



## Research report

# Food parenting practices and child dietary behavior. Prospective relations and the moderating role of general parenting <sup>☆</sup>



Ester F.C. Sleddens <sup>a,\*</sup>, Stef P.J. Kremers <sup>a</sup>, Annette Stafleu <sup>b</sup>, Pieter C. Dagnelie <sup>c</sup>, Nanne K. De Vries <sup>d</sup>, Carel Thijs <sup>c</sup>

<sup>a</sup> Department of Health Promotion, NUTRIM School for Nutrition, Toxicology and Metabolism, Maastricht University Medical Center+, P.O. Box 616, 6200 MD, Maastricht, The Netherlands

<sup>b</sup> TNO, P.O. Box 360, 3700 AJ Zeist, The Netherlands

<sup>c</sup> Department of Epidemiology, CAPHRI School of Public Health and Primary Care, Maastricht University Medical Center+, P.O. Box 616, 6200 MD, Maastricht, The Netherlands

<sup>d</sup> Department of Health Promotion, CAPHRI School of Public Health and Primary Care, NUTRIM School for Nutrition, Toxicology and Metabolism, Maastricht University Medical Center+, P.O. Box 616, 6200 MD, Maastricht, The Netherlands

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## ABSTRACT

Research on parenting practices has focused on individual behaviors while largely failing to consider the context of their use, i.e., general parenting. We examined the extent to which food parenting practices predict children's dietary behavior (classified as unhealthy: snacking, sugar-sweetened beverage; and healthy: water and fruit intake). Furthermore, we tested the moderating role of general parenting on this relationship. Within the KOALA Birth Cohort Study, in the Netherlands, questionnaire data were collected at 6 and 8 years ( $N = 1654$ ). Correlations were computed to assess the association between food parenting practices and general parenting (i.e., nurturance, behavioral control, structure, coercive control, and overprotection). Linear regression models were fitted to assess whether food parenting practices predict dietary behavior. Instrumental and emotional feeding, and pressure to eat were found to have associations with undesirable child dietary behavior (increased unhealthy intake/decreased healthy intake), whereas associations were in the desirable direction for covert control, encouragement and restriction. Moderation analyses were performed by evaluating interactions with general parenting. The associations of encouragement and covert control with desirable child dietary behaviors were found to be stronger for children who were reared in a positive parenting context. Future research should assess the influence of contextual parenting factors moderating the relationships between food parenting and child dietary behavior as the basis for the development of more effective family-based interventions.

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## Introduction

It is well-known that childhood overweight has a tendency to persist into adulthood (Singh, Mulder, Twisk, Van Mechelen, & Chinapaw, 2008) and is associated with multiple adverse health outcomes.

**Abbreviations:** CFQ, Child Feeding Questionnaire; CGPQ, Comprehensive General Parenting Questionnaire; FFQ, Food Frequency Questionnaire; PFSQ, Parental Feeding Style Questionnaire.

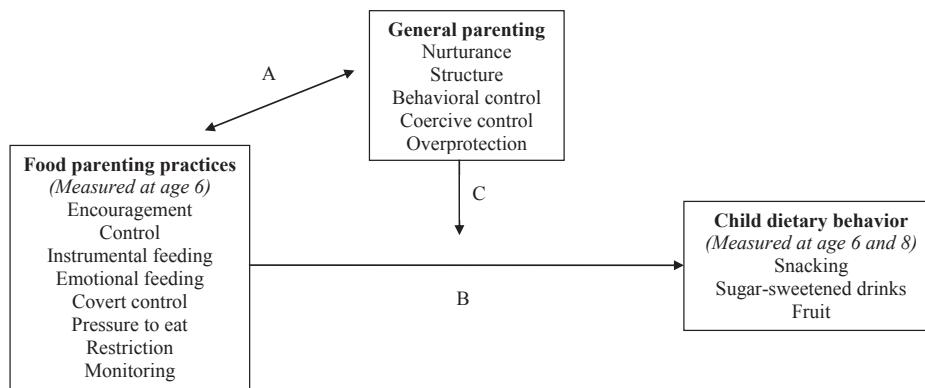
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\* Corresponding author.

E-mail address: [ester.sleddens@maastrichtuniversity.nl](mailto:ester.sleddens@maastrichtuniversity.nl) (E.F.C. Sleddens).

comes, both in the short term (Daniels, 2009) and longer term (Reilly & Kelly, 2011).

While it is generally accepted that parenting has important influences on children's dietary intake and ultimately on weight status, the exact conditions of its influence are still not well defined. In the feeding domain, previous reviews showed the relationships of parents' use of *food parenting practices* (i.e., content-specific acts of parenting (Darling & Steinberg, 1993)) on child eating and weight status (e.g., Clark, Goyder, Bissell, Blank, & Peters, 2007; Faith, Scanlon, Birch, Francis, & Sherry, 2004; Ventura & Birch, 2008; Wardle & Carnell, 2007). Most of the included studies focus on highly controlling food parenting practices (restricting the type and amount of food and using food as a reward), failing to assess other practices such as encouragement and guidance. These (mainly cross-sectional) studies have yielded contradictory results, and have in common that they did not assess the larger context in which these behaviors occurred (i.e. general parenting styles).



**Fig. 1.** Hypothesized model of the parenting–child dietary behavior relationship.

General parenting is independent of specific socialization content; it has commonly been defined as the approach parents use to raise their child, and is a function of parent's attitudes, beliefs and behaviors, creating a family emotional climate (Darling & Steinberg, 1993). In a recent review, Sleddens, Gerards, Thijs, De Vries, and Kremers (2011) reported that authoritative forms of parenting (characterized by parental warmth and guidance) were associated with more positive weight-related outcomes than more permissive or coercive forms of parenting. This was confirmed in some recent correlational studies (Fuemmeler et al., 2012; Johnson, Welk, Saint-Maurice, & Ihmels, 2012; Rodenburg, Kremers, Oenema, & Van de Mheen, 2011, 2013; Topham et al., 2011). However, these effects of general parenting on weight-related behaviors were generally indirect and weak compared with the effects of more proximal behavior-specific parenting practices (Cislak, Safron, Pratt, Gaspar, & Luszczynska, 2012).

Studies assessing both general parenting and food parenting practices are scarce (e.g., Blissett & Haycraft, 2008; Blissett, Meyer, & Haycraft, 2011; Hennessy, Hughes, Goldberg, Hyatt, & Economos, 2010; Hubbs-Tait, Kennedy, Page, Topham, & Harrist, 2008; Musher-Eizenman & Holub, 2006; Rodenburg et al., 2013; Taylor, Wilson, Slater, & Mohr, 2011; Van der Horst et al., 2007; Vereecken, Rovner, & Maes, 2010), and only few tested whether general parenting influences the impact of food parenting practices (Hennessy et al., 2010; Musher-Eizenman & Holub, 2006; Rodenburg et al., 2013; Taylor et al., 2011; Van der Horst et al., 2007; Vereecken et al., 2010). Two of these studies found that restrictive food parenting was associated with a decrease in sugar-sweetened beverage consumption (Van der Horst et al., 2007) and caloric intake (Musher-Eizenman & Holub, 2006) when parents reported higher levels of authoritative parenting. The contextual influence of general parenting is likely to be more profound than its direct relationship with weight status or related behavior (dietary intake, physical activity, sedentary behavior) (Sleddens et al., 2011). Therefore, general parenting can be considered as a crucial contextual factor in understanding the impact of food related parenting practices.

Current interventions to prevent childhood overweight and obesity have been largely ineffective due to a lack of understanding of how family characteristics influence child behaviors (Hingle, O'Connor, Dave, & Baranowski, 2010; O'Connor, Jago, & Baranowski, 2009). Childhood interventions with the best outcomes (i.e., increased healthy eating and physical activity) have engaged parents (Golley, Hendrie, Slater, & Corsini, 2011) and interventions targeting specific parenting practices have improved by being modified to include general parenting skills (Gerards, Sleddens, Dagnelie, De Vries, & Kremers, 2011). In order to develop effective interventions that can incorporate general parenting to tailor information

on optimal parenting practices, we need to further unravel the exact mechanisms of its influence.

To our knowledge, the current study is one of the first attempts to assess interactions between general parenting and food parenting practices in shaping children's dietary behavior applying a longitudinal study design (see Fig. 1). With few exceptions, empirical studies have dealt with one or a few isolated determinants at a time. We investigated the impact of specific food parenting practices on child dietary behavior in the context of broader parent level factors like general parenting, with the aim to execute research that extends beyond isolated associative approaches. The first objective of this study was to examine the extent to which food parenting practices predict child dietary behavior from the child's age of 6–8 years. The age span encompasses a critical period for the development of overweight among children (e.g., Pryor, Tremblay, Boivin, Touchette, & Dubois, 2011; Ventura, Loken, & Birch, 2009). The second objective was to explore the moderating role of general parenting on the relationship between food parenting practices and children's dietary behavior. This contextual higher-order moderation approach is advocated to have significant value in understanding the complex process of parent–child interactions in the area of childhood overweight (Kremers et al., 2013). We predicted using foods as rewards and coercing children to eat to be positively related to unhealthy child dietary behaviors and negatively to healthy child dietary behaviors. On the other hand, we predicted encouraging and controlling food parenting practices to be positively related to healthy dietary behaviors and negatively related to unhealthy dietary behaviors. Importantly, we hypothesized that these relationships would be strengthened and/or weakened depending on general parenting. For instance, we hypothesized that the favorable associations would be strengthened for children who were reared in a positive parenting context. The current study takes one of the first steps in unraveling complex environment–behavior interactions in the research area of food parenting.

## Subjects and methods

### Respondents and procedure

Data were collected within the ongoing KOALA Birth Cohort Study in the Netherlands. The study design has been previously described in detail (Kummeling et al., 2005). Briefly, from 2000 onwards, healthy pregnant women with a conventional lifestyle ( $N = 2343$ ) were recruited from an existing cohort study on pregnancy-related pelvic girdle pain. In addition, pregnant women with an 'alternative' lifestyle ( $N = 491$ ) with regard to dietary habits (e.g., preferring organic foods), vaccination programs, and/or

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