



Research report

Maternal feeding practices associated with food neophobia

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ABSTRACT

The current study examined the associations between children's and mother's food neophobia and parental feeding practices. Eighty-five mothers of 3- to 12-year old children ($M = 5.7$ years; 52% girls) completed a questionnaire online about food neophobia and feeding practices. Mothers with children high in food neophobia used more restriction for health and less monitoring. Mothers with food neophobic children and mothers who were themselves food neophobic also reported that they do not make healthy foods readily available for their children. Mothers high in food neophobia also used more restriction for weight. This study is a starting point for understanding the link between neophobia and feeding practices, but future longitudinal work is needed in order to determine direction of effects. However, interventions could be created to help parents understand the importance of feeding practices for promoting children's food acceptance.

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Introduction

Many children show fear of new foods, rejecting foods that are unfamiliar to them (Addessi, Galloway, Visalberghi, & Birch, 2005; Cashdan, 1994; Dovey, Staples, Gibson, & Halford, 2008). Known as food neophobia, this behavior is thought to be adaptive as it prevents children from consuming foods that are poisonous (Benton, 2004; Pliner & Hobden, 1992; Rozin, 1976; Rozin & Vollmecke, 1986). Nevertheless, food neophobia may also hinder children from consuming a variety of healthy foods. Children with food neophobia consume fewer vegetables and fruits, but not fewer starchy and sweet foods, than children without food neophobia (Cooke, Carnell, & Wardle, 2006; Cooke, Wardle, & Gibson, 2003; Galloway, Lee, & Birch, 2003). Thus, food neophobia puts children at risk for obesity and developing lifelong unhealthy eating habits.

Costanzo and Woody (1984) theorize that parents' domain-specific parenting practices, including their feeding practices, are related to their perceptions about and concerns for their children. Little is known about the relation between children's food neophobia and parents' feeding practices. However, experimental research shows that neophobia can be altered by encouraging children to try a novel food several times (Birch, McPhee, Shoba, Pirok, & Steinberg, 1987), suggesting that parental feeding behaviors might be related to children's food neophobia. Furthermore, parents' own weight and eating behaviors relate to their use of specific feeding practices (Wardle, Sanderson, Guthrie, Rapoport, & Plomin, 2002). This suggests that parents' own food neophobic tendencies might

be associated with the way they feed their children, but research has yet to examine this association.

Parents' feeding practices and child food neophobia

Only a handful of studies have examined the association between parental feeding practices and child food neophobia (i.e., Koivisto & Sjoden, 1996; Wardle, Carnell, & Cooke, 2005). However, researchers speculate that children's food neophobic responses lead to stressful feeding situations, which elicit negative feeding behaviors from parents (Dovey et al., 2008). For example, parents likely show negative emotions in these feeding situations, which children might associate with the presentation of the novel food (Dovey et al., 2008). Furthermore, in support of Costanzo and Woody's (1984) model, parents report that they use different feeding practices in response to child characteristics, such as temperament and responsiveness to foods (Carnell, Cooke, Cheng, Robbins, & Wardle, 2011). Thus, it is likely that parents use different feeding practices with children high in food neophobia.

Parents who use controlling feeding practices attempt to dictate the amount or type of foods their children eat by encouraging the child to eat more foods (pressure), limiting foods that are perceived as unhealthy to maintain health (restriction for health), or limiting foods for weight loss or maintenance (restriction for weight; Musher-Eizenman & Holub, 2007). Wardle et al. (2005) found that children's food neophobia was related to parents' use of controlling feeding practices. However, they did not distinguish between pressure and restriction. Since parents use restriction and pressure differently depending on whether children are showing food avoidance or acceptance (Webber, Cooke, Hill, & Wardle, 2010),

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the relationship between specific controlling feeding practices and children's and parents' food neophobia should be examined.

Parents also use feeding practices that are autonomy promoting, which encourage children to develop the skills to eat healthily in the future (Musher-Eizenman & Holub, 2007). Encouraging children to eat by presenting novel food, sometimes multiple times, is an effective feeding practice that results in children being more likely to accept the food (Birch et al., 1987; Wardle, Herrera, Cooke, & Gibson, 2003). Having healthy foods, such as fruits and vegetables, available in the home is also related to children's consumption of those healthy foods (Blanchette & Brug, 2005; Cooke et al., 2004; Cullen et al., 2001). Koivisto & Sjoden (1996) found that mothers high in food neophobia reported they thought less about serving some foods than mothers who were not high in food neophobia. Furthermore, children's food neophobia was positively associated with parents allowing children to decide portion sizes. However, beyond this feeding practice, research has not examined the association between autonomy promoting feeding practices and children's food neophobia.

Other parents engage in feeding practices which use food for non-nutritive purposes. Some parents use food to regulate their child's emotions or use food as a reward or punishment (Musher-Eizenman & Holub, 2007). Parents with children high in food neophobia might engage in these strategies, especially using food as a reward, to try to encourage their children to eat new food, but research has yet to examine whether these parents are more likely to employ these strategies.

The current study

The purpose of the current study is to examine the associations between mothers' and children's food neophobia and mothers' feeding practices. It is expected that children's food neophobia will be positively correlated with controlling feeding practices, but negatively correlated with autonomy promoting feeding practices. It is also expected that mothers' own food neophobia might be related to their feeding practices. Although speculative, it is expected that mothers high in neophobia would be less likely to use some autonomy promoting feeding practices, such as providing healthy foods at home. Since no previous research has been conducted, no hypotheses were made about whether child or mother neophobia will be related to the use of food for non-nutritive purposes.

Method

Participants

Parents in the United States were recruited to complete an online survey about 3- to 12-year old children's eating behaviors through convenience and snowball sampling. Parents who were acquaintances of undergraduate and graduate students in the department and parents who were participants in other non-food related studies at the university were contacted through e-mail or were given a flyer about the study. These parents were asked to participate and to forward the information about the study to other parents they know. If parents had more than one child in this age range, they were asked to choose the child whose name came first alphabetically. Three fathers participated, but were excluded from the current study because of their small number. A total of 85 mothers completed the survey. This sample size was deemed acceptable based on power analysis assuming a medium effect size with an alpha of .05 (Cohen, 1992).

The mean age of children in this sample was 5.7 years old ($SD = 1.96$; Range: 3.0–12.6); 48% were boys and 52% were girls. Most parents reported that their children were Caucasian (85%),

but 5% were Hispanic, 5% were African American, 3% were Asian, and 2% were Middle Eastern. Parents' reports of their children's height and weight were converted into BMI z-scores, which are standardized based on child gender and age (NutStat Program; Dean et al., 2007). There were two scores that were obvious outliers: children's calculated scores were greater than 9 standard deviations above and below the mean. These values were coded as missing. The mean BMI z-score, not including these values, was .13 ($SD = 1.35$; Range: -2.92 to 4.36).

The mean age of the mothers in this sample was 37.7 years old ($SD = 6.3$; Range: 24.5–52.6). Mothers' reports of their own heights and weights were converted into body mass index scores (BMI; kg/m^2). The mean BMI was 25.4 ($SD = 6.36$; Range: 17.0–43.9).

Measures

Children's food neophobia

Mothers completed the 10 item Children's Food Neophobia scale (CFNS; Pliner, 1994). Mothers rated their children's eating behaviors on a scale from 1 (*Disagree Strongly*) to 7 (*Agree Strongly*). Higher scores represent greater food neophobia. The Cronbach's coefficient alpha for this scale was .95. This measure has demonstrated concurrent validity in that children's food neophobia is positively associated with behavioral measures of food neophobia (Pliner, 1994).

Mothers' food neophobia

Mothers' food neophobia was measured using the Food Neophobia Scale (FNS; Pliner & Hobden, 1992). Mothers completed a 10 item questionnaire, and rated items on a scale from 1 (*Disagree Strongly*) to 7 (*Agree Strongly*). Higher scores represent greater food neophobia. The Cronbach's coefficient alpha for this scale was .88. This measure has demonstrated concurrent validity; food neophobia was positively associated with behavioral measures of food neophobia and related personality characteristics (Pliner & Hobden, 1992).

Maternal feeding practices

The Comprehensive Feeding Practices Questionnaire was used to measure parents' feeding practices (CFPQ; Musher-Eizenman & Holub, 2007). Three controlling subscales were used (pressure, restriction for health, and restriction for weight). Seven autonomy promoting subscales were used (environment, encourage balance and variety, teaching about nutrition, monitoring, modeling, involvement and child control). Two using food for non-nutritive purposes subscales were used (emotion regulation and food as a reward). Mothers rated items on a scale from 1 (*Never*) to 5 (*Always*) for child control, emotion regulation, and monitoring subscales. The remaining subscales were rated on a scale from 1 (*Disagree*) to 5 (*Agree*). Higher scores represent using more of those feeding practices. The Cronbach's coefficient alphas for these subscales ranged from .60 to .84 (see Table 1).

Data analysis plan

Normality of the variables was assessed using skewness and kurtosis statistics, as well as visual inspection of histograms. All food neophobia and feeding measures were found to be acceptable, with the exception of the teaching for nutrition subscale, which was corrected by using a logarithmic transformation.

Several preliminary analyses will be conducted to further understand food neophobia in this sample and to decide which demographic variables should be controlled for in the primary analyses. First, to examine whether children are more food neophobic than their mothers, a paired samples *t*-test will be conducted. Second, correlational analyses will also be conducted to

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