

Sarah Campbell

Bachelor of Psychology (honours)

**A mixed method examination of food marketing directed
towards children in Australian supermarkets**

Professional Doctorate of Clinical and Health Psychology

School of Psychology

University of Newcastle

December 2011

The thesis contains no material which has been accepted for award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text.

Acknowledgements

Many people have provided assistance with this piece of work and I would like to thank them for their contribution.

My thanks go to Rachel Coventry, Seng Hoe Lee, Dana Sparkes, Laura Martin, Sarah Messer, and Gemma Reeves for their assistance in conducting the intercept interviews.

I am very appreciative of the support and advice given by Kathy Chapman and Bridget Kelly in designing the project and input toward the manuscript. A big thank you to Fiona Stacey for her help with conducting the data collection, analysis and input into the article.

A huge thanks to both my research supervisors for all their hard work and support during the whole process. To Jenny, I am grateful for all the help and advice. For Erica, your time, patience and constant encouragement has been essential in getting this project completed – many thanks.

To my beautiful wife, who somehow stood by me through all of this – thank you for the food, advice, strength and courage you have provided.

My family and friends have been a source of encouragement, humour, and support through all of this. I particularly want to thank my parents for their rock-like insistence that I would get there. I am dedicating this piece of work to my father, Andrew Campbell, as a way of thanking him for always encouraging me to strive to learn and grow. Thank you Dad.

Abstract

Scope: Food marketing toward children is evident across many forms of media and at the point-of-sale. There is little previous research into children's requests for food/drinks in the supermarket and the influence of promotional strategies on these requests.

Purpose: The purpose of this study was to determine the prevalence of children's food/drink requests made whilst grocery shopping with a parent/caregiver. The study also aimed to gain further understanding of parents' experience of food marketing directed towards children in the supermarket environment and dealing with food/drink requests whilst shopping.

Method: A mixed methods design was used. *Intercept interviews* (N=158) were conducted with parents/caregivers accompanied by a child/ren on exiting 9 supermarkets in the Newcastle region, New South Wales. Parents were asked about the prevalence of food requests by child/ren generally and during the most recent supermarket visit. Information about the types of food/drinks requested and whether parents purchased any of the requested food/drinks was sought. Food/drink requests were categorised into food groups and then more broadly defined as core or noncore foods. Additional demographic information was collected. *Focus groups* (n=13) and telephone interviews (n=3) were conducted to explore parents' experiences of supermarket shopping with children and children requesting food/drink items. These discussions sought further information on the impact of marketing directed towards children on food/drink requests in the supermarket and dealing with pestering for food whilst grocery shopping.

Results: Of the 158 intercept survey participants (30% response rate), 73% of respondents reported a food/drink request by their child during the supermarket visit. Most requested food items (88%) were unhealthy foods, with chocolate/confectionery being the most common food category requested (40%). Most parents/caregivers (70%) purchased at least one food item requested during the shopping trip. Parents/caregivers purchased a food/drink item regardless of whether they perceived the request to be healthy or not. There was a tendency not to purchase a requested product for

a younger child. Qualitative interviews identified themes associated with food requests and prompts in the supermarket. Discussions established the following themes: parents' experience of pester power in the supermarket; prompts for food requests in the supermarket; parental responses to pestering in the supermarket environment; and strategies to manage pestering and minimise requests for food items.

Conclusions: Food/drink requests from children are common during supermarket shopping. Despite the majority of the food/drinks requested being unhealthy, parents often purchase these foods. The healthiness of the food/drink item did not influence the decision to purchase the requested product. Parents/caregivers reported that food promotion impacted on children's requests for food/drink items whilst grocery shopping. They suggested that point-of-sale tactics and television advertising had the greatest effect on children's food/drink requests. Parents reported difficulties dealing with constant requests for food/drink items throughout the supermarket and expressed desire for environmental changes to reduce pestering including confectionery-free checkouts, minimisation of child-friendly placement of products, and reducing children's exposure to food marketing in general.

Implications: Parents are likely to benefit from being provided with skills to deal with food/drink requests and pestering when shopping. Changes to current regulations around food promotion aimed at children need to be made to reduce exposure and protect children from the effects of unhealthy food marketing.

The thesis has 3 main sections. Section 1 examines background nutritional knowledge prior to conducting a critical review of the relevant literature, section 2 presents empirical findings in the format of a manuscript submitted for publication in the journal Health Promotion International, and section 3 presents an extended discussion of the findings.

Table of Contents

BACKGROUND	7
1. HEALTHY NUTRITION AMONGST CHILDREN AND ADOLESCENTS	7
TABLE 1: GENERAL DIETARY GUIDELINES FOR CHILDREN AND ADOLESCENTS	7
TABLE 2: THE AUSTRALIAN GUIDE TO HEALTHY EATING (1998): SUGGESTED SAMPLE SERVINGS FOR CHILDREN AND ADOLESCENTS	9
1.1 HEALTHY WEIGHT	14
1.2 IMPACT ON DENTAL HEALTH	15
1.3 ESTABLISHMENT OF LIFELONG HABITS AND IMPACT ON FUTURE HEALTH	16
1.4 INFLUENCES ON CHILDREN'S FOOD CHOICES	17
2. FOOD MARKETING DIRECTED TOWARDS CHILDREN – A CRITICAL REVIEW	17
2.1 TELEVISION ADVERTISING	18
2.2 INTERNET	19
2.3 CHILDREN'S MAGAZINES/PRINT MEDIA	20
2.4 POINT-OF-SALE PROMOTION	21
3. DOES MARKETING IMPACT CHILDREN'S CHOICES?	23
4. CHILDREN'S VIEWS AND UNDERSTANDING OF PROMOTIONAL TECHNIQUES	26
5. PARENTS' VIEWS ON FOOD PROMOTION DIRECTED TOWARD CHILDREN	29
6. SYSTEMATIC REVIEW OF INTERVENTIONS TO INCREASE PARENTS' ABILITY TO RESIST "PESTER POWER"	31
SUBMITTED JOURNAL MANUSCRIPT	33
EXTENDED DISCUSSION	56
1. SUMMARY OF THE FINDINGS	56
2. INTERPRETATION OF THE FINDINGS IN RELATION TO THE LITERATURE	61
3. SHORTCOMINGS/FLAWS OF THE CURRENT STUDY	64
4. HEALTH IMPLICATIONS OR APPLICATIONS OF THE FINDINGS	65
5. SUGGESTIONS FOR FUTURE RESEARCH	72
6. CONCLUSION	74
REFERENCES	75
APPENDICES	82
APPENDIX 1: INTERCEPT INTERVIEW	82
APPENDIX 2: FOCUS GROUP/TELEPHONE INTERVIEW SCHEDULE	86
APPENDIX 3: DEMOGRAPHIC QUESTIONS PROVIDED TO PARTICIPANTS OF FOCUS GROUPS/TELEPHONE INTERVIEWS	89
APPENDIX 4: ADDITIONAL RESULTS	91
APPENDIX 5: SCOPE AND INFORMATION ON SELECTED JOURNAL	92
APPENDIX 6: EMAIL CONFIRMATION THAT THE JOURNAL MANUSCRIPT WAS ACCEPTED FOR REVIEW	98

BACKGROUND

1. Healthy nutrition amongst children and adolescents

Nutrition and diet is viewed by health experts as an important part of healthy development and disease prevention from early childhood (Magarey, Daniels, Boulton, & Cockington, 2003). Children and adolescents often set the course for their future health through their adherence to, and parental encouragement of, a healthy eating pattern (Lien, Lytle, & Klepp, 2001; Magarey et al., 2003; te Velde, Twisk, & Brug, 2007). Although there is some overlap with healthy recommendations for adults, there are specific Australian guidelines for healthy eating for children and adolescents (see Table 1).

Table 1: General dietary guidelines for children and adolescents

(National Health & Medical Research Council: Dietary guidelines for children and adolescents in Australia 2003)

<i>Children and adolescents should be encouraged to:</i>	<i>Care should be taken to:</i>
Eat plenty of vegetables, legumes and fruits.	Limit saturated fat and moderate total fat intake. Low-fat diets are not suitable for infants.
Eat plenty of cereals (including breads, rice, pasta and noodles), preferably wholegrain.	Choose foods low in salt.
Include lean meat, fish, poultry and/or alternatives.	Consume only moderate amounts of sugars and foods containing added sugar.

<i>Children and adolescents should be encouraged to:</i>	<i>Care should be taken to:</i>
Include milk, yoghurts, cheeses and/or alternatives. Reduced-fat milks are not suitable for young children under 2 years, because of their energy needs, but reduced-fat varieties should be encouraged for older children and adolescents.	
Choose water as a drink.	

The dietary guidelines for children and adolescents (National Health and Medical Research Council, 2003) outline the important aspects of food and drink choices for young people and report that children and adolescents should “enjoy a wide variety of nutritious foods” (p. 45). The Australian Guide to Healthy Eating (AGHE) (1998) guideline offers suggested sample servings for the different food groups and draws attention to the varied nutritional needs of different age groups and how adequate servings change with age (Table 2). In the table there are two examples provided for each age group with the first example including a diet that included a higher intake of bread, rice, pasta and grains. Whilst the second example suggests food servings drawn more evenly across all the food groups. It is noted that “extra food” is listed as a category and indicate that foods consumed from anything but the suggested groups should be limited (Children’s Health Development Foundation & Deakin University, 1998).

Table 2: The Australian Guide to Healthy Eating (1998): suggested sample servings for children and adolescents

Age group (years)	Cereals (including breads, rice, pasta and noodles)	Vegetables (including legumes)	Fruit	Milk, yoghurt, cheese	Lean meat, fish, poultry, nuts and legumes	Extra food *
4-7	5-7	2	1	2	½	1-2
	3-4	4	2	3	½-1	1-2
8-11	6-9	3	1	2	1	1-2
	4-6	4-5	1-2	3	1-1 ½	1-2
12-18	5-11	3	3	3	1	1-3
	4-7	3-4	3-4	3-5	1-2	1-3

*The foods that do not fit into the five food groups, or “extra food”, are those foods that are not necessary to provide the nutrients the body requires and some contain high levels of fat, salt and sugars. These foods are likely to be energy-dense and examples include biscuits, cakes, desserts, pastries, soft drinks, chips, chocolate and sweets. The recommendation suggests that people in general choose these foods sometimes or in small amounts.

Fruit and vegetables

Fruit and vegetables provide nutrients and vitamins that are viewed as an important part of healthy growth and development. Evidence purports that a diet high in fruit and vegetable consumption (including legumes) is associated with lower levels of cardiovascular disease, cancer, type 2 diabetes, and possibly hypertension (National Health and Medical Research Council, 2003). Nearly 2% of the worldwide burden of disease and over 2.5 million deaths each year are attributable to insufficient intake of fruit and vegetables (Lock, Pomerleau, Causer, Altmann, & McKee, 2005). Further detail can be extracted from studies to associate particular foods (and the nutrients they contain) as being protective for specific diseases; hence the guidelines

suggest choosing a variety of different foods including fruits and vegetables. Recommended fruit and vegetable intake increases as children develop (as displayed in Table 2). Research consistently establishes that the Australian population (across all age groups) falls significantly short of the recommended intake (Population Health Division, 2008).

Cereals, wholegrain cereals and dietary fibre

Guidelines recommend a high intake of cereals, in particular wholegrain cereals, as they tend to be a good source of carbohydrates, dietary fibre (DF), protein, and other nutrients, as well as being generally low in fat. There are recommendations that identify specific daily intake of DF for children of different ages and gender (National Health and Medical Research Council & New Zealand Ministry of Health, 2006). These guidelines are important because DF and wholegrain consumption are linked to a number of health benefits for children and adolescents. DF has been found to promote normal gastrointestinal function (specifically laxation) and assist in the regulation of normal blood glucose, blood pressure and cholesterol levels (Anderson et al., 2009; Ludwig et al., 1999). Studies have found that a higher intake of wholegrain cereals is associated with lower body mass index (BMI) and waist circumference (O'Neill, Zanovec, Cho, & Nicklas, 2010). Wholegrain and DF consumption appears to play a role in preventing and possibly treating high BMI in children (Anderson et al., 2009; Swinburn, Caterson, Seidell, & James, 2004). In general, it has been established that children who follow a dietary pattern of high wholegrain and DF consumption are more likely to meet the recommended daily intake of a number of nutrient requirements (Anderson et al., 2009). Evidence demonstrates that DF plays a role in reducing the risk factors linked to a number of chronic diseases such as hypertension and hypercholesterolemia (Anderson et al., 2009; Ludwig et al., 1999). It also appears to play a protective role in developing future chronic diseases such as cardiovascular disease (including coronary heart disease, stroke, peripheral vascular disease), type 2 diabetes, and some types of cancer (Anderson et al., 2009; Ludwig et al., 1999).

Dietary fat

Fats are a high source of energy in the diet and are essential for growth and development. Early on in life (generally regarded as up to the age of 2 years), fats should not be restricted in the diet as they play an important role in infant development (National Health and Medical Research Council, 2003). However, the term 'fat' encompasses a number of different types of fat and these differ in their chemical structure and impact on the human body. The group that gains the most attention in the dietary recommendations is that of saturated fat. High intake of saturated fats is linked to increased BMI and cholesterol levels (Swinburn et al., 2004). Intake of saturated fats early on in life may contribute to the risk of developing cardiovascular disease later in life (Law, 2000). Saturated fats are found in a variety of foods that tend to be animal-based such as cream, milk, butter, cheese, and in some meats and oils. The dietary guideline for children and adolescents (aged 5 - 18 years) recommends that fat contribute to no more than 30% of the daily energy intake and saturated fats should contribute no more than 10% (National Health and Medical Research Council, 2003). Excessive eating of high fat foods is a contributor to increased BMI and therefore overeating of these types of food should be limited.

Salt and sodium

Dietary salt (which is the main source of sodium) is predominantly consumed through processed food, however it is also added to cooking or used at the dinner table. The current National Health and Medical Research Council recommendations for sodium intake among Australian children and adolescents are 140–280 milligrams a day for infants, 460–1730mg/day for 1–3 year olds, 600–2300mg/day for 4–7 year olds, and 920–2300mg/day for children aged 8 years and over and for adolescents (same as for adults) (National Health and Medical Research Council, 2003). It is recommended that for children and adolescents to meet these requirements that they should consume fresh food, foods normally processed without salt, and low salt or no-added-salt food products, and they should avoid adding salt to food. Research into sodium has suggested that there is strong evidence to believe that a reduction in sodium intake is likely to decrease hypertension and

potentially the cardiovascular diseases closely linked to high blood pressure (National Health and Medical Research Council, 2003). Studies have found that on average Australians of all ages are consuming more than the recommended intake of sodium (Beard et al., 1997; Boorman, Cunningham, & Mackerras, 2008). Although it is important to advise people to consume less salt and to select low-salt or salt-reduced foods, the widespread use of salt in processed food and food prepared away from home is a major barrier to achieving any meaningful reduction in dietary intake. It is estimated that 65-75% of sodium intake is consumed through salt added in food manufacturing (Edwards, Kaye, & Druce, 1989; James, Ralph, & Sanchez-Castillo, 1987).

Sugars and energy intake

Sugars occur naturally in food, however they are also added to many foods. Examples of foods that tend to be high in added-sugar include confectionery, cakes, pastries, biscuits, fruit drinks, cordials and carbonated soft drinks. Foods with high added-sugar content often have a lower nutrient content but tend to be energy dense (Swinburn et al., 2004). There is some evidence that links high intake of sugars with excessive total energy intake and reduced intake of other high nutrient foods (e.g. fruits, vegetables, milk and grains) (Johnson et al., 2009). Further studies support the concept that energy-dense, nutrient poor foods may be substituted for nutrient rich foods (Kant, 2000; Swinburn et al., 2004). Research into common eating patterns in Australia show that people's diets are increasing in energy intake and a larger proportion of this energy is consumed in foods obtained from outside of the home (Department of Human Services, 2005; National Health and Medical Research Council, 2003). The guidelines recommend that foods high in sugar and fat whilst also low in nutrients should be limited and preferably not replace more nutrient-rich food options. The guidelines encourage and recognise the value of physical activity in children and the balance between intake of energy and energy expenditure. High consumption of energy dense foods, including sweetened soft drinks, has been shown to be positively related to an increase in BMI in children (Johnson, Mander, Jones, Emmett, & Jebb, 2008; Swinburn et al., 2004). This links with the recommendation that

water should be the drink of choice and highlights the importance of limiting the intake of beverages high in sugar content. There is strong evidence to suggest that high intake of sugar and particular sweetened soft drinks (particularly consumed between meals) results in a greater number of dental caries (Slater, Gkolia, Johnson, & Thomas, 2010). It is suggested that for most Australians the consumption of up to 15–20 per cent of energy as sugars is compatible with a healthy diet and intake of larger amounts than this could contribute to a decline in nutrient density (National Health and Medical Research Council, 2003).

Dietary guidelines for children and adolescents aim to promote the importance of a nutrient-rich and varied diet for disease prevention and to combat malnutrition (National Health and Medical Research Council, 2003). They also highlight the importance of a diet that limits the consumption of high fat, energy dense foods that have been shown to increase the risk of health (including dental) problems, both during childhood, and also in the future. The guidelines suggest that developing healthy eating habits is vital in establishing a healthy diet in the future (National Health and Medical Research Council, 2003), combating obesity and the health risks associated with these factors. The concern is related to the health implications of a diet with high levels of foods low in fibre, high in fat, and dense in energy. However, it is also important to ensure that these types of food do not replace a more nutritious option. Bell et al. (2005) found that adherence to the recommendations of the AGHE are particularly poor, with children and adolescents consuming higher amounts of their daily food energy from noncore or extra foods than other age groups. This intake from general extra foods is higher than what is recommended for a healthy diet. The following section briefly describes the potential health implication of consuming an unhealthy diet during childhood including the increased risk of becoming overweight, increased risk of dental caries and chronic disease, and the establishment of unhealthy habits that are likely to persist into adulthood.

1.1 Healthy weight

The balance of energy input and energy expenditure predominantly influences weight status, as well as general health. Although there are genetic and biological factors that can contribute to being overweight or obese, modifiable factors associated with diet and physical activity are identified as playing a major role in being overweight or obese (Biro & Wien, 2010). These factors can interact with an individual's social, economic, environmental and cultural factors to influence a person's weight (Biro & Wien, 2010). A diet low in fibre, and high in fat and energy dense foods is associated with an increase in weight (Johnson et al., 2008; Swinburn et al., 2004). Energy imbalance is also important in weight loss and maintenance. High BMI is associated with a predisposition to a number of different health concerns including certain cancers, cardiovascular disease and type 2 diabetes (Goran, Ball, & Cruz, 2003; Suriano, Curran, Byrne, Jones, & Davis, 2010).

The definition for classifying a person as overweight or obese is most commonly based on the BMI. When specifically considering children (aged 2-17 years) the BMI cut-off points take into account weight and height as well as a child's age and gender (Cole et al, 2000). Recent data estimated that 23-25% of Australian children (aged 5-17 years) were overweight or obese (Australian Bureau of Statistics, 2009; Department of Health and Ageing, 2008). This equates to approximately 600,000 children (Australian Bureau of Statistics, 2009). There has been an increase in the overall rate of overweight and obesity for children of 4% since 1995. Furthermore, there has also been a trend toward the higher body mass index, with an increase in childhood obesity to 8% in 2007-08 from 5% in 1995 (Australian Bureau of Statistics, 2009). The proportion of overweight children remained much the same across these time periods at 17% (Australian Bureau of Statistics, 2009).

The health concerns relating to high BMI start at a young age and health issues emerge in childhood. These health concerns include medical problems such as cardiovascular risks, metabolic traits, and respiratory illnesses (Goran et al., 2003). Obesity is also associated with a range of social and

emotional concerns (Fonseca, Matos, Guerra, & Pedro, 2009; French, Story, & Perry, 1995; O'Dea, 2006). Children who are overweight or obese are more vulnerable to psychological and social problems such as victimisation, bullying, discrimination, and poor self-esteem (French et al., 1995; O'Dea, 2006; Petry, Barry, Pietrzak, & Wagner, 2008).

1.2 Impact on dental health

Oral health is related to diet in numerous ways and nutrition impacts on teeth during childhood development. The most significant effect of nutrition on dental health is on the development of dental caries and erosion of the enamel (Moynihan & Petersen, 2004). Dental erosion is increasing and is generally associated with dietary acids, with a common source being soft drinks (Moynihan & Petersen, 2004). There is convincing evidence of a correlation between the amount and frequency of added sugar consumption and dental caries (Moynihan & Petersen, 2004). It is recommended that the amount of added sugars in the diet should be no more than 10% of energy intake. In addition, the frequency of intake of foods or beverages containing added sugars should be limited to no greater than 4 times per day (Moynihan & Petersen, 2004). This recommendation is supported by research conducted by Slater et al. (2010) who found that children (aged 12 or younger) were at greater risk of tooth extraction with higher consumption and frequency of soft drink consumption, particularly if they drank soft drink between meals.

Prevalence data from children and adolescents attending Australian school dental services in 2003-04 reported that dental decay was reasonably common (Armfield & Brennan, 2010). Results identified that 6 year old children had approximately a 50% history of decay (missing, decayed or filled) in their deciduous (baby) teeth, with 2 teeth affected on average. Of the 10% of cases with the worst history, on average 9 deciduous teeth were affected. Between 40-57% of 12-15 year olds had some history of decay in their permanent teeth. In 12 year olds there was an average of just over one tooth being affected by decay and 2 in the 15 year olds. The 10% with the highest history of decay had on average 5-8 permanent teeth affected by decay (Armfield & Brennan, 2010)

Caries experienced amongst Australian Army recruits aged 17-25 years also increased between 2002-2003 and 2008 (Hopcraft, Yapp, Mahoney, & Morgan, 2009). Similar trends in younger Australians are reflected in data from the Australian Dental School Scheme with a recent increase in the prevalence of dental caries detected in both 6 year olds (deciduous teeth) and 12 year olds – 24% and 15% increase respectively (Armfield & Spencer, 2008). Children in the lowest socioeconomic areas have more dental decay than those in the highest socioeconomic areas (Australian Institute of Health and Welfare, 2011).

1.3 Establishment of lifelong habits and impact on future health

When children do not adhere to the recommended dietary guidelines it not only impacts on their current health, it can lead to complications in the future. The National Health and Medical Research Council (2003) guidelines highlight the importance of establishing healthy food habits and attitudes in the younger years. Longitudinal studies suggest that eating patterns developed in childhood are likely to continue into adulthood (Lien et al., 2001). Children and adolescents who are overweight or obese are more likely to be overweight or obese in adulthood making them more susceptible to adult illnesses associated with increased BMI (Biro & Wien, 2010). The evidence suggests that once an individual is overweight or obese it is more difficult to reduce weight (Biro & Wien, 2010). This trend puts them at risk for certain cancers, cardiovascular disease, type 2 diabetes, sleep apnoea, hypertension, and musculoskeletal problems (Biro & Wien, 2010; Morrison, Glueck, Daniels, & Wang, 2010).

In a large cohort study, children with higher BMI were prospectively associated with a greater risk of mortality from cardiovascular disease (Baker, Olsen, & Sorensen, 2007). It has been established that increased childhood energy intake showed a positive association with cancer mortality (excluding cancers related to smoking) later in life. These findings confirm the value of a healthy diet in the early years and suggest that the incidence of some cancers may have their origins in childhood (Frankel, Gunnell, Peters,

Maynard, & Davey Smith, 1998). Maynard, Gunnell, Emmett, Frankel, and Davey Smith (2003) explored childhood intake of fruit, vegetables and antioxidants and subsequent development of adult cancers. Findings demonstrated that a greater intake of fruit in childhood is a protective factor in regards to adult cancers (Maynard et al., 2003). Ness et al. (2005) found that vegetable intake decreased adult cardiovascular risk (Ness et al., 2005). Encouraging healthy eating patterns in youth may play a significant role in effectively preventing chronic disease.

1.4 Influences on children's food choices

There are a number of factors that appear to influence children's food choices: 1. Food marketing, 2. Food availability/exposure, 3. Feeding strategies, 4. Modelling of eating, and 5. Opportunities for food involvement (Campbell, Crawford, & Hesketh, 2007). Campbell et al. (2007) reported that parents considered that food marketing had an impact on their child's food choices and preferences but managed these influences in varied ways. The current study will focus on the effect of food promotion aimed at children and the influence on food requests. This phenomena is referred to as "pester power" - defined as children requesting a product in response to food promotion or marketing. The following section reviews the literature on food marketing directed towards children.

2. Food marketing directed towards children – A critical review

The role of marketing is to create a desire for the product being promoted. Snack foods—marketed not for their nutritional value, but for their fun and taste—often replace healthier food options in children's diets. Marketing often targets children through tie-ins between movies, fast-food restaurants, and toys (Hastings, McDermott, Angus, Stead, & Thomson, 2007). The strategy being that children will then pressure their parents to visit certain restaurants and buy foods for them based on whether they can obtain a desired toy. Food is promoted through a number of different mediums, with television advertising gaining the majority of the attention due to the prevalence and long history of promoting food, particularly aimed at children. The marketing landscape is changing and companies are branching in to new areas of

promotion. In response to this change, recent research has also explored other areas of food promotion aimed at children including children's magazines, the Internet and point-of-sale strategies (Cairns, Angus, & Hastings, 2009).

2.1 Television advertising

Review articles have synthesised research on the extent of food promotion to children and concluded that food promotion is dominated by advertising on television (Cairns et al., 2009; Hastings et al., 2007; Hastings et al., 2003). They found that previously advertising was dominated by the "Big Four", which included sweetened breakfast cereals, soft drinks, confectionery, and savoury snacks (Hastings et al., 2003). More recent findings suggest that there is an additional group, which has been added to these categories, and now includes fast food outlets (Hastings et al., 2007). The review authors concluded that the advertised diet differs greatly from the healthy eating pattern promoted by health professionals and public health bodies, and marketing techniques relied on promoting messages associated with taste, fun or fantasy, rather than nutritional content (Cairns et al., 2009; Hastings et al., 2007; Hastings et al., 2003).

In Australia, more recent content analysis of television food advertising during children's viewing times has shown similar findings to these global review papers. Research has reported rates of between 25-32% of advertising on television being devoted to food at times when children are more likely to be viewing television (Chapman, Nicholas, & Supramaniam, 2006; Kelly, Hattersley, King, & Flood, 2008; Kelly, Smith, King, Flood, & Bauman, 2007; Zuppa, Morton, & Mehta, 2003) as determined by ratings data (Australian Communications and Media Authority, 2007). When categorising advertised foods into healthy/core foods and unhealthy/noncore foods, it was established that between 66-81% of these promoted foods are unhealthy/noncore foods (Chapman, Nicholas, & Supramaniam, 2006; Kelly, Hattersley, et al., 2008; Kelly et al., 2007; Zuppa et al., 2003). Kelly et al. (2007) found that the proportion of unhealthy/noncore foods increased during children's viewing times and children's programs. This result was supported by the Chapman et

al. (2006) study, which established that the two peak periods for unhealthy/noncore foods were weekdays between 6-9pm and early morning on Saturdays (peak times for children to be watching television) (Chapman, Nicholas, & Supramaniam, 2006). The most food advertisements were for fast food restaurants, followed by chocolate and confectionery (Zuppa et al., 2003).

Kelly, Hattersley, et al. (2008) explored the use of promotional characters (e.g. celebrities and cartoons) and premium offers (e.g. giveaways and competitions) in Australian food television advertising. When comparing children's peak viewing times to non-peak times, there were significantly more advertisements that contained promotional characters and premium offers during the peak times. Not only did they find that the majority of advertisements were for unhealthy/noncore foods, this was also the case when using these marketing techniques. The rate of these types of advertisements was higher during popular children's television programs when compared to popular adult programs (Kelly, Hattersley, et al., 2008). The evidence consistently demonstrates that television food advertising is predominantly directed toward children and focuses on unhealthy/noncore food types.

2.2 Internet

The Internet has become increasingly popular for companies to use as a platform for promoting food products and the research into marketing aimed at children through this media is relatively new. One Australian study examined both food product websites and popular children's websites (Kelly, Bochynska, Kornman, & Chapman, 2008). They selected websites based on traffic data and recorded both branded and non-branded food references, as well as coding the food into categories. The research established that there are a variety of marketing techniques utilised on the websites explored. Food product sites used methods such as branded education, competitions, promotional characters (such as spokes characters, celebrities, sports personalities, and cartoon characters), downloadable items (for example screen savers, screen wallpaper, or colouring pages), branded games, tie-ins

and links to other websites, and designated children's sections (Kelly, Bochynska, et al., 2008). It was found that brand identifiers were strongly featured and the popular children's websites had a bias toward unhealthy/noncore food references (60.8%) (Kelly, Bochynska, et al., 2008).

A study conducted in the United States, with relatively fewer websites reviewed, also explored popular children's sites (Alvy & Calvert, 2008). They found that most of these websites (despite not necessarily being for food companies) contained food marketing. The results indicated that the foods promoted on these websites were often of low nutritional quality, such as confectionery and breakfast cereals high in sugar content (Alvy & Calvert, 2008). The authors concluded that Internet marketing might have an undesirable influence on children's diet and food preferences. The authors also suggested that the seamless integration of content and marketing observed on some children's sites might make Internet promotion even more convincing than television advertising (Alvy & Calvert, 2008). The study found that the techniques that marketers used involved bold and colourful text, dynamic images, and animation (Alvy & Calvert, 2008). Recent research into food marketing on the Internet suggests that this may be another avenue that allows companies to promote food products and brands, with a skew toward the marketing of less healthy food choices.

2.3 Children's magazines/print media

Children's print media and magazines are also becoming a popular arena for companies to market products and research has been conducted to explore this area. Australian studies have looked at the content analysis of food references and marketing in Australian children's magazines (Kelly & Chapman, 2007). They found that there was a large amount of food references within children's magazines. The majority of these foods were determined to be unhealthy (63.7%), with the 7-12 year old market being the most likely to be exposed to unhealthy food promotion. Most of the food references were not direct advertisements, with over half of the references appearing in the editorial section. Other strategies to promote food items in magazines included competitions, activities, recipes, children's icons and

links to other media (Kelly & Chapman, 2007). Unlike Kelly & Chapman (2007), Jones and Reid (2010) quantified the extent and nature of branded food products. They found 444 incidents of food promotion in 82 different issues, indicating that branded food products are prevalent in children's magazines (Jones & Reid, 2010). Interestingly, only 13.1% of these could be categorised as an advertisement. They suggested that techniques used to promote these foods was "covert or embedded", using strategies to incorporate the advertising into the activity (Jones & Reid, 2010).

Cowburn & Boxer (2007) explored the amount of food advertising in British children's magazines and the link to Internet sites. Looking only at direct food advertising they found that explicit advertisements formed a small proportion of total advertising in the magazines. However, these advertisements tended to promote less healthy foods. Of the advertisements identified, approximately half of them guided the reader to an Internet site. When the researchers studied these sites, they found that over half of the websites were aimed at, or had a section aimed at, children (Cowburn & Boxer, 2007). The Internet sites used a number of different techniques to engage the visitor including competitions, games, product placement, interaction with cartoon characters, downloadable items (that included the characters or product), sign up for newsletters, platforms to send e-cards, and view television advertisements. They determined that some of these methods encourage repeat visits and made it difficult for children to identify the promotional intent of the interaction (Cowburn & Boxer, 2007). Children's magazines promote food not just through direct advertising but also via numerous other techniques. These food references are more likely to be unhealthy/noncore foods and may provide links to other forms of media.

2.4 Point-of-sale promotion

The supermarket environment plays a role in promoting food products and this has been explored in Australian research. The techniques that may be used to promote items specifically to children include product placement, packaging, giveaways, tie-ins or cross promotions. One study examined the checkouts in Australian supermarkets and found that these food products are

predominantly energy-dense foods (Dixon, Scully, & Parkinson, 2006). The most common food items found at a checkout were chocolate (87%), chewing gum (81%) and sweets/lollies (80%). The survey established that the majority of checkout food and drink displays are within reach of children (Dixon et al., 2006).

Chapman, Nicholas, Banovic, and Supramaniam (2006) surveyed Australian supermarkets to explore the extent and nature of activity used to promote food products, specifically investigating seven specific food categories (sweet biscuits, snack food, confectionery, chips/savoury, breakfast cereals, dairy snacks, and ice cream). Results indicated that food promotional activity ranged from 9-35% on food products in the seven food categories (Chapman, Nicholas, Banovic, et al., 2006). They found that of the foods that had promotional methods they were more likely to be categorised as an unhealthy food choice (82%), and that the promotional activity was almost always directed toward children. The most common forms of promotional activities were cartoon characters and television or movie characters. Additional tactics were giveaways and competitions, with sports stars rarely used to promote a food product. The use of multiple promotion methods on single products was also common. Hebden and colleagues (Hebden, King, Kelly, Chapman, & Innes-Hughes, 2011) found that approximately three quarters of food and beverage products that used promotional characters on the package were for less healthful foods. The most common form of promotional characters were company-owned characters (such as the Milky Bar Kid[®]), with this type of promotion not regulated in any manner. They suggested that the promotional characters featured on food packaging were developed to be appealing to children by the use of “personification or anthropomorphic features” (Hebden et al., 2011).

A study in the United States examined cross-promotional activity (agreement between companies to promote each other’s product or brand) aimed at children and adolescents in supermarkets over a period of time (Harris, Schwartz, & Brownell, 2010). They found that cross-promotion increased by 78% over the study period (two years). The use of third-party licensed

characters from television or movies was the most common form of cross-promotion. Other forms of cross promotion involved celebrities, other types of television or movie promotion, toys and games, sport teams, philanthropies or theme parks. Similar to Australian research, most (82%) of the foods that were identified as utilising cross-promotion were for unhealthy/noncore foods (Harris et al., 2010). It would suggest that use of cross-promotion is a strategy that is becoming more common in promoting foods to children and adolescents. Point-of-sale techniques promote unhealthy foods in the supermarket, with many of these foods being marketed to children through packaging (cartoon characters and movie or television characters), position, giveaways and cross-promotions.

3. Does marketing impact children's choices?

Review articles that have investigated the impact of food marketing on children's food choices and behaviours have consistently concluded that marketing does play a role. Coon and Tucker (2002) reported that the effects of television food advertising on children's consumption have generally been limited to experimental designed trials, with a small sample size. The findings of the review suggested that children's exposure to television food advertising generally resulted in an increased intake of the advertised food product when compared to a control group (Coon & Tucker, 2002). A separate systematic review undertaken by Hastings and colleagues (2003), looking at research undertaken in a variety of countries, found that "food promotion is having an effect, particularly on children's preferences, purchase behaviour and consumption" (p. 3). The assimilation of reviewed studies suggested "that children recall, enjoy and engage" (p. 2) with advertising (Hastings et al., 2007). The review authors reported that effects are not just due to chance, the influence is independent of additional factors, and functions at a brand and category level (Cairns et al., 2009; Hastings et al., 2007; Hastings et al., 2003). It was found that children have good recall of food advertising and describe food advertisements as among their favourite types of advertising (Hastings et al., 2007). These review articles suggest that the evidence supports that children's food choices are influenced by television advertising and food promotion.

The notion of “pester power” has been explored in research and specifically whether children are more likely to pester their parent for a food item as a result of advertising. The findings from surveys conducted with children and parents indicate that there is a correlation between the amount of time children spend watching television and the number of requests they make for an advertised food product (Hastings et al., 2007). Surveys conducted with children determined that children are keen to try advertised products and frequently approach their parents to purchase these items (Hastings et al., 2007). Reviews have shown that parents often acquiesce to “pester power”, particularly if they are a parent from a disadvantaged background (Hastings et al., 2007). They reported that mothers in the disadvantaged group attach more importance to promoted food products and trustworthiness when compared to other groups. Interestingly, more complex research into the influence on children has demonstrated that advertising may not have an effect on children’s beliefs about what comprises a healthy diet, but may have an impact on more specific nutritional knowledge. For example, one of the studies reviewed established that watching television had a significantly negative impact on nutritional knowledge in regards to foods that were strongly promoted as ‘diet’ products (Hastings et al., 2007).

There has been additional research that has further contributed to the evidence that food promotion affects children’s choices. One study involved parents observing their children watching television and recording behaviours associated with advertisements (Arnas, 2006). They noticed that whilst their child was watching television food advertising a majority of them either commented on the product or requested the product. The parents also recorded whether their child reacted to the advertised products when they went shopping at the supermarket (Arnas, 2006). Most of the children at least noticed the product, with approximately half of the children making a request to purchase the product, with 9% insisting and crying in their request for the product (Arnas, 2006). The authors concluded that interaction with the advertisement was more likely to predict a request for purchase (Arnas, 2006).

Dixon, Scully, Wakefield, White and Crawford (2007) explored children's television viewing patterns and their attitudes, beliefs and behaviour toward unhealthy/noncore foods. They concluded that increased exposure to television advertising was correlated with more positive attitudes and beliefs associated with unhealthy/noncore foods. It was also positively related to reported intake of unhealthy/noncore foods, independent of other variables (Dixon et al., 2007). Children who watched more commercial television perceived unhealthy/noncore food as more healthy and assumed that other children ate such food more often. The researchers found that the variables that measured the amount of time watching television explained more variance than the demographic variables in accounting for children's beliefs, attitudes and behaviours in regards to unhealthy/noncore foods (Dixon et al., 2007).

A small experimental trial examined the impact of a television advertisement on food consumption in children (Halford et al., 2008). They found that compared to the control condition (toy advertisement), a food advertisement was associated with a significantly higher energy intake immediately after viewing the intervention. In addition, overweight children's intake was significantly greater than normal weight children, and obese children showed the greatest response after exposure (Halford et al., 2008).

An experimental study looked at the effect of advertising in children's magazines on children's (5-12 year olds) food consumption. The study also explored parents' perception of food choices and related topics through a survey. Findings were that children reported that healthiness and taste were the main determinants of snack choice. When measuring consumption after exposure to the magazine food advertising, children in both groups predominantly chose unhealthy options. However, the experimental group was more likely to select advertised foods than the control group. The parent survey revealed that parents suggested that their children often made food requests and more than half of the parents surveyed attributed advertising as the influence for these requests (Jones & Kervin 2010).

A more complex question to explore has been whether food advertising and promotion has impacted on the prevalence of childhood overweight and obesity. Evidence indicates that there is an association between the proportion of children who are overweight and the rate of advertising per hour on television during children's viewing periods (Lobstein & Dobb, 2005). Another study used mathematical modelling to quantify the impact of television food advertising on the rates of excess body weight in children (6-11 year olds) in a number of countries (Goris, Petersen, Stamatakis, & Veerman, 2010). The results indicated that there was a reasonable effect of television advertising on overweight and obesity in children. In Australia, the estimate of contribution was between 10-28% (Goris et al., 2010). Of the countries examined, the United States had the highest prevalence of overweight and obesity in children and also the greatest exposure to food advertising on television. Although this evidence does not provide causality, it does suggest correlational evidence that food advertising may play a role in children's diet and potential weight. Convincing evidence demonstrates that food marketing toward children has an effect on children's food choices and behaviour. Children's consumption is increased after viewing food promotion in clinical settings but less is known about real-life settings.

4. Children's views and understanding of promotional techniques

One question that has arisen in regards to advertising and young people is the ethical dilemma of whether children are more vulnerable to the effects of advertising than adults due to their cognitive development. Traditionally, children have been viewed as a susceptible group who need protection from the persuasive techniques of marketing. Piaget's theory of child development has provided a framework for research into children's understanding of advertising (Kunkel et al., 2004). The research has a history of focusing on relevant developmental stages that children would move through specifically related to understanding of advertising. Previous research indicates that it is only at the age of 5-6 years that children are able to consistently distinguish the difference between an advertisement and surrounding content. Another milestone is determined to occur at the age of 7-8 years, when children begin

to have an understanding of the persuasive intent of advertising. However, it is not until a later age that children are able to utilise cognitive strategies to combat the persuasive intent of advertising. When children reach the concrete operational stage (6–11 years old) they start to develop the ability to use cognitive defences against advertising. Children are seen to be sceptical of advertising by the age of 8-11 years and show an understanding of the purpose of advertising. Interestingly research suggests that although children may have this capacity, they may not spontaneously use these strategies, instead requiring prompting (Kunkel et al., 2004). Historically, children have been viewed to be most vulnerable to food promotion up until the age of 7-8 years when they develop the ability to understand the intent of marketing.

Further research has established that these early theories do not necessarily correlate with findings. Theories have since been developed and there is some indication that as children age beyond 7-8 years, they continue to demonstrate influence from advertising. Moses and Baldwin (2005) discuss the implication of executive functioning and how this may play a role in older children's response to advertising. The idea is that whilst children are in the process of developing their executive functioning they may find it difficult to use inhibitory control, working memory, impulse control, decision making, and higher order skills when dealing with the influence of advertising (Moses & Baldwin, 2005). It is suggested that executive functioning develops throughout childhood, adolescence and into early adulthood. This would suggest that understanding what an advertisement is, and the persuasive intent of advertising, may not be enough to ensure that children can combat the effects of advertising.

Review level evidence has shown that children do not necessarily demonstrate a reduction in influence of advertising with age and that the youngest age group actually had the weakest effect from advertising (Livingstone & Helsper, 2006). They provide evidence to suggest that a single-process model does not adequately account for the findings in this area. Instead they pose a dual process model, whereby processing can occur in the peripheral or the central route. The peripheral route would involve the

processing of superficial features, such as colourful pictures, jingles or engaging physical aspects. It is proposed that younger children are more likely to be utilising the peripheral route and therefore more persuaded by these features. In contrast, the central process route is strategic and analytic, with persuasion relying on the audience connecting in a cognitive manner. Therefore, persuasion is based on the appeal and argument put forward by the advertisement. The authors argue that this theory supports the findings that children of all ages are influenced by advertising, but what appeals to children will change with age (Livingstone & Helsper, 2006).

Nairn and Fines (2008) also constructed a dual process model using the notion of implicit mental processes (automatic, reflexive, and impulsive) and explicit mental processes (controlled, reflective, and deliberative). They pose that advertising can influence implicit attitudes, which can actually result in a stronger influence on behaviour. This can occur even when someone might have a different explicit attitude. The implication is that under certain circumstances people are more likely to draw on implicit attitudes, for example when under time pressure or spontaneous judgements. They argue that advertising may influence children's implicit attitudes and that this may be facilitated by more contemporary techniques used to promote products. The authors suggest that the changes to advertising made in recent years are more covert and delivered in different modalities as opposed to the earlier forms of advertising (Nairn & Fine, 2008). They question the ethics associated with advertising to children, based on this theory, and the impact of the sophisticated strategies used to market food to children and adolescents.

There is some evidence that children do demonstrate a reasonable understanding of advertising, however they continue to be influenced by it. Mehta et al. (2010) conducted focus groups with Australian children to explore their views about television advertising of food products. The results indicated that children related and interacted with food advertising on television. This age group (8-11 years old) appeared to have a reasonable understanding of the intent of advertising and the possible deception

involved. Regardless, children showed a desire for the advertised products and described using strategies or “pester power” to try to influence their parents to purchase the product (Mehta et al., 2010). Research into children’s cognitive capacity and the relationship with food advertising would suggest that children would remain susceptible to advertising even once they develop knowledge to protect against the influence of promotion.

5. Parents’ views on food promotion directed toward children

Both qualitative and quantitative research has been undertaken in Australia to explore parents’ views of food advertising directed toward children, with a focus on television advertising. Focus groups conducted as part of one study indicated that parents believed that television advertising did have an influence on their children’s food preferences (Ip, Mehta, & Coveney, 2007). They reported that premiums and toy giveaways encouraged their child’s desire to purchase a food product, either directly, or indirectly through peers. Parents acknowledged that they had ultimate control over children’s food consumption, but felt that television advertising and peers had the greatest influence on children’s desire for a food product. The discussions suggested that advertisements provoke children to use “pester power” to attain the promoted product. Parents noted that younger children were likely to believe an advertisement and found it difficult to understand the way advertising worked. Parents believed that there were two main consequences of food advertising directed toward children: childhood obesity and parent-child conflict. It was acknowledged that parents did give in to “pester power” on occasion, even when they were aware that the food was an unhealthy or unnecessary option.

Overall, parents were concerned about television food advertising and the influence on children. They commented on the tactics used in advertising and the perceived differences between children’s understanding when compared to adults. Specifically parents felt that methods used in television advertising to promote foods often played to children’s emotional response to, and limited understanding of, promotional techniques. Other concerns included the repetitive nature of the advertisement, little focus on the product being

advertised, and the ethics associated with advertising techniques (for example, truthfulness of the message, use of personalities, and the vulnerability of children). Parents expressed that television food advertising could lead to parent-child conflict over decisions about food (Ip et al., 2007).

Australian quantitative research of parental views and understanding of food advertising directed at children (Morley et al., 2008) found that the majority of parents were concerned about unhealthy food advertising on television that is aimed at children. In particular parents were concerned about specific advertising strategies, such as toys and giveaways, use of popular personalities or characters, and the volume of television advertising of unhealthy food products during children's viewing hours (Morley et al., 2008).

Advertising directed toward children on Australian television is governed by regulation through the Children's Television Standards. These standards are self-regulated by the industry and rely on complaints made by the community to identify breaches. When specifically looking at regulations governing television advertising to children, Morley et al. (2008) found that less than half of the parents interviewed were aware that regulations currently existed. Both Morley et al. (2008) and Ip et al. (2007) found that parents strongly supported a more stringent enforcement of the current regulations. There was also overwhelming backing from parents that there be a reduction in television food advertising aired during times when children watch television (Morley et al., 2008). However, in the qualitative research (Ip et al., 2007) parents acknowledged that although they may support a ban on food advertising during children's television viewing periods, they felt that it was unlikely that this would happen. Some parents felt that financial or commercial barriers would make it difficult to make changes to television advertising. It is noted that some parents felt that a ban on television food advertising may lead to an increase in advertising in other mediums of food marketing aimed at children.

Food marketing directed toward children is common on television, Internet, children's magazines and at point-of-sale. In all settings the advertised food products are less healthy. Marketing strategies are varied and sophisticated

and there is a question regarding the ethical nature of such marketing. Parents both in Australia, and internationally, report increased parent-child conflict and increased requests for food items following exposure to food marketing. The following section describes a systematic review designed to identify health promotion or health education interventions to assist parents to counter the effects of food marketing and requests for food products from their children (“pestering”).

6. Systematic review of interventions to increase parents’ ability to resist “pester power”

Parents acknowledged that they acted as a mediator between food marketing and their children’s food consumption (Ip et al., 2007). However, it was uncertain whether there had been any trials looking at educating parents about effective strategies to combat or resist “pester power” and the request for food items as a result of advertising. To answer this question, a systematic review was conducted of intervention research conducted with parents to provide education on such strategies.

Method: The systematic review search terms were (parent* OR guardian* OR child* OR toddler* OR school child* OR infant*) and (parent training or educat* program* or health education or intervention or parent child relations or parent child communications or skill development or obesity prevention or health promot* or health knowledge or training or EXP health education or EXP health promotion or EXP behavior therapy) and (pester power or food marketing or food promotion or advertis* or marketing) limited to English language, humans and randomised control trial, comparative study, evaluation study or meta analysis (where possible). Search platforms were MEDline, Embase, Psych INFO, Informit Health Collection, Scopus, and Cinahl. The timeframe was not restricted.

Results: The search resulted in 413 possible studies, with 14 abstracts and 5 full papers reviewed. Of the abstracts that were reviewed the majority of the studies did not conduct research that was relevant to the topic and was therefore deemed ineligible. When examining the abstracts and full papers it

was found that any previous research that involved randomised controlled studies did not evaluate interventions that targeted parents in an effort to increase knowledge, confidence or strategies to deal with “pester power”. It was noted that there are a number of interventional studies that examined tools developed to address the more overall aim of targeting parental involvement in reducing childhood obesity and overweight, but none were identified that specifically looked at resistance of “pester power”.

Conclusion: There is a shortage of strategies identified to assist parents in dealing with requests for food products from children and the influence of food marketing.

The current research project aims to examine food requests made by children in the supermarket environment. The absence of previous similar research precluded meaningful hypothesis formulation and therefore no hypotheses have been included. The next section is the completed manuscript submitted to the journal Health Promotion International for review and possible publication. Due to the required word limit for this publication, further results and an extended discussion are incorporated in the final section of the thesis.

SUBMITTED JOURNAL MANUSCRIPT

ABSTRACT

The purpose of this study was to determine the prevalence of children's food requests, and parents' experiences of food marketing directed towards children, in the supermarket environment. A mixed methods design was used. Firstly, intercept interviews were conducted with parents accompanied by a child/ren on exiting supermarkets (sampled from a large regional centre in Australia). Parents were asked about prevalence and types of food requests by child/ren during their supermarket visit and whether they purchased these foods. Secondly, focus groups (n=13) and telephone interviews (n=3) were conducted exploring parents' experiences of supermarket shopping with children and the impact of child directed marketing. Of the 158 intercept survey participants (30% response rate), 73% reported a food request during the supermarket visit. Most requested food items (88%) were unhealthy foods, with chocolate/confectionery being the most common food category requested (40%). Most parents (70%) purchased at least one food item requested during the shopping trip. Qualitative interviews identified four themes associated with food requests and prompts in the supermarket: parents' experience of pester power in the supermarket; prompts for food requests in the supermarket; parental responses to pestering in the supermarket environment; and strategies to manage pestering and minimise requests for food items. Food requests from children are common during supermarket shopping. Despite the majority of the requests being unhealthy, parents often purchase these foods. Parents reported difficulties dealing with constant requests and expressed desire for environmental changes including confectionery-free checkouts, minimisation of child-friendly product placement, and reducing children's exposure to food marketing.

Keywords: food marketing, food advertising, child, supermarket

INTRODUCTION

The prevalence of childhood overweight and obesity is concerning with the most recent rates in Australia being reported at 23% (Department of Health and Ageing, 2008), with lower socioeconomic groups more likely to be overweight or obese (Australian Bureau of Statistics, 2009). Both inactivity and a diet high in energy-dense, low fibre, high fat foods play a role in higher body mass (Johnson, Mander et al., 2008) and findings indicate that children are consuming higher than recommended levels of energy from non-core (unhealthy) foods (Bell, Kremer et al., 2005).

Evidence indicates that food marketing impacts on children's food preferences, food requests and food purchases (Cairns, Angus et al., 2009). This is supported by parent report, which has identified food marketing as one of the factors that influence children's food preferences (Campbell, Crawford et al., 2007; Ip, Mehta et al., 2007). Food marketing directed towards children is prevalent in a variety of media and tends to promote unhealthy foods (Cairns, Angus et al., 2009), including on television (Kelly, Smith et al., 2007; Kelly, Chapman et al., 2011), children's popular websites (Kelly, Bochynska et al., 2008) and in children's magazines (Kelly and Chapman, 2007; Jones and Reid, 2010). Further, research into the effects of this marketing have identified that children respond positively to television food advertising and that the more television children watch, the more positive their attitudes and beliefs are about unhealthy foods (Dixon, Scully et al., 2007). Further experimental research has shown that exposure to television food advertisements results in increased food intake (Halford, Gillespie et al., 2004), with overweight and obese children shown to have an even higher intake of energy after exposure to television food advertisements (Halford, Boyland et al., 2008). Similar to television advertising, research has shown higher consumption of advertised foods amongst those children who viewed magazines with food advertising (Jones and Kervin, 2011).

Children requesting food items as a result of food promotion is commonly referred to as "pester power". Importantly, children have been shown to interact with and enjoy food promotion (Cairns, Angus et al., 2009). A child's

interaction with television food advertisement is a strong predictor of food requests when grocery shopping (Arnas, 2006).

In addition, there is growing evidence to suggest that food promotion is highly prevalent in the supermarket environment. This in-store promotion is referred to as point-of-sale marketing, which includes product placement, in-store promotions and product labelling. Research exploring checkout displays in Australian supermarkets found that the majority of foods available at the checkout were unhealthy (Dixon, Scully et al., 2006). They suggested that the displays were almost always within reach of children and the content placed in these displays was conducive with children often being the target of the promotion (Dixon, Scully et al., 2006). A number of Australian studies have examined food promotion aimed at children on food packaging within supermarkets. Cartoon characters (company-owned) and television/movie characters were the most common promotional tactic used on packaging, (Hebden, King et al., 2011) with other strategies including giveaways and competitions (Chapman, Nicholas et al., 2006). Most of the food products that used promotional techniques were considered to be non-core foods (Chapman, Nicholas et al., 2006; Hebden, King et al., 2011).

Children are regarded as a vulnerable population due to their cognitive development and limited cognitive strategies to resist marketing techniques (Harris, Brownell et al., 2009). Research suggests that even when children develop an understanding of what a television advertisement is, and the intent behind advertising, they may still be susceptible to the advertised message (Livingstone and Helsper, 2006; Harris, Brownell et al., 2009). Parents report concern relating to the amount of food promotion to children and describe little confidence in the regulation system to protect children (Morley, Chapman et al., 2008). However, qualitative research suggests that parents acknowledge that although their children's food preferences are influenced by other factors, they as parents have ultimate control over their children's eating (Ip, Mehta et al., 2007).

Much of the previous research examining the impact of food marketing on children's subsequent behaviour and consumption has been conducted in experimental, laboratory-based settings with no previous research identified that measured the prevalence of pester power in the supermarket environment. There is no known research that explores parents' views on what may be influencing children's food requests in the supermarket environment. However, as pester power involves children's food requests to parents, parent reports of the extent of children's food requests can assist in establishing the prevalence of this marketing effect (Kelly, Baur et al., 2011). The current study aimed to establish the prevalence of food requests in the supermarket environment, and to explore associations of parent and child demographics with both the occurrence of food requests and the behavioural response made by parents. Additional objectives included gaining further insight into parents' perspectives of shopping with children; the role of food marketing directed towards children on requests for food items; and to understand how parents deal with pester power in the supermarket environment.

METHOD

A mixed method design was used, with the initial component involving quantitative exit interviews with families leaving supermarkets. These interviews aimed to quantify the prevalence of food requests in the supermarket environment. Qualitative focus group and telephone interviews with parents who regularly shop with their children were carried out. This was to allow for a broad group discussion of the issues surrounding pester power from a parents' perspective. As such, the qualitative component provided in-depth information to help explain the findings of the quantitative phase (Steckler, McLeroy et al., 1992). Triangulation of the results was integrated at the interpretation stage.

Ethics approval was gained from the University of Newcastle Human Research Ethics Committee.

Phase 1: Intercept interviews

Selection of supermarkets

Parents were recruited at nine supermarkets (out of approximately 22) in greater Newcastle, a large regional centre in New South Wales (NSW), Australia. A comprehensive list of all the supermarkets in the area was compiled from the online White Pages. The market share of the supermarkets in the Australian market was identified (Australian Competition and Consumer Commission, 2008). Supermarkets were randomly selected with recruitment stratified to represent market share. Approval was sought from the shopping centre management and/or supermarket manager to conduct the interviews. Permission was not obtained for five supermarkets.

Selection of parents

Parents or caregivers exiting a supermarket accompanied by at least one child aged 3-16 years were eligible to take part in the study. Parents were approached for a face-to-face interview (5-10 minutes) as they exited the supermarket. Every second potential participant that left a nominated checkout was approached. If more than one child accompanied the parent, they were instructed to complete the interview based on the child that had the most recent birthday ('reference child').

Procedure

Intercept surveys occurred between 9.30-11.30am and 3.00-5.00pm on weekdays during school term 3 (September 2008 and 2009). Interviewers (six Dietetics students) were trained in conducting interviews and undertook data collection.

Intercept surveys

The intercept survey included demographic questions (household income, education level, employment status, age and gender of the reference child, number of children present, and postcode). The surveys posed the same questions for all participants with appropriate skip options to ensure only relevant questions were asked. Most questions were closed with options such as yes/no or never, rarely, sometimes, and frequently. Open-ended questions were then categorised accordingly. Items explored the concept of pester

power in relation to previous behaviour (“how often does your child request food or drink items?”) and the current supermarket visit (“did your child/ren request a food or drink item during your shopping trip today?”). If an item was requested, it was determined whether the item was purchased and parents’ perceived reason for the request. The actual requested item/s were recorded and why the item may not have been purchased (eg. unhealthiness or cost). Parents’ perception of the healthiness of the requested item was identified as well as possible other factors that may have influenced the decision to purchase or not. Food and beverage items requested during the supermarket visit were coded into 18 specific food categories using a previously developed tool (Kelly, Smith et al., 2007). This tool divides foods into two broad categories: healthy/core foods and unhealthy/non-core foods developed on levels of salt, sugar, fat and dietary fibre and is based on the Australian Guide to Healthy Eating (Department of Health and Ageing, 1998). For brevity, both food and beverages are referred to throughout the manuscript as ‘food’ requests or items.

Data analysis

Data were analysed using SPSS version 20.0 for Mac (SPSS Inc., Chicago, IL, USA). T-test, ANOVA and Pearson chi-square analyses were used to assess the impact of children’s sex and age, and family income on the prevalence of requests and the purchase of requested item/s.

Phase 2: Focus groups and telephone interviews

Recruitment and data collection

Parents were recruited via schools and workplaces. Two public primary schools in Newcastle, NSW were purposively sampled, to recruit a range of participants, with one school each from a higher and lower socioeconomic area. An information flyer about the focus groups was included in schools’ newsletters, prompting potential participants to contact the researchers if they were interested in taking part. Recruitment at one school did not result in sufficient interest to hold a focus group, hence data were collected through telephone interviews (n=3). Previous research indicates that it may be more difficult to recruit participants from lower socioeconomic populations, which

may have played a role in the low parental involvement in the focus group from this school (Gross, Filardo et al., 2005). Staff members at the University of Newcastle who were parents were also invited to participate in a focus group discussion. Prior written informed consent was obtained.

Two focus groups and three telephone interviews were conducted. All parents (n=16) who participated in the discussions were female and were regularly accompanied by their children (\geq one child aged 3-16 years) when grocery shopping. Parents were offered a small gift for participating. Focus group discussions lasted 40-60 minutes and the telephone interviews 15-25 minutes. All surveys were facilitated by one member of the research team (SC) with the focus groups scribed by a second researcher (EJ).

Interview schedule

The interview schedule for both focus groups and telephone interviews explored:

- Parents' experience of grocery shopping with their children and the phenomenon of pester power.
- What prompts a request for a food item when in the supermarket?
- What it is like dealing with requests for food from children in the supermarket environment?
- Whether parents have concerns about food promotion directed toward children and whether they feel anything can be done about it?
- Strategies parents might find helpful when shopping with children to minimise pester power.

Analysis

Interviews were audio-taped and transcribed verbatim. Data were analysed using a qualitative content analysis approach, to uncover themes and concepts. Themes that emerged from parents' perception of pester power, self-efficacy, stress and other important substantive issues were inductively derived through the constant-comparative method (Glaser and Strauss, 1967). Transcripts were coded by one member of the research team (SC). One focus group transcript was crosschecked by a second member of the

team (EJ). Through meetings and discussions, members of the research team substantiated the thematic analysis until themes were agreed upon (researcher triangulation).

RESULTS

Intercept interviews:

Of the 530 potentially eligible participants approached, 159 agreed to participate (30%). One participant was excluded after identifying that their child did not meet inclusion criteria for age. Most parents (98%) identified English as the main language spoken at home. Of reference children, 54% were male and the mean age was 7.1 years (SD=3.1). The mean number of children accompanying the parent was 1.6 (SD=0.8). Demographic details can be found in Table 1.

Table 1: Demographic characteristics of the participants in intercept interviews, New South Wales, Australia (N=158)

	Frequency n (%) [#]
Family structure	
Married/de facto	118 (75%)
Separated/divorced/never married	40 (25%)
Education level of parent	
Year 10 or below	55 (35%)
Year 12	22 (14%)
Certificate/Diploma	46 (29%)
Undergraduate/Post Graduate degree	34 (22%)
Not disclosed	1 (1%)
Employment status	
Full-time employment	34 (22%)
Part-time employment	64 (41%)
Unemployed	11 (7%)
Retired	6 (4%)
Pension other than aged	4 (3%)
Full-time student	3 (2%)
Home duties	36 (23%)
Household income	
< \$40,000	38 (24%)
\$40,000 < \$80,000	47 (30%)
>\$80,000	44 (28%)
Don't know	10 (6%)
Not disclosed	19 (12%)

[#] Due to rounding, percentages may not add up to 100%

Most parents reported that their child/ren 'frequently' requested food items (69%), followed by 'sometimes' (n=23; 15%), 'rarely' (n=15; 10%) and 'never' (n=11; 7%). Overall, 73% of parents reported that their child requested at least one food item during the current supermarket visit. The main reasons parents identified as why the child requested the item was packaging (n=30; 23% of 133 reasons provided) and a "desire" (n=27, 20%) for the food/drink product, such as liking it, wanting it or being familiar with it. Other reasons identified included the item being placed in checkout displays (n=16; 12%) and recall of the product from a television advertisement (n=13; 10%).

A total of 145 different food items were requested, most commonly chocolate/confectionery (40%), followed by cakes and biscuits (12%). Most requested food items (88%) were non-core foods. Of parents whose child/children has requested a food item, 81 (70%) decided to purchase at least one of the items requested. There was no association between the child's gender and requests for a food item, nor whether the requested item was purchased.

Household income had no relationship with whether the child requested a food item $\chi^2(2, 129) = 2.289; p=0.318$. However, family income was associated with whether the parent chose to purchase the item $\chi^2(2, 98) = 5.612; p=0.060$, with a non-significant trend towards the low-income group being more likely to purchase the requested item than families from higher income levels.

Parents who chose not to purchase the requested item (n=34) most often cited unhealthiness (n=15, 41%) as the reason. Few parents reported that cost was a factor in deciding not purchase requested items (n=6, 16%). Other reasons (43%) included: already had the food item at home, behaviour of the child, and the importance of "needing to say no". For those parents who did purchase the product for their child, the most cited reason was as a "treat or reward" (n=19, 39%), followed by to "pacify or bribe" the child (n=12; 25%).

Children's age was not associated with parents' perceived frequency of food requests ($F=1.159$; $p=0.328$) nor with the number who requested a food item during the current trip (7.16 vs. 7.10; $t=0.120$; $p=0.904$). However, parents were less likely to purchase a requested item for younger children (6.24 vs. 7.46; $t=-1.999$; $p<0.05$).

There was no relationship between perceived healthiness of the food item and whether or not the requested item was purchased $\chi^2(1, 109)=282$; $p=0.596$.

Focus Groups/Telephone Interviews:

The qualitative discussions identified four themes: parents' experience of pester power in the supermarket; prompts for food requests in the supermarket; parental responses to pestering in the supermarket environment; and strategies to manage pestering and minimise requests for food items. The following section describes each theme and provides sample quotes in italics.

Parents' experience of pester power in the supermarket

There was a range of responses regarding the frequency of children's food requests in the supermarket, from regularly and frequently throughout a shopping trip to fairly infrequently.

My children will basically pester for something in each aisle.

Very rarely but occasionally does she pester me.

Parents suggested that children would regularly pester for a particular food item, and that this was predominantly related to the child's preference or what had been purchased in the past.

...chocolate biscuits or ice cream, you know something sweet and treaty she will go for but not everything.

Whilst children generally requested food items verbally, some children also used non-verbal strategies to influence their parent to purchase something including grabbing at items, putting food products in the trolley, or initiating specific behaviours (such as helping, or not asking) that they knew were likely

to get a positive response from their parent. Parents indicated that having food items within easy reach and sight of children made it easier for them to grab the food item themselves.

But sometimes it's biscuits and savoury snacks that they are allowed to have. They'll go and help themselves off the supermarket shelf and put it in the trolley.

Prompts for food requests in the supermarket

Parents expressed strong beliefs about what influenced their children's food requests in the supermarket environment. In particular, the packaging of products, including the colours, branding and characters that featured on the packaging. Parents reported that brand recognition occurred from a very young age, with children asking for products that had a favourite television or movie character on the front and even knowing the colours of certain brands.

I do remember when she was little little, and we would go [to the supermarket] she would see Wiggles and stuff...like when she was 2 or 3, and she would want to buy it because she could see the Wiggles on it and was attracted to that.

She knows Cadbury purple, she sees that and she knows what is in it. Parents believed the layout of the supermarket, in terms of product placement and visibility, had an influence on their children requesting foods. Seeing certain food items placed at child-friendly heights prompted their children to request that product. Parents particularly found it difficult to deal with the checkout, noting that this was one area that could not be avoided and often involved waiting time.

The checkouts used to be awful, 'cause you, you'd get your whole way around the supermarket and then you had no options and you couldn't manoeuvre them away when they were sitting in the seat and you were stuck there for a period of time and you couldn't rush on through and like taking the same chocolate out of their hands five times. That was really frustrating.

There was mention of the influence of television advertising and children's response to food advertising aimed at them. Parents described their children interacting with, and often believing, the statements made in television advertising and the impact that branding had on their choices. Parents also discussed the influence of advertising on their own choices.

Advertisement is always about influencing the parent to buy this product.

Parents felt that peers had an influence on what their children requested, with items frequently being requested because someone else consumed the particular food. There appeared to be a link between peers and food packaging.

Once they start school someone's got a princess yoghurt, someone's got a Dora yoghurt...

Parents suggested that temperamental differences between children appeared to play a factor in their child's requests. Food requests in the supermarket also appeared to change as children aged, with differences in the way they asked for food and how much they requested. Younger children appeared to be more influenced by what was visible and often in reach. By comparison, older children became more thoughtful about what they wanted and learnt different strategies to pester for an item.

...it's the younger ones...especially with biscuits....and snacks that are on the bottom (shelf) that they can see and reach.

...as they now are older....they're thoughtful in their mind about the things that they want and they ask for them without even necessarily seeing them.

Parental responses to pestering in the supermarket environment

Parents described a variety of ways to manage their children's requests for food in the supermarket. Parents discussed their own beliefs and attitudes about what constituted suitable foods, suggesting that if the food requested did not align with these beliefs then they tended to refuse to purchase it. However, parents acknowledged that there were times when they purchased the requested food item even if they did not think it was appropriate, as a treat or to reward good behaviour.

I don't mind getting them a treat if they have been really good and it is their once a week treat that they get when I do go shopping or something like that. But yeah, every time if it's just "but why can't I?" then I try to explain that every time we go shopping I don't have to buy you something.

Some parents acknowledged that they may not purchase a food item requested very often but despite this their child would continually ask.

But my four year old will just everyday asks me for a treat. It is a just a habit that she is in and she just thinks that if you just pester, mum will eventually give in...because somewhere in the past I have.

Parents were of the view that children learn from family values and parents believed it was important to remain consistent in their response to their children. When parents indicated that they were effective at being consistent with their children, this appeared to be reflected in the child's behaviour, as they seemed to learn not to ask for certain foods or not to ask at all.

But I think your kids pick up very quickly on what kinds of things you buy and they know the things that they like and they know the things that you like and my kids now know not to ask for things that they know I don't approve of.

However, it was apparent that parents differed in their consistency of responses to food requests. Parents described a number of factors that influenced their decision to purchase a requested food item, including stress levels, mood, and previous intake of unhealthy foods.

It depends on a couple of things, if I'm in a good mood, I feel like it, and I don't think it's a bad idea I say yes. Sometimes, I'm stressed, not up for the fight I say yes. Other times I'm perfectly calm, have absolutely no intention and I say no. Depends, depends on if they're behaved or not as well. That really influences. So if they're behaved, you're not normally stressed and cranky and...if they haven't eaten a lot of rubbish recently like for, for whatever reason 'cause we've been out, or done something or had a party or something. I may be much more likely to say yes. Other times, if they've been naughty or if they've eaten a lot of rubbish I may just say no..

Parents discussed using food to pacify the child throughout the supermarket trip.

We will avoid taking them (the children), but if I have to take them if I can get out of there with chocolate milk. It is the lesser of all evils and that's a good trip.

I buy them a 50 cent lollypop and I never get hassled so to me... it is 50 cents well spent.

Parents indicated that stress often increased because of the child requesting or pestering for a food item, explaining that this may lead to forgetting items or deciding to go home sooner than expected.

Your blood pressure rises and you say no. It can be very frustrating, depending on how many times they ask you, when you are trying to concentrate I find that I always come home without things that I really needed to get, because you've constantly got that nagging, and even if you don't give in to them it is just your blood's boiling.

Additional cost was a strong factor in parents concerns about marketing.

They recognised the potential costs involved in purchasing all products requested and the idea that individually packaged food items that had appealing packaging may have been more costly.

I have let them have yoghurts in the past even though I wasn't too happy because it had Dora the Explorer on the top and I was just like this is just marketing and it is going to be expensive but I thought well ok it is a yoghurt so I will go along with that...

Strategies to manage pestering and minimise requests for food items

Parents discussed a range of strategies that they used to reduce the impact of pestering and get through the family shopping trip. Strategies ranged from tips around increasing children's understanding of marketing techniques, to managing children's behaviour in the supermarket, avoiding cues and reducing the external impact. Parents discussed empowering children and helping them to understand the intention of marketing.

I think just educating your kids about what you are going there for and what the families' values are and empowering them.

I think it is about explaining to them that it is not about the packaging. That is what I have started to do. Because you do not eat the packaging, you eat what is inside it. It's not about "you have to buy that because it has the specific outlook on it," it is more about how it tastes.

Parents discussed different ways of minimising pestering and keeping children happy during the shopping experience. Suggestions included being consistent in their response to requests for foods, pacifying the child with a food/drink item whilst shopping, giving them some choice in the food (e.g. picking the shape of pasta), and occasionally giving them a treat or reward. Parents also indicated that they would avoid shopping with their children when possible. In situations where parents need to shop with their children, they discussed avoiding the larger supermarkets and using smaller, specialty shops, or choosing smaller supermarkets that have less choice, and less

marketing directed toward children. Parents talked about trying to avoid certain aisles in the supermarket and the importance of “keeping moving”.

Parents also believed that getting their children involved in the shopping experience had many benefits, including keeping children distracted, reducing boredom and providing an opportunity for learning.

I find one thing that really does work well with my kids is just making them participate in the shopping experience. It helps with their boredom. But it doesn't change the fact that the packaging is out there. But it does help the shopping experience if they have a role to play.

Parents talked about making sure that children had eaten before a trip to the supermarket or had a healthy snack they could consume whilst shopping. Not only was it suggested that children often assisted by marking off the shopping list, parents felt that a list could be used to refuse a request not on the list.

Parents expressed concern relating to food promotion aimed at children and the unhealthy foods promoted.

Well I just don't see them promoting too many healthy things.

Parents expressed a strong desire to see less marketing directed at children, however it was acknowledged that this would be difficult to achieve. Parents recommended a reduction in television advertising during children's peak viewing times. There was the acknowledgement that reducing exposure to commercial television is a strategy that parents could use. There was a strong opinion that there should be a reduction in cues for children in the supermarket including packaging, child-friendly placement of products, and availability of unhealthy foods at the checkout. Parents suggested more truthfulness about the healthiness of products in all avenues of marketing, including advertising and packaging. Parents also talked about their role as parents in managing the effects of food promotion and children's desires for less healthy food options. Setting boundaries at a young age was one technique that was seen as effective in reducing the pestering behaviour.

When they are younger it is just want want want want want and I wonder if because I was quite firm when they were younger if I am benefiting now.

Yeah, don't reward those tantrums with what they want, because they'll keep doing it.

DISCUSSION

To our knowledge, this is the first study that has explored the phenomenon of pester power in the supermarket environment and quantified the prevalence of food requests in this setting. Our results indicate that children frequently request food items in the supermarket and parents often acquiesce to these requests. Food promoted to children tends to be unhealthy in nature (Cairns, Angus et al., 2009), and as demonstrated in this study, the foods children requested at supermarkets were predominantly non-core. Whether an item was perceived as healthy or not did not play a role in a parents' decision to purchase the item. Many parents chose to purchase items that they knew to be unhealthy, citing reasons such as a treat, reward or to keep their child quiet. There was a trend towards parents in the lower socioeconomic group succumbing to food requests for children in the supermarket. This may be related to lower levels of nutrition literacy amongst lower socioeconomic groups (Darmon and Drewnowski, 2008). As children in lower income families are more susceptible to poor eating habits, this finding suggests that marketing in supermarkets needs to be limited as well as education and resources developed for parents to cope with pestering in the supermarket.

The age of the child was not associated with the reported frequency or prevalence of food requests in the supermarket, although the qualitative discussions suggested that children might respond differently to cues in the supermarket depending on their age. Theories of cognitive development have driven the argument that younger children are more susceptible to the effects of advertising due to deficits in understanding (Kunkel, Wilcox et al., 2004). However, others (Livingstone and Helsper, 2006) have argued that there is no evidence to back this theory, with all ages being influenced by advertising. An alternate theory of dual processing hypothesises that younger children respond through the peripheral route that engages with superficial features such as colourful images and familiar characters. Older children and teenagers, who are perceived to have more advertising literacy, are more

likely to be influenced by central processes relating to creative or informative aspects (Livingstone and Helsper, 2006). Parents in the current study described their children recognising characters, brands and colours from an early age and suggested that their children were drawn to these foods, sometimes without regard for the actual product. This correlates with previous findings, suggesting that children from as young as two years old show brand recognition (Valkenburg and Buijzen, 2005). By developing children's brand affinity through packaging, children's relationship with a brand is strengthened (Harris, Pomeranz et al., 2009). Further research is needed to determine the marketing techniques that specifically influence different age groups and why older children seem to be more successful in their request being purchased.

Checkout displays and product packaging were two areas identified as troublesome by parents who regularly shop with their children. They found the checkout display an area that was high in food requests and difficult to avoid, and this is likely related to the high level of unhealthy food placed at child-friendly heights (Dixon et al 2006). The placement and packaging of foods was seen to be a cue for pestering in the supermarket. As previous research has indicated that packaging that is appealing to children is more likely to promote unhealthy food options (Hebden, King et al., 2011), this may influence children to request less healthy foods. The supermarket environment was viewed as facilitating frequent requests for foods and parents expressed a desire for modifications to occur to reduce pestering, including confectionery-free checkouts, minimising child-friendly placement of products, and reducing the amount of food advertising children were exposed to on television.

Parents identified the need to educate and empower children to reduce the influence of food marketing. Increasing knowledge and understanding of promotional techniques is important for child development, particularly in the context of building a positive attitude to healthy eating. Although it is important to increase children's understanding about the intent of advertising, evidence would suggest that this alone is not enough. Even when children acquire the knowledge regarding advertising techniques, they continue to

require prompting to use the information they have about advertising techniques and there is evidence to suggest training may be counterproductive (Harris, Brownell et al., 2009). As children continue to demonstrate being influenced by advertising once they have met the cognitive milestone of understanding the persuasive intent of advertising, solely educating children is unlikely to be effective in reducing the impact of food marketing (Livingstone and Helsper, 2009).

There has been limited research on parents' role as mediator in decisions regarding children's food intake. Parents spoke about difficulties dealing with constant requests throughout the supermarket. Interventions to reduce pester power could include increasing parenting skills in behavioural modification to minimise requests, and could incorporate coping strategies raised by parents in this study. As the influence of the family is stronger when children are young, starting at an early age can help to develop children's adherence to healthy eating patterns (Kral and Rauh, 2010).

Strengths of the current study include its mixed method design, allowing a thorough exploration of a complex phenomenon (Lingard, Albert et al., 2008), and triangulation of results. The conduct of interviews in the real life supermarket setting adds to the strength of the design. Limitations include the low response rate to the intercept interviews. This was not surprising given the potential inconvenience due to pressure to get home with groceries and children. This low response rate may reduce the generalisability of the findings, although analysis of the demographic characteristics' of the sample suggests that parents from a range of socioeconomic and educational backgrounds responded. The cross-sectional survey design does not allow for causal inferences to be drawn. Parents who participated in the intercept interviews only reported verbal requests for food items whilst the qualitative findings suggested that children use a variety of techniques including non-verbal strategies to influence their parents to purchase a food item. This may translate to under reporting of the prevalence of requests.

CONCLUSION

Requests from children for unhealthy food and drinks are common in the supermarket environment and parents often purchase the requested items, regardless of whether the item is healthy or not. The supermarket environment was viewed as facilitating frequent requests for foods and parents expressed a desire for environmental changes to reduce pestering, including confectionery-free checkouts, minimising child-friendly placement of products, and reducing children's exposure to food marketing in general. Multiple approaches are required to limit the impact of marketing of unhealthy foods to children and the subsequent requests made to parents.

REFERENCES

- Arnas, Y. A. (2006) The effects of television food advertisement on children's food purchasing requests. *Pediatrics International*, 48, 138-145.
- Australian Bureau of Statistics (2009) Children who are overweight or obese. Australian Bureau of Statistics, Canberra ACT.
<http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4102.0Main+Features20Sep+2009>
- Australian Competition & Consumer Commission (2008) Report of the ACCC inquiry into the competitiveness of retail prices for standard groceries, July 2008. Commonwealth of Australia, Canberra ACT.
- Bell, A. C., Kremer, P. J., Magarey, A. M. and Swinburn, B. A. (2005) Contribution of 'noncore' foods and beverages to the energy intake and weight status of Australian children. *European Journal of Clinical Nutrition*, 59, 639-645.
- Cairns, G., Angus, K. and Hastings, G. (2009) The extent, nature and effects of food promotion to children: a review of the evidence to December 2008. Prepared for the World Health Organization. Institute for Social Marketing, University of Stirling, Glasgow UK.
- Campbell, K. J., Crawford, D. A. and Hesketh, K. D. (2007) Australian parents' views on their 5-6-year-old children's food choices. *Health Promotion International*, 22, 11-18.
- Chapman, K., Nicholas, P., Banovic, D. and Supramaniam, R. (2006) The extent and nature of food promotion directed to children in Australian supermarkets. *Health Promotion International*, 21, 331-339.
- Darmon, N. and Drewnowski, A. (2008) Does social class predict diet quality? *American Journal of Clinical Nutrition*, 87, 1107-1117.
- Department of Health and Ageing (1998) Australian Guide to Healthy Eating. Commonwealth of Australia, Canberra ACT.
- Department of Health and Ageing (2008) 2007 Australian National Children's Nutrition and Physical Activity Survey - Main Findings. Commonwealth of Australia, Canberra ACT.
- Dixon, H., Scully, M. and Parkinson, K. (2006) Pester power: snackfoods displayed at supermarket checkouts in Melbourne, Australia. *Health Promotion Journal of Australia*, 17, 124-127.

- Dixon, H. G., Scully, M. L., Wakefield, M. A., White, V. M. and Crawford, D. A. (2007) The effects of television advertisements for junk food versus nutritious food on children's food attitudes and preferences. *Social Science & Medicine*, 65, 1311-1323.
- Glaser, B. G. and Strauss, A. L. (1967) *The discovery of grounded theory: strategies for qualitative research*. Aldine De Gruyter, New York.
- Gross, C. P., Filardo, G., Mayne, S. T. and Krumholz, H. M. (2005) The impact of socioeconomic status and race on trial participation for older women with breast cancer. *Cancer*, 103, 483-491.
- Halford, J. C., Boyland, E. J., Hughes, G. M., Stacey, L., McKean, S. and Dovey, T. M. (2008) Beyond-brand effect of television food advertisements on food choice in children: the effects of weight status. *Public Health Nutrition*, 11, 897-904.
- Halford, J. C. G., Gillespie, J., Brown, V., Pontin, E. E. and Dovey, T. M. (2004) Effect of television advertisements for foods on food consumption in children. *Appetite*, 42, 221-225.
- Harris, J. L., Brownell, K. D. and Bargh, J. A. (2009) The food marketing defense model: integrating psychological research to protect youth and inform public policy. *Social Issues and Policy Review*, 3, 211-271.
- Harris, J. L., Pomeranz, J. L., Lobstein, T. and Brownell, K. D. (2009) A crisis in the marketplace: how food marketing contributes to childhood obesity and what can be done. *Annual Review of Public Health*, 30, 211-225.
- Hebden, L., King, L., Kelly, B., Chapman, K. and Innes-Hughes, C. (2011) A menagerie of promotional characters: promoting food to children through food packaging. *Journal of Nutrition Education and Behavior*, 43, 349-355.
- Ip, J., Mehta, K. and Coveney, J. (2007) Exploring parents' perceptions of television food advertising directed at children: A South Australian study. *Nutrition & Dietetics*, 64, 50-58.
- Johnson, L., Mander, A. P., Jones, L. R., Emmett, P. M. and Jebb, S. A. (2008) Energy-dense, low-fiber, high-fat dietary pattern is associated with increased fatness in childhood. *The American Journal of Clinical Nutrition*, 87, 846-854.

- Jones, S. C. and Kervin, L. (2011) An experimental study on the effects of exposure to magazine advertising on children's food choices. *Public Health Nutrition*, 14, 1337-1344.
- Jones, S. C. and Reid, A. (2010) Children's magazines: reading resources or food marketing tools? *Public Health Nutrition*, 13, 393-399.
- Kelly, B., Baur, L. A., Bauman, A. E., King, L., Chapman, K. and Smith, B. (2011) Restricting unhealthy food sponsorship: attitudes of the sporting community. *Health Policy*, 104, 288-295.
- Kelly, B., Bochynska, K., Kornman, K. and Chapman, K. (2008) Internet food marketing on popular children's websites and food product websites in Australia. *Public Health Nutrition*, 11, 1180-1187.
- Kelly, B. and Chapman, K. (2007) Food references and marketing to children in Australian magazines: a content analysis. *Health Promotion International*, 22, 284-291.
- Kelly, B., Chapman, K., King, L. and Hebden, L. (2011) Trends in food advertising to children on free-to-air television in Australia. *Australian and New Zealand Journal of Public Health*, 35, 131-134.
- Kelly, B., Smith, B., King, L., Flood, V. and Bauman, A. (2007) Television food advertising to children: the extent and nature of exposure. *Public Health Nutrition*, 10, 1234-1240.
- Kral, T. V. and Rauh, E. M. (2010) Eating behaviors of children in the context of their family environment. *Physiology & Behavior*, 100, 567-573.
- Kunkel, D., Wilcox, B., Cantor, J., Palmer, E., Linn, S. and Dowrick, P. (2004) Report of the APA Task Force on advertising and children: psychological issues in the increasing commercialization of childhood. American Psychological Association, Washington DC.
- Lingard, L., Albert, M. and Levinson, W. (2008) Grounded theory, mixed methods, and action research. *British Medical Journal*, 337, 459-461.
- Livingstone, S. and Helsper, E. J. (2006) Does advertising literacy mediate the effects of advertising on children? A critical examination of two linked research literatures in relation to obesity and food choice. *Journal of Communications*, 56, 560-584.
- Morley, B., Chapman, K., Mehta, K., King, L., Swinburn, B. and Wakefield, M. (2008) Parental awareness and attitudes about food advertising to

children on Australian television. *Australian and New Zealand Journal of Public Health*, 32, 341-347.

Steckler, A., McLeroy, K. R., Goodman, R. M., Bird, S. T. and McCormick, L. (1992) Toward integrating qualitative and quantitative methods: an introduction. *Health Education Quarterly* 19, 1-8.

Valkenburg, P. M. and Buijzen M. (2005) Identifying determinants of young children's brand awareness: Television, parents, and peers. *Applied Developmental Psychology*, 26, 456-468.

EXTENDED DISCUSSION

1. Summary of the findings

Findings from the current study demonstrated that children are frequently requesting food/drink items in the supermarket. This is based on parents/caregivers estimating the general frequency of food/drink requests and, more importantly, actual requests made during the current supermarket visit. The majority of parents/caregivers suggested that their child/ren frequently or sometimes make food or drink requests in the supermarket, based on a 4-point scale from never to frequently (see Appendix 1). The actual prevalence of food/drink requests made during a supermarket visit in children (aged 3-16 years) was found to be almost three-quarters. Children predominantly requested foods/drinks that were categorised as noncore foods. The most common request was for a chocolate or confectionery item, with other common categories including cakes or biscuits, dairy foods (noncore), and snack foods. This indicates that children's food choices in this environment are skewed toward extra foods that are not an essential part of a healthy diet.

Parents/caregivers were not always able to provide a reason for why the food/drink request was made during the most recent supermarket visit (n = 21, 16% did not know or did not specify a reason). Of those that did identify a reason, the most common cited was the packaging of the product. Respondents also felt that desire or preference for a food product played a role in a request almost as much as the packaging. Additional reasons included the checkout display and recall from a television advertisement. A small group of parents/caregivers suggested that the request was associated with a regular purchase or habit (n = 9, 5%). Parents/caregivers also commented on children being influenced in their food request by the visibility of the product, that is "they saw it" (n = 6, 3%). Very few respondents reported that peers, hunger/thirst or "the item is needed" were reasons for the request. No parents/caregivers identified Internet advertising or children's magazines as having an impact on a food/drink request.

Qualitative discussions provided more in depth exploration of what might prompt a request for a food/drink item in the supermarket, and additional insight into factors that may play a role. Interestingly parents talked about the packaging of food products and specifically commented on aspects of packaging that appealed to children. They discussed the concept of brands and well-know characters attracting children. Specific examples of features of packaging that children were drawn to included colours, brand logo, and television or movie characters. Parents reported that visibility, accessibility and placement of products also facilitated food requests from children and they also noted that children would take products off the display shelf. Discussions suggested that the checkout display was a unique area that parents found difficult to negotiate. Parents noted that it was hard to avoid waiting in these areas and there were foods displayed that were accessible to children. The parents identified that children and family preference for a particular food/drink could influence a food request in the supermarket. Discussions also elicited parents concern about food promotion aimed at children and in particular parents felt that television advertising played a role in their child/ren requesting a food/drink item. They noted that advertising was ultimately trying to influence parents to purchase a product for their children. Peer influence was commented on and the influence of friends on food preference. It was suggested that peers might even facilitate marketing through observation. The results from both the quantitative and qualitative phase tended to complement each other, suggesting similar influences on children's requests for food/drink items: packaging, preference, checkout displays, product placement, and television advertising. There was some mention of peers during both aspects of data collection, with more emphasis during the qualitative phase. However, this was a weak finding and would need further exploration to determine the strength of peer influence on children's requests. It is worth considering that this concept may be challenging to study due to the possibility that peers have a more indirect influence on food preference and choice. Interestingly other forms of food marketing made little to no appearance in either part of the current study.

When a child requested a food/drink item during the supermarket visit, parents/caregivers were asked to categorise the food as healthy, unhealthy, neither or unsure. Most of the respondents correctly identified the foods/drinks requested, in the majority of situations indicating that these were unhealthy/noncore. However, there was a statistically significant group of people who struggled to identify unhealthy foods as unhealthy. Of the respondents who thought that the food or drink was either healthy, neither or were not sure, more often than not the food was unhealthy (see Appendix 4). This would suggest that a small group of people have difficulty identifying that a food is unhealthy or not a core food. However, the perceived healthiness of the food/drink item identified by the respondent was found to have no influence on whether the participant chose to purchase the item requested. Most of the respondents decided to purchase at least one of the requested items for the child. Therefore the high rate of purchase could not be solely attributed to incorrectly identifying a food as a healthy option and the decision was not influenced by parents' perception of the healthiness of a food or drink. It was not explored as to whether parents/caregivers had an understanding of the healthy eating guidelines and the appropriate amount of extra or noncore foods that is suitable for a child's daily intake.

Parents/caregivers were asked whether additional factors might have influenced them to purchase the item. Again, not all respondents provided a reason for acquiescing to the food/drink request. Of those that did provide a rationale most reported that the item was a treat or a reward for "good" behaviour. Another group stated that they chose to purchase the food/drink item to pacify or bribe the child to remain quiet. A very small number of responses identified the reason to be related to the cost of the item (for example, it was on special), their own stress levels, or to appease the child's hunger or thirst. During the qualitative discussions it was found that parents described purchasing a food/drink item during a supermarket visit as a reward or treat. Parents also talked about using a food/drink item to pacify the child during the supermarket trip. There was further discussion regarding stress levels and it was indicated that parental stress levels might play a role in the decision to purchase a food/drink request. Parents also noted that food

requests, particularly persistent requests, were related to increasing parental stress levels. A common theme with both aspects of the research suggested that parents are using food or drink (and potentially unhealthy options) as a behavioural strategy with children when shopping. Essentially, they are using food to either to pacify children during the shopping trip or to subsequently reward “good” behaviour.

Gender of the child was not identified as having a relationship with whether they made a food/drink request or whether the item was purchased for the child. Similarly, in the qualitative discussions with parents, the gender of the child was not something that was spontaneously brought up as a factor associated with food requests in the supermarket. The age of the child had no association with the frequency with which they tend to make a request or whether they made a request for a food/drink item in the supermarket visit. However, respondents were less likely to purchase the requested item for younger children. In the qualitative discussions it was suggested that children differed in their behaviour in the supermarket as they aged. The parents indicated that as children developed they learnt what was likely to receive a positive response from the parent and therefore possibly more likely to be purchased. They described older children as being more thoughtful in their requests for food/drink items in the supermarket. It was implied that brands and colours influenced younger children, often with little regard for the actual product. Perhaps parents are less likely to purchase an item when a child is not clearly stating a strong reason or argument, and therefore are refusing food requests more frequently for younger children. As parents suggested, children are likely to become more skilful as they age in using behaviours or techniques to influence the family grocery shopping. It could be hypothesised that older children are more likely to ask for an item that would be purchased or they are more sophisticated in their ability to ask for an item. Further research would be required to support these hypotheses.

Household income was not associated with whether a child requested a food/drink item in the supermarket. However, in regards to purchasing a requested food/drink item, parents/caregivers in the lowest household income

group were possibly more likely to purchase the item (this was a non-significant trend). Very few people in this group chose not to purchase a requested item and therefore it was difficult to identify any additional factors that may have been playing a role in the decision not to purchase (such as cost).

Parents/caregivers who chose not to purchase a requested food/drink item were asked why they decided not to buy the product. The most common response was that the food/drink requested was unhealthy in nature. Very few parents/caregivers reported that cost played a role in the decision not to purchase the item. Additional reasons for refusal to purchase varied and did not provide further insight into the decision making process.

The qualitative discussions provided some further detail into how parents respond to food/drink requests in the supermarket. Parents talked about the influence of their views on food and eating, and the subsequent response to a food/drink request. They suggested that family values and beliefs about eating and healthiness played a role in their decision making process. It was acknowledged that parents will chose to purchase a requested food/drink item that is outside these food beliefs for a number of different reasons. This decision may have been influenced by stress, recent food intake of the child, behaviour of the child, or to allow the child to try something new. Parents noted that they might not always be consistent in their response to requests for a food/drink product. They acknowledged that sometimes their child/ren would continually ask for a food/drink product, even though they rarely acquiesced to a request in the past. Other parents felt that they were consistent and did not reward inappropriate behaviour (for example tantrums). Some parents noted that they used certain strategies (such as consistently saying no to an unhealthy food request) with their children from a young age and felt that this reduced food/drink requests in the supermarket.

A key area of interest of this research was the result that a considerable amount of parents/caregivers chose to purchase at least one of the requested food/drink items. The results demonstrated that the perceived healthiness of

the item requested had no impact on the decision to purchase. So parents are purchasing regardless of whether they believed a food/drink to be nutritious or healthy. Some further information was provided in the intercept interviews, however the qualitative discussions gave additional understanding into why this may be the case. Parents/caregivers suggested that they used food/drink as a behavioural strategy within the supermarket. However, there were a number of other factors that may play a role. Family values and parents' beliefs about healthy eating strongly emerged as one area that may impact on a response. It has been established that children are frequently making food/drink requests in the supermarket, generally for noncore foods. Whilst the current research provides further information on why this is occurring and what influences parents' decision to purchase these requests, the results are not indicative of a causal relationship and only suggest that this is an area of concern that is likely to need further exploration.

2. Interpretation of the findings in relation to the literature

Previous research has shown that food is marketed to children through a number of different media (television, the Internet, and children's magazines) and via point-of-sale techniques (product placement, packaging, competitions, and giveaways). Evidence suggests that the advertised diet differs from the recommended diet with a skew toward unhealthy/noncore foods. Food promotion has been shown with convincing evidence to have an influence on children's food preferences and choices, with research showing that children engage with and enjoy food advertising (Cairns et al., 2009; Hastings et al., 2007; Hastings et al., 2003). Previous research indicates that there is a high amount of noncore foods promoted to children within the supermarket environment through product packaging and checkout displays. The results of the current study indicated that food requests made by children are a frequent phenomenon in the supermarket and parents indicated that various marketing techniques played a role in these requests. Findings indicated that children predominantly requested noncore foods (in comparison to core foods) whilst grocery shopping. In both components of the research, parents indicated that packaging and product placement

(specifically checkout displays and child-friendly accessibility) often influenced a food request by their child.

Previous research has indicated that food products are often promoted to children through the use of cartoon characters and familiar television or movie characters on product packaging. In the current study parents discussed the influence of these familiar characters and branding on their children's food choices. Although previous research has indicated that these marketing techniques are used to promote foods to children, there is no previous research into how children engage with these marketing strategies in the supermarket. Essentially, past research shows that these techniques are used in the supermarket but little understanding exists about how children respond to these techniques. Previous research indicates that children have brand recognition from as young as 2 years old (Valkenburg & Buijzen, 2005). Children recognise brand logos and recall brand names from a very early age, even before they can read (Harris et al, 2009). Parents suggested that children showed brand recognition in the supermarket from a young age and this translated to requests for a food/drink item. These requests were even made without regard for the actual product. Although this is not definitive evidence that brand recognition causes food requests, it suggests that it may play a role in children's choices within the supermarket.

There was no difference in the prevalence of food requests made over the different ages of the children. Early theories in the literature propose that children are more vulnerable to the effects of advertising, particularly up until the age of 7-8 years (Kunkel et al., 2004). More recent theories suggest that there is little support for this theory and older children continue to be influenced by marketing techniques (Livingstone & Helsper, 2006). The various cognitive theories that propose explanations for how children are influenced by advertising suggest that age may play a role in how children process the information in advertising. Ultimately though, children of all ages are shown to respond favourably to advertising and this is likely to have an influence on behaviour. This correlates with the current results that suggest

that the behaviour of requesting food/drink within the supermarket does not differ across various ages (3-16 years old).

The results demonstrated a trend that parents/caregivers with a low household income were more likely to purchase a food/drink request for their child/ren. Research has found that people of lower socioeconomic status were less likely to purchase fruits and vegetables and more likely to purchase food products from the supermarket that are low in fibre, and high in fat, salt and sugar (Turrell, Hewitt, Patterson, Oldenburg, & Gould, 2002). People with low household income have also been demonstrated to consume smaller amounts of fruit and vegetables (Giskes, Turrell, Patterson, & Newman, 2002). Evidence highlights that lower socioeconomic groups are more vulnerable to health concerns such as overweight and obesity. Low socioeconomic status in Australian school children is associated with higher BMI (O'Dea J, 2003). Systematic review level evidence suggests that low socioeconomic status in childhood is associated with higher BMI in adulthood (Parsons et al 1999). The association between family income and response to food requests from children needs further attention. With further evidence, the indication is that this subpopulation needs additional support to deal with children's food requests. This may be part of a greater need to target healthy eating in this group.

Parental stress was mentioned in the qualitative research, however was not found to be a strong influence on purchasing behaviour in the intercept interviews. Previous research has found that child behavioural problems and family functioning may play a role in children's consumption of fruit and vegetables. Parental psychological distress was not found to be a strong predictor of fruit and vegetable intake (Renzaho, Kumanyika, & Tucker, 2011). Potentially parental stress levels are not a strong factor in children's eating patterns. However, child behavioural problems and overall family functioning may play a more important role in children's diet. In the current study the results suggested that there are some parents/caregivers who are using food as a behavioural strategy with their child. This suggests that perhaps a focus on family coping, child behavioural issues and eating warrant

further exploration. Perhaps general child behaviour and family functioning may be playing a role in parents acquiescing to children's food requests.

Previous research has indicated that Australian parents are concerned about the amount of food promotion that children are exposed to and expressed a desire for this to be reduced (Ip et al., 2007; Morley et al., 2008). This research has suggested that parents assume that any changes to regulations are likely to be challenging and come against resistance from government bodies and food companies. The qualitative discussions echoed similar concerns regarding the amount of food advertising during children's television programs and marketing used at the point-of-sale. They were sceptical that anything could be done about this. There was no evidence that parents were aware of any influence from food promotion through channels such as the Internet and children's magazines.

3. Shortcomings/flaws of the current study

In regards to the quantitative component and data collection, the response rate was reasonably low (30%). It was found that parents/caregivers exiting a supermarket accompanied by a child/ren were difficult to engage in a brief interview. It is assumed that this would be a hard time for people to offer their time, as they may be preoccupied with getting groceries and children home. The response rate may have been affected by the fact that no incentive was offered to participate. Ideally, a higher response rate would have been preferred. However, on analysing the demographic variables associated with respondents, the sample had a relatively even spread across different household incomes and was representative of a variety of educational backgrounds. The people who chose to participate also reported a range of ages of the reference child. A greater sample size would have allowed for further analysis of variables.

The quantitative survey was developed specifically to collect data for the current study as no existing tool was identified. Prior to commencing data collection the draft tool was assessed for face validity via distribution to research colleagues. Pilot testing was restricted to use of the tool when

training intercept interviewers and undertaking role plays. The test-retest and inter-rater reliability of the tool is unknown. In regards to feasibility, on occasion the respondent provided details on multiple requests for food from the reference child and therefore may have provided a number of responses to the same question. This information was collected but the design of the survey was not ideal for recording this additional detail. It would be worth modifying the space allocated for recording responses in used in any future research.

Although qualitative research is not generalisable due to the inherent nature of the data collection, it is possible that this group was relatively homogenous. It would have been ideal to include fathers and possibly involve people from less educated backgrounds in order to gain further understanding into parents' experience of grocery shopping with children. It is likely that those that volunteered had some interest in the topic being discussed and this is difficult to avoid.

The quantitative phase was conducted prior to the qualitative phase. This did not allow for the topics of discussion to be used to form the intercept interviews. This was a deliberate aspect of the design, with the aim for the discussions to supplement the information from the intercept interviews. However, conducting focus groups prior to the intercept interviews may have assisted in forming some of the questions in the interview schedule. It was noted that many parents discussed non-verbal strategies that children use to influence the purchase of a food item. This would have been interesting to record and find out the prevalence of non-verbal requests. A number of other questions were not included in the intercept interviews and in hindsight would have been helpful. These included the gender of the respondent and their relationship to the child.

4. Health implications or applications of the findings

The current findings have implications associated with the promotion of healthy eating in childhood. It has been previously established that food marketing plays a role in childhood eating habits. Children are requesting

noncore foods in the supermarket, and parents are often purchasing these requests. To address the issue of food requests in the supermarket (that is, food preference and choice at the point-of-sale) it needs to be considered within the broader context of food promotion to children (including specific marketing techniques) and the establishment of healthy eating patterns from a young age. Established health promotion models explore what type of approach is necessary to address the issues related to a health concern. Levels of action are broadly categorised into downstream, midstream and upstream factors (Keleher & MacDougall, 2009). Downstream approaches are those factors that are at a micro level and would include treatment systems, screening, disease management, and investment in clinical research. Midstream factors encompass lifestyle and behavioural programs, which may target specific sub-populations or the general population. These are seen to be at the intermediate level. Upstream factors are at the macro-level and include approaches that address the whole population. These approaches include government policy and legislation. To effectively tackle a public health issue, with the aim to improve healthy eating in childhood and reduce the prevalence of childhood obesity, it is recommended that the approach would need to involve multiple approaches targeting midstream and upstream factors.

The parents involved in the qualitative discussions highlighted the need to empower and educate children on the importance of resisting marketing techniques. They talked about the importance of starting from an early age to influence children's understanding of the value of healthy food choices. There were some parents who stated that they preferred to avoid taking their children shopping. However, other parents felt that grocery shopping was an opportunity for learning and noted the benefits of involving the children in the supermarket experience. The concept of using the family to establish healthy eating patterns has merit (National Health and Medical Research Centre, 2003). In regards to the evidence for implementing interventions targeting children's knowledge and understanding of food marketing, previous research shows that this is not an effective strategy at combating the influence of marketing. Evidence suggests that after training, children still chose the

unhealthy advertised food product and in some cases findings report that interventions may even be counterproductive (Harris et al, 2009). Prior research suggests it would not be justified to invest heavily in media literacy training as a method for combating effects of food marketing on children and adolescents. This is also influenced by the evidence from research that suggests that children continue to be influenced by advertising after reaching the cognitive milestone of understanding advertising intent (Livingstone & Helsper, 2006). It is also in line with a number of theories, such as the theory of reasoned action (Ajzen & Fishbein, 1980) and the social cognitive theory (Bandura, 1986), that both highlight the notion that health knowledge is not adequate to change behaviour. These theories suggest that there is a complex interaction between individual, social, and environmental factors that are likely to influence health-related behaviour.

Parents and caregivers typically play a mediation type role between children's food preferences or choices and actual intake. It has been shown that family values and influence in early years can be shown to impact on food choices later in life (Kral & Rauh, 2010). Parents have more control over their child's eating habits in the younger years. Subsequently, research has shown that as children age they are seen to have more influence on family meals and food (Anzman, Rollins, & Birch, 2010; Warren, Parry, Lynch, & Murphy, 2008). Therefore, the implication would be that parents need to be involved in any intervention that aimed to reduce the impact of "pester power" and unhealthy food choices. There may be some cause for interventions to assist parents/caregivers to identify healthy choices in the supermarket particularly in the context of the healthy eating guidelines more broadly. However, because the actual healthiness of the food had little impact on decision to purchase, it is unlikely that this would be enough. Perhaps more emphasis needs to be on increasing parents' confidence in understanding what would be an acceptable amount of unhealthy/noncore foods to be feeding children. It has been established that children are consuming higher than recommended levels of energy-dense foods. It was suggested that purchasing foods as a treat, reward, pacifier or bribe might be common practice. Health promotion experts do not recommend regular use of food

(particularly unhealthy foods) as a reward in reinforcing appropriate behaviour. It is suggested that this is not an effective long-term strategy and can play a role in reinforcing poor food choices (Birch & Fisher, 1998). Findings show that using food for a reward can increase children's preference for a particular food (Birch, Zimmerman, & Hind, 1980). Although, evidence also suggests that controlling or restricting food, as a punishment is not advised as this can also foster preference for a food (Birch & Fisher, 1998). Ensuring that parents are aware of the recommended intake of extra or noncore foods and the importance of using non-food rewards for behaviour modification could be potentially important health promotion messages.

What might also be important is that parents are offered additional skills in managing their children's behaviour. Parents/caregivers reported using food/drink to pacify their child to manage in the supermarket. They also discussed the stress of managing constant requests for food items and suggested that on occasion they may acquiesce to these requests. In the discussion regarding responses, parents indicated that there can be some inconsistency in their response to their children. This may be due to a number of factors. Alternatively, some parents recognised that by being consistent with their child from a young age, they reduced the frequency of requests made or pestering for food/drinks in the supermarket. Operant conditioning highlights that positive reinforcement provided in response to a particular behaviour will increase the frequency of that behaviour (Skinner, 1963). Alternatively, learning occurs in the absence of a behaviour paired with a positive response, for example, a child not making a food/drink request may lead to a reward or treat. Intermittent reinforcement is important in behavioural modification and may be particularly pertinent to this area. If the schedule is a variable ratio, that is, positive reinforcement is given in an irregular or unpredictable response pattern the resultant behaviour is most likely to become persistent. So, if parents intermittently purchase a requested food/drink item or treat for a child, then it would not only promote further requests but also possibly lead to relentless requests. As expressed in the qualitative discussions, a child would relentlessly pester for a treat in the hope that their parent would give in because it had happened sometime in the past.

A number of parents also acknowledged that consistently refusing their children's requests had the long-term pay off of reducing requests in the future. The parents involved in the study expressed being aware that their children are learning whilst being involved in the grocery shopping. Parents may benefit from being able to shape their child's behaviour and play a part in minimising requests for food. Therefore, it is likely that parents may benefit from educational support about behaviour modification skills and offered alternative approaches.

A potential application of the results would be to develop an intervention that provided tips on how to deal with food/drink requests whilst grocery shopping. Parents provided a range of helpful ideas to engage children in the shopping experience and minimise requests during the supermarket visit that were often age dependent, such as ticking off a shopping list or comparing prices of items. These tips could be provided alongside additional information about strategies to decrease behaviours, using alternatives to food/drinks for rewarding appropriate behaviour, and a reminder about how often children should be having extra foods as part of a healthy diet could be included. This type of intervention, designed to increase parent knowledge and self-efficacy, may prove to be beneficial, particularly in regards to more vulnerable subpopulations. This would be particularly important if there are behavioural issues with the child or problems with family functioning more generally. Potentially this could be delivered as part of a broader parenting intervention. However, this would only be part of the possible solution. Parents in the qualitative discussions highlighted the importance of instilling health beliefs at an early age and encouraging children to adhere to a healthy diet. If this message is promoted within the family, this is counteracted by the general message in the broader media and supermarket environment where unhealthy food options are frequently promoted. It has been shown that although children express awareness about the importance of healthy eating, they show a preference for unhealthy food options (Jones & Kervin, 2011). This preference for unhealthy food options may be influenced by a number of factors such as taste, availability, modelled behaviour and food marketing (Campbell et al., 2007). However, both children and adults recognise the

persuasive nature of food marketing and the influence on food preference (Campbell et al., 2007; Ip et al., 2007; Mehta et al., 2010).

Parents described navigating the supermarket environment accompanied by children as a challenging exercise. Research into Australian supermarkets has identified some of the pitfalls that parents are likely to come across in the supermarket including the checkout displays and product packaging. The nature of products promoted to children using these point-of-sale tactics is identified to be predominantly unhealthy. Participants in the current study expressed difficulties with checkout displays and product placement, and made suggestions in relation to trying to minimise the influence on their children. They suggested that it would be helpful to have confectionery-free aisles available when grocery shopping. Parents expressed a desire to decrease the visibility and access to unhealthy food options in the supermarket. They recommended changes to packaging including truthfulness and ease associated with being able to read nutritional information. Parents wanted food promotion aimed at children in the supermarket to be reduced in general and even have unhealthy food products such as confectionery in an area that is easy to avoid. However, the food promotion aimed toward children in the supermarket is not regulated. These changes would rely on the grocery industry implementing them and could possibly require a significant amount of lobbying from the public.

It has been questioned whether the current regulation system is adequate in shielding children from the effects of food marketing in Australia (Hebden, King, Kelly, Chapman, & Innes-Hughes, 2010). The current regulation system for food promotion in Australia is one of co-regulation, which involves some statutory regulation (government based) and self-regulation (industry based). There are specific regulations that exist in regards to children that included regulations that apply to television advertising. In regards to general food promotion, the Australian Association of National Advertisers (AANA) has a number of codes that deal with advertising to children. These codes come under self-regulation and rely on community complaints to monitor compliance with the codes. The AANA Food and Beverage Advertising and

Marketing Communications Code state that marketing of food and beverages “should not undermine the importance of healthy or active lifestyles nor the promotion of healthy balanced diets” (Australian Association of National Advertisers, 2009). These self-regulation guidelines aim to protect consumers from misleading or deceptive information and from direct harm. It has been established that this system is not adequate in protecting children from the influence of food marketing (Hawkes, 2004). Evidence from studies that have explored the current regulation system into television food advertising has found that there are significant issues with this system. There is a reliance on the community to report breaches of a regulation (Morton, Stanton, Zuppa, & Mehta, 2005). Findings suggest that just over 50% of parents are largely unaware that regulations exist (Morley et al., 2008). In the event that someone does make a complaint, the procedure is seen as arduous and by the time the complaint is investigated, the television advertisement has already been aired.

It is recommended that government regulation is needed to make the changes required to minimise the impact of food promotion on children’s eating patterns. This may become even more important as food marketing expands into more promotional avenues. Harris, Pomeranz, Lobstein and Brownell (2009) report that marketers are becoming “increasingly creative about how they market to children” (p. 213). They provide numerous examples of food marketing methods including product placement (in television shows, movies, music clips, and video games), viral or buzz marketing (using existing social networks to spread the word about a product), children’s sport sponsorship, cross-promotion, and in-store promotions. Food products have dedicated pages in social network sites (for example, Facebook page for Coca Cola found at <http://www.facebook.com/cocacola>). Marketing techniques are constantly evolving and it has been suggested that research and policy is not keeping up with the constant changing landscape (Harris, Pomeranz, et al., 2009).

It has been hypothesised that food marketing can be considered within a social cognitive model (Harris, Brownell, & Bargh, 2009). It proposes that

marketing techniques can influence people through indirect messages that are emotive. The concept revolves around positive messages being provided alongside people consuming a food or beverage. Research findings suggest food marketing to children often involves themes of fun, fantasy and humour (Cairns et al., 2009; Harris, Pomeranz, et al., 2009). The theory predicts that attitudes toward a product can be strengthened through this positive pairing. Over time, being repeatedly exposed to this message will have an accumulative effect and a positive attitude toward the product becomes automatic. This proposes that an increase in frequency and exposure to food marketing is likely to build brand alliance and product preference. Harris et al (2009) put forward a food marketing food defence model that suggests that people need four conditions to successfully resist food promotion. The conditions are awareness, understanding, ability, and motivation. Hence, combating marketing of foods can be complex, particularly for a young person. The counter argument is that policy makers need to consider reducing the children's exposure to food marketing across different mediums and consider creating tighter regulations regarding the promotion of food to children.

5. Suggestions for future research

It would be beneficial to consider repeating the intercept interviews conducted in the current study with the aim to increase the response rate (potentially through incentive) and replicate the findings. If changes in recruitment resulted in a larger sample size this would allow for greater exploration of the factors that may be influencing food requests from children in the supermarket. It may also allow for further understanding of the relationship between age and socioeconomic status and the decision to purchase. Additional questions about non-verbal food/drink requests could be included. It may also be helpful to record the gender of the parent/caregiver and their relationship with the child. As part of future research it would be worthwhile attempting to ascertain whether foods purchased in response to children's requests might be consistent, or otherwise, to groceries purchased overall on the supermarket visit.

It would be highly informative to this field to have intervention studies carried out examining the impact of providing parents with strategies and skills to deal with “pester power”. Parents/caregivers may benefit from further input and behavioural strategies to cope with children and resist requests for unhealthy food options. It is recommended that this could involve suggestions about alternative non-food rewards that could be used to assist with behavioural modification. The intervention could include the provision of useful tips to assist with grocery shopping with children. If proven to be effective in increasing parent self-efficacy and decreasing unhealthy food choices, it could be developed into a population-based health education intervention.

Marketing toward children is prevalent across numerous media and it is suggested that this saturation or immersion may be having an impact on children’s preference for marketed foods and subsequent consumption. Our research did not gather direct evidence in regards to the cumulative effect of food promotion on children’s food preferences and behaviours. It is proposed that it could be helpful to conduct an experiment that used different levels of exposure to a variety of marketing techniques (Internet/web based, magazine and television promotional techniques). Having a greater understanding of the impact of different promotional methods and the influence of accumulation effects could inform policy.

A further area of interest for future research would be to gather information on parents understanding of how often children should consume noncore or extra foods as part of an overall healthy diet. Additionally this could also include measuring the frequency with which they allow children to consume extra foods. It would be helpful to have further knowledge on whether parents are commonly using foods (particularly unhealthy options) as a behavioural modification strategy with their children. In particular, identifying any particular subgroups of parents that use this strategy would be informative in influencing possible interventions.

The results of the current study suggest that it is possible that parents are not aware of some of the additional marketing techniques used to promote foods to children. Historically, there has been a focus on television food advertising and the influence on children. It would be interesting to have a greater understanding of the influence of these different, more subtle forms of marketing, on children's food choices. Conducting additional research into some of the less studied forms of food promotions, such as the Internet and social marketing, would add insight into the influence of these techniques. Perhaps further experimental studies to explore children's food preferences and consumption in response to these forms of marketing. It would also be interesting to quantify the amount of time children are exposed to these forms of food promotion.

6. Conclusion

Children have a preference for requesting noncore foods in the supermarket. Food marketing aimed toward children has previously been shown to play a role in food preferences and choices. Parents/caregivers are often deciding to purchase these food requests, regardless of whether they believe it is healthy or not. The age of the child, and possibly lower socioeconomic status, may play a role in the decision to purchase the requested food item. Parents/caregivers indicate that marketing techniques play a role in children's food requests, specifically highlighting point-of-sale strategies and television advertising. They expressed concerns about the amount of food promotion aimed at children. In an attempt to combat requests for noncore foods made by children in the supermarket environment it is proposed that parents need to be provided with effective strategies to assist in resisting these demands. Research would need to be conducted to ensure that any interventions are effective in minimising poor food choices. In order to address the concept of children making requests for food in the supermarket, and potentially minimise the impact of marketing on food preferences, it is recommended that public policy would need to be changed to reduce the exposure of children to food promotion.

REFERENCES

- Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, New Jersey: Prentice-Hall.
- Alvy, L. M., & Calvert, S. L. (2008). Food marketing on popular children's web sites: A content analysis. *Journal of the American Dietetic Association, 108*(4), 710-713. doi: 10.1016/j.jada.2008.01.006
- Anderson, J. W., Baird, P., Davis, R. H., Jr., Ferreri, S., Knudtson, M., Koraym, A., . . . Williams, C. L. (2009). Health benefits of dietary fiber. *Nutrition Reviews, 67*(4), 188-205. doi: 10.1111/j.1753-4887.2009.00189.x
- Anzman, S. L., Rollins, B. Y., & Birch, L. L. (2010). Parental influence on children's early eating environments and obesity risk: Implications for prevention. *International Journal of Obesity, 34*(7), 1116-1124. doi: 10.1038/ijo.2010.43
- Armfield, J. M., & Brennan, D. S. (2010). Dental health of Australia's teenage and pre-teen children: The Child Dental Health Survey, Australia 2003-04 *Dental Statistics and Research series no. 52. Cat. no. DEN 199*. Canberra: AIHW.
- Armfield, J. M., & Spencer, A. J. (2008). Quarter of a century of change: Caries experience in Australian children, 1977-2002. *Australian Dental Journal, 53*, 151-159.
- Arnas, Y. A. (2006). The effects of television food advertisement on children's food purchasing requests. *Pediatrics International, 48*, 138-145. doi: 10.1111/j.1442-200X.2006.02180.x
- Australian Association of National Advertisers. (2009). Food & beverages advertising & marketing communications code. from <http://www.aana.com.au/documents/AANAFoodandBeveragesCodeAugust2009.pdf>
- Australian Bureau of Statistics. (2009). *Children who are overweight or obese*. Canberra: Australian Bureau of Statistics Retrieved from www.abs.gov.au.
- Australian Communications and Media Authority. (2007). *Children's viewing patterns on commercial, free-to-air and subscription television*. Melbourne: Retrieved from www.acma.gov.au.
- Australian Institute of Health and Welfare. (2011). Dental decay among Australian children. *Research report series no. 53. Cat. no. DEN 210*. Canberra: AIHW.
- Baker, J. L., Olsen, L. W., & Sorensen, T. I. (2007). Childhood body-mass index and the risk of coronary heart disease in adulthood. *The New England Journal of Medicine, 357*(23), 2329-2337. doi: 10.1056/NEJMoa072515
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, New Jersey: Prentice-Hall.
- Beard, T. C., Woodward, D. R., Ball, P. J., Hornsby, H., von Witt, R. J., & Dwyer, T. (1997). The Hobart salt study 1995: Few meet national sodium intake target. *The Medical Journal of Australia, 166*, 404.
- Birch, L. L., & Fisher, J. O. (1998). Development of eating behaviors among children and adolescents. *Pediatrics, 101*(3 Pt 2), 539-549.

- Birch, L. L., Zimmerman, S. I., & Hind, H. (1980). The influence of social-affective context on the formation of children's food preferences. *Child Development, 51*, 856-861. doi: 00009-3920/80/5103-0027\$01.00
- Biro, F. M., & Wien, M. (2010). Childhood obesity and adult morbidities. *The American Journal of Clinical Nutrition, 91*(5), 1499S-1505S. doi: 10.3945/ajcn.2010.28701B
- Boorman, J., Cunningham, J., & Mackerras, D. (2008). Salt intake from processed foods and discretionary salt use in Australia. Canberra: *Food Standards Australia New Zealand*.
- Cairns, G., Angus, K., & Hastings, G. (2009). The extent, nature and effects of food promotion to children: A review of the evidence to December 2008. Prepared for the World Health Organization. United Kingdom: Institute for Social Marketing, University of Stirling.
- Campbell, K. J., Crawford, D. A., & Hesketh, K. D. (2007). Australian parents' views on their 5-6-year-old children's food choices. *Health Promotion International, 22*(1), 11-18. doi: 10.1093/heapro/dal035
- Chapman, K., Nicholas, P., Banovic, D., & Supramaniam, R. (2006). The extent and nature of food promotion directed to children in Australian supermarkets. *Health Promotion International, 21*(4), 331-339. doi: 10.1093/heapro/dal028
- Chapman, K., Nicholas, P., & Supramaniam, R. (2006). How much food advertising is there on Australian television? *Health Promotion International, 21*(3), 172-180.
- Children's Health Development Foundation, & Deakin University. (1998). *The Australian guide to healthy eating*. Canberra: Australian Government Department of Health and Ageing Retrieved from [http://www.health.gov.au/internet/main/publishing.nsf/content/E384CF_A588B74377CA256F190004059B/\\$File/fd-cons.pdf](http://www.health.gov.au/internet/main/publishing.nsf/content/E384CF_A588B74377CA256F190004059B/$File/fd-cons.pdf).
- Coon, K. A., & Tucker, K. L. (2002). Television and children's consumption patterns. A review of the literature. *Minerva pediatrica, 54*(5), 423-436.
- Cowburn, G., & Boxer, A. (2007). Magazines for children and young people and the links to Internet food marketing: A review of the extent and type of food advertising. *Public Health Nutrition, 10*(10), 1024-1031. doi: 10.1017/S1368980007666658
- Department of Health and Ageing. (2008). *2007 Australian National Children's Nutrition and Physical Activity Survey - Main Findings*. Canberra (AUST): Commonwealth of Australia: Retrieved from [http://www.health.gov.au/internet/main/publishing.nsf/Content/66596E8FC68FD1A3CA2574D50027DB86/\\$File/childrens-nut-phys-survey.pdf](http://www.health.gov.au/internet/main/publishing.nsf/Content/66596E8FC68FD1A3CA2574D50027DB86/$File/childrens-nut-phys-survey.pdf).
- Department of Human Services. (2005). Promoting healthy eating for children: A planning guide for practitioners. Melbourne: Deakin University.
- Dixon, H., Scully, M., & Parkinson, K. (2006). Pester power: Snackfoods displayed at supermarket checkouts in Melbourne, Australia. *Health Promotion Journal of Australia, 17*(2), 124-127.
- Dixon, H. G., Scully, M. L., Wakefield, M. A., White, V. M., & Crawford, D. A. (2007). The effects of television advertisements for junk food versus nutritious food on children's food attitudes and preferences. *Social*

- Science & Medicine*, 65(7), 1311-1323. doi: 10.1016/j.socscimed.2007.05.011
- Edwards, D. G., Kaye, A. E., & Druce, E. (1989). Sources and intakes of sodium in the United Kingdom diet. *European Journal of Clinical Nutrition*, 43, 855-861.
- Fonseca, H., Matos, M. G., Guerra, A., & Pedro, J. G. (2009). Are overweight and obese adolescents different from their peers? *International Journal of Pediatric Obesity : IJPO : An Official Journal of the International Association for the Study of Obesity*, 4(3), 166-174. doi: 10.1080/17477160802464495
- Frankel, S., Gunnell, D. J., Peters, T. J., Maynard, M., & Davey Smith, G. (1998). Childhood energy intake and adult mortality from cancer: The Boyd Orr cohort study. *British Medical Journal*, 316, 499-504.
- French, S. A., Story, M., & Perry, C. L. (1995). Self-esteem and obesity in children and adolescents: A literature review. *Obesity Research*, 3(5), 479-490.
- Giskes, K., Turrell, G., Patterson, C., & Newman, B. (2002). Socioeconomic differences among Australian adults in consumption of fruit and vegetables and intakes of vitamins A, C and folate. *Journal of Human Nutrition and Dietetics : The Official Journal of the British Dietetic Association*, 15(5), 375-385.
- Goran, M. I., Ball, G. D., & Cruz, M. L. (2003). Obesity and risk of type 2 diabetes and cardiovascular disease in children and adolescents. *The Journal of Clinical Endocrinology and Metabolism*, 88(4), 1417-1427. doi: 10.1210/jc.2002-021442
- Goris, J. M., Petersen, S., Stamatakis, E., & Veerman, J. L. (2010). Television food advertising and the prevalence of childhood overweight and obesity: A multicountry comparison. *Public Health Nutrition*, 13(7), 1003-1012. doi: 10.1017/S1368980009992850
- Halford, J. C., Boyland, E. J., Hughes, G. M., Stacey, L., McKean, S., & Dovey, T. M. (2008). Beyond-brand effect of television food advertisements on food choice in children: The effects of weight status. *Public Health Nutrition*, 11(9), 897-904. doi: 10.1017/S1368980007001231
- Harris, J. L., Brownell, K. D., & Bargh, J. A. (2009). The food marketing defense model: Integrating psychological research to protect youth and inform public policy. *Social Issues and Policy Review*, 3(1), 211-271. doi: 10.1111/j.1751-2409.2009.01015.x
- Harris, J. L., Pomeranz, J. L., Lobstein, T., & Brownell, K. D. (2009). A crisis in the marketplace: How food marketing contributes to childhood obesity and what can be done. *Annual Review of Public Health*, 30, 211-225. doi: 10.1146/annurev.publhealth.031308.100304
- Harris, J. L., Schwartz, M. B., & Brownell, K. D. (2010). Marketing foods to children and adolescents: Licensed characters and other promotions on packaged foods in the supermarket. *Public Health Nutrition*, 13(3), 409-417. doi: 10.1017/S1368980009991339
- Hastings, G., McDermott, L., Angus, K., Stead, M., & Thomson, S. (2007). The extent, nature and effects of food promotion to children: A review of the evidence: Technical paper prepared for the World Health Organization.

- Hastings, G., Stead, M., McDermot, I., Forsyth, A., MacKintosh, A., Rayner, M., . . . Angus, K. (2003). Review of the research on the effects of food promotion to children. Glasgow: Centre for Social Marketing.
- Hawkes, C. (2004). Marketing food to children: The global regulatory environment. Geneva: World Health Organization.
- Hebden, L., King, L., Kelly, B., Chapman, K., & Innes-Hughes, C. (2010). Industry self-regulation of food marketing to children: Reading the fine print. *Health Promotion Journal of Australia : Official Journal of Australian Association of Health Promotion Professionals*, 21(3), 229-235.
- Hebden, L., King, L., Kelly, B., Chapman, K., & Innes-Hughes, C. (2011). A menagerie of promotional characters: Promoting food to children through food packaging. *Journal of Nutrition Education and Behavior*, 43(5), 349-355. doi: 10.1016/j.jneb.2010.11.006
- Hopcraft, M. S., Yapp, K. E., Mahoney, G., & Morgan, M. V. (2009). Dental caries experience in young Australian Army recruits 2008. *Australian Dental Journal*, 54(4), 316-322. doi: 10.1111/j.1834-7819.2009.01156.x
- Ip, J., Mehta, K., & Coveney, J. (2007). Exploring parents' perceptions of television food advertising directed at children: A South Australian study. *Nutrition & Dietetics*, 64, 50-58. doi: 10.1111/j.1747-0080.2007.00069.x
- James, W. P., Ralph, A., & Sanchez-Castillo, C. P. (1987). The dominance of salt in manufactured food in the sodium intake of affluent societies. *Lancet*, 1, 426-429.
- Johnson, L., Mander, A. P., Jones, L. R., Emmett, P. M., & Jebb, S. A. (2008). Energy-dense, low-fiber, high-fat dietary pattern is associated with increased fatness in childhood. *The American Journal of Clinical Nutrition*, 87(4), 846-854.
- Johnson, R. K., Appel, L. J., Brands, M., Howard, B. V., Lefevre, M., Lustig, R. H., . . . Wylie-Rosett, J. (2009). Dietary sugars intake and cardiovascular health: A scientific statement from the American Heart Association. *Circulation*, 120(11), 1011-1020. doi: 10.1161/CIRCULATIONAHA.109.192627
- Jones, S. C., & Kervin, L. (2011). An experimental study on the effects of exposure to magazine advertising on children's food choices. *Public Health Nutrition*, 14(8), 1337-1344. doi: 10.1017/S1368980010002983
- Jones, S. C., & Reid, A. (2010). Children's magazines: Reading resources or food marketing tools? *Public Health Nutrition*, 13(3), 393-399. doi: 10.1017/S1368980009991133
- Kant, A. K. (2000). Consumption of energy-dense, nutrient-poor foods by adult Americans: Nutritional and health implications. The Third National Health and Nutrition Examination Survey, 1988-1994. *The American Journal of Clinical Nutrition*, 72(4), 929-936.
- Keleher, H., & MacDougall, C. (Eds.). (2009). *Understanding health: A determinants approach* (2nd ed.). Melbourne: Oxford University Press.
- Kelly, B., Bochynska, K., Kornman, K., & Chapman, K. (2008). Internet food marketing on popular children's websites and food product websites in Australia. *Public Health Nutrition*, 11(11), 1180-1187. doi: 10.1017/S1368980008001778

- Kelly, B., & Chapman, K. (2007). Food references and marketing to children in Australian magazines: A content analysis. *Health Promotion International, 22*(4), 284-291. doi: 10.1093/heapro/dam026
- Kelly, B., Hattersley, L., King, L., & Flood, V. (2008). Persuasive food marketing to children: Use of cartoons and competitions in Australian commercial television advertisements. *Health Promotion International, 23*(4), 337-344. doi: 10.1093/heapro/dan023
- Kelly, B., Smith, B., King, L., Flood, V., & Bauman, A. (2007). Television food advertising to children: The extent and nature of exposure. *Public Health Nutrition, 10*(11), 1234-1240.
- Kral, T. V., & Rauh, E. M. (2010). Eating behaviors of children in the context of their family environment. *Physiology & behavior, 100*(5), 567-573. doi: 10.1016/j.physbeh.2010.04.031
- Kunkel, D., Wilcox, B., Cantor, J., Palmer, E., Linn, S., & Dowrick, P. (2004). Report of the APA Task Force on Advertising and Children: Psychological issues in the increasing commercialization of childhood. Washington, DC: American Psychological Association.
- Law, M. (2000). Dietary fat and adult diseases and the implications for childhood nutrition: an epidemiologic approach. <http://www.ajcn.org/content/72/5/1291S.full.pdf+html>. *The American Journal of Clinical Nutrition, 72*(5 Suppl), 1291S-1296S.
- Lien, N., Lytle, L. A., & Klepp, K. I. (2001). Stability in consumption of fruit, vegetables, and sugary foods in a cohort from age 14 to age 21. *Preventive Medicine, 33*(3), 217-226. doi: 10.1006/pmed.2001.0874
- Livingstone, S., & Helsper, E. J. (2006). Does advertising literacy mediate the effects of advertising on children? A critical examination of two linked research literatures in relation to obesity and food choice. *Journal of Communications, 56*, 560-584. doi: 10.1111/j.1460-2466.2006.00301.x
- Lobstein, T., & Dobb, S. (2005). Evidence of a possible link between obesogenic food advertising and child overweight. *Obesity Reviews : an Official Journal of the International Association for the Study of Obesity, 6*(3), 203-208. doi: 10.1111/j.1467-789X.2005.00191.x
- Lock, K., Pomerleau, J., Causer, L., Altmann, D. R., & McKee, M. (2005). The global burden of disease attributable to low consumption of fruit and vegetables: Implications for the global strategy on diet. *Bulletin of the World Health Organization, 83*, 100-108.
- Ludwig, D. S., Pereira, M. A., Kroenke, C. H., Hilner, J. E., Van Horn, L., Slattery, M. L., & Jacobs, D. R., Jr. (1999). Dietary fiber, weight gain, and cardiovascular disease risk factors in young adults. *JAMA : The Journal of the American Medical Association, 282*(16), 1539-1546.
- Magarey, A., Daniels, L. A., Boulton, T., & Cockington, R. A. (2003). Predicting obesity in early adulthood from childhood and parental obesity. *International Journal of Obesity, 27*, 505-513.
- Maynard, M., Gunnell, D., Emmett, P., Frankel, S., & Davey Smith, G. (2003). Fruit, vegetables, and antioxidants in childhood and risk of adult cancer: The Boyd Orr cohort. *Journal of Epidemiology and Community Health, 57*(3), 218-225.
- Mehta, K., Coveney, J., Ward, P., Magarey, A., Spurrier, N., & Udell, T. (2010). Australian children's views about food advertising on television. *Appetite, 55*, 49-55. doi: 10.1016/j.appet.2010.03.011

- Morley, B., Chapman, K., Mehta, K., King, L., Swinburn, B., & Wakefield, M. (2008). Parental awareness and attitudes about food advertising to children on Australian television. *Australian and New Zealand Journal of Public Health*, 32(4), 341-347. doi: 10.1111/j.1753-6405.2008.00252.x
- Morrison, J. A., Glueck, C. J., Daniels, S., & Wang, P. (2010). Determinants of persistent obesity and hyperinsulinemia in a biracial cohort: A 15-year prospective study of schoolgirls. *The Journal of pediatrics*, 157(4), 559-565. doi: 10.1016/j.jpeds.2010.04.030
- Morton, H., Stanton, R., Zuppa, J., & Mehta, K. (2005). Food advertising and broadcasting legislation-a case of system failure? *Nutrition & Dietetics*, 62, 26-32.
- Moses, L. J., & Baldwin, D. A. (2005). What can the study of cognitive development reveal about children's ability to appreciate and cope with advertising? *Journal of Public Policy & Marketing*, 24, 186-201.
- Moynihan, P., & Petersen, P. E. (2004). Diet, nutrition and the prevention of dental diseases. *Public Health Nutrition*, 7, 201-226. doi: 10.1079/PHN2003589
- Nairn, A., & Fine, C. (2008). Who's messing with my mind? The implications of dual-process models for the ethics of advertising to children. *International Journal of Advertising*, 27, 447-470. doi: 10.2501/S0265048708080062
- National Health and Medical Research Centre. (2003). *Clinical practice guidelines for the management of overweight and obesity in children and adolescents*. Canberra: Retrieved from <http://www.health.gov.au/internet/main/publishing.nsf/Content/obesityguidelines-guidelines-children.htm>.
- National Health and Medical Research Council. (2003). *Dietary Guidelines for Children and Adolescents in Australia*. Canberra: Ausinfo Retrieved from <http://www.nhmrc.gov.au/publications/synopses/dietsyn.htm>.
- National Health and Medical Research Council, & New Zealand Ministry of Health. (2006). *Nutrient Reference Values for Australia and New Zealand: Dietary fibre*.
- Ness, A. R., Maynard, M., Frankel, S., Smith, G. D., Frobisher, C., Leary, S. D., . . . Gunnell, D. (2005). Diet in childhood and adult cardiovascular and all cause mortality: The Boyd Orr cohort. *Heart*, 91(7), 894-898. doi: 10.1136/hrt.2004.043489
- O'Dea J, A. (2003). Differences in overweight and obesity among Australian schoolchildren of low and middle/high socioeconomic status. *Medical Journal of Australia*, 179, 63.
- O'Dea, J. A. (2006). Self-concept, self-esteem and body weight in adolescent females: A three-year longitudinal study. *Journal of Health Psychology*, 11(4), 599-611. doi: 10.1177/1359105306065020
- O'Neill, C. E., Zhanovec, M., Cho, S. S., & Nicklas, T. A. (2010). Whole grain and fiber consumption are associated with lower body weight measures in US adults: National Health and Nutrition Examination Survey 1999-2004. *Nutrition Research*, 30, 815-822.
- Petry, N. M., Barry, D., Pietrzak, R. H., & Wagner, J. A. (2008). Overweight and obesity are associated with psychiatric disorders: Results from the National Epidemiologic Survey on Alcohol and Related Conditions.

- Psychosomatic Medicine*, 70, 288-297. doi: 10.1097/PSY.0b013e3181651651
- Population Health Division. (2008). *The health of the people of New South Wales - Report of the Chief Health Officer*. Sydney: Retrieved from www.health.nsw.gov.au/publichealth/chorep/.
- Renzaho, A. M., Kumanyika, S., & Tucker, K. L. (2011). Family functioning, parental psychological distress, child behavioural problems, socio-economic disadvantage and fruit and vegetable consumption among 4-12 year-old Victorians, Australia. *Health Promotion International*, 26(3), 263-275. doi: 10.1093/heapro/daq054
- Skinner, B. F. (1963). Operant behavior. In W. Honig (Ed.), *Operant Behavior and Psychology*. New York: Appleton-Century-Crofts.
- Slater, P. J., Gkolia, P. P., Johnson, H. L., & Thomas, A. R. (2010). Patterns of soft drink consumption and primary tooth extractions in Queensland children. *Australian Dental Journal*, 55(4), 430-435. doi: 10.1111/j.1834-7819.2010.01265.x
- Suriano, K., Curran, J., Byrne, S. M., Jones, T. W., & Davis, E. A. (2010). Fatness, fitness, and increased cardiovascular risk in young children. *The Journal of Pediatrics*, 157(4), 552-558. doi: 10.1016/j.jpeds.2010.04.042
- Swinburn, B. A., Caterson, I., Seidell, J. C., & James, W. P. (2004). Diet, nutrition and the prevention of excess weight gain and obesity. *Public Health Nutrition*, 7(1A), 123-146. doi: 10.1079/PHN2003585
- te Velde, S. J., Twisk, J. W. R., & Brug, J. (2007). Tracking of fruit and vegetable consumption from adolescence into adulthood and its longitudinal association with overweight. *British Journal of Nutrition*, 98, 431-438.
- Turrell, G., Hewitt, B., Patterson, C., Oldenburg, B., & Gould, T. (2002). Socioeconomic differences in food purchasing behaviour and suggested implications for diet-related health promotion. *Journal of Human Nutrition and Dietetics : The Official Journal of the British Dietetic Association*, 15(5), 355-364.
- Warren, E., Parry, O., Lynch, R., & Murphy, S. (2008). 'If I don't like it then I can choose what I want': Welsh school children's accounts of preference for and control over food choice. *Health Promotion International*, 23(2), 144-151.
- Zuppa, J., Morton, H., & Mehta, K. (2003). Television food advertising: Counterproductive to children's health? A content analysis using the Australian Guide to Healthy Eating. *Nutrition & Dietetics*, 60, 78-84.

APPENDICES

Appendix 1: Intercept interview

The SNACC Program Supermarket Interview

Q1. How often do/les your child/ren request food items?

- Never
- Rarely
- Sometimes
- Frequently

Q2. Did your child/ren request a food item during your shopping trip today? *If more than one child requested a food item, please pick the child who had the most recent birthday.*

- Yes
↓

- No
↓

Skip to Q7

If yes, did they request the item because of any of the following reasons?

- Recalled the product from a TV advertisement
 - Recalled the product from a magazine advertisement
 - Recalled the product from a internet advertisement
 - The packaging
 - A promotion (eg. A giveaway)
 - The checkout display
 - Another reason, please specify
-
- Unsure/don't know

Q3. What was the requested item? *(list as many as requested)*

Q4. Did you purchase the requested item?

Yes



No



Proceed to Q5

If no, why did you decide not to purchase the item?

- Unhealthiness, please specify further
 - Nutritional content
 - Impact on child's appetite
 - Causes tooth decay
 - Unnecessary snacks
 - Other, please specify

Cost

Other, please specify

Q5. Would you describe the food item requested as healthy or unhealthy?

- Healthy
- Unhealthy
- Neither
- Unsure/don't know

Q6. Do you think that any other factors have influenced you in your decision to purchase or not purchase the item? (eg. A bad or stressful day; deserved a treat; did not want an argument in the supermarket) or any other reasons.

- No
- Yes

If yes, please specify

Q7. What is your child's age?

- Specify age _____
- I'd rather not say.

Q8. How many children do you have shopping with you today? (self complete if obvious)

- Specify number _____
- I'd rather not say.

Q9. What is the gender of the child? (self complete if obvious , only ask if not sure which child)

- Male
- Female

So that we can make sure that we have a broad range of people in our study these final few questions are about you and your family.

Q10. What is your postcode?

- Please specify _____
- I'd rather not say.

Q11. Can you please tell me your present marital status?

- Married or de facto
- Separated/divorced/widowed /never married
- I'd rather not say.

Q12. What is the highest level of education you have completed? (do not read all responses)

- Primary school
- Year 10 (or equivalent) or below
- Year 12 or equivalent
- Certificate/diploma
- Bachelor undergraduate degree

- Postgraduate degree, diploma or certificate
- Other (please specify) _____
- I'd rather not say.

Q13. What is your current employment status? *(do not read all responses)*

- Employed full-time
- Employed part-time
- Unemployed
- Retired
- On a pension OTHER than an age pension
- Full-time student
- Engaged in home duties
- I'd rather not say.

Q14. Which of the following describes your household's approximate annual income from all sources, before tax? *(show list and let person point if more appropriate)*

- Less than \$ 40,000
- \$40,000 - \$80,000
- Over \$80,000
- Don't know
- I'd rather not say.

Q15. What is the main language spoken in your home?

- English
- Other (please specify) _____
- I'd rather not say.

Thank you very much for participating in this survey. If you have any questions about this interview please contact either of the investigators whose details are listed on the information statement. If you would like to receive a summary of the results please provide your name and address so we can mail it to you. *(offer sheet to complete address)*

Appendix 2: Focus group/telephone interview schedule

SNACC Focus Group Format

Pre-Focus Group/Warm-up (To develop rapport with participants)

Before we start the Focus Group:

- Participants introduce themselves and invited to share name/s and age/s of children

Introduction

Thank you for agreeing to talk with us today. We are conducting this research through The University of Newcastle. We are

[Need to introduce moderator of focus group – roles of team members]

Before we commence our interview today, I need to remind you of a few things. We'd like everyone in the group to have a chance to have their say, with only one person to talk at a time. There are no right or wrong answers to any of the questions we are going to ask, and we are interested in hearing about a diverse range of experiences. People do not have to agree on one option, it is all about finding out as much information as we can to help us better understand what it is like to shop at a supermarket with children.

It is important that we all respect each other's privacy throughout this discussion, and not disclose any information outside of this session. The information provided by you will be treated confidentially, and you will not be identified in any way in any results or reports arising from our discussion. I also need to remind you that our discussion today is being tape recorded, and our discussion will be transcribed verbatim. Quotes from our discussion may also be used in reports. Is that okay?

Wait for consent

This study is purely voluntary and you may withdraw from the discussion at any stage.

Are there any questions before we start?

Wait for comment

Questions/Prompts

So, let's get started and talk about your experiences of shopping with a child or children. Can someone recall their last supermarket visit and tell us a little bit about it?

Wait for comment

Q1: Does anyone have a story about a supermarket trip that involved a child pestering them for something?

Wait for comment

Prompt: What are some of the different things that might happen when you are pestered for a food item at the supermarket?

Prompt: When they do ask for something, is it generally a healthy or unhealthy type of food?

Wait for comment

Prompt: Do you think your children are more likely to ask for junk food?

Wait for comment

Q2: What are the sorts of things that prompt a request?

Wait for comment

Prompt: For example do you think it was because of a TV ads, giveaways, cartoons on front of the packet, checkouts, or some other type of ad.

Wait for comment

Q3: How do you respond to your children pestering for a food item?

Wait for comment

Prompt: Does your answer vary depending on the situation?

Prompt: What might effect or influence your decision to say yes or no?

Wait for comment

Prompt: Some examples of influences could be whether the food item is healthy; money; treat/reward; your child's behaviour; bad day.

Prompt: I'd like to ask a bit more about times when you might want to say no. Are there things that might make it difficult to say no?

Wait for comment

Prompt: When you are in a public place is it harder to say no?

Wait for comment

Prompt: It is different when you are out and about with people around? Do you think that having people watching might change whether you say no?

Wait for comment

Prompt: What role does the food type or discipline play in your decision?

Wait for comment

Q4: Are you concerned about the amount of food promotion that is aimed at children?

Wait for comment

Prompt: In particular, are you worried about the level of food advertising that your children are exposed to?

Wait for comment

Prompt: What do you think can be done about it?

Q5: How would you feel about being stopped and invited to answer questions as you are leaving a supermarket with your children?

Wait for comment

Prompt: Is there anything that is relevant that we have not discussed?

Close

Thank you for your comments today. You have provided us with some really useful information which we will use to be able to identify ways we can help. Is there anything you wish to say before we finish up?

Wait for comment

A reminder that today's discussion is confidential and we'd like to remind you to maintain each other's privacy.

Finally, we'd just like to let you know that we can send you a copy of the study results, when the study has been completed. You will have the option of reviewing the study results and quotes in the summary report, and will be able to change anything you feel is not an accurate reflection of what we have talked about today. Would you like us to send you a copy of the summary results?

Wait for comment

Once again, thank you very much for your time, and for the information you have contributed to this research. We really appreciate it.

Appendix 3: Demographic questions provided to participants of focus groups/telephone interviews

SNACC questions

Q1. Can you please list the gender and age for each of your children?

1. _____	2. _____
3. _____	4. _____
5. _____	6. _____

Q2. What is your postcode?

Q3. Can you please tell me your present marital status?

- Married or de facto
- Separated/divorced/widowed /never married
- I'd rather not say.

Q4. What is the highest level of education you have completed?

- Primary school
- Year 10 (or equivalent) or below
- Year 12 or equivalent
- Certificate/diploma
- Bachelor undergraduate degree
- Postgraduate degree, diploma or certificate
- Other (please specify) _____
- I'd rather not say.

Q5. What is your current employment status?

- Employed full-time
- Employed part-time
- Unemployed
- Retired
- On a pension OTHER than an age pension
- Full-time student
- Engaged in home duties
- I'd rather not say.

Q6. Which of the following describes your household's approximate annual income from all sources, before tax?

- Less than \$ 40,000
- \$40,000 - \$80,000
- Over \$80,000
- Don't know
- I'd rather not say.

Q7. What is the main language spoken in your home?

- English
- Other (please specify) _____
- I'd rather not say.

Appendix 4: Additional results

A statistically significant group of parents/caregivers were unable to correctly identify the health status of a requested food item. If a parent/caregiver identified a food as a healthy food option or were unsure, more often it was a noncore food item (Fisher's Exact Test, $p=0.000$). Please refer to the following table for further information:

Table: Comparison of actual and perceived healthiness of requested foods

	Parent/carer classified as healthy/core food	Parent/carer classified as unhealthy/did not know/unsure/noncore food	Total
Actually classified as healthy/core food	10	0	10
Actually classified as unhealthy/noncore food	14	90	104
Total	24	90	114

Appendix 5: Scope and information on selected journal



Information for Authors

SCOPE

Health Promotion International contains refereed original articles, reviews, and debate articles on major themes and innovations from various sectors including education, health services, employment, government, the media, industry, environmental agencies, and community networks. The journal provides a unique focal point for articles of high quality that describe not only theories and concepts, research projects and policy formulation, but also planned and spontaneous activities, organizational change, social and environmental development.

SUBMISSION OF MANUSCRIPTS

General Points

Language: Manuscripts must be clearly and concisely written in English. The Editors reserve the right to reject without review those that cannot adequately be assessed because of a poor standard of English. Authors whose first language is not English are encouraged to have their manuscript checked by a native English speaker. If you have difficulty with this you can obtain further help and information here.

Title: No longer than 10 words; also to include country where research undertaken in title (if relevant).

Key words: Please include a minimum of two words “key words” to aid literature searching, and a maximum of five.

Word count: Manuscript length not to exceed 7000 words, allowing approximately:

- 3000 words for body of text
- 250 words for abstract
- 1000 words for references
- Total of 3 tables or figures (all tables and figures will be deemed to represent approximately 500 words each, due to the space required if manuscript is published).

Variations can be made to the length of these individual sections but the total

word count must not exceed 7000 words. Please state clearly on the manuscript the breakdown of the total word count; over-length articles will not be considered.

Correspondence: The Editorial Office will correspond directly with authors on the acceptability of their papers.

Unique submissions: Authors may not submit manuscripts that are under consideration for publication elsewhere.

Online submission: Manuscripts must be submitted online via the online submission system <http://mc.manuscriptcentral.com/hpi>. Please see further submission details below.

Preparing Documents for Submission

Enter text in the style and order of the Journal (see "References" section below).

Insert figure captions and tables at the end of the file.

Save any tables, diagrams, figures, graphs or illustrations generated electronically as separate files and not embedded into the text file. Tables must be in editable format (e.g. Excel). Figures can be in editable or image format.

Type headings in the style of the Journal.

Where possible use Times for the text font and Symbol for the Greek and special characters. Please use the word processing formatting features to indicate Bold, *Italic*, Greek, Maths, ^{Superscript} and _{Subscript} characters.

Once your manuscript is ready for submission, please follow the online submission instructions [here](#).

Figure Submission

Images on disk can be accepted in Adobe PhotoShop compatible formats. Images should be saved in TIFF format.

Image resolution should be a *minimum* of 300 dpi.

REFERENCES

Reference list:

- References should be listed at the end of the main text.
- Reference citations should be inserted in the text using the author-date system whereby the surname of the author and year of publication of the reference are used in the text. For example: 'Reports by Author (Author, 1989) have confirmed...' or '...as reported earlier (Author and Author, 1985; Author *et al.*, 1998)'. *Do not* place text other than the author and date within the parentheses.

- Authors should check all references carefully, and in particular ensure that all references in the Reference section are cited in the text.
- The list of references should be in alphabetical order of surnames.
- References by the same author(s) should be in chronological order.
- Personal communications, unpublished results, manuscripts submitted or in preparation, statistical packages, computer programs and web sites should be cited in the text only, NOT included in the References section.
- Accession numbers may be cited either within the text or in the form of a reference.
- The normal form of listed references is author's surname, initials; year in parenthesis; article title; journal name in full, volume number and page numbers.
- See examples below

Examples:

Journal article (already published in an issue): Xu, L. S., Pan, B. J., Lin, J. X., Chen L. P., Yu, S. H. and Jones, J. (2000) Creating health-promoting schools in rural China: A project started from deworming. *Health Promotion International*, 15, 197-206.

Journals article (e-pub ahead of print): Salmon, J., Ball, K., Crawford, D., Booth, M., Telford, A., Hume, C., Jolley, D. and Worsley, A. (2005) Reducing sedentary behaviour and increasing physical activity among 10-year-old children: overview and process evaluation of the 'Switch-Play' intervention. *Health Promotion International*, January 24, 2005: 10.1093/heapro/dah502.

Chapter in a book: Zerjal, T., Singh, L. and Thangaraj, Jr K. (1999) The use of Y-chromosomal DNA variation. In Papiha, B. N. and Chakraborty, E. (eds), *Genomic Diversity*, 2nd edition, Chapter 4. Kluwer Academic, New York, NY, pp. 91–101.

Book (Editor as author) : Shaw, S. and Anderson, D. L. (eds) (1978) *Classification of osteogenesis imperfecta*. New England Journal of Medicine, 21, 1003–1007.

Number of authors: *Single author: Shaw, S.*

Two authors: Kennedy, T. and Jones, R.

More than three authors: Zerjal, T., Singh, L. and Thangaraj, Jr K.

More than six authors: If more than 6, retain first six authors and put et al.

Electronic source: Barry, P. (2002) One Tel's cash SOS, then it all fell apart. *Sydney Morning Herald*, 1 August. [Http://www.smh.com.au](http://www.smh.com.au) (last accessed 16 September 2002).

Reference citations in text:

- Single author: (Zhou, 2001)
- Two authors: (McDonald and Norman, 2002)
- More than two authors: (Schoolcraft et al., 2001)
- Same author, more than one citation: (Jones, 2001, 2003)

•Unpublished data: (H.G.Jones, unpublished results/submitted for publication/in preparation [delete as appropriate])

PROOFS

Authors are sent page proofs. Please provide an e-mail address to enable page proofs to be sent as PDF files via e-mail. To avoid delays in publication, proofs should be checked immediately for typographical errors.

LICENCE TO PUBLISH/OFFPRINTS

New for 2010 – Please note that the journal now encourages authors to complete their copyright licence to publish form online.

Upon receipt of accepted manuscripts at Oxford Journals authors will be invited to complete an online copyright licence to publish form.

This ensures that requests from third parties to reproduce articles are handled efficiently and consistently and will also allow the article to be as widely disseminated as possible. In granting an exclusive licence, authors may use their own material in publications provided that the Journal is acknowledged as the original place of publication, and Oxford University Press is notified in writing and in advance. In consideration for granting an exclusive licence, the publisher will provide free online access to your article. Printed offprints may be ordered at extra cost at the proof stage.

To download the offprint form, please click [here](#).

Orders from the UK will be subject to the current UK VAT charge. For orders from elsewhere in the EU you or your institution should account for VAT by way of a reverse charge. Please provide us with your or your institution's VAT number.

Please note that by submitting an article for publication you confirm that you are the corresponding/submitting author and that Oxford University Press ("OUP") may retain your email address for the purpose of communicating with you about the article. You agree to notify OUP immediately if your details change. If your article is accepted for publication OUP will contact you using the email address you have used in the registration process. Please note that OUP does not retain copies of rejected articles.

Open Access Option for Authors

Health Promotion International authors have the option to publish their paper under the [Oxford Open](#) initiative; whereby, for a charge, their paper will be made freely available online immediately upon publication. After your manuscript is accepted the corresponding author will be required to accept a mandatory licence to publish agreement. As part of the licensing process you will be asked to indicate whether or not you wish to pay for open access. If you do not select the open access option, your paper will be published with standard subscription-based access and you will not be charged.

You can pay Open Access charges using our Author Services site. This will enable you to pay online with a credit/debit card, or request an invoice by email or post. Open Access charges can be viewed [here](#) in detail; discounted rates are available for authors based in some developing countries (click [here](#) for a list of qualifying countries).

Orders from the UK will be subject to the current UK VAT charge. For orders from the rest of the European Union, OUP will assume that the service is provided for business purposes. Please provide a VAT number for yourself or your institution and ensure you account for your own local VAT correctly.

FUNDING

Please submit a separate title page (to be designated as “Title Page”) with author address and contact details, funding sources, word count and any acknowledgements.

For the funding statement the following rules should be followed:

- The sentence should begin: ‘This work was supported by ...’
- The full official funding agency name should be given, i.e. ‘the National Cancer Institute at the National Institutes of Health’ or simply ‘National Institutes of Health’ not ‘NCI’ (one of the 27 subinstitutions) or ‘NCI at NIH’ ([full RIN-approved list of UK funding agencies](#)) Grant numbers should be complete and accurate and provided in brackets as follows: ‘[grant number ABX CDXXXXXX]’
- Multiple grant numbers should be separated by a comma as follows: ‘[grant numbers ABX CDXXXXXX, EFX GHXXXXXX]’
- Agencies should be separated by a semi-colon (plus ‘and’ before the last funding agency)
- Where individuals need to be specified for certain sources of funding the following text should be added after the relevant agency or grant number ‘to [author initials]’.

An example is given here: ‘This work was supported by the National Institutes of Health [AA123456 to C.S., BB765432 to M.H.]; and the Alcohol & Education Research Council [P50 CA098252 and CA118790 to R.B.S.R.]’

Oxford Journals will deposit all NIH-funded articles in PubMed Central. See http://www.oxfordjournals.org/for_authors/repositories.html for details. Authors must ensure that manuscripts are clearly indicated as NIH-funded using the guidelines above.

Author Self-Archiving/Public Access policy
Author Self-Archiving/Public Access policy from May 2005

For information about this journal's policy, please visit our [Author Self-Archiving policy page](#).

COMMUNICATIONS

Editorial Office contact information:

Ms Robyn Perlstein BSc (hons); Grad Dip Diet; APD
Health Promotion International Journal Administrator
Room ad2.211

Deakin University

Geelong Waterfront Campus

Victoria, Australia 3220

<http://heapro.oxfordjournals.org/>

Email: hpj@deakin.edu.au

Appendix 6: Email confirmation that the journal manuscript was accepted for review

Dear Ms. Campbell,

Manuscript ID HPI-2011-337 entitled "A mixed method examination of food marketing directed towards children in Australian supermarkets" which you submitted to Health Promotion International, has been reviewed. The comments of the reviewer(s) are included at the bottom of this letter.

The reviewer(s) have suggested some minor revisions to your manuscript before it can be considered for publication. Therefore, I invite you to respond to the reviewer(s)' comments and revise your manuscript.

To revise your manuscript, log into <http://mc.manuscriptcentral.com/hpi> and enter your Author Centre, where you will find your manuscript title listed under "Manuscripts with Decisions." Under "Actions," click on "Create a Revision." Your manuscript number has been appended to denote a revision.

You will be unable to make your revisions on the originally submitted version of the manuscript. Instead, revise your manuscript using a word processing program and save it on your computer. You must highlight the changes to your manuscript within the document by using the track changes mode in MS Word or by using bold or colored text.

Once the revised manuscript is prepared, you can upload it and submit it through your Author Centre.

When submitting your revised manuscript, you will be able to respond to the comments made by the reviewer(s) in the space provided. You can use this space to document any changes you make to the original manuscript (but note that to keep the process anonymous please do not include your name here). In order to expedite the processing of the revised manuscript, please be as specific as possible in your response to the reviewer(s).

IMPORTANT: Your original files are available to you when you upload your revised manuscript. Please delete any redundant files before completing the submission.

Because we are trying to facilitate timely publication of manuscripts submitted to Health Promotion International, your revised manuscript should be uploaded as soon as possible. If it is not possible for you to submit your revision in a reasonable amount of time, we may have to consider your paper as a new submission.

Once again, thank you for submitting your manuscript to Health Promotion International and I look forward to receiving your revision.

Sincerely,
Dr. Michael Sparks
Associate Editor, Health Promotion International
msparkshomemil.com.au

