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Research report

Parental modelling of eating behaviours: Observational validation of the Parental Modelling of Eating Behaviours scale (PARM)☆

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ABSTRACT

Parents are important role models for their children's eating behaviours. This study aimed to further validate the recently developed Parental Modelling of Eating Behaviours Scale (PARM) by examining the relationships between maternal self-reports on the PARM with the modelling practices exhibited by these mothers during three family mealtime observations. Relationships between observed maternal modelling and maternal reports of children's eating behaviours were also explored. Seventeen mothers with children aged between 2 and 6 years were video recorded at home on three separate occasions whilst eating a meal with their child. Mothers also completed the PARM, the Children's Eating Behaviour Questionnaire and provided demographic information about themselves and their child. Findings provided validation for all three PARM subscales, which were positively associated with their observed counterparts on the observational coding scheme (PARM-O). The results also indicate that habituation to observations did not change the feeding behaviours displayed by mothers. In addition, observed maternal modelling was significantly related to children's food responsiveness (i.e., their interest in and desire for foods), enjoyment of food, and food fussiness. This study makes three important contributions to the literature. It provides construct validation for the PARM measure and provides further observational support for maternal modelling being related to lower levels of food fussiness and higher levels of food enjoyment in their children. These findings also suggest that maternal feeding behaviours remain consistent across repeated observations of family mealtimes, providing validation for previous research which has used single observations.

Introduction

Parental modelling of eating behaviours and attitudes and the consequences for children is a relatively under-researched area compared to controlling feeding practices, such as restricting food intake and pressuring children to eat (e.g., Birch, Davison, & Fisher, 2003; Fisher & Birch, 1999; Francis, Hofer, & Birch, 2001; Palfreyman, Haycraft, & Meyer, 2012). Limited research has shown that outcomes related to parental modelling can be both positive and negative, depending on the behaviours being modelled by the parent and the behaviours that are copied by the child. Indeed, maternal self-reports of modelling have been associated with positive outcomes in children's dietary development, such as greater consumption of healthy foods like fruits and vegetables (e.g., Palfreyman et al., 2012; Tibbs et al., 2001; Young, Fors, Fasha, & Hayes, 2004), lower levels of children's food fussiness, and greater interest in foods (Gregory, Paxton, & Brozovic, 2010). Reduced variety in children's diets and low levels of fruit and vegetable intake have been related to poorer health outcomes in both adults and children (e.g., Dauchet, Amouyel, Hercberg, & Dallongeville, 2006; Hu et al., 2000; World Health Organisation, 2003). However, parental modelling has also been associated with negative outcomes, such as greater intake of unhealthy snack foods (Brown & Ogden, 2004; Palfreyman et al., 2012), elevated levels of dietary restraint and dietary disinhibition (Cutting, Fisher, Grimm-Thomas, & Birch, 1999; Hill, Weaver, & Blundell, 1990), and increased dieting behaviours (Hill & Franklin, 1998; Pike & Rodin, 1991). High levels of dietary restraint, dietary disinhibition and increased dieting behaviours displayed by mothers have been related to increased risks of their children developing maladaptive eating patterns and having higher weight levels (Fisher & Birch, 1995); factors associated with the subsequent development of disordered eating. This contrasting literature suggests the potential for the transmission of both adaptive and maladaptive eating behaviours via children copying behaviours that their parents model. However, to date, these relationships have not been

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explored using *observed* maternal modelling, so it is not clear whether these factors are related to objective assessments of maternal modelling or just to maternal reports. This is a serious omission given that studies have found conflicting results regarding the links between observations of mothers' controlling feeding practices and self-reports of these behaviours (e.g., Haycraft & Blissett, 2008; Lewis & Worobey, 2011; Sacco, Bently, Carby-Sheilds, Borja, & Goldman, 2007).

Measurement of parental feeding practices (including parental modelling) has tended to be via self-report questionnaires (e.g., Birch et al., 2001; Farrow, Galloway, & Fraser, 2009; Webber, Cooke, Hill, & Wardle, 2010ab). However, many existing measures have concentrated on controlling feeding practices (e.g., the Child Feeding Questionnaire; Birch et al., 2001). Those that have measured modelling have a number of limitations, such as including only a few items (e.g., Musher-Eizenman & Holub, 2007), thereby limiting their scope, and employing single-use measures (e.g., Hendy, Williams, Camise, Eckman, & Hedemann, 2008; Tibbs et al., 2001). These limitations with previous measures of modelling motivated the development of the Parental Modelling of Eating Behaviours scale (PARM; Palfreyman et al., 2012). Initial assessments of the PARM using a previous parental self-report subscale of modelling (Musher-Eizenman & Holub, 2007) confirmed its convergent and concurrent validity and its good levels of reliability (Palfreyman et al., 2012).

Few studies have examined the relationships between observed parental feeding practices and self-report data, but those that have done so have produced mixed results. For example, several studies have failed to find any significant associations between maternal self-reported data and observations of controlling feeding behaviours (e.g., Haycraft & Blissett, 2008; Lewis & Worobey, 2011; Sacco et al., 2007). However, Farrow and Blissett (2006) found maternal self-report data were significantly related to relevant observations of maternal feeding behaviours for pressure to eat but not for restriction. This inconsistent pattern of results could be due to mothers being less aware of their restrictive feeding behaviours or being less likely to report such practices if they perceive them to be considered less desirable or are aware of the negative outcomes associated with their use.

Research exploring maternal feeding behaviours has tended to use single observations of family mealtimes (e.g., Blissett & Haycraft, 2011; Blissett, Haycraft, & Farrow, 2010; Drewett, Kasese-Hara, & Wright, 2002; Haycraft & Blissett, 2008; Sacco et al., 2007; Stein, Woolley, Cooper, & Fairburn, 1994; Stein et al., 2001). This is common practice as observational studies are time-consuming for both participants and researchers, are often difficult to recruit to, and can be costly (Simons-Morton & Baranowski, 1991). Interestingly, some research (e.g., Orrell-Valente et al., 2007) has used multiple observations over time to try and counter the effect of the observer through habituation and has calculated an average of the behaviours observed across all sessions. In addition, a study by Young and Drewett (2000) found variations in the eating behaviours of 1 year old children over four separate mealtime observations. However, as highlighted by the authors, this age represents a transitional period between parental feeding and self-feeding, so it is highly likely that eating behaviours observed during this period would be different from those of older children whose eating behaviours are more established. While Young and Drewett's study concentrated on the eating behaviours of children, they also reported variations among mealtimes in terms of parents' feeding behaviours and this, coupled with evidence of a bidirectional relationship between parental feeding practices and children's eating behaviours (e.g. Farrow et al., 2009; Horn, Galloway, Webb, & Gagnon, 2011), would suggest that eating behaviours and feeding practices employed by parents might vary over sequential mealtimes. Thus, Young and Drewett (2000) recommended that future research within this area observe a minimum of two mealtimes. However, to date, research has not explored whether there is a difference between these two methods of collecting observational mealtime data (single versus multiple observations) and whether parental feeding strategies such as restriction or modelling captured during one observation are representative of these strategies captured over several sessions with young children (over the age of 1 year).

In summary, parental modelling of eating behaviours and attitudes is likely to play a significant role in the development of children's eating behaviours. The PARM (Palfreyman et al., 2012) was developed as a tool to measure this construct. However, as has been done with other feeding practice measures (e.g., Stice, Fisher, & Lowe, 2004), further construct validation of the PARM is required by examining how well maternal self-report data on the PARM links to observations of mothers' modelling of eating behaviours. Therefore, the primary aim of this study was to provide further validation of the PARM (and its three individual subscales) by examining the relationships between self-reported and observed modelling behaviours. Following on from the work of Farrow and Blissett (2006), it was hypothesised that self-reported maternal modelling would be closely related to observed maternal modelling. Prior to testing this core aim, it was necessary to determine whether there was consistency in maternal feeding behaviours (modelling, restriction, pressure) across three mealtime observations. Finally, the study aimed to explore the relationships between observed maternal modelling and children's eating behaviours. Based on previous self-report findings (Gregory et al., 2010), it was hypothesised that observed maternal modelling would be significantly related to children's eating behaviours.

Method

Participants

Initially, 18 families of children aged between 2 and 6 years responded to advertisements and, after speaking directly with the researcher, participated in this study. After data collection, one family was excluded due to the mother eating with the target child on only one of the three observed occasions, thereby not permitting the required modelling observations. This left 17 families in this study who were each observed/recorded on three separate mealtimes. Therefore, the total number of mealtime observations conducted was 51.

The mothers ranged in age from 22 to 44 years (mean age of 34.0 years, SD = 6.22). Mothers reported their ethnicity as predominantly White/British with only one family reporting Asian ethnicity. Mothers' mean BMI calculated from measurements recorded by the researcher at session one was 24.54 (SD = 2.09, range 21.20 to 28.80). Mothers had a mean of 5.5 years of education after the age of 16 (SD = 2.03, range 0 to 8 years) and reported working between 0 and 40 hours per week (mean 11.24 hours, SD = 11.42).

The children had a mean age of 4 years and 5 months (53 months; SD = 23.32, range 19 to 73 months). There were 10 male (59%) and seven female (41%) children in the sample. The mean age and gender adjusted child BMI z-score calculated from measurements taken by the research was 0.71 (SD = 1.28, range –1.07 to 2.94; Child Growth Foundation, 1996), suggesting generally healthy child weight.

Measures and procedure

Following Institutional Review Board ethical approval, recruitment occurred in four ways. Participants were recruited by: (i) contacting a list of participants who had taken part in previous studies and agreed to be contacted for future research (n = 2); (ii) online posts placed on parenting websites (e.g., www.netmums.com) (n = 8); (iii) posters displayed in nurseries, preschools, schools and