Parental feeding behavior in relation to children's tasting behavior: An observational study

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**A B S T R A C T**

Children's eating habits are shaped in part by parental feeding practices. While maladaptive practices have already received a lot of research attention, the effects of adaptive strategies, especially in elementary school aged children of different weight status, are less examined. This study examines how parents (1) model and (2) encourage their child to taste an unknown food. Thereby, attention is paid to the distinction between encouraging what (i.e. adaptive type of encouragement) and the amount (i.e. maladaptive type of encouragement) children eat/drink. Twenty-five families with a child with overweight and 30 families with a child of healthy weight (7–13 years) participated in a taste task. Both the child's tasting behavior and the parents' modelling and encouragement behavior were observed and related to the child's age and weight status. As 94.3% of the children tasted the unknown food, weight status differences between tasters and non-tasters could not be investigated. Only 26.9% of the parents used modelling to enhance tasting behavior; this was unrelated to age and weight status. 77.4% of the parents encouraged their children to taste (encouragement of what children eat/drink), and this was significantly more prevalent in parents of younger children and of healthy-weight children. 21.1% of the parents also encouraged their children to finish the juice (encouragement of amount children eat/drink) and this was also more prevalent in parents of the healthy-weight group. These results evidenced that parental modelling is not often used to enhance tasting behavior in children. In contrast, parental encouragement was frequently observed, especially in parents of younger children and of healthy-weight children. Encouragement, however, seems difficult to measure and more research on adaptive parental encouragement is needed.

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1. Introduction

The quality of young children’s diet is often observed to be unbalanced and directly related to obesity (Rigal, Frelut, Monneuse, Simmen, & Pasquet, 2006) and other non-communicable diseases in children (Kaufman, 2002). Childhood obesity rates have dramatically increased over the past two decades, with approximately 17% of children (between 2 and 18 years) in the USA (Ogden, Carroll, Curtin, Lamb, & Flegal, 2010) and between 5 and 31% of European children (between 6 and 9 years), estimated to be obese (Wijnhoven et al., 2014). Obese children often show a less healthy and less varied eating pattern (Wardle, Guthrie, Sanderson, Birch, & Plomin, 2001). Therefore, research should focus on the factors that hamper the development of a healthy pattern. A key predictor of an individual’s eating pattern is the preference for certain foods (Birch, 1999). The development of food preferences can be seen as a learning process that starts in infancy, tracks into adulthood and is strongly influenced by the parents.

Much of the literature on how parents shape food preferences has focused on maladaptive controlling parental strategies, such as restriction and pressure to eat. Both concepts refer to controlling feeding strategies, in which parents try to direct children's eating pattern toward a desired ideal in a very strict manner (Johnson & Birch, 1994). Several studies, however, have stressed the counter-productive effects of such strategies. For example, it has been shown that a high level of parental feeding restriction can lead to selective food preferences in children (Fisher & Birch, 1999) and diminished abilities to self-regulate their energy intake (Johnson & Birch, 1994). Moreover, these effects are long term, resulting in an unbalanced eating pattern and/or negative weight outcomes in developing children (Faith, Scanlon, Birch, Francis, & Sherry, 2004; Francis & Birch, 2005).
Palfreyman, Haycraft, and Meyer (2015) rightly state that while much research has focused on maladaptive feeding practices, less attention has been paid to adaptive feeding strategies and their effects on children’s eating behavior. The current study focuses on two strategies that are generally being considered adaptive.

Observational learning, stemming from the social learning theory of Bandura (1977), is an important construct of social cognitive theory. Applied to the feeding domain, it is assumed that children learn new eating habits by observing family members tasting, eating and enjoying new foods. Several studies have shown resemblances in the eating patterns of parents and young children (e.g. Fisher, Mitchell, Smicklas-Wright, & Birch, 2002), and this was also found in older children (Domnaru, Ilies, & Furtuncu, 2013). Moreover, it was evidenced that parental modelling is an effective strategy for increasing children’s vegetable consumption in a home-based setting (Holley, Haycraft, & Farrow, 2015). On the other hand, a review concluded that, in view of the methodological limitations of the reviewed studies, the evidence for parental role modelling is low to average (Webber & Loescher, 2012). The primary limitation is the heterogeneity in the way parental role modelling is both defined and measured. This hampers comparisons and the drawing of robust conclusions. In some studies, modelling is operationalized by making healthy foods accessible to children, while other studies focus on parents’ own eating behavior, or the frequency of shared family meals. As for methods of measurement, these have ranged from focus groups (e.g. Sealy, 2010), to 3-day food diaries (e.g. Ritchie, Raman, Sharma, Fitch, & Fleming, 2011) to short self-developed questions (Cullen, Lara, & de Moor, 2002) and validated questionnaires (Tibbs et al., 2001; Mushet-Eizenman & Holub, 2007). An additional limitation of such methods is that all are subject to social desirability issues. To our knowledge, there is only one other study that include both self-report of parental modelling and observations during actual meal situations. The study of Palfreyman et al. (2015) found maternal modelling (observed during three separate occasions) to be positively associated with food enjoyment and negatively associated with food fussiness in young children. Therefore, the use of observations should also be considered in future research.

A second feeding strategy is parental encouragement. Most studies in this area have focused on the association between parental encouragement and the amount of food eaten by the child. They revealed a positive relationship between the variables: the more a parent encourages a child to eat (verbally or via physical prompts), the more a child eats (e.g. McKenzie et al., 1991) and the higher the child’s body weight (Lumeng et al., 2012), suggesting that parental encouragement is a somewhat maladaptive feeding strategy. However, parents can also encourage what children eat by supporting their willingness to taste and their acceptance of new and less liked flavors (Edelson, van der Horst, Kuenzel, & Martin, 2014; Vandeweghe, Verbeken, Moens, Vervoort, & Braet, 2016a), thus pointing to the beneficial effects of encouragement. There is, however, limited research that pays attention to the conditions in which parental encouragement is an adaptive parental feeding strategy. The extent to which encouragement is adaptive seems to depend upon (1) how the behavior is encouraged (i.e. gentle or intrusive) and (2) the type of behavior being encouraged (i.e. how much the child should eat versus what the child eats). (1) While gentle prompts, suggestions and offers are classified as good examples of encouragement, assertive and intrusive prompts would align more closely to a maladaptive form of encouragement (Vaughn et al., 2016). (2) Secondly, while encouraging children to clean their plate may undermine their internal regulation system and lead to overweight (Birch, Pfeefe, Shobha, Steinberg & Krebsiel, 1987), encouraging children to taste new or disliked food items produces positive effects (e.g. acceptance of new and less liked flavors; Edelson et al., 2014). In contrast to encouraging children what to eat, encouraging the amount of food eaten should not be considered an adaptive type of encouragement, but instead refers to the maladaptive practice of ‘pressure to eat’. The distinction between “what” and “how” is supported by the validated clinical guideline of Ellyn Satter (1987), who proposes a division of responsibilities in which parents are responsible for what children eat while children are responsible for the amount of food they eat. The current study will take this latter distinction into account.

The study of the eating behavior of children and related parental practices is usually directed to the youngest age groups. This is because (1) the period 0–2 years contains several sensitive phases and transitions in eating development and (2) the period before 4–5 years is important in overcoming development related barriers in taste development, such as food neophobia (Birch, 1999). Eating difficulties that persist, may lead to eating problems (e.g. selective and/or restrictive eating) in the period 6–12 years and can even be precursors of eating pathology in adolescence and adulthood (Kotler, Cohen, Davies, Pine, & Walsh, 2001). Therefore, it is relevant to pay attention to the eating behavior of children of different age groups and related parental feeding practices. This study included children between 7 and 13 years to examine whether tasting difficulties still exists in this age group. Furthermore, within our sample we will compare two age groups. We assume that children older than 10 years make more food choices by their own whereby their parents’ influence diminishes compared to children that are younger than 10 years.

Besides eating problems, children with selective eating patterns can also develop weight problems. Several studies showed that children’s avoidance of certain foods is more common in children with obesity (Croker, Cooke, & Wardle, 2011; Wardle et al., 2001). In light of this finding, obese children would seem to be an interesting group to study with regard to their tasting behavior.

The current study involves two groups of children (7–13 years), one overweight, the other of healthy weight, who were exposed to a novel food item. Parents were instructed to ask their children to taste. Parental modelling and encouragement were observed during this task. We aimed to examine children’s tasting behavior. We expected to observe less tasting behavior in the overweight group. Secondly we aimed to examine parent’s modelling and encouraging behavior in relation to children’s tasting behavior, weight status and age. We hypothesized that tasters will have parents who use more modelling and encouragement than parents of non-tasters. We also expected that parents of overweight children would show more maladaptive parental encouragement and less adaptive parental encouragement and modelling. Finally, we also hypothesized to find less parental strategies in the group of children that are older than 10 years.

2. Material and methods

2.1. Subjects

A total of 55 European (Caucasian) families with children between 7 and 13 years old ($M=9.87; SD=1.56$) participated in this study. The overweight group consists of 25 families with a child that was on a waiting list for treatment for overweight. Patients suffering from secondary overweight, caused by endocrinological, chromosomal, hypothalamic diseases or by intellectual disability, were excluded from the study. The group of children with healthy weight consists of 30 families with a child of healthy weight.

2.2. Procedure

Subject Recruitment The overweight group consists of families
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