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Parent-child feeding practices in a developing country: Findings from the Family Diet Study

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ABSTRACT

Background and aims: Given the increasing prevalence of childhood obesity in Malaysia, examination of family environmental factors is warranted. Reviews from developed countries report inconsistent findings on the relationship between parental-child feeding practices and child weight-related health outcomes. The current study aimed to examine parent-child feeding practices by familial-child characteristics in Malaysia.

Materials and method: The Family Diet Study was conducted with urban Malay families and included a child aged 8–12 years and their main carer(s). Seven domains of parent-child feeding practices were assessed using the child feeding questionnaire and familial demographics, including socio-economic status, child anthropometry and dietary intake were collected. Inferential statistics were used to explore the relationships between variables.

Results: Of the 315 families enrolled, 236 completed all measures, with the majority of parent-reporters being mothers ($n = 182$). One-third of the children were classified as overweight/obese. Three domains of parent-child feeding practices had median scores of 4.0 out of 5.0 [concern about child overweight (CCO) (Interquartile range (IQR): 3.3, 4.7); pressure-to-eat (PTE) (IQR: 3.3, 4.5) and food monitoring (IQR: 3.0, 5.0)]. The domain of 'perceived child overweight' was positively associated with child age ($r = 0.45$, $p < 0.001$). Children who were overweight ($F = 37.4$; $p < 0.001$) and under-reported energy intake ($F = 13.1$; $p = 0.001$) had higher median scores for the parental perception of risk of child being overweight. Median scores for the CCO and PTE domains were significantly higher in low-income families ($F = 7.87$; $F = 9.75$; $p < 0.05$, respectively).

Conclusion: Malay parents in this present study are concerned about their child's weight, particularly for those overweight. Family size, household income, and child weight status significantly influence parent-child feeding practices. Further research examining the cultural context of family environmental factors related to childhood obesity is warranted within Malaysia.

1. Introduction

Malaysia, an Asian developing country, recently reported that a third of the urban primary school-aged children were either overweight or obese (Poh et al., 2013), consistent with the data from developed countries (Ogden et al., 2014; de Onis, Blössner, & Borghi, 2010). Given the rising prevalence of childhood obesity in Malaysia, investigation into the family environment component of obesity aetiology is needed (Gupta et al., 2012; Maffeis, 2000).

List of abbreviations: BMI, Body Mass Index; CCO, Concern about child overweight; FDS, Family Diet Study; IQR, Inter-quartile Range; MON, Monitoring; NDR, National dietary recommendation; NW, Normal weight; OW, Overweight/obese; PCO, Perceived child overweight; PFR, Perceived feeding responsibility; PPO, Perceived parental overweight; PTE, Pressure to eat; REST, Restriction; RNI, Recommended Nutrient Intake; RSS, Recommended Serving Size; UW, Underweight.

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Treatment for childhood obesity is unlikely to succeed if it focuses only on children, without including parents and the family environment (Diet, 2002). Malaysia, like other developing countries, is undergoing significant environmental change with rapid urbanisation and adoption of westernised cultures and practices (Gupta et al., 2012; Popkin et al., 2012). During early and middle childhood, the family environment is a key factor influencing the development of food preferences, energy intake, eating behaviours, and physical activity preferences and patterns, which may subsequently influence the onset of obesity (Birch & Davison, 2001). The construction and experience of a child's environment can be carried forward to the next generation via the impact of parental diet and lifestyle behaviours, parenting styles and feeding practices (Sleddens et al., 2011).

Parental feeding practices are specific practices that parents use during eating such as pressure to eat healthy food, restriction of less healthful food, monitoring of the child's food intake, or the use of rewards for food consumption. It should be acknowledged that parent-child interactions are bidirectional. Parenting influences children and children also influence parenting within the shared environment (Birch & Davison, 2001). Therefore, parent-child feeding practices are an important factor and can influence children's eating patterns in a positive way (Faith et al., 2004a; Hurley, Cross, & Hughes, 2011; Jiang et al., 2006; Wardle & Carnell, 2007) or can be a negative influence (Hurley et al., 2011; Jiang et al., 2006; Wardle & Carnell, 2007). Parental feeding practices are embedded in feeding styles and may vary based on parental concerns and perceptions of the child's risk for developing a problem in the domain of food, including obesity. They may also vary within the same family, from child to child and between the parents (Darling and Steinberg, 1993). Child-feeding practices, specifically the domains of restriction and pressure, can promote children's overeating in response to readily available and palatable food within the obesogenic environment (Birch & Davison, 2001). Focusing children's attention on external cues, such as food portion size, rewards and finishing all the food on the plate may undermine their ability to respond to internal cues that signal hunger and satiety (Faith et al., 2004a). This has given rise to the terms 'responsive feeding' and 'non-responsive feeding', as summarised in a recent systematic review by Hurley and colleagues (Hurley et al., 2011). Non-responsive feeding is dominated by a lack of reciprocity between parent and child, with the caregiver exerting excessive control over the feeding situation by either forcing, pressuring or restricting food intake, or where the caregiver is completely uninvolved during meals, or where the child completely controls their own feeding situation.

In developing countries, little is known about the impact of child-feeding practices on the nutritional status of children. It has been suggested that parental feeding practices vary widely and with ethnicity and socio-economic status (Hurley et al., 2011; Wardle & Carnell, 2007). In some Asian cultures such as Malaysia, the home setting often includes extended family such as grandparents and other caregivers (Wang et al., 2014). Hence, this family setting within the obesogenic environment may influence the children's eating habits and food intake patterns, but this is yet to be ascertained in the developing countries (Pollard et al., 2011).

Reviews of parental feeding practices have concentrated on specific types of parental control of eating behaviour that influence children's weight-related health outcomes (Collins, Duncanson, & Burrows, 2014; Faith et al., 2004a; Hurley et al., 2011; Wardle & Carnell, 2007). Faith and colleagues reported positive associations between restrictive feeding practices and eating and weight status of children as opposed to other types of general feeding control or domain (Faith et al., 2004a). A review by Wardle and Carnell on families from developed countries reported a range of research designs. The findings were equivocal in that parental control lead to lower or higher adiposity, or had minimal impact on eating and the weight status of the children (Wardle & Carnell, 2007). Hurley et al.'s subsequent systematic review of responsive feeding and child obesity in high-income countries also had equivocal results (Hurley et al., 2011). Such unclear evidence on the relationship between parental feeding practices and children's weight status within studies conducted in developed countries must be interpreted cautiously when considering the context of the developing world.

The relationship between parental feeding practices and child weight status in Malaysia remains unclear as there are currently only three published Malaysian studies that have used the Child Feeding Questionnaire (CFQ) in school-aged children. These studies reported inconsistent associations between child feeding practices and child body weight status (Noor et al., 2012; Serene, Shamarina, & Mohd, 2011; Wan Abdul Manan, Norazawati, & Lee, 2012). Therefore, the purpose of the current paper is to describe the parent-child feeding practices and the related family and child characteristics among families participating in the Family Diet Study (FDS). Given the hypothesis is that high levels of parental involvement during feeding in terms of being restrictive and exerting pressure could produce unintended and counterproductive impacts on children's self-control (Birch & Davison, 2001; Faith et al., 2004a). Hence, the current paper aimed to examine parent-child feeding practices in relation to familial-child characteristics.

2. Materials and Methods

2.1. Study design and participants

This paper is a secondary data analysis of the FDS and was conducted in *Klang Valley, Malaysia* between August 2013 and October 2014. The full study methodology is detailed elsewhere (Yang et al., 2015). In brief, the FDS used a cross-sectional design and multi-stage sampling. This included convenience, simple random and cluster sampling methods to achieve similarity amongst the study sample across multiple sites in terms of demographic characteristics. Data collection was conducted in urban areas and focused on Malay ethnicity." Using EPI-info™ version 5.0 statistical package and based on pilot study data on prevalence of skipping breakfast, the study sample size was estimated to be 220 children and their families. Approval was obtained from ethics committees of University of Newcastle, Australia (H-2013-0065) and International Medical University, Malaysia (IMU 275/2013). Interested families provided informed written consent with child assent and were screened for eligibility based on study inclusion/exclusion criteria. Inclusion criteria included Malay families with one or two main carer(s) living full time with a child aged 8–12 years.

2.2. Parent-child feeding practices

The CFQ assessed parental beliefs, attitudes, and practices regarding child feeding, with a focus on obesity proneness in children aged 2–11 years (Birch et al., 2001). Deviating from the parenting styles approach (Darling and Steinberg, 1993), the concept of domain-specific model for parenting was proposed, where parents are most likely to exert control in child feeding when they are highly interested in child feeding and/or perceive there to be child weight issues (Costanzo & Woody, 1985). The mother (or in the situation where the mother is not applicable, the father) completed the 31-item validated CFQ either in English language (Birch et al., 2001) or Malay language (Noor et al., 2012) based on their preference. As Malay was the first language of this sample,