typical mealtime routines.

Moreover, they did not evaluate maternal or child factors associated with parents' controlling feeding practices. Research reviews that evaluated quantitative and observational studies (19, 20) of maternal feeding showed maternal controlling feeding practices were associated with parenting control, support, and demandingness (21–24); maternal eating and general psychopathology (22, 25–27); and socioeconomic status (28–31). Child factors associated with maternal controlling feeding practices include child temperament (3, 23, 27), parental concern about child weight (13, 32), child eating behaviors (27, 33), and gender (25, 30). Most of these studies were cross-sectional.

Hence, the overall focus of our study was to extend prior research that evaluated relations between reported and observed maternal controlling feeding practices by evaluating a larger sample of mother–child dyads across 2 time points, set ~12 mo apart. This study had 3 aims. The first aim was to compare reported and observed maternal feeding practices assessed during typical home-based mealtimes across 2 time points, at baseline (T1) and again after ~12 mo (T2). The second aim was to assess the relations between maternal and child factors at T1 (i.e., concern about child weight, parenting styles, child temperament, child BMI) and reported and observed maternal feeding practices at T1 and T2. The third aim was to evaluate the prospective associations that maternal and child obesity risk factors at T1 (i.e., controlling feeding practices, concern about child weight, parenting styles, child temperament, child BMI and child eating) have with child eating (T2) and child BMI (T2).

Methods

Participants

This study was conducted in Victoria, Australia, between 2010 and 2013 as part of a larger program of research funded by the Australian Research Council Discovery grant that explored the effect of parenting and parent–child interactions on preschool children's patterns of weight gain. The study was approved by the Deakin University Human Research Ethics Committee, and details pertaining to the recruitment of participants were previously published (8). At T1, the present study comprised 79 mothers of children aged between 2 and 5 y. Observations of 72 mother–child dyads were coded at T2 because 7 videos were excluded due to fathers being present.

Procedure

Self-report questionnaires and reply-paid envelopes were sent to participants over 2 different time points. The first questionnaire pack, containing demographic questionnaires, study measures, and a reply-paid envelope, was sent to participants at the commencement of the study (T1). ~12 mo later (T2), participants were mailed invitations to complete another questionnaire about their child's eating behavior and feeding practices (see Key outcome measures).

In addition, mother–child dyads were invited to take part in 2 filmed home observation visits (T1 and T2). This invitation was made via telephone with the use of a standardized script. The script provided information relating to the home observation procedure, such as the types of scenarios being filmed, but did not reveal any specific details that pertained to behaviors or practices being observed. If participants agreed to take part in the home observation, an appointment was made as part of the telephone call.

Two trained research team members were in attendance at the home visits, with one filming the session with the use of a Canon Australia HD Legria HFM300 video camera and the other recording real-time notes with the use of a clipboard and pen. Mother–child dyads were filmed during 60- to 90-min sessions comprising 3 scenarios: meal preparation, eating a lunchtime meal, and playing. During this time, mothers were asked to perform their typical mealtime routines and were not given any instructions pertaining to the types of foods or meal sizes to be served. At completion of the filming, mothers were invited to complete a short questionnaire designed to capture how much the home visit represented their typical mealtime routines and mother–child interactions. Mothers rated the typicality of the eating routine and mother–child interaction on a Likert scale that ranged from 1 (not typical at all) to 10 (extremely typical).

Key outcome measures

Maternal feeding practices. The Restriction (8 items) and Pressure to Eat (4 items) subscales of the CFQ (4) were administered at T1 and T2 to measure maternal feeding attitudes and behaviors by asking mothers to record their responses on a 5-point Likert scale (1 = disagree; 5 = agree) to questions such as “I intentionally keep some foods out of my child's

⁷ Abbreviations used: BMIz, BMI-for-age z scores; CFQ, Child Feeding Questionnaire; T1, at baseline; T2, after ~12 mo.

reach.” The Cronbach’s α value for pressure to eat at T1 was 0.67 and 0.70 at T2. The Cronbach’s α for restriction, after item 22 “I offer my child his/her favorite food in exchange for good behavior” was removed to improve internal consistency, was 0.67 at T1 and 0.81 at T2.

Observed maternal feeding practices. Four subscales [based on the CFQ and Family Mealtime Coding System (16)] were used to code verbal and nonverbal maternal pressure to eat and restriction feeding practices at T1 and T2 (Supplemental Table 1). HJB coded all the home visit observations. A second trained researcher coded 20% of the observations to establish inter-rater reliability; coding agreement across all the variables was excellent and ranged from 88% to 100%.

Concern about child weight. The Concern About Child Weight (T1) subscale of the CFQ (4) asked mothers to record their responses on a 5-point Likert scale (1 = unconcerned; 5 = very concerned) to questions such as “How concerned are you about your child becoming overweight?” The Cronbach’s α for concern about child weight was 0.82.

Child weight status. Child height and weight were collected by trained research staff during each home visit with the use of standardized anthropometry equipment. In addition, mothers were invited to report their child’s weight and height before the collection of objective measures. To classify children’s weight status (i.e., normal weight, overweight, or obese), child BMI-for-age z scores (BMI z) were computed according to the CDC criteria (34). This approach uses updated growth curves to provide age- and sex-specific cutoffs that are based on how children should grow in view of current health promotion norms. Objective child BMI measures collected during home visits were used in the analyses for all but 4 children who were unwilling to be measured or their mother did not wish for the child to be measured.

Child eating behaviors. The Food Fussiness (6 items) and Enjoyment of Food (4 items) subscales of the Children’s Eating Behavior Questionnaire (35) were completed at T1 and T2 to assess child eating behaviors. Mothers rated the extent to which statements relating to levels of enjoyment of food and openness to trying new foods depicted their child, such as “My child enjoys tasting new foods,” by using a 5-point Likert scale (0 = never; 4 = always). Cronbach’s α values for food fussiness and enjoyment of food were both 0.93 at T1 and were 0.93 and 0.91, respectively, at T2.

Maternal factors

Maternal weight status. Maternal height and weight were collected by trained research staff during each home visit with the use of standardized anthropometry equipment, and BMI was subsequently calculated (in kg/m²) at T1 and T2. In addition, mothers were invited to report their height and weight before the objective measures being collected. Maternal reports of BMI measures were included for 4 mothers who did not wish to be measured during the home visits.

Maternal parenting styles. The Warmth and Control subscales of the parenting style questionnaire from the Longitudinal Study of Australian Children (36) were included in the questionnaire pack at T1. The Warmth subscale measures how parents behave and respond emotionally to their child, whereas the Control subscale measures the extent to which parents provide their child with clear guidelines and expectations of how they should behave. Mothers were asked to record responses on a 5-point Likert scale (1 = never; 5 = all the time) to questions such as “How often do you hug or hold this child for no particular reason?” and “When you give this child an instruction or make a request to do something, how often do you make sure he/she does it?” In the present study, warmth had a Cronbach’s α of 0.84 and control of 0.71.

Child factors

Child difficult temperament. The Easy–Difficult subscale (high scores representing more difficult temperament) from the Short Temperament Scale for Children (STSC) (37) was used to measure child temperament traits at T1 by means of parental responses recorded on a 6-point Likert scale (1 = almost never; 6 = almost always) to questions such as “My

child cries when left alone to play.” The Short Temperament Scale for Children was based on the model of temperament developed by Thomas and Chess (38). The composite easy–difficult temperament scale was developed with 18 items from the 3 temperament dimensions: approach (shy vs. outgoing), cooperation/manageability (ease of adaptation to everyday events), and irritability (crying and fussing). Children with high scores tend to show more problems such as crying and sleep difficulties. The Cronbach’s α for easy–difficult temperament was 0.67.

Child meal duration. Meal duration was measured in minutes from the time a child took the first bite of food until his or her mother indicated that the child was not required to continue eating (e.g., mother accepted child did not wish to continue eating; child ate last bite and no further food was requested or offered).

Other covariates

Mothers were asked to report sociodemographic information, including their highest level of education achieved and annual family income.

Statistical analysis

Statistical analyses were conducted with SPSS 22.0 (SPSS Inc.). Pearson’s correlations were conducted to examine the relations between the T1 covariates (maternal educational achievement, family income, and maternal BMI), T1 predictors (child BMI z , child temperament, maternal concern about child weight, maternal warmth and control, maternal mealtime support, meal duration), and T1 and T2 outcome variables (reported and observed feeding practices, child eating behaviors, and child BMI z). A 2-tailed P -value of < 0.05 was considered statistically significant. Significant correlations were included in a series of hierarchical regressions to examine the associations between reported and observed maternal feeding practices (T1) and child eating behavior (food fussiness at T2 and enjoyment of food at T2) and child BMI z at T2. $P < 0.05$ was considered statistically significant.

In the regression model predicting child enjoyment of food at T2, covariates maternal education, child BMI z at T1, and child enjoyment of food at T1 were entered at step 1, maternal control and concern about child weight were entered at step 2, child difficult temperament was entered at step 3, and maternal observed and reported child feeding practices were entered at step 4; however, only 1 of the maternal feeding practices was assessed at a time so as not to lose power. With the exception of step 1, in which child food fussiness at T1 and child BMI at T1 were entered, all other steps remained the same for the second model predicting child food fussiness at T2.

For the third model predicting child BMI z at T2, child BMI z at T1 was entered at step 1; maternal parenting control and concern about child weight were entered at step 2; and child difficult temperament, child food fussiness at T1, and child enjoyment of food at T1 were entered at step 3 and individual reported and observed feeding practices as described for the first model.

Paired t test analyses for the mean values of reported and observed feeding practices at T1 and T2 were performed to evaluate the significance of the differences between scores across the time points.

Results

Characteristics of the 79 mother–child dyads are shown in Table 1. Most mothers’ mealtime routine and interaction typicality ratings were relatively high. At T1, 71 of the 79 mothers rated their mealtime routine and 69 rated their mealtime interaction as ≥ 7 (score range: 1–10) for typicality. At T2, 65 of the 72 mothers rated their routines and 62 rated their interactions as ≥ 7 . The only significant correlations between observed and reported feeding practices were the inverse relation between reported restriction at T1 and observed restriction at T1 ($r = -0.24$, $P < 0.05$). Further paired t test analysis showed the mean frequency of observed restriction decreased significantly between the first (15.5 ± 12.3) and second (7.87 ± 7.23) mealtime observation [$t(71) = 5.49$; $P < 0.001$]. Reported and observed

TABLE 1 Characteristics of the 79 mother–child dyads participating in the baseline home visits¹

Characteristic	Value
Maternal	
BMI classification ²	
Obese	11
Overweight	32
Healthy weight	36
Country of birth	
Australia	67
Europe	6
New Zealand	2
South Africa	2
North America	1
Asia	1
Annual family income	
>A\$145,001	11
A\$85,001–\$145,000	45
A\$45,001–\$85,000 ³	18
<A\$45,000	5
Tertiary qualification achieved	56
Child	
Age, y	3.09 ± 0.75
Sex (M/F)	36/43
BMI classification ⁴	
Obese	1
Overweight	17
Healthy weight	58
Underweight	3

¹ Values are *n* or mean ± SD.

² Based on adult cutoffs which classify a BMI (in kg/m²) of 25 as overweight and 30 as obese (39).

³ Recent data show the median Australian gross household income is ~A\$72,000 (40; the equivalent of ~US\$65,000 in 2014.).

⁴ Based on objective measures of child weight and height, age-appropriate BMI classifications (34).

pressure to eat at T2 was only positively and significantly correlated for the girls (*n* = 39 of 77) in the group (*r* = 0.48, *P* < 0.01). No other significant correlations were evident between the reported and observed maternal controlling feeding practices.

Child meal duration was significantly associated with observed restriction (*r* = 0.25, *P* < 0.05), observed pressure (*r* = 0.52, *P* < 0.01), and reported restriction (*r* = −0.25, *P* < 0.05) at T1. Maternal parenting warmth (*r* = 0.29, *P* < 0.01) and concern about child weight (*r* = 0.29, *P* < 0.01) were associated with reported restriction at T1.

Maternal parenting control was significantly inversely associated with observed (*r* = −0.31, *P* < 0.01) and reported (*r* = −0.036, *P* < 0.31) pressure to eat at T2, and maternal concern about child weight T1 was associated with reported restriction at T2 (*r* = 0.36, *P* < 0.01).

Maternal BMI at T1 was inversely associated with child food fussiness at T1 (*r* = −0.23, *P* < 0.05), and maternal concern about child weight was associated with child enjoyment of food at T1 (*r* = 0.29, *P* < 0.01). None of the T1 variables were significantly associated with child BMIz at T1. Significant T1 correlates of child food fussiness at T2, child enjoyment of food at T2, and child BMIz at T2 were found (Supplemental Table 2).

As shown in Table 2, both reported restriction and reported pressure at T1 were inversely and prospectively associated with child enjoyment of food at T2, whereas child enjoyment of food at T1 and child difficult temperament were positive correlates.

Apart from child food fussiness at T1, no significant prospective correlates of child food fussiness at T2 were found (Table 2). Observed restriction at T1 was positively and prospectively associated with child BMIz at T2. Child BMIz at T1 was also a positive correlate, whereas child difficult temperament was inversely and prospectively associated with child BMIz at T2 (Table 2).

Discussion

The first aim of this study was to assess relations between reported and observed maternal pressure to eat and restriction feeding practices at T1 and again at T2. The results of this study support previous findings showing that maternal reports of controlling feeding practices may not always be significantly associated with feeding practices performed during mealtimes (16–18). For restriction, the only significant association identified was the inverse relation between T1 measures of reported restriction and observed restriction during the first home visits (T1). This result is consistent with findings from Farrow et al. (17) which identified an inverse relation between observed and reported restrictive feeding practices among mothers of children who had a high BMI (1 SD above their mean). However, the inverse cross-sectional relation between reported (T2) and observed restriction was not evident during home visits 1 y later. Interestingly, mean observed restriction decreased significantly between the first (T1) and second (T2) mealtime observation. As children age, awareness of their parents' expectations about food and eating is likely to increase, and over time parents may gain confidence in their child's ability to respond to natural satiety

TABLE 2 Summary of hierarchical regression analysis for statistically significant variables that predict child enjoyment of food at T2, child food fussiness at T2, and child BMIz at T2¹

Variable	B	SE	β	R ²	ΔR ²
Predicting child enjoyment of food at T2					
Step 1				0.40	
Enjoyment of food at T1*	0.49	0.08	0.58		
Step 2	—	—	—	0.41	0.01
Step 3				0.45	0.04
Difficult temperament at T1**	0.06	0.03	0.22		
Step 4				0.48	0.04
Reported restriction at T1*	−0.09	0.04	−0.21		
Reported pressure at T1**	−0.15	0.07	−0.21		
Predicting child food fussiness at T2					
Step 1				0.59	
Fussiness at T1*	0.81	0.08	0.77		
Step 2	—	—	—	0.61	0.02
Step 3	—	—	—	0.62	0.01
Step 4	—	—	—	0.63	0.01
Predicting child BMIz at T2					
Step 1				0.41	0.41
Child BMIz at T1*	0.63	0.09	0.64		
Step 2	—	—	—	0.43	0.02
Step 3	—	—	—	0.49	0.07
Difficult temperament at T1**	−0.02	0.01	−0.24		
Step 4				0.53	0.03
Observed restriction at T1**	−0.17	0.08	−0.18		

¹ Only statistically significant results are shown. β = 1 SD change in predictor variable yields × change in the predicted variable, with the other variables held constant. **P* < 0.01; ***P* < 0.05. BMIz, BMI-for-age z scores; T1, baseline; T2, ~12 mo later.

cues. This could influence the degree of control that a parent feels he or she needs to exert over his or her child's eating. The time lapse may also allow mothers to develop other strategies, such as using covert methods to limit access to foods they want their children to avoid.

Reported and observed feeding practices at T2 were positively associated, but only for the mothers of girls in the group. Unlike restriction, the use of pressure to eat is typically more identifiable during observations because these practices tend to be overt. Research suggests that mothers may vary their feeding control according to child gender (41). It is possible that mothers of the girls in the group may be conscious of higher societal body shape expectations placed on females and therefore view their engagement in their daughters' eating as protective against unhealthy eating and weight. Moreover, mothers are more likely to project their own eating and weight concerns within mother-daughter relationships (25).

The present study evaluated whether the associations between maternal reports and observations would be significant if mealtime observations were conducted without the presence of fathers during home-based mealtimes. One other study required mothers and fathers to be present during mealtime observations (16). Mothers in the study reported eating significantly more meals with their children than fathers; therefore, the presence of fathers may have altered the feeding interaction of mothers (16). Two other studies conducted observations in laboratory settings (17, 18), which may not fully capture the mealtime interactions shared in naturalistic environments. Although most reported and observed feeding practices in our study were not significantly positively associated either, further research to observe the same group of mothers' feeding practices with and without the presence of fathers/co-parents is needed to confirm whether mothers perform equally under both conditions.

The second aim of our study was to assess relations between maternal and child factors (e.g., concern about child weight, child temperament, child BMIz) at T1 and reported and observed feeding practices at T2. The associations between observed pressure at T1 and meal duration align with prior research, which has identified an association between observations of maternal encouragement to eat and child eating time (42) as well as increases in the number of children's bites consumed beyond what they would have eaten unprompted (30). Mothers may also hold expectations about how long it should take a child to eat the meal. However, the relation with meal duration and observed pressure was no longer evident after 1 y, even though observed maternal use of pressure to eat appeared to be consistent over time. Moreover, children undergo rapid development changes during preschool years, allowing time to further develop their eating skills and become more accustomed to different types of food. Mother-child dyads may have also identified how to improve the flow of their mealtime routines. The present study's finding that shows a relation between maternal concern about child weight and reported use of restriction at T1 and T2 is consistent with Lewis and Worobey's (18) study comparing observed and reported maternal practices. It is also consistent with other research showing mothers who are concerned about their child's weight are more likely to report using restriction (13, 22, 45).

The third aim was to evaluate maternal (feeding practices, education, parenting control, concern about child weight) and child predictors (BMIz at T1 and difficult temperament) of child eating behaviors and BMIz at T2. Consistent with prior research (12), the observed use of restriction at T1 predicted child BMIz at T2. Given that reported restriction at T1 and T2 was

associated with concern about child weight, one would expect that parental reports of concern about child weight might also predict child BMIz at T2. However, research shows parents' concern about child weight is not always aligned with their child's actual weight (44). Further research is needed to determine whether these parents' concerns about their child's weight are based on actual child weight or concerns about their child's propensity to gain excess weight.

Apart from T1 measures of child BMIz, child difficult temperament was the only significant predictor of child BMIz at T2 and was inversely related to child BMIz at T2. This finding was not consistent with other research showing positive associations between child difficult temperament, child weight status, and parents' use of food to calm their child (45). Research suggests that children perceived to have "difficult" temperament styles may learn from a young age to associate positive emotions with eating (45). Therefore, it was not surprising that in our study child difficult temperament predicted child food enjoyment at T2. These contradictory findings may suggest that some mothers in our study may implement non-food-related parenting strategies to deal with children's difficult temperament. The intentional use of non-food-related parenting techniques may also help to explain the inverse relations between maternal parenting control and both observed (T2) and reported (T2) pressure. Therefore, the interaction between parenting approaches (e.g., quality of mother-child relationship; parent vs. child-centered agenda) and child characteristics (e.g., temperament, eating behavior) may underpin the extent to which mothers use controlling feeding practices and their subsequent interference with children's ability to self-regulate during eating.

Although performing home-based mealtime observations of relatively larger samples over 2 time points was a strength of this study, we did not evaluate what children had eaten before the visit, their levels of hunger before commencing the meal, or the energy content of the food eaten. Assessing these factors may help to further explain why some mothers use certain controlling feeding practices. Even though we collected mealtime typicality ratings after each observation, we cannot be entirely certain that mothers did not alter their practices in the presence of researchers.

The underrepresentation of mothers and children with overweight and obese BMI, difficult temperament, and low socioeconomic groups is a significant limitation. Therefore, these results may not be generalizable to broader populations. Future work should aim to recruit more diverse groups of participants.

The present study considers both parent and child characteristics that may influence their mealtime interactions; however, it does not comprehensively capture the mutual levels involved in bidirectional mother-child relationships (e.g., mutual responsiveness) nor parenting styles exclusively from a feeding perspective (19). Future childhood obesity research should aim to evaluate parent feeding and mealtime observations with the use of measures that have the capacity to assess levels of mutual dimensions involved in mother-child dyadic interactions (19). Future work should also aim to assess whether mothers are aware of discrepancies between their reported and observed practices and their motivations/cognitions underpinning practices performed during mealtimes.

In conclusion, observed maternal feeding practices may not always be significantly positively associated with maternal reports because some practices may either be covert (e.g., restricting intake of undesirable foods by not purchasing them) or mothers may not be aware of their practices or their awareness of practices may vary according to the child's sex. Future research should aim to assess the influence that the

mother and child have on each other and the extent to which these bidirectional interactions are associated with mealtime practices.

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HJB was responsible for the study design and data analysis and wrote the paper; HS contributed to the design and management of the larger research project from which part of the data was obtained. All authors provided intellectual input into the paper and directly participated in the execution and writing of this study. All authors read and approved the final manuscript.

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