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Research report

# Parental restriction and children's diets. The chocolate coin and Easter egg experiments ☆

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ABSTRACT

Two naturalistic experiments are reported exploring the impact of parental restriction on children's diets. For study 1, 53 parents gave 75 g of chocolate coins to their child over a weekend. For study 2, 86 parents were recruited prior to the 2 week Easter break when their children would be receiving chocolate Easter eggs. For both studies, parents were randomly allocated to either the non-restriction or restriction conditions and rated their child's preoccupation with the target food and other sweet foods (demanding and eating) at the start and end of the interventions. Perceived and actual food intake was assessed. Children in the restriction conditions consumed fewer chocolate coins and Easter eggs. All children showed decreased preoccupation with chocolate coins or Easter eggs over the course of the studies yet by the end the restriction group were more preoccupied with the target food. In contrast, all children showed an increased preoccupation with other sweet foods as the studies progressed which was greater in the non-restriction group for the chocolate coins study. Overall, restriction resulted in reduced intake but relative increased preoccupation with the food being restricted. Non-restriction resulted in a greater preoccupation with other sweet foods once the target foods had been consumed.



## Introduction

Over the past 40 years there has been an increased prevalence of diet related problems in the Western world including childhood obesity (Chinn & Rona, 2001). For example, in 1999, Reilly and Dorosty reported that 22% of 2630 English children were overweight and 10% were obese by 6 years old and in 2007 research indicated that the prevalence of overweight children in the US had doubled in the past 20 years (Ogden, Carroll, McDowell, & Flegal, 2007). Further, Deckelbaum and Williams (2001) reported that there were approximately 22 million overweight children under the age of 5 years across the world. Research has therefore addressed the problem of children's eating behaviour and subsequent body weight and has highlighted a number of key factors including the obesogenic environment, peer pressure, schools and the child's own tastes and preferences (Lindsay, Sussner, Kim, & Gortmaker, 2006).

One area that has received much consideration is the impact of parental control and the ways in which parents manage their children's diet. In particular, research indicates that parental control is common within families and one study revealed that parental restrictive rules were the most frequently reported style of eating practices in the homes of children aged 7–11 years (Hart, Bishop, & Truby, 2002). In addition, Casey and Rozin (1989) found that 40% of parents believed that restricting access to certain foods would decrease their child's preference for these foods. In line with this, control practices have been conceptualised into different constructs by different authors. For example, Birch and colleagues have carried out a number of studies exploring the impact of control and developed the Child Feeding Questionnaire which operationalised control in terms of monitoring, restriction and pressure to eat (Birch et al., 2001). In a similar vein, Wardle, Sanderson, Guthrie, Rapoport, and Plomin (2002) categorised control in terms of providing food in response to a child's emotional distress, using food as a reward, applying pressure to eat or applying restrictions upon eating. In contrast, Ogden, Reynolds, and Smith (2006) focused on the restrictive aspects of parental feeding practices and categorised this into two main types of control termed covert and overt control. Covert control was defined as when the child is unaware of the restriction placed upon them, such as managing their environment through choosing not to buy unhealthy foods or only taking children to restaurants that sell healthy options, whereas overt control was defined as a form of control that the child is aware of.

Research has also addressed the impact of different types of control on how a child eats and their body weight and several studies suggest that control can be problematic. For example, using the

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CFQ, research has concluded that parental pressure is associated with the development of dietary restraint and disinhibition in young girls (Carper, Fisher & Birch; 2000) and that parental restriction is associated with higher levels of body fat in children (Sprunijt-Metz, Lindquist, Birch, Fisher & Goran; 2002). Similarly, studies indicate that restricting feeding practices increase children's preference for the restricted food (Birch, Zimmerman, & Hind, 1980) and promote overeating when restricted foods are freely available (Fisher & Birch, 1999; Fisher, Birch, Smiciklas-Wright, & Piocciano 2000). Birch (1999) reviewed the evidence for the impact of imposing parental control on food intake and argued that it is not only the use of foods as rewards that can have a negative effect on children's food preferences but also attempts to limit a child's access to foods. She concluded from her review that 'child feeding strategies that restrict children's access to snack foods actually make the restricted foods more attractive' (1999, p. 11). From this perspective parental control would seem to have a detrimental impact upon a child's eating behaviour.

In contrast, however, some studies suggest that parental control may actually reduce weight and improve eating behaviour. For example, Wardle et al. (2002, p. 453) suggested that 'lack of control of food intake [rather than higher control] might contribute to the emergence of differences in weight'. Similarly, Brown and Ogden (2004) reported that greater parental control was associated with higher intakes of healthy snack foods and Ogden et al. (2006) concluded that whereas overt control was associated with an increased intake of healthy snacks, covert control was linked to a decrease in unhealthy snacks. Similar results were also found in another sample of parents with small children (Brown, Ogden, Gibson, & Vogele, 2008).

Research has therefore explored the role of parental control on child's diet and weight. There are however, several problems with this literature which need to be addressed. First, many of the studies are cross sectional in their design and yet draw causal conclusions (even if presented tentatively). There is, however, evidence that some parents only control their children's diet because they are already overweight and over eating with parental control being a consequence rather than a cause of a child's diet and body weight. For example, Birch and Fisher's (2000) path analysis showed that although maternal feeding practices were related to short-term eating regulation, it was in response to overeating and weight gain, rather than a cause of it. Experimental research is therefore needed. In addition, the experimental research that has been completed has often taken place in the laboratory rather than in a naturalistic environment. Although this enables extraneous variables to be controlled it raises questions about the ecological validity of the study. Further, many measures of control are non-specific and refer to controlling diets in general using terms such as 'unhealthy foods', 'some foods' or 'snack foods'. This suggests that parental control is a generalised behaviour and assumes that these terms are interpreted by different parents in the same way. Furthermore, this non-specific approach limits the potential to assess whether controlling one type of food influences a child approach to that food only, or also to other foods in their diet.

The present paper therefore presents the results from two studies designed to add to the current evidence base for the impact of parental control on their child's eating behaviour by addressing some of the problems with the existing literature. First both studies used an experimental design to enable conclusions about causality to be made. Second, the studies took place within the participants' day to day lives thereby increasing the ecological validity of the data and improving its generalisability to normal practice. Third, the form of parental control was specific to one food type (chocolate coins/Easter eggs) and its consequences were measured in terms of both this specific food and an additional related food (sweet foods). This enabled both the specific and generalised impact of control to be assessed. The studies also focused on one form of parental control (i.e. overt control) as this construct finds reflection in the focus on 'restriction' central to all key measures of control and can be manipulated with simple instructions (Brown et al., 2008; Ogden et al., 2006). In particular, study 1 explored the impact of parental overt control on children's preoccupation and intake of chocolate coins over the course of a weekend, whereas study 2 explored the impact of parental overt control on children's preoccupation and intake of Easter eggs over a 2 week period. These foods were selected to address real dilemmas faced by parents at celebratory times of the year (i.e. Christmas and Easter) when their children receive large amounts of chocolate that need to be managed in an effective way. Preoccupation with food was operationalised in terms of demanding and eating behaviours.

## Study 1: the impact of parental restriction on preoccupation with chocolate coins and food intake

### *Method*

#### *Design*

An experimental between subjects design was used with two conditions: parental restriction vs non-restriction of food. All parents were given a 75 g bag of chocolate coins (approx 20 coins) on a Friday to give to their child over the weekend (Saturday and Sunday) and were randomly allocated to either the restriction or non-restriction group. Measures of the child's preoccupation with food (chocolate and other sweets), the parents rating of how much their child had eaten and the actual amount of chocolate consumed was assessed on the following Monday morning. Preoccupation with food involved measures of both demanding and eating behaviours.

#### *Participants*

The sample consisted of 53 children aged 1–7 years (mean age 3 years old (SD = 1.6)) and their parents. The sample was evenly split between boys ($n$ = 28) and girls ($n$ = 24) and the majority were described as normal weight (90.5%). The majority of parents in the study were female (mean age 36 years old (SD = 4.2)), white ($n$ = 47 (90.4%)), and the majority rated themselves as being normal weight (75.5%). They were evenly split between those who had up to graduate ($n$ = 22; 42.3%) and above graduate ($n$ = 30; 57.7%) levels of education. Participants were randomly allocated to either the non-restriction group ($n$ = 29) or restriction group ($n$ = 24). Participant demographics by condition are shown in Table 1.

The two conditions were comparable on all child and parent demographics apart from ethnicity with those in the non-restriction group being all white, whilst five people described themselves as either Asian or other in the restriction group. Ethnic group was used as a covariate in subsequent analysis involving ANOVAs but had no significant impact on the results.

#### *Procedure*

Participants were recruited from the campus nursery or via staff email at a University in the South of England. Once participants had consented to take part in the study they were randomly allocated to either the non-restriction or the restriction group using a random number generator. They were given a 75 g bag of chocolate coins on a Friday to give their child from 10 am on Saturday and continue through to the end of Sunday. Questionnaire data was collected either in person on the Monday or electronically by email.

#### *The intervention*

A 75 g bag of chocolate coins was provided to each parent to give to their child over the weekend. They were then given the