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Introduction

Parental feeding behaviours undoubtedly influence eating behaviour and weight, at least in young children. However, the literature paints a mixed picture of the degree and type of influence achieved, with some studies revealing potentially unfavourable relationships between parental attempts to influence children's eating and child outcomes (Ventura & Birch, 2008), and others finding either minimal effects (Carnell & Wardle, 2007; Robinson, Kiernan, Matheson, & Haydel, 2001), or more cause for optimism (Brown, Ogden, Vogele, & Gibson, 2008; Faith et al., 2003; Gregory, Paxton, & Brozovic, 2010a; Patrick & Nicklas, 2005; Vereecken, Legiest, De Bourdeaudhuij, & Maes, 2009; Wardle, Sanderson, Guthrie, Rapoport, & Plomin, 2002).

One possible reason for these apparent discrepancies is that studies effectively tap qualitatively different types of feeding behaviour. Several of the more optimistic findings come from studies using scales that directly assess feeding *strategies*

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ABSTRACT

Parental feeding behaviours are considered major influences on children's eating behaviour. However, many questionnaire studies of feeding neglect subtle distinctions between specific feeding strategies and practices in favour of eliciting general feeding goals, and do not take account of the context provided by parents' motivations. These factors may be critical to understanding child outcomes and engaging parents in child obesity prevention. The present study obtained interview and diary data on specific feeding behaviours and underlying motivations from 22 mothers of predominantly healthy weight 3–5 y olds in the UK. Parents described a wide range of efforts to promote or restrict intake that were largely motivated by practical and health considerations and only rarely by concern about weight. There was also evidence for instrumental feeding, rules surrounding meal-time, child involvement, and parental flexibility in relation to feeding. Almost all parents described responding to children's appetite. These findings suggest that in order to engage parents of currently healthy weight children, obesity prevention advice should aim to satisfy their primary motivations (practicality, health), and be framed as helping parents to respond sensitively and appropriately to different children's characteristics.

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(goal-directed behaviours) or *practices* (behaviours that are not necessarily goal-directed) which are indicative of a subtle, *authoritative feeding style* (i.e. high demandingness, high responsiveness), Here the term 'style' refers not to a specific behaviour but instead to a contextual variable that creates an emotional climate for expression of parents' behaviours and can moderate the relationship between those behaviours and developmental outcomes (Darling & Steinberg, 1993). E.g. Do you avoid having snack foods in the house? Do you reason with your child to get him/her to eat, for example, tell him/her about the benefits of certain foods? (Birch & Fisher, 2000; Brown et al., 2008; Patrick & Nicklas, 2005).

In contrast, many of the 'unfavourable' results are apparent when studies stop short of measuring specific behaviours and instead measure more general behavioural *goals* using rigid language indicative of a more *authoritarian feeding style* (i.e. high demandingness, low responsiveness). E.g. My child should eat everything on his plate; I have to be sure that my child does not eat too many high-fat foods (Birch & Fisher, 2000; Birch, Fisher, & Davison, 2003). It is therefore possible that while behaviours that reflect an authoritative feeding style produce good results, those reflecting an authoritarian style do not, at least in some populations.

A second explanation for the mixed findings could be that parental motivations for feeding behaviours differ between samples, and these motivations provide context and nuance that can affect child outcomes. For example, parental concern about



Research report



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child overweight, which is quite low in a number of populations (Campbell, Williams, Hampton, & Wake, 2006; Carnell, Edwards, Croker, Boniface, & Wardle, 2005; Lampard, Byrne, Zubrick, & Davis, 2008), predicts feeding behaviour (e.g. Francis, Hofer, & Birch, 2001; Gregory, Paxton, & Brozovic, 2010b). Relationships between parental feeding and unfavourable child outcomes may be more likely in 'high concern' groups due to parents either transmitting unhelpful restrictive practices to their child in an effort to prevent weight gain, or responding forcefully to a child who is already overweight. In contrast, if parents are motivated primarily by ensuring their child's health (Goodell, Pierce, Bravo, & Ferris, 2008), or other shorter-term goals, such as managing busy family schedules, then child outcomes may be very different. Variation in motivations may also partly explain why results differ across questionnaires: while the items from some scales could be seen to imply a concern about eating fattening foods (e.g. I have to be sure that my child does not eat too many high-fat foods), others are more transparently health-motivated (e.g. Do you reason with your child to get him/her to eat, for example, tell him/her about the benefits of certain foods?).

The idea that the consequences of parental feeding depend on subtle differences in specific feeding behaviours and their underlying motivations is related to Hughes et al.'s (Hughes, Power, Fisher, Mueller, & Nicklas, 2005) suggestion that the context of general parenting style influences the impact of specific feeding strategies, and parenting style and feeding motivations may have a combined effect. For example, a parent who adopts child-responsive, authoritative methods of restricting intake, and does so in order to encourage a flexible but healthy eating attitude, may have a more favourable impact on their child's eating behaviour than a parent who adopts rigid, authoritarian methods (e.g. verbal and physical coercion) in order to achieve a goal weight for their child, thereby imbuing parent-child feeding interactions with a negative emotional context. The notion of the importance of context is also consistent with growing recognition that parental feeding cannot be addressed in isolation from other aspects of parenting, and that child obesity interventions that additionally target global parenting style or family functioning may prove more effective (Hubbs-Tait, Kennedy, Page, Topham, & Harrist, 2008).

A third reason for the variation within existing results could be the inherently bidirectional relationship between parental feeding and children's eating behaviour and weight. Because the majority of studies are cross-sectional, some findings may reflect the influence of the parent on the child, while others may be more reflective of the child influencing the parent. For example, a number of studies have now demonstrated that relationships between parent feeding and child weight depend on parental concern about weight, i.e., parents' cognitive, affective and ultimately behavioural responses to the child (May et al., 2007; Spruijt-Metz, 2002, 2006; Webber, Hill, Cooke, Carnell, & Wardle, 2010). There is also longitudinal evidence that prospective associations between child weight and parental feeding are stronger than prospective associations in the reverse direction (Webber, Cooke, Hill, & Wardle, 2010). These findings are consistent with a growing body of studies demonstrating that appetite in children is heritable, and environmental influence relatively low, especially in terms of family wide factors that are similar for children in the same household (Carnell & Wardle, 2009; Carnell, Haworth, Plomin, & Wardle, 2008a, 2008b; Llewellyn, van Jaarsveld, Boniface, Carnell, & Wardle, 2008; Wardle et al., 2008).

Although some take these reports of genetic influence to imply that parental feeding is unimportant, it should be noted that if 60–70% of the variance in children's eating behaviour is related to genes (Carnell & Wardle, 2009), 30–40% – not an insignificant proportion – is still attributable to environmental factors. Further, the environmental effect appears to be largely 'non-shared', emphasizing the importance of parents' unique responses to an individual child, and suggesting that modifying these responses could potentially limit the extent of the expression of genetically influenced appetitive traits. If, as the data suggest, parents are naturally inclined to respond to their children's genetically influenced, enduring tendencies, it may be more helpful to frame parental feeding advice in terms of encouraging parents to respond to their children in the most helpful manner possible, rather than arguing that there are uniformly successful strategies that will produce good results in all children.

In conclusion, a more nuanced understanding of feeding behaviours and their motivational context is critical to understand the variety of outcomes in the parental feeding literature and to develop palatable and effective parental interventions for child obesity prevention. For the current study we obtained interview (n = 14) and diary (n = 22) data from mothers of predominantly healthy weight 3–5 y olds which we used to chart the variety of feeding behaviours spontaneously described in the sample, and explore the underlying motivations for these behaviours. Our specific aims were: (a) to confirm the presence of specific parental feeding behaviours already described in multiple questionnaire studies as well as the relatively small body of relevant qualitative literature (e.g. Moore, Tapper, & Murphy, 2007; Ventura, Gromis, & Lohse, 2010), and record and classify any newly emerging behaviours; (b) to chart and classify the different motivations for feeding practices reported by parents, including parents' perceptions that they are aware of or responding to the child's appetitive and other characteristics. Our overarching goal was to generate a comprehensive picture of parents' perspectives on feeding behaviours and motivations that could potentially be used to inform the development of parent-friendly interventions.

Methods

Participants

All parents who had participated in the first wave of a large community survey of parental feeding in 3-5 y olds (i.e. their children attended the first four preschools to be surveyed of the 12 preschools ultimately included in the study) (Carnell & Wardle, 2007), completed forms indicating their interest in participating in either or both of a telephone interview or a two-day diary study about their child's eating. All parents were eligible for both the main survey and the interview/diary study, provided they had sufficient English language ability to participate. Of the 190 parents invited to complete an interview or diary, 74 (39%) parents expressed interest in the interview and 79 (42%) in the diary. Those volunteering for the diary or interview exclusively were allocated to their chosen condition, and those volunteering for both were split between both groups so as to achieve an equal number (n = 45) in each group, with no overlap between conditions. Participants for the interviews were contacted in random order and interviewed until no additional information was yielded by the interviews (termed the saturation point; Ritchie, Lewis, & Elam, 2003). Of the 17 interview volunteers who were contacted, 14 granted interviews, giving an 82% rate of response. Of the 45 who were sent a diary (plus one reminder a month after initial contact), 22 (49%) were returned. Children were weighed and measured by trained researchers in school. Ethical approval was obtained from the UCL Research Ethics Committee of Non-NHS Human Research.

Procedure

Interview

Interviewees were telephoned after 5 pm and invited to participate in a 30–60 min interview about how they fed their

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