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Research report

Associations between parental feeding practices and child vegetable consumption. Mediation by child cognitions? ☆

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ABSTRACT

The present study aimed to explore the process in which parental food-related behaviors might influence preadolescent children's vegetable consumption, addressing potential mediating effects of child cognitions. Cross-sectional surveys were performed among 10–12-year-olds and their parents. The child questionnaire included measures of vegetable consumption and child cognitions related to vegetable consumption (i.e. attitudes, social influence, self-efficacy and intention). The parent questionnaire included measures of parental feeding practices adapted from the Comprehensive Feeding Practices Questionnaire. Stepwise regressions were performed to reveal potential mediating effects of child cognitions on the associations between parental feeding practices and child vegetable consumption. Our results suggested a mediating effect of child self-efficacy on the association between parental restrictive behavior and child vegetable consumption. Other potential mediating effects were not supported in this study.

Introduction

The promotion of healthy eating in preadolescent children is crucial, since food habits established in childhood may to a certain extent track into adolescence and adulthood (Lien, Lytle, & Klepp, 2001; Mikkilä, Rasanen, Raitakari, Pietinen, & Viikari, 2004). Parents play an important role in child and adolescent eating behavior (De Bourdeaudhuij et al., 2008; Pearson, Biddle, & Gorely, 2009; Rasmussen et al., 2006), and The Environmental Research framework for weight Gain prevention (EnRG) suggests that parental influences affect child eating *directly* or *indirectly* via child cognitions (Kremers et al., 2006). According to Bargh and Chartrand (1999), direct influences reflect the automatic, unconscious influence of environmental factors on behavior. In contrast to this, indirect influences reflect the mediating role of behavior-specific *cognitions* on the relationship between environment and behavior (Kremers et al., 2006). As stated by Estes (1975), cognitions refers to *mental processes* such as individual perceptions, memory and thinking. Thus, cognitive variables such as attitudes, perceived social influences and self-efficacy presented by the Attitude–Social Influence–Self-Efficacy (ASE) model (Kok, Schaalme, De Vries, Parcel, & Paulussen, 1996) and similar models derived from social psychology, may all be potential mediators of the relationships between parental influences and child eating.

Parents influence their children's eating behavior in many ways, for example through their food-related parenting practices, or so-called feeding practices. As far as we know, only two previous studies, one conducted by Hewitt and Stephens (2007) and one by Melbye, Øgaard, & Øverby (2012) have used a combination of an established social-cognitive model and a pure feeding practices measure to assess the role of child cognitions and parental feeding practices in child eating. The aims of these studies were twofold: to extend the established social-cognitive model and increase its explanatory power by including parental feeding practices; and to assess *direct* effects of parental feeding practices on child eating, taking into account the effects of child cognitions. None of these studies included the assessment of potential *indirect* effects of parental feeding behaviors. A recently published study by Pearson, Ball, and Crawford (2012) is among the first to examine mediating effects of child cognitions on the associations between parental food-related behaviors and child eating, suggesting that adolescent self-efficacy for increasing fruit consumption mediates the associations between parental control, perceptions of the importance of healthy nutrition for child health, barriers to buying fruits and vegetables, and adolescent fruit consumption.

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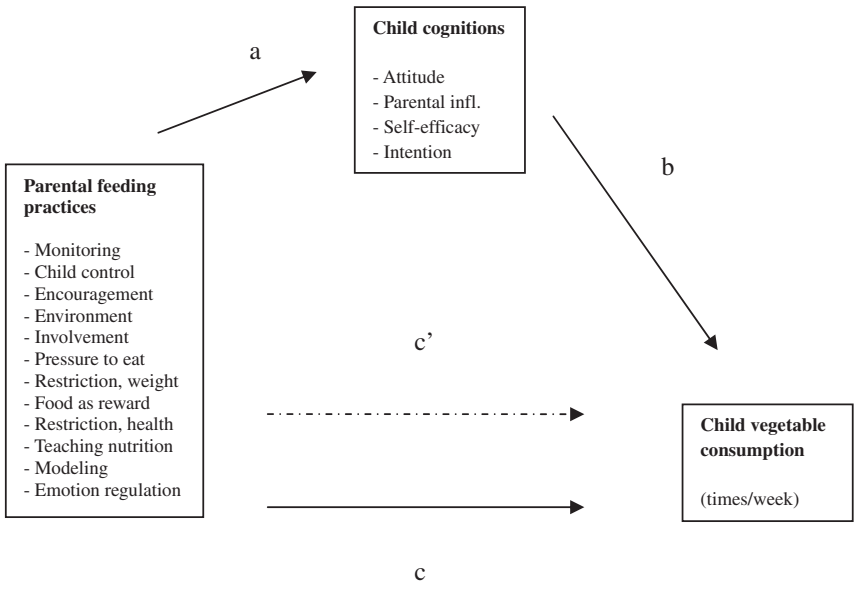

Fig. 1. Conceptual model for direct and indirect (mediated) associations between parental feeding practices and child vegetable consumption. a = Associations between parental feeding practices and child cognitions (potential mediators). b = Associations between child cognitions (mediators) and child vegetable consumption. c = Associations between parental feeding practices and child vegetable consumption, unadjusted for mediators. c′ = Associations between parental feeding practices and child vegetable consumption, adjusted for mediators.

Given the very limited research on indirect (mediated) effects of parental influences on child eating, and the narrow range of child cognitions (one variable) and parental influences (three variables) assessed in the recent study by Pearson et al., the aim of the present study was to extend the current literature by exploring potential indirect (mediated) associations between a wide range of parental food-related behaviors and child eating, including several child cognitions as potential mediators. More specifically, we aimed to explore the process in which a multitude of parental feeding practices might influence children's vegetable consumption, addressing potential mediating effects of child cognitions as described by the ASE model. The ASE-based cognitive variables were chosen as they are extensively tested and applied in previous studies on determinants of child vegetable consumption (De Bourdeaudhuij et al., 2005, 2008; Melbye, Øgaard, & Øverby, 2012; Sandvik, Gjerstad, Samdal, Brug, & Klepp, 2010; Sandvik et al., 2007). The relations examined in the current study are presented in Fig. 1.

Methods

Participants and procedures

The population of interest for this study was preadolescent children and their parents. Participants were recruited through primary schools in two neighboring municipalities in southwest Norway. All primary schools in these municipalities were asked to participate in the study, and 18 out of 25 schools (72%) agreed. In total, 1466 grade 5 and 6 students, and one of their parents, were invited. First, parents' survey packages including information letters, consent forms, and self-administered questionnaires were distributed to the children at school with instructions to bring them home to be completed by one of their parents (the parent most involved in home food issues). Next, after receiving written consent from the parents, child questionnaires were distributed and completed by the students at school. The study was approved by the Norwegian Social Sciences Data Services (NSD).

We received 963 completed parent questionnaires (66%). Response rate ranged from 44% to 93% among participating schools. Of the 963 parent respondents, 85% were mothers. The average age of the parents was 39.8 years, and 91% of the sample was of Norwegian or other Nordic origin. Of the 865 students having written consent from their parents to participate in the study, 796 (92%) completed the child questionnaire. Of the 796 child respondents, 51% were girls. Average age was 10.8 years (SD = 0.6 years).

Measures

Both parent and child questionnaires were pre-tested for clarity and length among parents ($n = 6$) and children ($n = 8$) not taking part in the study.

Parent questionnaire

The parent questionnaire included a Norwegian version of the Comprehensive Feeding Practices Questionnaire (CFPQ) (Melbye et al., 2011; Musher-Eizenman & Holub, 2007), which is a fairly new and not yet established instrument for measuring parental food-related behaviors. The CFPQ is more comprehensive than previous feeding measures and includes 12 dimensions on parental feeding practices: *Child control* (parents allow the child control of his/her eating behavior and parent–child feeding interactions), *emotion regulation* (parents use food to regulate the child's emotional status), *encourage balance and variety* (parents promote well-balanced food-intake, including the consumption of varied foods and healthy food choices), *home environment* (parents make (un)healthy foods available in the home), *food as reward* (parents use food as reward for child behavior), *involvement* (parents encourage child involvement in meal planning and preparation), *modeling* (parents actively demonstrate healthy eating for the child), *monitoring* (parents keep track of their child's intake of less healthy foods), *pressure* (parents pressure the child to consume more foods at meals), *restriction for health* (parents control the child's food intake with the purpose of limiting less healthy foods and sweets), *restriction for weight control* (parents control the child's food intake with the purpose of decreasing or maintaining the child's weight), *teaching about nutrition* (parents use explicit didactic techniques to encourage the consumption of healthy foods). A validation study by Melbye et al. (2011) largely supports