



# A path analysis model of factors influencing children's requests for unhealthy foods



Simone Pettigrew<sup>a,\*</sup>, Michelle Jongenelis<sup>a</sup>, Caroline Miller<sup>b</sup>, Kathy Chapman<sup>c</sup>

<sup>a</sup> School of Psychology and Speech Pathology, Curtin University, Kent St, Bentley, Perth 6102, Western Australia, Australia

<sup>b</sup> South Australian Health and Medical Research Institute, University of Adelaide, Australia

<sup>c</sup> Cancer Council NSW, Australia

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## ABSTRACT

Little is known about the complex combination of factors influencing the extent to which children request unhealthy foods from their parents. The aim of this study was to develop a comprehensive model of influencing factors to provide insight into potential methods of reducing these requests. A web panel provider was used to administer a national online survey to a sample of 1302 Australian parent-child dyads (total sample  $n = 2604$ ). Initial univariate analyses identified potential predictors of children's requests for and consumption of unhealthy foods. The identified variables were subsequently incorporated into a path analysis model that included both parents' and children's reports of children's requests for unhealthy foods. The resulting model accounted for a substantial 31% of the variance in parent-reported food request frequency and 27% of the variance in child-reported request frequency. The variable demonstrating the strongest direct association with both parents' and children's reports of request frequency was the frequency of children's current intake of unhealthy foods. Parents' and children's exposure to food advertising and television viewing time were also positively associated with children's unhealthy food requests. The results highlight the need to break the habitual provision of unhealthy foods to avoid a vicious cycle of requests resulting in consumption.

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## 1. Introduction

High and increasing levels of child obesity highlight the need for a better understanding of the factors contributing to children's diets. Numerous causal factors have been identified across the full spectrum of variables included in ecological models of behavior, ranging from individual characteristics to the obesogenic environments in which children live (Davison & Birch, 2001; Harrison et al., 2011). The present study focuses on a phenomenon that sits at the nexus of individual, familial, social, and environmental factors contributing to child obesity – children's repeated requests for unhealthy foods (also known as pestering or nagging behaviors) (Bridges & Briesch, 2006; McDermott, O'Sullivan, Stead, & Hastings, 2006).

While requests for unhealthy foods are recognized as an important factor influencing the quality of children's diets (Atkin, 1978; Davison et al., 2015; Hitchings & Moynihan, 1998; Huang et al., 2016; Papoutsis, Nayga, Lazaridis, & Drichoutis, 2015), little is known about the factors that encourage children to engage in this behavior. The small body of

relevant work has consistently found the number of requests to be greater among younger children and the success rate higher among older children, with this pattern of results attributed to younger children being more influenced by external factors that trigger requests and less skilled in negotiating with their parents (Bridges & Briesch, 2006; Buijzen & Valkenburg, 2008; Ebster, Wagner, & Neumueller, 2009; Isler, Popper, & Ward, 1987; Kelly, Chapman, Hardy, King, & Farrell, 2009). Commonly identified external factors that constitute triggers for children's requests include television viewing and associated exposure to advertising for unhealthy foods (Hitchings & Moynihan, 1998; Buijzen & Valkenburg, 2008; Birch & Fisher, 1998; Galst & White, 1976; Hayter et al., 2015; Story & French, 2004).

In terms of request frequency, a US study of 2–6 year olds found that 49% had requested an advertised food item and 57% had requested a visit to an advertised store or restaurant in the previous week (Borzekowski & Robinson, 2001). In Australia, 65% of parents reported that their children aged 5–12 years asked them for advertised food products 'always' or 'sometimes' (Kelly et al., 2009). In a mall intercept study, 75% of Australian parents shopping with children aged 3–16 years reported that their children requested at least one food product while in the store, with previous exposure to food advertising reported by the parents as a factor influencing this behavior (Campbell et al., 2014). These results are consistent with the argument

\* Corresponding author.

E-mail addresses: [simone.pettigrew@curtin.edu.au](mailto:simone.pettigrew@curtin.edu.au) (S. Pettigrew), [Michelle.jongenelis@curtin.edu.au](mailto:Michelle.jongenelis@curtin.edu.au) (M. Jongenelis), [Caroline.Miller@sahmri.com](mailto:Caroline.Miller@sahmri.com) (C. Miller), [kathyc@nswcc.org.au](mailto:kathyc@nswcc.org.au) (K. Chapman).

that a primary objective of child-directed advertising is to stimulate purchase requests (Bridges & Briesch, 2006; McDermott et al., 2006; Center for Science in the Public Interest (CSPI), 2003).

Despite the acknowledged importance of food requests to the quality of children's diets (McDermott et al., 2006; Huang et al., 2016; Fisher et al., 2015; Kraak & Story, 2015; Pettigrew, Jongenelis, Chapman, & Miller, 2015a), work investigating the nature and causes of these behaviors has been limited and largely confined to the disciplines of marketing and consumer research (Bridges & Briesch, 2006; Isler et al., 1987; Gram, 2010; Kwai-Choi Lee & Collins, 2000; Lawlor & Prothero, 2011; Marshall, 2014; Marshall, O'Donohoe, & Kline, 2007). The primary focus of this research has been the factors associated with parental acquiescence and resistance (Walsh, Meagher-Stewart, & Macdonald, 2015), and little is known about the factors that influence the extent to which children request unhealthy foods. Identifying and modelling the relative importance of predictor variables can inform the development of interventions designed to reduce children's requests and enhance parents' ability to cope with this behavior (Ebster et al., 2009).

Research in the broader area of parents' willingness to allow children to influence purchases has examined additional variables to those that have been the focus of work relating to children's food requests. These additional variables include parent and child gender, household income, perceived social norms, and parents' television viewing (Ebster et al., 2009; Kwai-Choi Lee & Collins, 2000; Calloway et al., 2016; Crosby & Grossbart, 1984; Ekstrom, 2007; Foxman, Tansuhaj, & Ekstrom, 1989; Hamilton, 2009; Hamilton & Catterall, 2006; Ward & Wackman, 1972; Lora et al., 2016). Social norms are defined as "rules and standards that are understood by members of a group and that guide and/or constrain social behavior without the force of laws" (Cialdini & Trost, 1998). The results of these prior studies indicate that perceived social norms can result in greater compliance with children's requests, the gender of the parent and child can influence the nature of requests and their outcomes in varying ways, and lower levels of television viewing among children and their parents reduce the likelihood of acquiescence. The data in relation to income are mixed, with some studies indicating that higher available income facilitates greater compliance with requests (Ebster et al., 2009; Ekstrom, 2007) and other work suggesting that lower household income may make parents more likely to acquiesce in an attempt to avoid stressful situations and prevent their children from appearing different to others (Davison et al., 2015; Fisher et al., 2015; Hamilton, 2009; Hamilton & Catterall, 2006). Some research suggests that the amount of time parents can spend with children is inversely related to their tendency to comply with requests (Turner, Kelly, & McKenna, 2006). This points to the possible relevance of family structure (e.g., one- vs two-parent household) and the number of children in the home as additional factors influencing request compliance.

Although research on predictors of children's requests (as opposed to parental acquiescence) is lacking, it has been postulated that children's success leads to further requests via increased confidence in their ability to influence their parents (Calloway et al., 2016; Flurry & Burns, 2005). At least some of the factors of relevance to parental acquiescence are therefore likely to also apply to children's requests because of the close relationship between these two variables. Further, the child consumer socialization literature notes the importance of parents' attitudes to children's television viewing, their beliefs about the effects of advertising on children, and their attitudes to particular products in determining consumption-related parenting practices (Ebster et al., 2009; Crosby & Grossbart, 1984; Carlson & Grossbart, 1988; Dens, De Pelsmacker, & Eagle, 2007). Requests for unhealthy foods can actually result in parents holding more favorable attitudes to unhealthy foods (Pettigrew, Jongenelis, Quester, Chapman, & Miller, 2015b), possibly due to parents' need to reduce cognitive dissonance resulting from the provision of requested unhealthy foods. These parent-related variables are therefore also likely to feature in a comprehensive model of children's request behaviors.

Identifying and modelling the relative importance of predictor variables can inform the development of interventions designed to reduce children's requests and enhance parents' ability to cope (Ebster et al., 2009). The present study extends the very limited and largely dated body of work on the factors associated with children's requests for unhealthy foods. The objective was to identify relevant environmental factors and assess their relative importance via structural equation modelling. The resulting model may be of assistance to policy makers and practitioners in their efforts to assist parents address children's requests for unhealthy foods to support healthy dietary behaviors in children.

## 2. Methods

A large web panel provider (PureProfile) was commissioned to recruit approximately 1200 Australian parents and their 8–14 year old children to participate in a national online survey on food consumption. This child age range was selected to access children with the reading skills required to complete the survey but young enough to be mainly reliant on their parents for food provision and thus likely to engage in regular food requests. In Australia, this age group tends to consume more non-core foods (i.e., those that are higher in fat, sugar, and salt) than younger age groups, with around 40% of their daily energy requirements derived from these foods (AustralianBureauofStatistics, 2014; Whitrow et al., 2016).

Ethics approval for the study was received from a University Ethics Committee. All adults and children participating in the study provided informed consent as part of the online survey. Both child and parental consent were obtained for participating children. As members of the PureProfile web panel, the adult respondents received a small token payment for participating in the study.

As shown in Table 1, the online survey contained items relating to the factors that are postulated to be associated with children's food requests and parents' perceptions of the influence that children have over household purchases (Davison et al., 2015; Ebster et al., 2009; Fisher et al., 2015; Kwai-Choi Lee & Collins, 2000; Crosby & Grossbart, 1984; Ekstrom, 2007; Foxman et al., 1989; Hamilton, 2009; Hamilton & Catterall, 2006; Ward & Wackman, 1972; Lora et al., 2016; Turner et al., 2006; Carlson & Grossbart, 1988; Dens et al., 2007). These factors can be grouped into four categories: (1) demographic variables – age gender, body mass index (BMI), education, household income, and socioeconomic status (SES: as per the Australian Bureau of Statistics' Socio-Economic Indexes for Areas by postcode (AustralianBureauofStatistics, 2011)); (2) environmental factors – family structure, number of children in the home, television viewing, and exposure to food advertising; (3) attitudes – perceived social norms, attitudes to unhealthy foods, and the perceived influence of food advertising on children; and (4) children's behaviors – requesting and consuming unhealthy foods. Items were administered to both parents and children where possible, depending on the relevance and suitability of specific items for children (see Table 1).

Slight wording and scale anchor modifications were made to some of the items included in the children's survey to compensate for their less-developed cognitive processing abilities. For example, the items relating to the dependent variable (children's requests for unhealthy foods) were phrased as follows: parents' survey – "Your children ask you to buy treats, lollies, soft drink, or fast food that they have seen advertised" (response options on a 5-point scale: 1 (*Never*) to 5 (*Daily*)); children's survey – "I ask my family to buy me treats, lollies, soft drink, or fast food that I have seen advertised" (response options on a 4-point scale: 1 (*Never*) to 4 (*Once a day*)). Six focus groups with parents and children ( $n = 64$ ) were conducted to test the appropriateness of the items for both groups prior to survey launch, resulting in only minor wording changes.

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