



Research report

Relationship between parental feeding styles and eating behaviours of Dutch children aged 6–7

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ABSTRACT

The present study assessed the relationship between parental feeding styles and dietary intake behaviours of Dutch children aged 6–7. Associations between feeding styles and dietary behaviours of the parents were also examined. We translated the validated 'Parental Feeding Style Questionnaire' and evaluated its factor structure. A cross-sectional survey was completed by one of the parents of 135 children. Results indicated considerable similarity of factor structure, internal reliability and between-subscale correlations with the original instrument. The parental feeding dimensions of 'instrumental feeding' (i.e. using food as a reward) and 'emotional feeding' (i.e. feeding in response to children's emotional distress) were positively related to children's snacking behaviour. The feeding style 'encouragement to eat' was negatively associated with children's snacking behaviour. Various feeding styles were found to be related to parental dietary behaviours. Findings indicate the importance of acknowledging parental feeding styles in future research efforts as well as in the development of family-based interventions promoting healthy eating habits among children.

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Introduction

The key role that parents play in the development of obesity-inducing eating habits in their offspring is a topic of increasing interest worldwide (Golan & Crow, 2004). Several dietary behaviours have been shown to contribute to excessive weight gain in children. Obesity-inducing behaviours include the consumption of sugar-rich and energy-dense snacks (e.g., Jebb, 2005), and sugar-sweetened drinks (e.g., James & Kerr, 2005; Ludwig, Peterson, & Gortmaker, 2001; Vartanian, Schwartz, & Brownell, 2007). On the contrary, fruit consumption (Lock, Pomerleau, Causer, Altmann, & McKee, 2005; Tohill, Seymour, Serdula, Kettel-Khan, & Rolls, 2004) and daily breakfast consumption (Dubois, Girard, Potvin Kent, Farmer, & Tatone-Tokuda, 2008; Ortega et al., 1998; Rampersaud, Pereira, Girard, Adams, & Metz, 2005; Ruxton & Kirk, 1997) have been found to be associated with having a healthy body weight. Given the persistence of obesity and related comorbidities in later life, leading international institutions such as the World Health Organization (2000) and the International Obesity Task Force (Lobstein, Baur, & Uauy, 2004) have set the

prevention of weight gain at early age as a priority. These institutions call for research into the influence of specific parenting practices on children's health behaviours.

Wardle, Sanderson, Guthrie, Rapoport and Plomin (2002) designed an instrument, the Parental Feeding Style Questionnaire (PFSQ), to assess four aspects of feeding style (i.e. instrumental feeding, control, encouragement to eat, and emotional feeding). The PFSQ is one of the few psychometrically sound tools available to assess parental feeding styles (Wardle et al., 2002). The instrument was developed and validated in the United Kingdom, and has proved to possess adequate to good internal consistency (Cronbach's alpha ranging from 0.67 to 0.83) and excellent 2-week test-retest reliability ($r = 0.76-0.83$) (Wardle et al., 2002).

To date, each of the four aspects of parental feeding styles applying various instruments have been examined in relation to variations in children's eating behaviours and weight status. For instance, an experimental study demonstrated that parents' use of the instrumental feeding style (i.e. using food as a reward) has an impact on children's food preferences; using a particular food as a means to get the reward (in this case another snack product) leads to a devaluation of the means food relative to the reward snack, implying that a child's preference for healthy snacks could decrease (Newman & Taylor, 1992). Moreover, other studies also reported that requiring children to eat a food in order to get a

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reward has been shown to reduce a child's liking for that food (e.g., Birch, Birch, Marlin, & Kramer, 1982; Birch, Marlin, & Rotter, 1984). Using foods as rewards for regulating a child's behaviour have been shown to increase children's preferences for these products (Birch, Zimmerman, & Hind, 1980). However, a few studies found contradictory results regarding the effects of instrumental feeding on child's preferences and behaviour (Horne et al., 2004; Lowe, Horne, Tapper, Bowdery, & Egerton, 2004; Moore, Tappen, & Murphy, 2007). Regarding the influence of the instrumental feeding scale of the PFSQ on children's weight status, Carnell and Wardle (2007) failed to find an association with children's adiposity at the ages of three to six. Musher-Eizenman and colleagues (Musher-Eizenman, De Lauzon-Guillain, Holub, Leporc, & Charles, 2009) reported that using food as a reward for child behaviour was positively related to child Body Mass Index (BMI) in the United States, but was inversely related to child BMI in France.

Mixed results regarding the impact of feeding styles on children's dietary behaviours and ultimately weight status were also reported for parental use of controlling feeding styles. Following parental restriction, a child's preferences for the forbidden foods have been shown to increase (Fisher & Birch, 1999a, 1999b; Jansen, Mulken, & A. Jansen, 2007; Liem, Mars, & De Graaf, 2004), even in the absence of hunger. This may clarify the finding that parental restriction of highly palatable snack foods has been found to be related to higher levels of eating (e.g., Birch, Fisher, & Davison, 2003; Faith, Scanlon, Birch, Francis, & Sherry, 2004; Fisher & Birch, 1999a, 1999b; Musher-Eizenman & Holub, 2006), and excessive weight gain among children (e.g., Faith, Berkowitz, et al., 2004; Faith, Scanlon, et al., 2004). In contrast, other studies found that controlling feeding styles were not linked to children's intake of energy-dense foods (e.g., Montgomery, Jackson, Kelly, & Reilly, 2006), children's BMI (e.g., Brann & Skinner, 2005; Carnell & Wardle, 2007; Haycraft & Blissett, 2008; Montgomery et al., 2006) or body fatness (Spruijt-Metz, Lindquist, Birch, Fisher, & Goran, 2002). Others reported that parental control was inversely related to children's intake of snack foods and soft drinks (Gubbels et al., 2009) or children's adiposity (e.g., Robinson, Kiernan, Matheson, & Haydel, 2001).

Studies examining parental prompting to eat in relation to children's eating behaviour and weight status are relatively sparse and have reported contradictory findings. Small positive correlations between the PFSQ scale of encouragement and children's BMI of first-borns have been found, suggesting that parents of thinner children reported less prompting (Wardle et al., 2002). Drucker, Hammer, Agras, and Bryson (1999) reported that more maternal prompting to eat has been related to increased intake of calories among young children. In contrast, Vereecken and colleagues (Vereecken, Legiest, De Bourdeaudhuij, & Maes, 2009) showed that parental encouragement through negotiation had a positive impact on dietary habits among sixth graders, and increased the likelihood of vegetable consumption. In addition, maternal encouragement to promote the intake of a variety of foods and healthy foods was found to be related to lower child BMI (Musher-Eizenman et al., 2009). However, others found no association between prompts to eat and children's weight status (e.g., Carnell & Wardle, 2007; Koivisto, Fellenius, & Sjöden, 1994).

Regarding the fourth, and final, dimension of parental feeding style, emotional feeding, only few studies have been conducted to examine its impact on child dietary behaviour and weight status. Two studies found no relationship between the PFSQ dimension of emotional feeding and children's BMI (Carnell & Wardle, 2007; Musher-Eizenman et al., 2009). At best, the relation between parental feeding styles and eating behaviour and overweight of children is inconsistent.

Studies examining parental feeding styles in relation to eating behaviours of parents are relatively sparse (Birch & Fisher, 2000;

De Lauzon-Guillain, Musher-Eizenman, Leporc, Holub, & Charles, 2009; Fisher & Birch, 1999a, 1999b; Francis, Hofer, & Birch, 2001; Tiggemann & Lowes, 2002; Ventura & Birch, 2008). Results of those studies showed that restrained eating among parents is linked to parental use of restriction as a feeding style (Birch & Fisher, 2000; De Lauzon-Guillain et al., 2009; Fisher & Birch, 1999a, 1999b; Francis et al., 2001; Tiggemann & Lowes, 2002). Other studies have found that using food for non-nutritive purposes, including emotional feeding (Wardle et al., 2002) and using food as a reward (De Lauzon-Guillain et al., 2009), were positively associated with parental emotional eating. Additionally, external eating among mothers was characterised by higher levels on the instrumental feeding scale in the study of Wardle and colleagues (2002). Studies regarding the relationship between feeding styles and specific dietary behaviours of parents (e.g., snacking, soft drink consumption, fruit consumption and breakfast consumption) are currently lacking.

Whereas many studies measuring parental feeding styles have mainly focused on examining the association with children's BMI (e.g., Carnell & Wardle, 2007; Haycraft & Blissett, 2008; Montgomery et al., 2006; Wardle et al., 2002), the current study aimed to assess a comprehensive set of dietary behaviours as more proximal predictors of children's adiposity. The aim of the present study was 3-fold. First, we translated the PFSQ and evaluated its factorial validity and psychometric characteristics in a Dutch sample of 6- and 7-year olds. Second, we assessed associations of parental feeding styles with eating behaviours of children aged 6 to 7. Third, we examined associations of parental feeding styles with actual parental dietary behaviours.

Methods

Procedures and participants

Seven primary schools in the town of Maastricht and its surrounding area (the Netherlands) agreed to take part in this study. In total, 334 questionnaire packages were distributed among parents of 6- and 7-year-old children at these schools. This package included the PFSQ and items assessing children's and parental snacking behaviour, soft drink consumption, fruit consumption and breakfast consumption. We received 140 completed questionnaires (41.9%). The response rate per school ranged from 15.0 to 60.7%. Five children were excluded, because the parents did not have Dutch nationality. Parents could decide which of the parents completed the questionnaire. Most often mothers completed the questionnaire ($N = 122$). Eleven fathers filled out the questionnaire and two families reported that both parents completed the questionnaire together. The participating children consisted of two approximately equal-sized age groups: 6-year-old children ($N = 71$) and 7-year-old children ($N = 62$). Age was not reported in two cases. Gender was evenly divided (67 girls and 68 boys). In general, parents who completed a high level of education were overrepresented (44.8 and 49.2% of, respectively, mothers and fathers received a college or university degree).

Parental Feeding Style Questionnaire

The PFSQ was translated into Dutch by a team of four experts on eating behaviour at Maastricht University (the Netherlands) who are Dutch native speakers and fluent speakers of the English language (the authors ES and SK, and two colleagues of the Department of Health Promotion). Translations were cross-checked by this team and in case of inconsistencies between the translations, team meetings were held to discuss the particular item; for some issues, we contacted the developer of the instrument (Prof. Wardle). All translators approved the final translation.

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