



Research report

Do maternal body dissatisfaction and dietary restraint predict weight gain in young pre-school children? A 1-year follow-up study[☆]Rachel F. Rodgers^{a,b}, Susan J. Paxton^{c,*}, Siân A. McLean^c, Karen J. Campbell^d, Eleanor H. Wertheim^c, Helen Skouteris^e, Kay Gibbons^f^a Department of Counseling and Applied Educational Psychology, Northeastern University, Boston, USA^b Université de Toulouse, UPS, Laboratoire du Stress Traumatique (LST-EA 4560), Toulouse, France^c School of Psychological Science, La Trobe University, Melbourne, Victoria 3086, Australia^d Centre for Physical Activity and Nutrition Research, Deakin University, Victoria 3220, Australia^e School of Psychology, Deakin University, Melbourne, Victoria 3125, Australia^f Nutrition and Food Services, Royal Children's Hospital Melbourne, Victoria 3052, Australia

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ABSTRACT

Background: The relationships between maternal body image and eating concerns and increases in body mass index (BMI) in early childhood are poorly understood. Our aim was to test a model in which mothers' BMI, body dissatisfaction, dietary restraint and concerns about their child's weight were related to restrictive feeding practices and child BMIz change. **Methods:** Mothers of 2-year-old children ($n = 202$, aged between 1.5 and 2.5 years) reported concerns regarding their own and their child's weight, their dietary restraint, and restrictive feeding practices. Height and weight were measured for children and reported by mothers at baseline and 1-year later. **Results:** Thirty five percent of mothers and 29% of children were in overweight or obese categories at baseline. Using path analysis, after adding an additional pathway to the proposed model the final model provided a good fit to the data ($\chi^2(8) = 5.593$, $p = .693$, CFI = 1.000, RMSEA = .000), with maternal dietary restraint directly predicting change in child BMIz over the year. Concern about child's weight and, to a lesser extent, maternal dietary restraint mediated the relationship between maternal body dissatisfaction and the use of restrictive feeding practices. However, the pathway from restrictive feeding practices to change in child BMIz was not significant. **Conclusions:** Mothers' BMI and body dissatisfaction may contribute indirectly to weight change in their young children. Interventions targeting maternal body dissatisfaction and informing about effective feeding strategies may help prevent increases in child BMIz.

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Background

The rising tide of childhood overweight and obesity has contributed to a research focus on modifiable risk factors for increases in BMI in children (Crouch, O'Dea, & Battisti, 2007), and evidence suggests that parent-child feeding practices and early parent-child interactions contribute to children's weight status (Faith et al., 2004; Fisher, Birch, Smiciklas-Wright, & Picciano, 2000; McPhie et al., 2011; Ventura & Birch, 2008). One category of child feeding practices that has at times been found to predict upward change in child BMI involves attempts to control or restrict a child's eating patterns and food intake (Birch, Fisher, & Davison, 2003). However,

little empirical attention has been paid to factors that might be related to the use of feeding practices of this type. It has been suggested that, even among healthy weight mothers, the use of restrictive feeding practices could be influenced by mothers' own body image, weight and/or eating concerns (Francis, Hofer, & Birch, 2001). To date, while there is some evidence of a relationship between maternal body image and eating concerns and maternal feeding practices (e.g., Blissett, Meyer, & Haycraft, 2006), no models have been tested that describe mechanisms by which maternal BMI, body dissatisfaction, weight and eating attitudes may influence feeding practices and in turn child weight gain. The present study aimed to explore such a model among mothers of young pre-school children using longitudinal data.

Maternal restriction of child food intake, in an effort to control and regulate the type and amount of food a child eats, has been identified as a potentially important factor in child overweight (Faith & Kerns, 2005). While the intention of restrictive feeding practices could be imagined to be to control child weight or

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promote healthier eating habits among children, it has been suggested that these practices might be counterproductive by rendering the restricted foods more desirable and increasing children's preference for, and consumption of, these foods in the long term (Birch et al., 2003; Faith & Kerns, 2005; Faith et al., 2004). Consistent with this hypothesis, a number of studies (Birch et al., 2003; Faith et al., 2004), although not all (Campbell et al., 2010), have found a prospective and positive relationship between restrictive child feeding practices and later child BMI. The discrepancies in the literature may stem from methodological issues as the lack of consensus in the definition of parental feeding constructs, in particular that of restriction, has been highlighted (Jansen, Daniels, & Nicholson, 2012). This discord and the lack of validation of certain measures have contributed to divergent findings in this area. In addition, these divergent findings highlight the need for longitudinal research among very young children to help clarify these relationships.

Furthermore, the proposition that restrictive feeding practices stem from a desire to prevent child weight gain has been supported. While parents with high concerns about their child becoming overweight are not the majority, those who do express such concerns have been found to use higher levels of restrictive feeding practices (Gray, Janicke, Wistedt, & Dumont-Driscoll, 2010; May et al., 2007). Interestingly, while cross-sectional studies suggest that use of restrictive feeding practices is associated with concern about a child becoming overweight, they have not been shown to be linked to a child *being* overweight (Crouch et al., 2007; May et al., 2007).

Taken together these findings suggest that the preoccupations and weight concerns leading to restrictive feeding practices may derive more from a mother's own weight concerns than her child's actual body weight. A mother's own weight-related body dissatisfaction could lead to both dietary restraint (Baker, Carter, Cohen, & Brownell, 1999; Skouteris, Carr, Wertheim, Paxton, & Duncombe, 2005) and higher concerns regarding her child's risk of gaining weight and consequently the use of similarly restrictive feeding patterns in healthy weight children.

In line with these propositions, some researchers have identified a cross-sectional relationship between maternal concerns regarding her own weight and her concerns regarding her child's weight, among 5-year-old girls (Francis et al., 2001). The proposed relationship between maternal body image and eating concerns and maternal feeding practices has also been supported. Parents with high levels of body dissatisfaction have been found to be more likely to report the use of restrictive feeding practices (Gray et al., 2010). Similarly, maternal dietary restraint, and bulimic symptoms have been cross-sectionally associated with restrictive feeding practices in 5-year-olds (Blissett et al., 2006; Francis et al., 2001). In their recent review, McPhie et al. found seven studies assessing

the relationship between maternal eating pathology (including body dissatisfaction) and maternal feeding styles and reported that most of the studies provided at least partial evidence for the relationship (McPhie, Skouteris, Daniels, & Jansen, 2012). However, few studies have explored the mechanisms through which maternal eating behaviors and feeding practices are associated with child overweight.

Body mass index has consistently been shown to predict body dissatisfaction in young women (e.g., Paxton, Eisenberg, & Neumark-Sztainer, 2006). In addition, it has been suggested that physical changes around pregnancy and the post-pregnancy period contribute to the greatest deviations from the social thin-ideal that a woman will experience, and the extent of these changes makes young mothers very vulnerable to body dissatisfaction (Jordan, Capdevila, & Johnson, 2005). In particular, weight gain and retention after pregnancy has been shown to be related to weight concerns and BMI among young mothers has been shown to be associated with body dissatisfaction (Clark, Skouteris, Wertheim, Paxton, & Milgrom, 2009; Rallis, Skouteris, Wertheim, & Paxton, 2007). These findings suggest a model in which maternal BMI is positively associated with body dissatisfaction (Rallis et al., 2007), which is related to maternal dietary restraint and concern about her child's weight (Baker et al., 1999; Francis et al., 2001), which in turn leads to child weight-focused restrictive feeding practices (Crouch et al., 2007) and then to prospective child weight gain (Faith et al., 2004) (see Fig. 1). Thus, a mother's own concern about her weight and body dissatisfaction may lead her to diet and also to be concerned about her child's weight, contributing to her using weight-focused restrictive feeding practices with the unintended effect of reducing a child's food related self-regulation and, subsequently, child weight gain. However, to date, there have been no prospective explorations of these relationships. The present study therefore sought to explore this model.

Our principle aim was to test our model, prospectively predicting child weight gain, in which we hypothesized that the relationship between maternal body dissatisfaction at Time 1 and child weight gain at Time 2 would be mediated by Time 1 maternal restrictive eating, concern regarding the child's weight and restrictive feeding practices (Fig. 1).

Methods

Participants

As mothers' influence over their children's eating behavior may be presumed to be the strongest when children are very young, we conducted the study among a sample of 2-year-olds and their mothers. Participants were 220 mother-child dyads for which

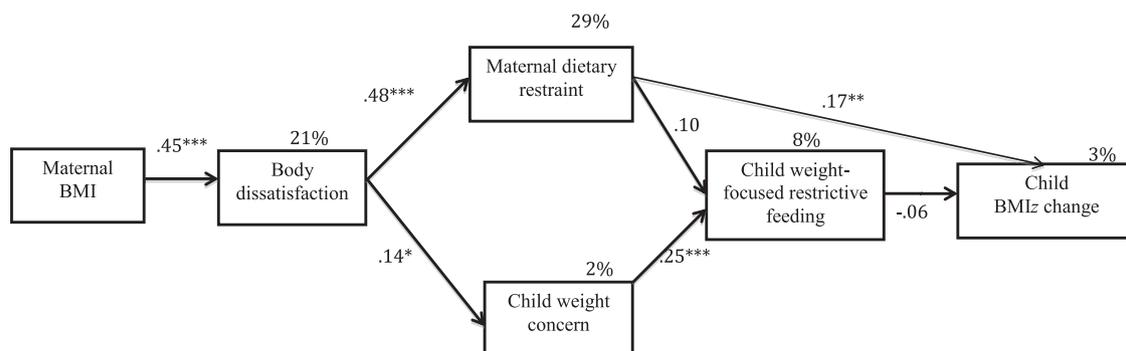


Fig. 1. Proposed (in bold) and final model with Standardized Path Coefficients (β) and Explained Variance. * $p < .05$, ** $p < .01$, *** $p < .001$.

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