

Mealtime Structure and Responsive Feeding Practices Are Associated With Less Food Fussiness and More Food Enjoyment in Children

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ABSTRACT

Objective: To identify associations between structure-related and non-responsive feeding practices and children's eating behaviors.

Design: Cross-sectional online survey design.

Participants: Parents (n = 413) of 1- to 10-year-old children.

Main Outcome Measures: Parental feeding practices and child eating behaviors were measured via the validated Feeding Practices and Structure and Children's Eating Behaviour questionnaires.

Analysis: Associations between parental feeding practices and children's eating behaviors were tested using hierarchical multivariable linear regression models, adjusted for covariates.

Results: Feeding practices accounted for 28% and 21% of the variance in food fussiness and enjoyment of food, respectively ($P < .001$). For all other eating behaviors the amount of variance explained by feeding practices was $< 10\%$ ($P < .001$). Key findings were that more structure and less non-responsive practices were associated with lower food fussiness and higher enjoyment of food.

Conclusions and Implications: Overall, the findings suggested that mealtime structure and responsive feeding are associated with more desirable eating behaviors. Contrary to predictions, there was no evidence to indicate that these practices are associated with better self-regulation of energy intake. Longitudinal research and intervention studies are needed to confirm the importance of these feeding practices for children's eating behaviors and weight outcomes.

Key Words: feeding practices, child, eating behavior, responsive feeding, parent, self-regulation, mealtime (*J Nutr Educ Behav.* 2016; ■:1-8.)

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INTRODUCTION

Parents have a key role in the development of their child's dietary preferences and eating behaviors. Parents determine which foods are available and how children are fed.¹ Eating behaviors established in childhood

can persist into adolescence and adulthood, with implications such as continued fussiness and poor dietary variety^{2,3} or high responsiveness to food cues and increased obesity risk.⁴ Although eating behaviors and child weight are difficult to modify directly, parental feeding practices are poten-

tially a good target for interventions to prevent unhealthy eating patterns and overweight in children.⁵

Parental feeding practices refer to the behavioral strategies a parent uses to control how much, what, when, and where a child eats.¹ Early parental feeding practices have the potential to support or undermine children's ability to self-regulate their energy intake.⁴ The Trust Model proposes that providing a structured mealtime environment and using responsive feeding practices will have a protective effect on maintaining this self-regulation ability.⁶ Responsive feeding involves identifying and appropriately responding to the child's satiety and hunger cues.⁴

Whereas a range of feeding practices have been examined, most researchers have focused on controlling feeding practices such as restriction or pressuring the child to eat.⁷ These feeding practices are considered to be non-responsive in that they may override a child's ability to eat according to

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internal hunger and satiety cues, which may induce the child to overeat and may potentially lead to childhood overweight.⁸ Using food to reward the child for eating a particular food or in response to behavior is also considered a non-responsive feeding practice and can result in increased preference for the reward food and decreased preference for the food that was initially promoted.^{9,10} Although parents may use these feeding practices with the intention of promoting a healthy and balanced intake, cross-sectional evidence indicates that children whose parents use non-responsive feeding practices are more likely to be fussy eaters, display emotional eating behaviors, and respond to external food cues.¹¹⁻¹⁶ This cross-sectional evidence does not imply causality and the relationship between parent feeding practices and children's eating behaviors is likely to be bidirectional.¹⁷

There has been little research into the role of the structured mealtime environment despite suggestions that providing a structured feeding environment is a key component in promoting the development of healthy eating patterns in children.^{6,8} A structured mealtime environment includes providing a routine in terms of location, timing, reduced distractions, and family presence at the table. The presence of this structure is proposed to help children attend and respond to hunger and satiety cues, which may help maintain their self-regulatory capability. Studies that assessed the structured mealtime environment used a range of tools and outcome measures including eating behaviors, dietary intake, and child weight. The initial validation study of the Feeding Practice and Structure Questionnaire (FPSQ) in a sample of 462 mothers of 2-year-old children found associations that confirmed the theorized positive relationship between structure-related feeding practices and children's eating behaviors, with structured meal setting (SMS) and family meal setting (FMS) positively associated with enjoyment of food and negatively associated with emotional eating and fussiness.¹⁴

Because parental feeding practices are potentially modifiable, identifying practices that are associated with healthy eating behaviors will allow development of child feeding interventions to improve dietary intake patterns and reduce obesity risk. If

provision of structure proves to be associated with healthy eating behaviors, this can provide a practical focus for interventions. Therefore, the aim of this study was to identify associations between structure-related and non-responsive feeding practices and children's eating behaviors in a sample of 1- to 10-year-old children.

METHODS

Participants

Participants were mostly biological parents (99%) of children aged 1–10 years ($n = 413$), recruited through social media Web sites including Facebook, parenting forums, and university staff and student e-mail distribution lists. Eligible parents were aged > 18 years and had computer access to the Internet and the ability to fill out a questionnaire in the English language. Participants were not eligible if their child had a diagnosed congenital abnormality or chronic condition likely to influence normal development. In total, 628 participants commenced the online survey, 12 of whom were parents of the same child (6 couples). Two participants did not have a child within the specified age range, and a further 213 were excluded owing to missing data on the key variables included in the current study. Meaningful comparison between those included and excluded was not possible because many of those excluded provided few data (for instance, 73 participants did not proceed past the first question of the survey). Approval was obtained from the Queensland University of Technology Human Research Ethics Committee.

Measures

Parental feeding practices. The researchers measured non-responsive and structure-related parental feeding practices using the revised FPSQ, the FPSQ-28.¹⁸ The FPSQ-28 contains 28 items loading onto 7 factors and an additional single-item indicator of FMS (My child eats the same food as the rest of the family). In line with the focus of the current study, the 3 non-responsive feeding factors (reward for behavior [eg, I offer my child his or her favorite foods in exchange for good behavior: Cronbach's alpha for previous study $\alpha_p = .80$; current study $\alpha_c = .80$], reward for eating [RE] [eg, I

use desserts as a bribe to get my child to eat his or her main course: $\alpha_p = .84$; $\alpha_c = .91$], and persuasive feeding [PF] [eg, If my child says "I'm not hungry" I try to get him or her to eat anyway: $\alpha_p = .75$, $\alpha_c = .79$]), the 2 structure-related factors (SMS [eg, I insist my child eats meals at the table: $\alpha_p = .68$; $\alpha_c = .75$] and structured meal timing [eg, I decide when it is time for my child to have a snack: $\alpha_p = .57$; $\alpha_c = .62$]) and the single-item indicator (FMS) were selected. The overt restriction and covert restriction factors were not included in the analysis. Item response options were a 5-point Likert scale (range, 1–5) from never to always, or disagree to agree. Mean scores for each factor were calculated. The FPSQ-28 was validated for use in Australian first-time mothers of children at ages 2, 3.7, and 5 years¹⁸ and in the current sample of 1- to 10-year-olds (E.J., unpublished data, 2016). Internal reliability estimates for FPSQ factors were within the acceptable range in this sample (ie, $>.70$)¹⁹ with the exception of structured meal timing ($\alpha = .62$). This factor was retained; however, the lower reliability of this factor should be considered when interpreting the results.

Children's eating behaviors. The Children's Eating Behaviour Questionnaire (CEBQ)²⁰ is a validated and widely used 35-item tool to assess 8 eating behavior factors. The CEBQ was validated in a range of populations, including a multiethnic Australian sample of mothers with children aged ≥ 1 year.²¹ In the current sample, internal consistency for each factor was as follows: satiety responsiveness ($\alpha = .76$), slowness in eating ($\alpha = .83$), food fussiness ($\alpha = .92$), emotional under-eating ($\alpha = .76$), food responsiveness ($\alpha = .77$), enjoyment of food ($\alpha = .88$), desire to drink ($\alpha = .87$), and emotional overeating ($\alpha = .77$). Items were measured on a 5-point Likert scale (range, 1–5) from never to always. Mean scores for each factor were calculated.

Covariates

Parents reported their own and their child's gender and age, their education level (dichotomized into university degree or none), marital status (married/

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