



## Research report

## Sibling eating behaviours and differential child feeding practices reported by parents

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## ABSTRACT

The purpose of this study was to investigate the intra-familial relationships between parental reports of feeding practices used with siblings in the same family, and to evaluate whether differences in feeding practices are related to differences in siblings' eating behaviours. Eighty parents of two sibling children completed measures assessing their feeding practices and child eating behaviours. Parents reported using greater restrictive feeding practices with children who were fussier and desired to drink more than their sibling. Parents reported using more pressure to eat with siblings who were slower to eat, were fussier, emotionally under-ate, enjoyed food less, were less responsive to food, and were more responsive to internal satiety cues. Restriction and pressure to eat appear to be part of the non-shared environment which sibling children experience differently. These feeding practices may be used differently for children in the same family in response to child eating behaviours or other specific characteristics.

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Parents and caregivers have an important influence upon their children's eating, and the use of excessive control around feeding and food has been associated with children's food preferences and weight (Ventura & Birch, 2008). Though most research in this area has been cross-sectional, making it difficult to discern causation, controlling feeding practices have been linked with a reduced preference for food that is pressured or forced, and an increased preference for food that is withheld or restricted (Fisher & Birch, 1999; Fisher, Mitchell, Smiciklas-Wright, & Birch, 2002). Longitudinal research has shown that these feeding practices can also predict children's weight gain and weight loss (Farrow & Blissett, 2006, 2008), with parental pressure to eat at age 5 predicting lower child Body Mass Index (BMI) scores at age 7, and parental use of restrictive feeding practices at 5 years predicting greater child BMI at age 7 after controlling for the child's weight at age 3 (Faith et al., 2004). In theory, parental use of controlling feeding practices impacts child weight and eating behaviour by desensitising children to their internal cues of satiety, making them less able to self-regulate their intake of food (for a review, see Faith et al., 2004).

It is important to understand the factors that lead parents to use these counterproductive strategies when feeding their children.

Research suggests that parents may report using controlling feeding practices in response to characteristics of each sibling: parents have been shown to report using more pressure to eat with children who weigh less (Brann & Skinner, 2005; Francis, Hofer, & Birch, 2001), or who are more negative at mealtimes (Blissett & Farrow, 2007), and to use more restriction and monitoring when they are concerned about their children overeating or being overweight (Musher-Eizenman, Holub, Hauser, & Young, 2007; Tiggemann & Lowes, 2002). Research also suggests that parental use of controlling feeding practices may result from characteristics of the parent which are independent of the child. Parents who use more controlling feeding practices have been shown to report using a more authoritarian parenting style in general (Hughes, Power, Orlet Fisher, Mueller, & Nicklas, 2005), suggesting that the use of control during feeding may be part of a broader method of parenting. Moreover, social, cultural, and personality factors have been shown to predict feeding practices (e.g., Duke, Bryson, Hammer, & Agras, 2004; Taveras et al., 2004).

It is most likely that controlling feeding practices result from an interaction between parent and child characteristics. This bi-directional approach to understanding eating behaviour can be interpreted using Ecological Systems Theory (EST) (Davison & Birch, 2001). EST explains development as a web of interactions between an individual and the environment. An important aspect of the theory is that the individual and various components of his or her environment continually influence one another. This

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interaction complicates studies that attempt to elucidate risk factors for the use of parental control. Generally, research assessing the factors that predict feeding practices have used designs focused on one child per family, therefore not accounting for within-family factors that may influence parental feeding practices or genetic–environmental interactions (Faith, 2005; Ventura & Birch, 2008).

Twin and sibling designs can help us to understand these differences by reducing the variability of environmental factors such as food availability, ethnicity, socioeconomic status, and parental weight in order to reveal the extent to which feeding practices reflect general parenting or are a response to child characteristics. In one study that focused on sibling pairs discordant for obesity, researchers reported more between-family variability in maternal control than within-family variability, suggesting that mothers' use of control during feeding is not as strongly influenced by differences between the weights of sibling children (Saelens, Ernst, & Epstein, 2000). In addition, in another study using twin pairs comparing obese and non-obese mothers, Wardle, Sanderson, Guthrie, Rapoport, and Plomin (2002) found that there were almost no significant relationships between child BMI and maternal feeding styles, suggesting that feeding styles neither cause nor are in response to child weight.

Other research, however, suggests that parents do adapt their use of control when feeding their children when there may be reason to be more or less concerned about one sibling's eating. For example, O'Neill, Shults, Stallings, and Stettler (2005) found that mothers report using higher levels of restrictive feeding practices with a child who has Downs syndrome compared to their sibling who does not, and that this relationship is accounted for by the heavier weight of the child with Downs syndrome. Furthermore, in a recent sibling pilot study, Keller, Pietrobello, Johnson, and Faith (2006) found that certain types of parent-reported beliefs and practices assessed using the Child Feeding Questionnaire (CFQ) showed significant familial correlations (perceived responsibility, perceived child overweight, and monitoring) whilst parental reports of using other feeding practices were related to differences in sibling weight (pressure to eat, restriction, and concern about child weight), indicating that parents report modifying these feeding practices according to differences in their children's weights.

Keller et al. (2006) found that parents reported significantly greater concern for child weight and less pressure to eat for their heavier child, and that they tended to restrict the eating of their heavier child more, suggesting that concern, pressure, and restriction form part of the non-shared environment. Parents may not only report adapting their feeding practices for siblings in response to their weight, they may also make comparisons between siblings and be responsive to differences in the siblings' eating habits. It is possible that parents may express more concern about one of the siblings if he or she is a fussier eater compared to his or her sibling, whilst parents may use more pressure with one child in the family who eats less, and more restrictive feeding practices with a child who eats more.

The aim of this study is to extend the pilot study of Keller et al. (2006) using a larger sample to establish intra-familial correlations of parent-reported feeding practices with sibling children. A further aim of this study is to establish whether differential feeding practices are related to differences in siblings' feeding problems. Previous research has suggested that parents report using more controlling feeding practices when they have specific feeding difficulties with their children (Blissett & Farrow, 2007), however research has not yet evaluated how parental control may be related to feeding problems that are different amongst sibling children.

Using Keller et al.'s (2006) findings as a basis for the current research, it was hypothesised that within-family correlations for perceived feeding responsibility, perceived child weight, and monitoring would show relatively greater effect sizes compared

to concern for child weight, pressure to eat, and restriction, variables that may be more influenced by child characteristics. It was also hypothesised that parents would report more concern about weight and would use more restriction with children who had feeding problems linked to over-eating. It was hypothesised that parents would report using more pressure to eat with children who were fussier eaters or had feeding problems relating to under-eating.

## Methods

### Participants

In total 80 parents of at least two sibling children ( $N = 160$ ) took part in this study. A screening question in the questionnaire asked parents 'Have either of your children ever been hospitalised, if so please give details'. Data sets were excluded where parents answered yes to this question and reported the reason for hospitalisation to be food or eating related (e.g., Celiac Disease). Participation was not restricted according to parent or child weight.

### Procedure

Five hundred questionnaires were distributed to parents of children aged 3–6 years through schools and nurseries located in the central region of England. Each pack contained a detailed information sheet, consent form, questionnaire and pre-paid envelope to return the questionnaire confidentially to the researcher. Parents were invited to complete the questionnaire if they had two or more children: the child at the target school/nursery (aged 3–6 years) and a sibling no more than 3 years in age apart to minimise the effects of age upon child eating. Where parents had more than two children in this age range they were asked to answer the questions for the child who gave them the questionnaire and the nearest sibling in age to that child. Eighty-eight parents originally responded, of whom eight did so concerning an infant (aged  $\leq 1$  year). These 8 were excluded from the study as the questionnaires used have not been validated for use with infants, and the feeding problems presented during infancy, such as the transition to eating solid foods, are unique. This left a final sample size of 80 families (78 mothers, 2 fathers<sup>1</sup>) yielding a response rate of 18%, however it is not possible to know how many parents disregarded the questionnaires because they had 1 child, or their child's sibling(s) were not within the specified age range. Ethical permission for this study was granted from the University Psychology Research Ethics Committee and all ethical guidelines concerning the use of human volunteers were followed during this research.

### Measures

Each questionnaire pack contained a demographics questionnaire in which parents reported the siblings' genders, birth dates, weights, and heights. Parents were asked to indicate the siblings' weights and heights only if they had accurate scores and not to guess or estimate measures. Children's weights and heights were converted into BMI z scores using *Child Growth Foundation Package* (1996) which standardizes child BMI according to exact child age and gender based on U.K. norms developed by Freeman et al. (1995) and Cole (1995). Parents also described their age, occupation, ethnicity, their history of education and self reported their height and weight which was converted into BMI scores (weight in kilogram/height in meters<sup>2</sup>). Parents then completed the following measures twice (once for each child):

<sup>1</sup> Data analysis was repeated using only mothers (i.e., excluding fathers) and the results were not significantly different from those reported here.

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