Primary caregivers’ influences on young children's eating behaviours: A social marketing perspective

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Declaration

I certify that the work, results, analyses and conclusions reported in this thesis are original, except where otherwise acknowledged. I also certify that the work has not been previously submitted for any degree at this or any other university, except where due reference is made.

Signed: ______________________________

Julie L Norton

Date: ________________________________
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I would like to acknowledge and thank Associate Professors Debra and Michael Harker, my original supervisors, for setting me on this journey with a ‘big picture’ compass.

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Painstaking transcribing was done by Sandra Marsden; and thorough and timely editing by Anne Robotham. Your contributions are greatly appreciated.

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I was privileged to be raised with an appreciation of the varying values of food and its numerous roles, yet kept this in perspective with other important things in life; actually, usually in combination with other important things in life. In particular, food is a way of maintaining tradition; reaching out, sharing and connecting with others; providing fuel for a vibrant and active life; and contributing to mental as well as physical good health. Thank you to those who continue to espouse and practise these values.

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Of most importance, to my husband Rob, and children Eve and James, thank you for giving me the motivation and support to make this work possible.
Dedication

To my mother – for allowing me to ‘not eat’.
Abstract

Applying marketing theory to social causes and public health issues can invoke behavioural change to improve the welfare of individuals and society (Andreasen 2006). Overweight and obesity are current public health issues globally. Of countries within the Organisation for Economic Cooperation and Development (OECD), overweight and obesity rates have increased faster in Australia than in any other country over the last 20 years and are projected to rise further during the next 10 years (Sassi 2010). Intervention focused upon preventing overweight and obesity in childhood is a priority (World Health Organisation 2003), as overweight and obesity persist from childhood into adulthood.

However, dietary habits are established in childhood and childhood energy intake reflects later weight status. The critical role of children’s primary caregivers in shaping young children’s eating behaviours is evident in the literature. This qualitative study extends this area by providing insights into primary caregiver attitudes and motivations. Thus, it assists in the development of more effective social marketing endeavours addressing childhood eating behaviours by exploring how and why primary caregivers influence the eating behaviours of young children in an obesogenic environment.

This research provides a broader, contextual perspective of the development of childhood eating behaviours, which is absent from the extant literature. Qualitative methods were used in both stages of the research, with a mixed approach of induction and deduction applied. Stage One, the exploratory stage, used the convergent interviewing method and comprised 16 interviews with primary caregivers of children aged one to five years. Stage Two, the main part of the research, used the case study method (Yin 1994). Stage Two was framed using Social Cognitive Theory – a predominant theory for understanding human behaviour (Bandura 1989) – and comprised 24 interviews with primary caregivers of children aged 1–2½ years. The research was conducted on the Sunshine Coast, Queensland, Australia.

This research makes useful and meaningful theoretical and practical contributions by identifying influences on primary caregivers which prompt behaviours that, in turn, influence their young children’s eating behaviours. Furthermore, qualitative research analysis processes produced a schema explaining how and why primary caregivers influence young children’s eating behaviours.

The research findings have implications for theory and practice, specifically education, motivation and advocacy – the three, inter-related components of a comprehensive social marketing campaign. First, knowledge gaps were identified in primary caregivers of children aged 1–2½ years regarding young children’s self-regulation of energy intake and development of food preferences; the fact that current education relevant to child rearing is deficient in imparting such knowledge was highlighted.
Second, motivations and enabling factors for primary caregivers were found to be i) a focus on short-term aims of caregiving, ii) promotion of the benefits to primary caregivers of adopting proposed attitudes and behaviours and, iii) challenging primary caregivers’ long-term goals. Third, advocacy pertains to others of significant influence on primary caregivers, specifically their partners, their parents (children’s grandparents) and other primary caregivers. Upstream advocacy at a state and national level is also required for authorities to make recommendations based on current knowledge and in a comprehensive manner.

Overall, this research addresses an apparent gap in the literature – investigation of the link between primary caregivers’ behaviours and young children’s eating behaviours. Additional outcomes of this research include three short-term objectives of ‘good caregiving’ developed for promotion to primary caregivers. These short-term objectives of ‘good caregiving’ are:

- for primary caregivers to respond appropriately to child satiety
- for young children to prefer core foods
- for primary caregivers to model preference for core foods and an appropriate response to their own satiety.

Also, seven propositions were developed and are part of an integrated social marketing approach to improve the influence of primary caregivers on young children’s eating behaviours in obesogenic environments.
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Chapter 1 – Introduction

If we could give every individual the right amount of nourishment and exercise, not too little and not too much, we would have found the safest way to health.

Hippocrates 460–377 BC

1.0 Introduction to this chapter

This chapter introduces the background to the research (Section 1.1); its focus is the influences of primary caregivers on young children’s eating behaviours in an obesogenic environment. The aims of the research are presented in Section 1.2. In Section 1.3 definitions used in this thesis are listed. The research methodology is outlined (Section 1.4) and theoretical and practical contributions made by the research are presented (Section 1.5). Delimitations are highlighted (Section 1.6); an outline of the thesis is provided (Section 1.7); and the chapter is then summarised (Section 1.8).

1.1 Background

Since the first decade of the 21st century, the role of social marketing in addressing the antecedents of overweight and obesity has become increasingly important. Social marketing is the application of marketing theory to social causes and public health issues; it has the potential to bring about benefits to the quality of people’s lives and society as a whole (Andreasen 2006; Bagozzi 1975; Dann 2010; Kotler & Zaltman 1971, Pettigrew & Pescud 2012; Weir & Williams 2012). Social marketing interventions have been effective in changing a range of human behaviours including improving nutrition, discouraging smoking, preventing alcohol and drug abuse, and encouraging safer driving (Fox & Kotler 1980; Goldberg, Fishbein & Middlestadt 1997; Kotler, Roberto & Lee 2002). Social marketing interventions have involved a range of target groups and settings via ‘upstream’ mechanisms to influence policy and professional practice, as well as through ‘downstream’ influences to impact on the behaviours of individuals and groups (Andreasen 2006; Stead et al. 2007).

Overweight and obesity1 are prominent public health issues, worldwide and within Australia (Prentice 2006). When compared with other countries within the Organisation for Economic Co-operation and Development (OECD), overweight and obesity rates in Australia have been increasing the most rapidly since 1990 (Sassi 2010). The proportion of people in Australia who are overweight or obese is projected to rise a further 15 per cent by 2020 (Sassi 2010). Of concern, is the earlier presentation of traditionally adult onset chronic disease and the subsequent escalation in health costs (Wang et al. 2011). The complex aetiology of overweight and obesity has long been recognised (Brownell &

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1 The term ‘overweight and obesity’ is used in this thesis to describe the conditions of excessive fat accumulation as used in other current literature (Dattilo et al. 2012; Swinburn et al. 2004).
Wadden 1992), with contemporary economic priorities and policies promoting consumption-based growth contributing to overconsumption of food (Egger & Swinburn 2010). Greater funding for prevention programs is sought (Gortmaker et al. 2011).

Childhood obesity persists into adulthood (Dietz 2001; Freedman et al. 2005). When not addressed, the reversal of obesity trends becomes increasingly difficult as excess weight accumulates (Gortmaker et al. 2011). One strategy to prevent overweight and obesity in adulthood is to focus attention on their prevention in childhood (Epstein, Wing & Valoski 1985), particularly as evidence suggests that preventive interventions focused upon children are effective (Summerbell et al. 2005). Agreement is widespread that action is needed urgently regarding the prevention of childhood obesity and that this action should be comprehensive and sustained (see Summerbell et al. 2005; World Health Organisation (WHO) 2003), and evidence-based (Swinburn, Gill & Kumanyika 2005). It is recommended that children should be the priority population for interventions and the key settings for interventions should include homes and communities, as well as schools, neighbourhoods and primary health care services (Swinburn & Egger 2002). Additionally, empirical research demonstrates that eating behaviours established in childhood persist into adulthood (Boulton, Margery & Cockington 1995; Kelder et al. 1994; Mikkilä et al. 2004; Singer et al. 1995), with childhood food intake reflected in later weight status (Fiorito et al. 2009).

Children’s primary caregivers are fundamental to the establishment of children’s eating behaviours. The salient role of primary caregivers of children is apparent in the literature, with interventions that omit primary caregivers having been largely unsuccessful (see Fitzgibbon et al. 2006; Summerbell et al. 2005; Williams et al. 2004). Those interventions that include primary caregivers have reported successful outcomes (see Golan & Crow 2004; Talvia et al. 2006). The largely unsuccessful childhood overweight- and obesity-prevention interventions have also focused upon school-aged children (Summerbell et al. 2005). Since the mid-1990s, the number of studies focussing upon prevention of overweight and obesity among young children from birth to five years of age has increased (Hesketh & Campbell 2010). Hesketh and Campbell (2010) concluded that, during these early childhood years, primary caregiver involvement is important and, perhaps, vital for observable and lasting changes to be effected in childhood behaviour. Furthermore, Hesketh and Campbell (2010) concluded that interventions which showed evidence of success in positively impacting on weight and/or behaviours that contribute to overweight and obesity were designed to influence, not only primary caregiver knowledge, but also skills and competencies. These findings suggest that social behavioural theory underpins effective interventions (Hesketh & Campbell 2010).

Much of the extant literature focuses on the effects of primary caregivers’ feeding practices on their children’s eating behaviours and weight status (e.g. Faith et al. 2004a; Gregory, Paxton & Brozovic
The effects of primary caregivers’ behaviours on children’s eating behaviours are mediated by child predispositions, namely i) self-regulation of energy intake and ii) food preferences. However, the evidence suggests that primary caregivers tend not to take account of these child predispositions when feeding children (Hart et al. 2003; Pagnini et al. 2007). Indeed, feeding practices, such as pressuring the child to eat and overt restriction of foods high in fat, sugar and salt (HFSS foods), employed by well-intentioned primary caregivers do not have the desired effects on children’s food preferences, food consumption or weight status (see Birch & Fisher 1998; Fisher & Birch 1999a; Ogden, Reynolds & Smith 2006). Furthermore, the literature suggests that modelling of eating behaviour is more effective than feeding practices in achieving healthy eating behaviours in children (Brown & Ogden 2004). While modelling is a highly effective strategy for primary caregivers to increase children’s food consumption, evidence suggests that modelling is not used – even when there is concern regarding children being overweight (Gregory, Paxton & Brozovic 2010).

Context, the circumstances accompanying food consumption, is also important to childhood overweight and obesity and children’s eating behaviours. Davison and Birch’s (2001) seminal work notes an absence of research addressing the complexities of the context within which risk factors for childhood overweight emerge and recommends that future research needs to adopt a broader contextual approach. In the case of a child, the context pertains to the family and the school, which are, in turn, embedded in social contexts including the community and society at large. Although this recommendation was made in 2001 and research has been conducted in a broader context into areas of parenting style and family functioning, research continues to be narrowly focused on how primary caregivers influence children’s eating behaviours (see Faith et al. 2004a; Gregory, Paxton & Brozovic 2010; Joyce & Zimmer-Gembeck 2009; Ogden, Reynolds & Smith 2006). The complex interdependencies between the individual and larger societal and cultural factors remain as obstacles to more linear or divided approaches (Gwozdz et al. 2012).

Similarly, the literature which is available regarding why primary caregivers do what they do is also narrowly focused on the barriers to healthier lifestyle behaviours (see Campbell, Crawford & Hesketh 2006; Dwyer et al. 2008; Pagnini et al. 2007). Therefore, gaps exist in the extant literature in terms of how and why primary caregivers influence children’s eating behaviours. These gaps are further highlighted when considering research regarding children less than five years of age. Furthermore, when framed using Social Cognitive Theory – a predominant theory for understanding human behaviour (Bandura 1989) – the gaps in the literature are amplified. Kotler, Roberto and Lee (2002) suggest that, in social marketing, a fuller understanding is gained by examining the antecedent influences on primary caregivers in relation to the subsequent influence of their behaviour on the young children in their care. Thus, the purpose of this research is to address apparent gaps in the
literature regarding how and why primary caregivers influence young children’s eating behaviours in a contextual manner so as to achieve meaningful outcomes such as improvements in children’s eating behaviours.

1.2 Aims of this research

Qualitative research is most appropriate when the area is under-researched (Dick 1999) and the research requires a theoretical underpinning (Hesketh & Campbell 2010). This empirical research addresses gaps in the literature pertaining to how primary caregivers influence the eating behaviours of young children, and why primary caregivers of young children behave the way they do. More formally stated, the broader research question for this research is:

**Research Question:** ‘How and why do primary caregivers influence the eating behaviours of young children in an obesogenic environment?’

Thus, the research objectives framing this qualitative research are two-fold:

**Research Objective 1:** To explore primary caregivers’ influences on young children’s eating behaviours

**Research Objective 2:** To develop an integrated social marketing approach to improve the influence of primary caregivers on young children’s eating behaviours in obesogenic environments.

Social Cognitive Theory offers the theoretical framework for Stage Two, the main part of this research, and the development of the research issues (Chapter 3).

Five research issues framed Stage Two:

**Research Issue 1:** What short-term objectives of primary caregivers impact on young children’s eating behaviours? *How and why?*

**Research Issue 2:** What factors of primary caregivers’ knowledge impact on young children’s eating behaviours? *How and why?*

**Research Issue 3:** What factors in primary caregivers’ environments impact, through their subsequent behaviour, on young children’s eating behaviours? *How and why?*

**Research Issue 4:** What personal factors of primary caregivers impact on young children’s eating behaviours? *How and why?*

**Research Issue 5:** What long-term goals of primary caregivers impact on young children’s eating behaviours? *How and why?*
In brief, an anticipated outcome of this research is to gain insights into primary caregivers’
behaviours; insights which provide a platform for effective social marketing interventions that address
the prevalence of overweight and obesity.

1.3 Definitions

In this section key terms are listed in alphabetical order, and defined to establish their use in this
thesis. Some terms are used in the extant literature; for others a dictionary definition is provided. A
list of acronyms is also provided following the appendices.

**Antecedent:** Antecedent is defined as an event or condition that elicits behaviour (Sharaga &
Shirom 2009).

**Association:** In this thesis, the term ‘association’ is used in the statistical sense when exant
literature is being discussed. However, in Chapters 5 and 6, the term is not intended in the statistical
sense but describes patterns identified and detailed in the related appendices.

**BMI:** BMI (Body Mass Index) is defined as weight in kilograms divided by height in meters squared
\((\text{kg/m}^2)\). BMI is used to categorise adults into one of four widely accepted weight categories:
underweight (BMI less than 18.5), normal weight (18.5 to 25), overweight (25 to 30) and obese (over
30) (WHO 2000).

**Child predispositions:** In this thesis, the term ‘child pre-dispositions’ refers specifically to i) children’s self-regulation of energy intake and ii) food preference, which are altered by experience
and through which many primary caregiver influences are mediated.

**Core foods:** A Modelling System to inform the Revision of the *Australian Guide to Healthy Eating*,
developed by the National Health and Medical Research Council (2011a), has established food groups
for diet models. These food groups or ‘core foods’ are as follows: wholegrain or higher fibre
cereals/grains; refined or lower fibre cereals/grains; fruits; green and brassica vegetables; orange
vegetables; starchy vegetables; other vegetables; legumes; nuts and seeds; red meats (beef, veal, lamb,
pork, kangaroo); other meats and alternatives (poultry, fish, shellfish, eggs, legumes); higher fat dairy
foods; medium fat dairy foods; lower fat dairy foods; unsaturated oils and spreads.

**Eating behaviours:** Gregory, Paxton and Brozovic (2010) define child eating behaviours as
‘fussiness and food responsiveness’. Birch and Fisher (1998) in their paper entitled ‘Development of
Eating Behaviors Among Children and Adolescents’ refer to children’s food preferences, acceptance
of variety and regulation of energy intake or simply ‘what, when and how much to eat’ (pg. 539).

**Feeding practices:** Child feeding practices are specific behavioural strategies employed by primary
caregivers to control what, how much or when their children eat, and include behaviours such as
pressuring children to eat, using food as a reward and restriction (Ventura & Birch 2008). In this
thesis, exposure to foods and availability of foods are also considered to be feeding practices.
**Food neophobia:** Food neophobia is defined as avoidance of, and reluctance to taste, unfamiliar foods (Birch & Fisher 1998; Pelchat & Pliner 1986).

**Food preference:** Birch (1999) states that the term ‘preference’ refers to the selection of one food item over others and that ‘in general usage and in this review, preference connotes that liking is the basis for selection, although liking is only one of a number of motives that affect food selection’ (pg. 42).

‘Fussy’ eating: ‘Fussy’ eating involves the rejection of familiar foods (Dovey et al. 2008). It can incorporate rejection of food textures, not just particular foods (Smith et al. 2005). Another characteristic of ‘fussy’ eating may be the reluctance to eat dishes of mixed foods (Carruth et al. 2004).

**High fat, sugar and salt (HFSS) foods (or non-core foods):** HFSS is an abbreviation of ‘high fat, sugar and salt’, and refers to foods that have a high content of fat, sugar or salt. Such foods may or may not provide significantly with respect to content of other nutrients. HFSS commonly refers to foods that should be kept to a minimum as part of a healthy diet (Lobstein & Davies 2009). The term is used synonymously with non-core foods. Determination of intake of HFSS foods by primary caregivers and young children is used in this research to reflect the nature of their eating behaviours.

**Hyperlipidaemia:** The *Oxford Dictionary of English* (2003) defines hyperlipidaemia as ‘an abnormally high concentration of fats or lipids in the blood’.

**Hyperinsulinemia:** The *Merriam-Webster Medical Dictionary* defines hyperinsulinemia as ‘the presence of excess insulin in the blood’ (Merriam-Webster Incorporated 2012).

**Introduction of solids:** In most Australian literature (see Daniels et al. 2009) the term ‘introduction of solids’ refers to the introduction to an infant’s diet of solid food or food complimentary to breast- or formula feeding. In other research, particularly from the UK (see Wright, Parkinson & Drewett 2004), the term ‘weaning’ is used to describe introduction of solids but ‘weaning’ has the implication of breast- or formula feeding having ceased (Birkbeck 1992). In this thesis ‘introduction of solids’ is used as consistent with other Australian literature.

**Modelling:** Modelling is defined as observational learning (Birch 1980; Harper & Sanders 1975; Horne et al. 2004).

**Nutrient Reference Values (NVRs):** According to the National Health and Medical Research Council (2006), nutrient reference values (NRVs) are a set of recommendations for nutritional intake based on currently available scientific knowledge.

**Obesogenic environment:** The definition by Swinburn, Egger and Raza (1999, p. 564) is ‘the sum of influences that the surroundings, opportunities, or conditions of life have on promoting obesity in individuals or populations’.

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*Introduction*
**Overweight and obesity:** Overweight and obesity are defined as abnormal or excessive fat accumulation that may impair health (World health Organisation 2012a). Body Mass Index (BMI) is the most commonly used method to measure overweight and obesity on a population level for both adults and children. Measurements of BMI are not taken in this qualitative study but this information is provided as BMI is often referred to in discussion of literature. (Refer BMI above.)

The use of BMI in measuring body adiposity in children is controversial but an internationally recognised set of age- and gender-specific BMI thresholds are recognised for children aged two to 18 years, (which merge with the respective adult cut offs at age 18 years) (Cole et al. 2000; Cole et al. 2007). Dietz and Bellizzi (1999) conclude that a BMI above the 85th percentile for a child’s age and sex group is likely to accord with the adult definition of overweight, and a BMI above the 95th percentile is consistent with the adult definition of obese.

The term ‘overweight and obesity’ is used in this thesis to describe the conditions of excessive fat accumulation as used in other current literature (Dattilo et al. 2012; Swinburn et al. 2004).

**Primary caregiver and caregiving:** A definition provided by the Family Assistance Office (2010) of the Australian Government is that the primary caregiver is the person who generally:

- has major daily responsibility for caring for the child/ren in the family
- looks after the child/ren's needs, for example: dressing, feeding, bathing, outings
- makes most arrangements for the daily needs of the child/ren
- makes appointments for the child/ren
- is the first person for the day care, school, or college to contact in emergencies, or
- is the partner who is responsible for taking the child/ren to and from day care/pre-school/ kindergarten/school.

The term ‘primary caregiver’ is used in this thesis when referring to the person holding this position regarding child feeding, except in situations where a differentiation is being made between mothers and fathers. ‘Caregiving’ is used synonymously with ‘parenting’.

**Restriction:** Fisher and Birch (1999b) describe children’s access to food being restricted by limiting the amount of food provided or opportunities to consume the food. For example, certain foods may be kept out of reach, allowed in limited quantities, allowed only after eating another food (i.e. ‘finish your vegetables’) or allowed only at special occasions.
**Self-regulation of energy intake:** A definition of self-regulation of energy intake can be drawn from Birch et al. (1991) who described it as ‘modification of intake in response to energy content of the diet’.

‘**Significant Others**’: The term ‘significant others’ refers to people who have influence on primary caregivers of young children, namely their partners, their parents (children’s grandparents), other primary caregivers and health care professionals.

**Social acceptance:** Social acceptance refers to social acceptance by peers and is defined as whether one is taken or not taken into a peer group (Pakaslahti, Karjalainen & Keltikangas-Jarvinen 2002).

**Social marketing:** Social marketing is defined as ‘a process that uses marketing principles and techniques to influence target audience behaviours that will benefit society as well as the individual. This strategically oriented discipline relies on creating, communicating, delivering and exchanging offerings that have positive value for individuals, clients, partners and society at large’ (Lee & Kotler 2011, p. 7).

**Socioeconomic status:** In this research Socio-Economic Indexes for Areas (SEIFA) was the measure used to determine socio-economic status. SEIFA is a suite of four summary measures that have been created from 2006 Census information (ABS 2009a).

The four indices in SEIFA 2006 are:

- Index of Relative Socio-economic Disadvantage
- Index of Relative Socio-economic Advantage and Disadvantage
- Index of Economic Resources, and
- Index of Education and Occupation.

SEIFA has a number of applications, including research into the relationship between socio-economic status and various health and educational outcomes. SEIFA was the measure used in this research to determine socioeconomic status, but alternative measures may have been used in other literature.

‘**Treat**’: The term ‘treat’ is discussed here as it is used in various ways by primary caregivers. It may be used to describe an HFSS food or to describe a core food such as yoghurt which is desirable to a child. The term implies that the food is something special and within this thesis is indicated with quotation marks.

**Young children:** In this thesis, children of less than five years of age are referred to as ‘young children’.
1.4 Qualitative methodology

This research employed a qualitative approach which enabled the elicitation of rich information (Burns, Williams & Maxham 2000; Gilmore & Carson 1996), thus providing novel insight into the research question (Cooper & Schindler 1998). This research was conducted in two stages specifically using a mixed approach of induction and deduction. Stage One was inductive using convergent interviewing (Dick 1990) while Stage Two was deductive and used case study methodology (Yin 1994). Such an approach is considered effective for inexperienced qualitative researchers working in areas where some understanding has been achieved but more theory building is required (Eisenhardt 1991; Miles & Huberman 1994).

The overall process of data collection for the thesis is presented in Figure 1.1. Totalling 40 interviews, the research comprises Stage One (16 interviews) and Stage Two (24 interviews). Notably, saturation was achieved in both stages of the study as recommended by Mason (2010). Additionally, the number of interviews adheres to Perry’s (1998a) thresholds for a Doctoral thesis, 35–50 interviews.

Figure 1:1 Data collection

Source: Developed for this research.
Stage One

The convergent interviewing technique was selected as the most suitable method for Stage One (Chapter 3) with the aim of identifying important themes and allowing a narrowing of the focus for Stage Two (Riege 2003). In this research Stage One formed the basis for the remainder of the research. Using convenience sampling, the participants – primary caregivers of children aged one to five years – responded to public notices at two medical practices and a swimming centre. Peers influence pre-schoolers regarding food preference (Birch 1980), so primary caregivers of children not attending school or having minimal attendance at child care centres were sought. A lower age range for the case child was set at one year of age as it was expected that, by this age, most children would have ceased breast- or formula feeding and the process of feeding solids would have progressed to the child consuming ‘family food’ – thus allowing opportunities for primary caregiver modelling of eating. The upper age range of five years was set to exclude all school-aged children.

The methodology required critical cases with high variability to provide theoretical density, as recommended by Yin (2008). With this requirement in mind, primary caregivers of both first-born and not-first-born children were purposively sought and participants were recruited from several locations with the intent of soliciting contrasting views (see Chapter 3). While the interview questions reflect issues revealed by the literature, the convergent interviewing process allowed deeper examination of previously identified themes and the introduction of new themes.

The results of the convergent interviews inform Stage Two, thus narrowing its focus. Stage One also revealed that the broad age range of the children being discussed (one to five years) contributed to diversity in primary caregiver responses, suggesting a reduction in primary caregiver influence as children age. In an effort to focus even further on issues surrounding influences of the primary caregiver, the age range of the children of the primary caregivers in Stage Two was narrowed and reduced (to 1-2½ years).

Stage One explored how primary caregivers influence young children’s eating behaviours (what is the effect on young children?) with the greater focus for Stage Two being why primary caregivers behave the way they do (what factors are influencing primary caregivers?). Social Cognitive Theory is applied to provide a framework and to develop research issues (Chapter 3) to guide the main study, Stage Two (Chapter 4).

Stage Two

Stage Two used case study methodology (Chapter 4) to confirm/disconfirm findings from prior theory and Stage One; and enable development of the research propositions and the integrated social marketing approach. This stage of the research followed a multiple case study design. The focus of
this design was to choose cases that would replicate or extend the emerging theory (Yin 1994). Twenty-four primary caregivers of children aged between one and 2½ years were the cases involved in Stage Two. Data collection was conducted using in-depth interviews, incorporating a projective technique. Multiple case design uses replication logic when selecting cases (Patton 1990). Replication logic involves the selection of cases that either predict similar results (literal replication) or predict contrasting results but for anticipatable reasons (theoretical replication) (Yin 2008). The research design used for Stage Two provides both theoretical replication and literal replication.

In keeping with the research methodology of filling theoretical categories and providing examples of polar types, diversity in cases was sought. Specifically, diversity was sought regarding socioeconomic status; family configuration and employment status of the primary caregiver (see Chapter 4). In accordance with the two phase research design, Stage Two analysis employed processes of Eisenhardt (1991), Miles and Huberman (1994) and Yin (1994), emphasised cross-case analysis and was directed towards the development of testable propositions which were generalisable across settings. Processes utilised were a priori specification of constructs (Research Issues), population specification, flexible instrumentation, cross case analysis tactics and uses of literature (Eisenhardt 1991).

In Stage Two, reliability and validity were assessed. The measures were for qualitative research within the realism paradigm as proposed by Healy and Perry (2000) (see Chapter 4).

After addressing each of the research issues, analysis of Stage Two culminated in a schema explaining how and why primary caregivers influence young children’s eating behaviours in an obesogenic society (Chapter 5).

1.5 Contributions

This research has made theoretical and practical contributions. This study makes a significant theoretical contribution by identifying antecedent influences on primary caregivers which prompt their behaviours which, in turn, influence young children’s eating behaviours.

The study also advances knowledge regarding the role of the primary caregiver in addressing child and adult overweight and obesity. In particular, primary caregivers’ misconceptions regarding pressure to eat, use of food as a reward, and ‘fussy’ eating are highlighted. These misconceptions appear to be due to a lack of awareness regarding child development and the primary caregivers’ influence on the development of food preferences and self-regulation of energy intake. This research addresses the gap identified in the extant literature regarding antecedent influences on primary caregivers and the effects of these influences on young children’s eating behaviours.
In addition, the research has implications for theory and practice – specifically education, motivation and advocacy, which are the three (interrelated) components of a comprehensive social marketing campaign (Donovan & Henley 2010). Firstly, a knowledge gap was identified in primary caregivers of children aged 1–2½ years regarding self-regulation of energy intake and development of food preferences; it was highlighted that current education relevant to child rearing is deficient in imparting such knowledge. Secondly, a focus on short-term objectives, promotion of the benefits to primary caregivers and challenging their long-term caregiving goals are considered to be motivations and enabling factors. Thirdly, advocacy pertains to others who significantly influence primary caregivers, specifically their partners, their parents and other primary caregivers. Advocacy at state and national level is also required if messages being promoted by authorities are to be consistent with current knowledge and addressed to all relevant stakeholders.

Three short-term objectives of ‘good caregiving’ were developed for promotion to primary caregivers of young children. These objectives of ‘good caregiving’ are:

- for primary caregivers to respond appropriately to child satiety
- for young children to *prefer* core foods
- for primary caregivers to *model* preference for core foods and an appropriate response to their own satiety.

Ultimately, the research develops seven propositions which are incorporated into the final, integrated social marketing approach to improve the influence of primary caregivers on young children’s eating behaviours in obesogenic environments.

### 1.6 Delimitations

A comprehensive revision of the plentiful extant literature was attempted. The literature review focused on primary caregivers’ influences on young children. The growing research areas of parenting style and family functioning are recognised but were beyond the scope of this research. Also considered beyond the scope of the literature review were other factors which influence primary caregivers and/or young children’s eating behaviours such as health status, access to transport, living arrangements, mood, body image, culture and religion.

The methodology for this qualitative research did not involve anthropometric measures of children. The primary caregiver is the central point of reference of this research; therefore, the research was confined to primary caregivers (both male and female) of young children (see Appendix 1A).
Characteristics of the primary caregivers and their children, and the case selection procedures varied for methodological reasons between the two stages of the research.

In Stage One where primary caregivers of children aged one to five years were the units of analysis, attempts were made to minimise influences on the child other than from the primary caregiver. In contrast, in Stage Two case selection was made in keeping with the research methodology of filling theoretical categories and providing examples of polar types. Diversity in cases was sought and achieved regarding socioeconomic status (based on location of residence), family configuration and employment status of the primary caregiver. Primary caregivers in Stage Two were to have a child aged 1–2½ years of age, and, to meet the diversity required regarding primary caregiver employment status, participants with children attending child care centres were not excluded.

Although attempts were made to produce dissimilar results by accessing primary caregivers from a range of locations in Stage One, the self-selected participants were considered to be of higher socioeconomic status with a keen interest in their young children’s nutrition and wellbeing. As a result of this experience and mindful of the risk of interviewee bias, the case selection procedure for Stage Two employed an appeal to primary caregivers to share their difficulties and concerns regarding their children’s eating behaviours.

The research was conducted for logistical convenience within the Sunshine Coast of Queensland, Australia. The sample was not statistically representative of the Australian population, however it was considered indicative with respect to its diversity in socioeconomic status, family configuration and employment status of the primary caregiver. More detailed discussions regarding case selection and methodological motives are provided in Chapter 5.

Influences, other than those of the primary caregiver directly on the child or via the primary caregiver, are briefly discussed within the thesis; however, these influences are not the focus of this research. Such influences on the child include those of the partners of the primary caregivers or the children’s siblings or peers.

1.7 Outline of this thesis

This thesis consists of six chapters. This chapter, Chapter 1, highlights the background to the research, thus justifying the research question. Chapter 1 also briefly presents the aims, methodology, contributions and delimitations of this research. In the literature review, Chapter 2, the research is contextualised and research gaps identified. Chapter 3 presents Stage One; the convergent interview method, analysis and findings. Stage One, the inductive stage, informed Stage Two which was deductive. Social Cognitive Theory provided a theoretical framework for Stage Two and development
of the research issues is also discussed in Chapter 3. Chapter 4 presents case study methodology used in Stage Two. Analysis and findings (themes and associations) from Stage Two are presented in Chapter 5. Finally, Chapter 6 discusses implications, develops propositions, and presents the integrated social marketing approach and implications for further research.

1.8 Chapter summary

In summary, this chapter has provided an overview of the thesis. The research has been justified; the research question, research objectives and research issues have been presented. Methodology and delimitations were described and the thesis structure outlined.

The next chapter highlights the role of primary caregivers and their influence on young children’s eating behaviours in prevention of overweight and obesity as discussed in the extant literature. Synthesis of the literature reveals a gap in the literature – the link between antecedents to primary caregivers’ behaviours and the effects of these behaviours on young children’s eating behaviours. This gap is addressed through this research.
# Chapter 2 – Literature review

## 2.0 Introduction to this chapter

The previous chapter provided an outline of this thesis. The purpose of Chapter 2 is to explore the extant literature and identify gaps in existing knowledge. As depicted in Figure 2.1, the literature review commences with an overview of the theory relevant to this thesis, namely the discipline of social marketing (Section 2.1), followed by an overview of overweight and obesity, establishing that prevention is an appropriate strategy and that primary caregivers of young children have a seminal role (Section 2.2). Section 2.3 is a review of literature examining how primary caregivers influence their young children’s eating behaviours. Why primary caregivers behave the way they do is presented in Section 2.4. Section 2.5 provides a synthesis of theoretical and contextual constructs, development of the research question and the research objectives. The chapter is summarised in Section 2.6.

### Figure 2:1 Outline of this chapter

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The literature review establishes that a) consensus exists amongst experts that the overweight and obesity problem is best addressed through prevention, b) as part of the prevention strategy, research into young children’s eating behaviour is appropriate, and c) primary caregivers of young children have a salient role in their children’s eating behaviour.

## Literature review
Gaps identified in the extant literature are:

- the dearth of literature regarding young children (0–5 years of age)
- the relative abundance of research available which examines the influence of primary caregivers on children’s eating behaviours (how), in contrast with the dearth of literature regarding factors influencing primary caregivers (why);
- the narrow focus on feeding practices within research regarding how primary caregivers influence children’s eating behaviours
- the narrow focus on barriers to provision of healthy lifestyle within research regarding factors influencing primary caregivers (why)
- an absence of research into primary caregiver knowledge of young children’s self-regulatory capability and food preference development.

The extant literature is fractured. This literature review drew from studies in various countries highlighting similarities and differences, particularly as equivalent Australian research is not available. Similarly, although this research is concerned with young children, reference may be made to studies involving older children due to the dearth of literature involving children aged less than five years. Also, the empirical studies are a mix of methodologies.

With regard to methodology, the abundance of experimental research, especially into feeding practices, was evident (Healy & Perry 2000); yet the absence of research into primary caregivers’ influence on young children’s eating behaviours with theoretical underpinnings persists. These factors contribute to the need for qualitative research (Healy & Perry 2000).

However, before the extant literature is examined and research gaps identified, this chapter commences with an introduction of the ‘parent’ discipline relevant to this research, social marketing.

### 2.1 Social marketing

The parent discipline of this research is social marketing. Social marketing has its roots in public education campaigns aimed at social change (Donovan & Henley 2003) and refers primarily to efforts focused on influencing behaviours that will improve health, prevent injuries, protect the environment, contribute to communities and, more recently, enhance financial wellbeing (Lee & Kotler 2011). Social marketing is defined as ‘a process that uses marketing principles and techniques to influence target audience behaviours that will benefit society as well as the individual. This strategically oriented discipline relies on ‘creating, communicating, delivering and exchanging offerings that have positive value for individuals, clients, partners and society at large’ (Lee & Kotler 2011, p. 7).
The conceptual underpinnings of social marketing are derived from commercial marketing – considered one of the most influential and constantly evolving forces for social change – and its one-hundred-year history of proven concepts and tools (Andreasen 2006). For a definition of marketing, many researchers quote the American Marketing Association’s (AMA) definition (Donovan & Henley 2003; Kotler & Zaltman 1971). The current definition defines marketing in terms of an organisational function, which includes the process of creating, communicating and delivering value to customers (AMA 2007). The AMA has also emphasised managing customer relationships as a means to benefit the organisation and its stakeholders (AMA 2007; Donovan & Henley 2003), whilst sustainability and marketing in today’s challenging economic climate have been more recent considerations (Kotler & Armstrong 2012).

Social marketing differs from commercial marketing in a number of ways. In social marketing, success is primarily defined in terms of social benefits derived by members of target audiences or society as a whole; the primary aim is individual or social gain with market segments being selected on criteria including prevalence of the social problem, ability to reach the audience, and readiness for change (Lee & Kotler 2011). In contrast, success in commercial marketing is usually measured in terms of economic gain (Lee & Kotler 2011; Maibach, Rothschild & Novelli 2002), with market segments being selected to provide the greatest profit (Kotler, Roberto & Lee 2002; Lee & Kotler 2011).

Although both commercial and social marketing involve the application of the four ‘Ps’ – Product, Price, Place and Promotion (Kotler, Roberto & Lee 2002; Lee & Kotler 2011), there are important differences between social marketing and commercial marketing (Kotler, Roberto & Lee 2002).

a) Product: Although the principles and techniques of influence are the same, commercial marketing activity revolves primarily around the selling of goods or services. In social marketing, the ‘product’ is behaviour change and the bundle of benefits associated with it.

b) Price: In social marketing, price is concerned with the reduction of the barriers or costs involved with the change.

c) Place: Social marketing involves delivering the benefits and costs to the right location at the right time.

d) Promotion: In social marketing, promotion entails informing and persuading the target audience with regard to the benefits and costs (Maibach, Rothschild & Novelli 2002).

Another difference relates to competitors. In commercial marketing, competitors are often other organisations selling similar goods and services. In social marketing, strategies lead to a unique
Literature review

exchange offering that is perceived by the audience to have greater value than that of any other available option (Lee & Kotler 2011).

Yet another way of distinguishing between social marketing and commercial marketing is to consider the initiator of the advocated change. In social marketing, consumer needs are frequently identified by experts. For instance, non-profit organisations and government agencies have applied social marketing to the advancement of numerous social causes such as improving nutrition, anti-smoking, preventing alcohol and drug abuse, and encouraging safer driving (Fox & Kotler 1980). In commercial marketing, on the other hand, the consumers themselves usually experience and, thus, identify a particular need (Donovan & Henley 2003). Social marketing is often undertaken by non-business, not-for-profit organisations or government departments and is generally health-related (Cismaru, Lavack & Markewich 2009; Donovan & Henley 2003; El-Ansary 1974; Victorian Alcohol and Drug Association 2004). A principle considered unique to social marketing is sustainability, which is required to achieve long-lasting behaviour change. Sustainability results from continuous program monitoring and adjustment to changes occurring in the audience and environmental condition (Eagle, Case & Low 2012; Hede 2012; Lee & Kotler 2011).

However, social marketing maintains some similarities with commercial marketing. These include customer orientation; centrality of exchange theory (customer must perceive that the benefits are equal to or exceed the perceived costs); the use of market research; feedback to underpin strategy choices; segmentation of audiences; and an application of the four ‘Ps’ – although with differing functions (Kotler, Roberto & Lee 2002; Lee & Kotler 2011). Even within social marketing, Lefebvre (2011) has identified varying emphasis on the four ‘Ps’ in developing versus developed worlds. Indeed, a recent review of social marketing interventions identified up to six strategies used in the social marketing mix: product, price, place, promotion, policy, and partnerships (Luca & Suggs 2010).

Another important aspect of social marketing is its bilateral approach. Originally ‘downstream’ interventions or applications were used, focusing specifically on the target audience which is exhibiting or might exhibit problem social behaviours (e.g. Hayas et al. 1998; Luepker et al. 1996; Pentz et al. 1989). This approach towards individuals was criticised for being too narrow and too limiting, with the recommendation that society needed to correct the structures and processes ‘upstream’ that caused the problems originally (Donovan & Henley 2003; Lee & Kotler 2011). ‘Upstream’ factors are technological innovations; scientific discoveries; economic pressures; laws; improved infrastructures; changes in corporate business practices; new school policies and curricula; public education; and the media (Lee & Kotler 2011). In fact, Hoek and Jones (2011) recently explored the apparent tension between upstream and downstream social marketing, proposing that they are mutually dependent and should be treated as contiguous and complementary. Also of
Relevance to this thesis is the consideration of ‘mid-stream’ influences from family members, friends, neighbours, church leaders, healthcare providers, entertainers, Facebook friends and others to whom the target audience listens or observes or respects (Lee & Kotler 2011).

Within the last decade it has been considered that social marketing is at a critical juncture in its history as a new discipline (Andreasen 2002). In an attempt to overcome barriers to its growth there has been an effort to clarify what social marketing is and to establish its specific role in relation to other approaches to social change. Emphasising the unique and essential components of social marketing to be 1) behaviour change as the ‘bottom line’, 2) customer-driven and 3) creation of attractive exchanges that encourage behaviour, Andreasen (2002) proposed six benchmarks for identifying a social marketing approach. Briefly, these six benchmarks are 1) behaviour change, 2) use of audience research, 3) segmentation of target audiences, 4) creation of attractive and motivational exchanges is central, 5) all four Ps of the marketing mix should be used and, 6) competition is considered.

In 2010, these benchmark criteria were expanded to eight by The National Social Marketing Centre in the United Kingdom with the addition of Theory: Use of behavioural theories to understand behaviour and inform the intervention and Insight: Customer research identifies ‘actionable insights’ - pieces of understanding that will lead intervention development. More details are available at <http://www.thensmc.com/sites/default/files/benchmark-criteria-090910.pdf>.

Rothschild (1999) surmises that target audiences that are prone, resistant, or unable to respond to the manager’s (of society) goal behave on the basis of their motivation, opportunity and ability and on the manager’s use of of the strategies and tactics inherent in education, marketing and law. Within Lee and Kotler’s (2011) 10 step outline for developing a strategic social marketing plan, there are three components – education, motivation and advocacy – considered essential for an effective social marketing campaign (Donovan & Henley 2010). Rothschild’s (1999) ‘education, marketing and law’ have relevance to this thesis and the terminology ‘education, motivation and advocacy’ used forthwith.

The first component, education, seeks to provide consumers with information required to make the recommended behavioural change. For example, in health campaigns, information is frequently presented in an objective, unemotional manner which serves to inform and educate the target audience but is insufficient to motivate behavioural change (Albarracin et al. 2003; Donovan & Henley 2003; Maibach, Rothschild & Novelli 2002). Nutrition, in particular, is one health topic in which educational approaches alone have shown to be largely ineffective (Anderson, Milburn & Lean 1995; Maibach, Rothschild & Novelli 2002).

Literature review
The second and quite necessary component, motivation, is focused on persuading the consumer to adopt the change. More specifically, persuasion communicates the desired message in a more proactive, influential manner in order to motivate adoption of the recommended behavioural change (Donovan & Henley 2003). Individual behaviour change is now recognised as being interrelated with, and largely dependent on, the social, economic and physical environment. Thus, behaviour change is no longer the sole responsibility of the individual but also that of society as a whole. As such, the third component, advocacy, seeks to achieve change in social structures through lobbying, and sometimes legislation change, at local, state, national, and international levels (Donovan & Henley 2003).

Consumer behaviour

Incorporated into successful social marketing is knowledge of consumer behaviour. Consumer behaviour is defined as ‘the psychological and social processes people undergo in the acquisition, use and disposal of products, services, ideas and practices’ (Bagozzi, Gürhan-Canli & Priester 2002, p. 1). Consumer behaviour seeks to determine why consumers behave the way they do (Sheth 1979). There are several key concepts associated with consumer behaviour which include motivations, dissonance, decision processes, risk-taking, socioeconomic variables, learning and attitudes (Sheth 1967, 1979). The relationship between attitude and behaviour is relevant to this research.

Attitude is defined as ‘psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour’ (Albarracin et al. 2005, p. 4). The entity can be specific or tangible (person or object), or esoteric, abstract and intangible (political views or equality) (Augoustinos, Walker & Donaghue 2006). Attitudes act as a set of evaluations an individual possesses which influences their thoughts, feelings and behaviours towards the entity of concern (Ajzen & Fishbein 2005; Augoustinos, Walker & Donaghue 2006).

In this context, behaviour is defined as ‘an action directed at a target, performed in a given context, at a certain point in time’ (Ajzen & Fishbein 2005, p.182). The relationship between attitude and behaviour is believed to be bi-directional, therefore, attitudes not only influence behaviour, but behaviours can reinforce or change attitudes (Olsen & Stone 2005).

The ‘rational’ view suggests that consumers develop their attitudes before taking action but there are alternatives to this ‘attitude precedes behaviour’ perspective (Schiffman & Kanuk 2010). Firstly, according to cognitive dissonance theory, discomfort occurs when a consumer holds conflicting thoughts about a belief or an attitude object (Schiffman & Kanuk 2010). Post-purchase dissonance occurs after a purchase, for example, when the customer thinks about the positive attributes of the product of the brand not purchased. These feelings can be overcome by changing their attitudes to conform to their behaviour (e.g. Matz & Wood 2005). Secondly, attribution theory attempts to explain...
how people assign causality (e.g. blame or credit) to events on the basis of either their own behaviour or the behaviour of others. In attribution theory the process of making inferences about one’s own or another’s behaviour is a major component of attitude formation and change (Schiffman & Kanuk 2010).

Thus, attitudes are integrated with behaviour. Social marketers must know what their audiences think of the offer, what they perceive as the costs and benefits, what other parties in their social environment think, and if their audiences believe they can carry out the behaviour that is being recommended (Andreasen 2006). In other words, analysis of the marketplace is required to select an appropriate target audience. Knowing the target audience is required to establish realistic goals and objectives to produce an effective social marketing campaign (Kotler, Roberto and Lee 2002). In short, social marketing involves the use of marketing techniques to influence attitudinal and behavioural change so as to improve the welfare of individuals and society. Social marketing is an increasingly popular and rapidly growing discipline (Lee & Kotler 2011) and, as such, social marketers are well positioned to address social problems.

Societies face numerous problems and are constantly seeking ways to overcome them and to make the lives of individuals and their environments better (Andreasen 2006). Social marketing interventions have been found to be effective across a range of behaviours, with a range of target groups and in different settings in influencing policy and professional practice as well as individuals (Stead et al. 2007). Social marketing has been successfully applied to various causes such as AIDS/HIV, family planning, anti-smoking, immunisation, recycling initiatives, high blood pressure, sun protection, regular checks for various cancers, drink driving, domestic violence and physical activity (Goldberg, Fishbein & Middlestadt 1997; Kotler, Roberto & Lee 2002). However, the effectiveness of social marketing campaigns has been limited due to factors including heavy reliance on advertising; no or limited integration of the marketing mix; limited use of consumer behaviour methodologies such as segmentation (Andreasen 2006; Kotler, Roberto & Lee 2002); and problems with research design, lack of conceptual understanding or implementation (Gordon et al. 2006).

Overweight and obesity are health issues currently facing society and social marketing is being used in programs to address adult overweight and obesity (e.g. Rivera et al. 2010). However, agreement is widespread that action is needed urgently regarding the prevention of overweight and obesity; that it should be comprehensive and sustained, and that it should be evidence-based (Swinburn, Gill & Kumanyika 2005). Increasingly ‘obesogenic’ environments are considered the main driving forces for the overweight and obesity problem. Environmental strategies that can influence the physical, economic, policy or sociocultural environments are numerous, but the evidence base for these potentially powerful interventions is small. Recommendations include that children should be the
priority population for interventions, and that the key settings for interventions are schools, homes, neighbourhoods, primary health care services and communities (Swinburn & Egger 2002). Health promotion now recognises the need to consult and engage people within the context of their community (Potvin et al. 2003) and, increasingly, programs and interventions aimed at improving the health of children are being designed in partnership with children and parents (Potvin et al. 2003) and are using social marketing approaches (Johnson et al. 2007; Pettigrew & Pescud 2012; Richards et al. 2009; Weir & Williams 2012; Young et al. 2004).

In fact Australia’s Healthy 2020 vision focuses on the importance of social marketing to combat obesity which along with alcohol and tobacco use is one of the three focus areas for the Australian Government to take preventative action.

See <http://www.preventativehealth.org.au/internet/preventativehealth/publishing.nsf/Content/nphs-roadmap/$File/nphs-roadmap-1.pdf>. Specifically one of the most important actions proposed by the National Preventative Heath Strategy—the roadmap for action (June 2009) in its first phase (2010-2013) was to ‘Encourage people to improve their levels of physical activity and healthy eating through comprehensive and effective social marketing’ (pg.15).

An aim of this research was to provide valuable insight regarding primary caregivers of young children and, through education, motivation and advocacy, facilitate addressing the overweight and obesity problem through improvement of young children’s eating behaviours. Arising from Stage One findings, this research used Social Cognitive Theory to examine influences on primary caregivers to gain insights into their behaviours and to allow appropriate actions for social marketing to positively affect them in their influence over their young children’s eating behaviours.

This section has discussed the theoretical literature relating to this research. Next, the literature relating to overweight and obesity is presented.

2.2 Overweight and obesity

The contextual component of this thesis is founded on the increasing prevalence of overweight and obesity creating one of the most important public health problems facing the world today – the pandemic of obesity (World Health Organisation (WHO) 2000). In 2008, an estimated 1.46 billion adults worldwide were overweight, including 502 million who were obese; burdening societies with premature mortality, morbidity associated with many chronic disorders, and negative effects on health-related quality of life (Swinburn et al. 2011). This section comprises discussion of overweight and obesity-related issues relevant to both adults and children; the prevalence of overweight and obesity; health issues associated with overweight and obesity; as well as associated costs, risk factors
and interventions for overweight and obesity. Section 2.2 concludes that prevention of overweight and obesity is an appropriate goal and that the role of primary caregivers of young children is an appropriate area for exploration and research.

2.2.1 Prevalence of overweight and obesity

In 2006, Prentice referred to the overweight and obesity pandemic which originated in the United States and crossed to Europe and the world’s other rich nations before penetrating the urban areas of the world’s poorest countries. Prentice (2006, p. 93) surmised that the pandemic is ‘transmitted through the vectors of subsidised agriculture and multinational companies providing cheap, highly refined fats, oils, and carbohydrates, labour-saving mechanised devices, affordable motorised transport, and the seductions of sedentary pastimes such as television’.

Overall, the global prevalence of overweight and obesity is high and increasing. In 2000, for the first time in human history, the number of overweight and obese people in the world equalled the number of those under-fed (Gardner & Halweil 2000). If current trends were to continue unabated, it is estimated that about three of every four Americans and seven of every ten British people will be overweight or obese by 2020 (Sassi 2010). While overweight and obesity are recognised as a worldwide phenomenon, with poor countries unlikely to be effective to arresting its progression (Prentice 2006), the focus of this thesis and, hence, the majority of data reported are on Western countries, particularly Australia.²

In the two decades before 2000, the rate of overweight and obesity almost doubled amongst Australian adults (Department of Health & Aging 2002). The most recent figures available from the Australian Bureau of Statistics indicate that in 2011–12, 63.4 per cent of Australians aged 18 years and over were overweight or obese, 35.0 per cent were overweight and 28.3 per cent obese (ABS 2012a). A further 35.2 per cent were of normal weight and 1.5 per cent were underweight. The prevalence of overweight and obesity has increased in Australia over time, from 61.2 per cent in 2007–8 and 56.3 per cent in 1995. In 2011–12, more men were overweight or obese than women (70.3 per cent compared with 56.2 per cent). Rates for both men and women have increased since 2007–8 (67.7 per cent for men and 54.7 per cent for women) (ABS 2012a). Overweight and obesity rates vary with age, with 74.7 per cent of adults aged 65–74 years being overweight or obese, compared with 38.4 per cent of persons aged 18–24 years. Since 1990, obesity rates in Australia have been increasing faster than in any other Organisation for Economic Co-operation and Development (OECD) country and the proportion of people overweight is projected by the OECD to rise a further 15 per cent by 2020 (Sassi 2010).

² In addition to information provided about measuring overweight and obesity in Section 1.3, Appendix 2A contains further discussion.
Overweight and obesity in childhood are already common worldwide but especially in developed countries, making this generation the first predicted by the International Obesity Task Force (IOTF) to have a shorter lifespan than their parents (IOTF 2012). The global incidence of overweight and obesity amongst children is continuing to increase. This is of particular concern as childhood obesity persists into adulthood, as evidenced primarily by large cohort studies conducted in the United Kingdom (Braddon, Rodgers & Wadsworth 1986), and the United States (Dietz 2001; Freedman et al. 2005). According to the Australian Institute of Health and Welfare (AIHW), once children become obese they are more likely to remain obese into adulthood and have an increased risk of developing diseases associated with obesity (AIHW 2004). In their longitudinal study, Gardner et al. (2009) assessed the impact of weight gain on metabolic health at nine years of age and concluded that weight at five years of age bears little relation to birth weight but closely predicts weight at nine years of age.

Globally, more than 40 million children under the age of five years were overweight in 2010 (WHO 2012a) and one in 10 school-aged children worldwide is overweight or obese and, of these, 2–3 per cent (30–45 million) are obese (IOTF 2012). The worldwide prevalence of childhood overweight and obesity increased from 4.2 per cent in 1990 to 6.7 per cent in 2010. This trend is expected to reach 9.1 per cent or ≈60 million, in 2020 (De Onis, Blosser & Borghi 2010). Between 1976 and 2004 overweight increased in US infants from 7 to 12 per cent; in 2–5 year olds from 5 per cent to 14 per cent and in 6–11 years olds from 4 per cent to 19 per cent, leading the prevalence rates of childhood overweight in developed countries (Ventura & Birch 2008). The estimated prevalence of childhood overweight and obesity in Africa in 2010 was 8.5 per cent and is expected to reach 12.7 per cent in 2020. The prevalence is lower in Asia than in Africa (4.9 per cent in 2010), but the number of affected children (18 million) is higher in Asia (De Onis, Blosser & Borghi 2010).

In accordance with global trends, the prevalence of overweight and obesity in Australian children has increased generally since 1980. Data from five independent population surveys indicate that from 1969 to 1985, there was no change in the prevalence of overweight or obesity among girls, but among boys the prevalence of overweight and obesity combined increased by 60 per cent. The prevalence of overweight and obesity combined among students aged 7–16 years has increased from 11 per cent in 1985 to 20 per cent in 1997 and to 25 per cent in 2004 (Booth et al. 2007).

Data from regional studies of school students available prior to 2004 indicated that rates of obesity among Australian boys were not only rising, they were accelerating. According to the Schools Physical Activity and Nutrition Survey, for boys the rate of increase in overweight was speeding up, although among girls the rate of increase was steady or slowing (Schools Physical Activity and Nutrition Survey 2004). Approximately 20–25 per cent of Australian children 2–8 years of age are already overweight or obese (Department of Health and Ageing 2007; Wake et al. 2007). Obesity
rates in young Australian children were 3.3 per cent in 4-year-old children in 1995 (Vaska & Volkmer 2004) (where BMI was calculated from height and weight data and prevalence of overweight and obesity for males and females determined using a standard world-wide definition), but were 5.5 per cent in 48 year olds in 2007 (ABS 2009b). The most recent available rate of obesity in Australian children aged 23 years is 4 per cent (Department of Health and Ageing 2007; de Silva-Sanigorski et al. 2010). Combined rates of overweight and obesity for 2-year-old children were measured as being up to 17 per cent and for 3.5-year-olds up to 18.6 per cent (de Silva-Sanigorski et al. 2010). Rates of overweight and obesity combined rise to 24 per cent at 14–16 years (ABS 2008) and escalate to 63 per cent in adults (ABS 2012a).

Despite these generally pessimistic figures, there are indications that the overweight and obesity rates in children are slowing or reversing. A recently published paper (Nichols et al. 2011), also using International Obesity Task Force definitions, reported that the prevalence of overweight and obesity has decreased significantly between 1999 and 2007 for over 220,000 children aged 2 and 3.5 years in the Australian state of Victoria. Combined prevalence of overweight and obesity decreased significantly in 3.5-year-old children (from 18.5 to 15.4 per cent) and in 2-year-old children (from 13.5 to 12.4 per cent). There was no accompanying increase in rates of underweight. Also, recent data from the ABS indicate that the prevalence of overweight and obesity in Australian children aged 5–17 years has remained stable at 25.3 per cent (ABS 2012a). The researchers concluded that further research is needed to understand the reasons for the decreasing prevalence, and to better evaluate existing and emerging health promotion initiatives (Nichols et al. 2011). Other encouraging reports from European countries indicate that overweight and obesity prevalence in some childhood age groups might be flattening or even decreasing (NHS Information Centre 2010; Rokholm, Baker & Sorensen 2010). Although these recent trends in childhood are encouraging, the adulthood health issues and related costs are likely to be encountered for many years.

**2.2.2 Health issues associated with overweight and obesity**

Obesity is associated with a wide variety of chronic diseases and reduction in length and quality of life and has become a major public health and economic problem. According to the National Heart Foundation of Australia (NHFA), the increased prevalence of overweight and obesity has been a significant contributor to the epidemic-like rates of cardiovascular disease (NHFA 2011). Elevated Body Mass Index (BMI) is thought to account for about 60 per cent of the risk of developing type 2 diabetes, over 20 per cent of that for hypertension and coronary-heart disease, and between 10 per cent and 30 per cent for various cancers. To exemplify the impact of overweight and obesity, diabetes has become such a worldwide issue that, in December 2006, the United Nations (UN) passed UN Resolution 61/225 which recognised the global threat of diabetes as a major health crisis facing all nations of the world. Governments acknowledged for the first time that a non-infectious disease poses
as serious a threat to world health as infectious diseases such as HIV/AIDS, tuberculosis and malaria (International Diabetes Federation 2006). Other co-morbidities include gall bladder disease, fatty liver, sleep apnoea, osteoarthritis and infertility (Australian Government Department of Health & Ageing 2005; AIHW 2004; World Health Organisation 2012a).

Overweight and obesity shorten life expectancy. In 2004, increased BMI alone was estimated to account for 2.8 million deaths, while the total when combined with physical inactivity was 6.0 million (World health organisation 2009) – surpassing the excess mortality associated with tobacco and approaching that of high blood pressure, the greatest risk factor for death. Whilst it is acknowledged that the prevalence of tobacco smoking has significantly decreased as a result of public health efforts, in Western Australia obesity (contributing 8.7 per cent to the total burden of disease) has overtaken tobacco (contributing 6.5 per cent) as the largest preventable cause of disease burden (Hoad, Somerford & Katzenellenbogen 2010). Most of the major risk factors associated with cardiovascular disease including excess body weight, type 2 diabetes, tobacco smoking, insufficient physical activity, raised blood pressure and abnormal cholesterol levels are modifiable. Many of these risk factors are interrelated and clear evidence indicates that reducing or eliminating some of these modifiable factors can reduce the risk of a heart attack or stroke (Baker IDI 2012).

Children are now more commonly experiencing traditionally adult diseases including type 2 diabetes, hypertension, hyperlipideamia, sleep apnoea and orthopaedic conditions (Anderson, Butcher & Levine 2003a; Dietz 1998; Fagot-Campagna 2000). More than 60 per cent of overweight children have at least one additional risk factor for cardiovascular disease, such as raised blood pressure, hyperlipidaemia or hyperinsulinaemia, and more than 20 per cent have two or more risk factors (Dietz 2001). More specifically, higher BMI during childhood has been found to be associated with an increased risk of coronary heart disease in adulthood, the associations being stronger in boys than girls and increasing with the age of the child in both sexes (Baker, Olsen & Sorensen 2007). In addition to increased future risks, obese children experience breathing difficulties, increased risk of fractures, hypertension, early markers of cardiovascular disease, insulin resistance and psychological effects (WHO 2012a).

The health issues associated with overweight and obesity are not limited to physical issues. Psychological health issues such as low self-esteem, social isolation and depression are also related to overweight and obesity (Australian Government Department of Health and Ageing 2005). Psychosocial problems, including depression have been identified in obese American children aged 7–12 years (Goldschmidt et al. 2010).

Growing worldwide awareness of overweight and obesity may have reinforced prejudice against the obese, who are often stigmatised. It is also recognised that cultural and ethnic factors undoubtedly
moderate the social impact of overweight and obesity, as well as its perception. In the Western world, social stigmatism against overweight and obesity and a widespread (though usually unsuccessful) obsession with trying to remain lean have probably, to some extent, limited the rate of rise in overweight and obesity (Prentice 2006). In contrast, in many developing countries this psychological brake has been absent. Examples are the Polynesian islanders who associate large body size with power, beauty, and affluence (Brewis et al. 1998) and Africans for whom the association of thinness with HIV/AIDS is also thought to accentuate positive attitudes to overweight (Kruger et al. 2005).

In summary, overweight and obesity are associated with a range of physical and psychological health issues. These health issues have associated financial costs.

### 2.2.3 Financial costs of overweight and obesity

Overweight and obesity place enormous financial burdens on governments and these costs are increasing. The burden of chronic diseases is rapidly increasing worldwide. Calculations indicate that, in 2001, chronic diseases contributed approximately 60 per cent of the 56.5 million total reported deaths in the world and approximately 46 per cent of the global burden of disease (World Health organisation 2002). The proportion of the burden of non-communicable diseases is expected to increase to 57 per cent by 2020. Almost half of the total chronic disease deaths are attributable to cardiovascular diseases; obesity and diabetes are also showing worrying trends, not only because they already affect a large proportion of the population, but because they have started to appear earlier in life (World Health organisation 2004).

Access Economics estimated the total cost of overweight and obesity in Australia in 2008 was AUD58 billion (Access Economics 2008). This estimate encompassed two types of costs — the ‘loss of wellbeing’ and financial costs. The cost of the loss of wellbeing was measured as the dollar value of the burden of disease arising from disability, loss of wellbeing and premature death — and was estimated to be approximately AUD50 billion in 2008. The financial costs of overweight and obesity were estimated to be AUD8 billion in 2008, and included a) health system costs such as hospital and nursing home costs, general practitioner and specialist services, and pharmaceuticals; b) productivity losses; carer costs; transfer costs, that is, the deadweight loss from the higher level of taxation, and c) other indirect costs such as aids, modifications and travel (Access Economics 2008).

A simulation model has projected the probable health and economic consequences from a continued rise in overweight and obesity from 2010 until 2030 in two ageing populations—the United States and the United Kingdom (Wang et al. 2011). These trends project 65 million more obese adults in the United States and 11 million more obese adults in the United Kingdom by 2030, consequently accruing an additional 6–8.5 million cases of diabetes, 5.7–7.3 million cases of heart disease and
stroke, 492,000–669,000 additional cases of cancer, and 26–55 million quality-adjusted life years (QALYs) forgone for the United States and the United Kingdom combined. The combined medical costs associated with treatment of these preventable diseases are estimated to increase by USD48–66 billion per year in the United States and by £1.9–2 billion per year in the United Kingdom by 2030 (Wang et al. 2011).

The long-term health and economic impacts of preventing and reducing overweight and obesity in US adolescents have been projected (Wang et al. 2010). A body mass index (BMI) progression model was developed to project the impact of a one per cent point reduction in both overweight and obese adolescents currently aged 16–17 years on the number of non-overweight, overweight, and obese adults at age 40 years. The impact of this reduction on the lifetime medical costs and quality-adjusted life years (QALYs) after age 40 was estimated. A one per cent point reduction in both overweight and obese adolescents currently aged 16–17 years could reduce the number of obese adults by 52,821 in the future. As a result, lifetime medical care costs after age 40 years would decrease by $USD586 million and lifetime QALYs would increase by 47,138. In the worst case scenario, the one per cent point reduction would lower medical costs by $463 million and increase QALYs by 34,394; in the best case scenario, it would reduce medical costs by $USD691 million and increase QALYs by 57,149 (Wang et al. 2010).

As the costs due to adult overweight and obesity increase, so do the costs due to childhood overweight and obesity. Obesity-associated annual hospital costs in US youths aged 6–17 years increased more than three-fold; from $35 million during 1979–81 to $127 million during 1997–99 (Wang & Dietz 2002). Curbing childhood overweight and obesity and their costs would be most effective at curbing adult overweight and obesity and their costs (Johnson, McInnes & Shinogle 2006).

In summary, excess body weight is not only detrimental to individuals’ health but is also a major burden on national health care systems. As the prevalence of childhood overweight and obesity increases, so do associated risks to health and costs. In the following section the risk factors for developing overweight and obesity are examined.

### 2.2.4 Risk factors for overweight and obesity

The considerable increase in overweight and obesity rates over a short period of time indicates that environmental and behavioural factors, not genetic or biological factors, are the primary drivers (Jeffery & Linde 2005). Prominent researchers have concluded that these drivers of population weight gain seen since the 1980s are changes in dietary patterns and physical activity (Popkin 2005; Prentice & Jebb 1995; Swinburn & Egger 2004). More recently, researchers have specifically cited changes in
the global food system – food being more processed, more affordable and more effectively marketed – as the main drivers for the global obesity epidemic (Swinburn et al. 2011).

Overweight and obesity are caused by an energy imbalance; when intake of energy exceeds expenditure the surplus is stored as body weight. However, a multitude of ‘obesogenic’ factors contribute to this increased energy consumption and decreased energy expenditure. As reported by the International Obesity Task Force (IOTF) (2012), these include:

- declining levels of physical labour as populations move from rural to urban settings and abandon walking in favour of driving, labour-saving devices in the home, and the replacement of active sport and play by television and computer games
- higher levels of food consumption, or an increase in energy density (particularly fat content) of food eaten
- social, economic, educational and cultural factors are important underlying causes of overweight and obesity, although how they interrelate to promote or protect against the development of overweight and obesity is complex and varies considerably by country.

Swinburn et al. (2011) advocate that overweight and obesity result from market economies predicated on consumption-based growth leading to overconsumption of energy. They explain that the global food system drivers interact with local environmental factors especially sociocultural, economic and transport environments to produce the wide variation in overweight and obesity prevalence between populations. Within populations, the interactions between environmental and individual factors, including genetic makeup, explain variability in body size between individuals. However, even with this individual variation, the epidemic has predictable patterns in subpopulations. In low income countries, overweight and obesity mostly affect middle-aged adults (especially women) from wealthy, urban environments; whereas in high income countries they affect both sexes and all ages, but are disproportionately greater in disadvantaged groups (Pena & Bacallao 2000; Seidell & Rissanen 2004).

The multiplicity of risk factors for overweight and obesity is reflected in the broad range of strategies recommended to reduce their prevalence. These strategies include influencing the food supply to make healthy choices easier; reducing the marketing of energy dense foods and beverages to children; influencing urban environments and transport systems to promote physical activity; developing community-wide programs in multiple settings; increased communications about healthy eating and physical activity; and improved health services to promote breastfeeding and manage currently overweight or obese people (Swinburn et al. 2004).

Such a broad perspective is important when appreciating the complexity of factors contributing to the global obesity epidemic. It is, however, beyond the scope of this literature review to report in detail on
issues such as the complexities of the food supply, urban environments and transport systems as this thesis is focussing on factors surrounding primary caregivers of young children. The risk factors for overweight and obesity that have been reviewed fall into the following broad categories: a) genetic predisposition, b) lack of physical activity, c) technological change, d) screen time and advertising, e) socioeconomic status, f) breastfeeding, introduction of solids and dietary intake and g) parental weight, childhood growth and sleep. These risk factors will be discussed in turn.

a) Genetic predisposition

Genetics including age, gender, parental weight and metabolic rate is responsible for increases in susceptibility of weight gain, and genetic contribution to overweight is substantial. Behavioural genetic studies illustrate that genetic factors explain at least 50 per cent of the population variance in overweight and obesity among adults; a similar figure has been noted among paediatric populations (Beunen et al. 1998; Bodurtha et al. 1990; Faith et al. 1999). While the variance explained by genetics reduces and the variance explained by non-shared environmental factors significantly increases with age (Hewitt et al. 1997), genetic predisposition to overweight and obesity cannot explain the rapid changes in rates of overweight and obesity and their effects (Bouchard 1997; Jeffery & Linde 2005; Dattilo et al. 2012).

b) Lack of physical activity

It is widely believed that reduced physical activity and/or increasing sedentary behaviour, such as television viewing, are implicated in the aetiology of childhood overweight and obesity (Reilly & Dorosty 1999; Troiano & Flegal 1998). Methodological difficulties regarding measurement of activity or total energy expenditure complicate the evidence supporting the role for reduced physical activity and energy expenditure in development of overweight and obesity. However, reduction in physical activity is acknowledged as a factor contributing to childhood overweight and obesity due to the following factors:

- inconsistencies in some developed countries between increases in overweight and obesity prevalence and energy intakes (Amisola & Jacobson 2003; Gregory et al. 1995; Troiano & Flegal 1998)
- exposure to sedentary behaviour (television viewing) has consistently been associated with increased paediatric overweight and obesity risk (Gortmaker et al. 1996)
- interventions that change activity or inactivity can add considerably to the effects achieved by dietary treatment alone (Epstein et al. 1998).
In a later review of evidence for potential aetiological factors and strategies to reduce overweight and obesity, regular physical activity was found to be a protective factor (at a convincing level) and a sedentary lifestyle was found to be a risk factor (at a convincing level) (Swinburn et al. 2004). In a more recent review of factors associated with overweight and obesity among infants and toddlers, Dattilo et al. (2012) concluded that time spent during physical activity or active play has been inversely associated with measures of adiposity or risk of overweight among toddler and preschool age children.

In summary, despite some methodological difficulties regarding measurement, the reduction in physical activity is acknowledged as being a factor contributing to overweight and obesity generally and specifically in childhood (Dattilo et al. 2012; Swinburn et al. 2004). Some researchers argue that the effects of physical activity are mediated by technological change as discussed next.

c) Technological change

It has been proposed that the root cause of the increase in overweight and obesity prevalence is technological change. Lakdawalla and Philipson (2002) argue that technological change has induced weight growth by making home- and market-production more sedentary and by lowering food prices through agricultural innovation. They propose that about 40 per cent of the growth in weight is due to agricultural innovation that has lowered food prices, while 60 per cent may be due to demand factors such as declining physical activity from technological changes in home and market production. Despite a substantial increase in both dieting and recreational exercise, economic incentives offered by technological change give rise to a growth in overweight and obesity by stimulating intake of calories while discouraging the expending of calories on physical activity (Philipson & Posner 2003). Technological change seems to have contributed to weight gain through agricultural innovation lowering food prices and reducing physical activity in the home and work environments. More research has been conducted into the impact of technology changes within the home, specifically television viewing and other ‘screen time’ as discussed below.

d) Screen time and advertising

The literature finds that television and other forms of screen time displace physical activity and contribute to overweight and obesity (Caroli et al. 2004; Dietz & Gortmaker 1985; Lowry et al. 2002; Marshall et al. 2004; Olds, Ridley & Dollman 2006; Salmon, Campbell & Crawford 2006; Sharma, Wagner & Wilkinson 2006). Regarding toddlers and preschool age children specifically, Dattilo et al.

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3 Strength of evidence: The totality of the evidence was taken into account. The World Cancer Research Fund schema was taken as the starting point but was modified in the following manner: Randomised Controlled Trials (RCTs) were given prominence as the highest ranking study design (RCTs are not a major source of cancer evidence); associated evidence was also taken into account in relation to environmental determinants (direct trials were usually not available or possible).
(2012) concluded that number of hours of television or screen time viewing is positively associated with overweight or obesity.

Television food advertising has its intended effect on children’s food preferences and choices, independent of other factors (Hastings et al. 2003; Livingstone & Helsper 2004). Although when compared to other effects, food advertising has been found to have a minor influence on the development of childhood overweight and obesity (Bolton 1983), no conclusive evidence exists to suggest that food advertising causes obesity (Hastings et al. 2003; Zywicki, Holt & Ohlhausen 2004).

Parents consider food marketing to be a major influence on their children’s eating behaviours (Campbell, Crawford & Hesketh 2006; Morley 2007); and the marketing of energy-dense foods and fast food outlets has been found to be a risk factor for obesity (probable level) (Swinburn et al. 2004). Some argue that, despite ample justification for protecting children’s health from the predatory effects of markets, almost universally governments are failing in this responsibility (Swinburn et al. 2011).

**e) Socioeconomic status**

The global obesity pandemic is recognised as having an economic trajectory that is spreading through wealthy nations before impacting on the poorer (Prentice 2006). ‘Ecological’ changes such as the low cost of highly refined oils and carbohydrates, encouragement towards motorised transport, increasing use of energy-sparing devices, increasingly sedentary employments, and the seduction of TV and video games, at first affect the more wealthy members of urban areas. This is followed by a reversal of the socioeconomic gradient as overweight and obesity become diseases of the poor (Fernald et al. 2004).

The obesity epidemic has different patterns in low and high income countries and the patterns are more exaggerated in women compared to men and children. In low income countries, overweight and obesity are more common in people of higher socioeconomic status (SES) and in those living in urban communities (Swinburn et al. 2004). In affluent countries, overweight and obesity are associated with lower socioeconomic status (SES), especially in women and rural communities (Pena & Bacallao 2000; Seidell & Rissanen 2004). There is a clear association with low SES and poorer diets particularly from older studies from developed countries (Department for Environment, Food & Rural Affairs 2005; Dowler & Calvert 1995; James et al.1997; Neumark-Sztainer et al. 1998; Ruxton et al. 1996) and more recently in developing countries (Wyatt & Triana Tejas 2000).

Research has indicated other differences across socioeconomic status groups regarding issues such as a) dietary intake of children (Ruxton et al. 1996), of adolescents (Neumark-Sztainer et al. 1998; Xie et al. 2003) and of families (Department for Environment, Food and Rural Affairs 2005; Dowler & Calvert 1995); b) childhood obesity (Nichols et al. 2011; Sanigorski et al. 2008; Veugelers &
Fitzgerald 2005); c) mealtime structure and feeding practices (Orrell-Valente et al. 2007) and, d) caregiver enforcement of restrictive feeding practices, attribution of responsibility to schools and receptiveness to nutritional advice (Hart et al. 2003).

Childhood overweight and obesity continue to be associated with lower SES in North America (Veugelers & Fitzgerald 2005) and Australia (Sanigorski et al. 2008). Shrewsbury and Wardle (2008) reviewed the literature seeking association between SES and adiposity in school-aged children (5–18 years) from Western developed countries since 1989. In contrast to Sobal and Stunkard's review (1989) of 34 studies from developed countries published after 1941, which found inconsistent relationships between SES and childhood adiposity, Shrewsbury and Wardle (2008) found that associations between SES and adiposity in children are predominately inverse and that positive associations have all but disappeared. Additionally, with parental education as the SES indicator, inverse associations with adiposity were found in 15 of 20 studies (75 per cent) (Shrewsbury & Wardle 2008).

However, the effects of SES over a lifetime vary based on gender. A birth cohort in Brazil was revisited 19 years later resulting in the identification of four socioeconomic trajectories: always poor, never poor, poor at birth/non-poor at 19 and non-poor at birth/poor at 19. Overweight was approximately twice as common among men who were never poor in relation to the others. Among women, those who were always poor presented the highest prevalence of overweight (Barros et al. 2006). Similarly, in a review of literature published between 1998 and 2008 that examined associations of childhood socioeconomic position (SEP) with adulthood obesity, the findings suggested that childhood SEP is inversely related to adulthood obesity in females and not associated in males after adjustment for age (Senese et al. 2009). These finding give evidence that sociocultural factors determine obesity as sociocultural factors vary between the genders. Additional research suggests that in recent times, obesity is becoming more a sociocultural issue than a socioeconomic issue; the dietary patterns and diet-related problems of people on low incomes are similar to those of the wider population (Food Standards Agency 2007); and narrowing or lack of associations between overweight and obesity rates and socioeconomic status (Booth et al. 2007; Nichols et al. 2011).

There is consistent support for the concept that, in affluent countries, a low SES is a risk factor for overweight and obesity in women. Part of that effect is likely to be related to environments that are relatively deprived of healthier food choices and opportunities for physical activity (Swinburn et al. 2004). Education is a reflection of SES and women with poor education are 1.4 times more likely than more educated women to be overweight (Sassi 2010). Primary caregivers are more commonly females (ABS 2012b), so influences on women’s diets which have found to vary by SES are also relevant to his thesis. These influences are health consciousness and a perceived lack of time due to
family commitments (more salient among higher SES women) (Inglis, Ball & Crawford 2005); perceived high cost of healthy eating (e.g. Promoting Healthy Eating and Active Living in Children Project 2002) and perceived lack of time due to work commitments (more important for low SES women) (Inglis, Ball & Crawford 2005). Indeed, differences in diets between socioeconomic positions have been almost wholly explained by perceptions of food availability, accessibility and affordability (Inglis, Ball & Crawford 2007). As has been found in Australia, availability of and access to good quality healthy foods did not differ across SES groups (Inglis, Ball & Crawford 2005).

Further evidence exists, however, that overweight and obesity are becoming sociocultural, as well as socioeconomic phenomena. The inverse relationship between overweight and obesity in women and SES in developed societies and the direct relationship between SES and overweight and obesity in developing societies has been long known (Sobal & Stunkard 1989). In an update of the 1989 review involving 333 published studies, from 1988–2004 (McLaren 2007) the reviewer concluded – and as advocated by others e.g. Swinburn et al. (2004) – that overweight and obesity are social phenomena, for which appropriate action includes targeting both economic and sociocultural factors. Further evidence that sociocultural factors determine overweight and obesity is provided by the findings that higher levels of overweight and obesity have been identified in affluent segments of society in developing countries (Bovet et al. 2010; Cui et al. 2010) and that overweight and obesity rates vary between sociocultural factors such as ethnicity (Utter et al. 2010) and gender (Barros et al. 2006).

At an individual level, poverty limits food choice considerably. Energy-dense foods such as fats, oils, sugar and refined grains provide energy at the lowest cost, while foods of low energy density such as vegetables, fruits, seafood and dairy products provide energy at the highest cost (Drewnowski & Darmon 2005). When money is tight, reduced purchasing of fruit and vegetables occurs also because of their perishable nature (Watt, Dykes & Sheiman 2001). Healthy food is considered more expensive to purchase than junk food (e.g. Promoting Healthy Eating & Active Living in Children Project 2002) although a nutritionally inferior diet of children and adolescents is able to be improved by a price-balanced interchange of foods, mainly by favoring plant foods instead of meat and confectionery (Kersting et al. 1998).

In summary, the evidence suggests that in developed societies such as Australia sociocultural factors may preside over the socioeconomic factors in overweight and obesity genesis.

f) Breastfeeding, introduction of solids and dietary intake
In this section evidence regarding breastfeeding, introduction of solids and dietary intake as risk factors for overweight and obesity is presented. Salient research is presented to indicate that eating
habits develop in childhood and persist into adulthood and that childhood intake predicts overweight and obesity.

Children consume more than their needs from a very early age – from being formula-fed to age four years (Devaney et al. 2004; Dewey 2001; Haisma et al. 2003; Skinner, Ziegler & Ponza 2004). Some studies in the extant literature suggest a lack of association between age of introduction of solids and subsequent weight gain (Cohen et al. 1994; Mehta et al. 1998; Townsend, Phillimore & Beattie 1988; Wright, Parkinson & Drewett 2004); however, a review including more recent research concluded that early age of introduction of solids (< four months) has been positively associated with rate of weight gain during infancy, and increased weight, or measures of adiposity in infants, toddlers, and preschool age children (Dattilo et al. 2012).

Evidence suggests that a lower risk of developing overweight and obesity may be directly related to length of exclusive breastfeeding (Butte 2001; Gillman et al. 2001; von Kries et al. 1999) although it may not become evident until later in childhood (Dietz 2001). In support, the World Health Organization (WHO 2007) published a report, Evidence of the long-term effects of breastfeeding: systematic reviews and meta-analysis, and concluded ‘that the evidence suggests that breastfeeding may have a small protective effect on the prevalence of obesity …’. The Dattilo review (2012) also concludes that breastfeeding duration and/or exclusivity has been inversely associated with rate of weight gain or weight measures during infancy, and with weight, adiposity or risk of overweight and obesity in toddler and preschool age children.

Cope and Allison (2008) provide a critical overview of the WHO report’s section on breastfeeding and obesity, and conclude that, while breastfeeding may have benefits beyond any putative protection against obesity, and benefits of breastfeeding most likely outweigh any harms, any statement that a strong, clear or consistent body of evidence shows that breastfeeding causally reduces the risk of overweight or obesity is unwarranted at this time. Additionally, based on US National Health and Nutrition Examination Surveys (NHANES 2005), the rates and duration of breastfeeding have actually increased during the obesity epidemic suggesting that the role of breastfeeding in overweight and obesity is minor compared with other factors.

There is evidence that a high intake of energy-dense, micronutrient-poor foods and sugar-sweetened soft drinks are dietary risk factors for overweight and obesity (Swinburn et al. 2004). Consumption data for both Australia (AIHW 2005) and the United States (Nielsen, Siega-Riz & Popkin 2002) indicate an increased intake of generally high energy/low nutrient dense foods is associated with the climb in overweight and obesity rates. Although studies testing for associations between individual dietary factors and overweight and obesity are complicated by methodological difficulties, there is consensus that an increased intake of energy-dense foods that are high in fat and sugars is associated
with the increase in rates of childhood overweight and obesity (Campbell & Crawford 2001; Fox et al. 2006; Harnack, Stang & Story 1999; Liebman et al. 2003; Newby 2007; Prentice 2006; WHO 2012a).

Despite equivalent energy intake, high intake of protein in the first year of life has been associated with significantly higher BMI at 6 years in boys (Gunnarsdottir & Thorsdottir 2003). Also high protein intakes at both 12 months and 18–24 months (energy-adjusted) were independently related to a higher measure of adiposity (mean BMI standard deviation scores and per cent body fat) at age seven years (Gunther, Buyken & Kroke 2007).

The Dattilo review (2012) concludes, regarding diet quality and quantity, that total energy intake is positively associated with higher risk or prevalence of overweight in infant, toddler and preschool age children; that intake of sugar sweetened beverages (excluding 100 per cent fruit juice) has been positively related to measures of adiposity or overweight in toddler and preschool age children; and children with higher consumption of fruit and/or vegetables, or higher availability of such, consume less total energy and have been associated with a more desirable body composition or body weight during preschool years.

Salient to this research is the evidence from several longitudinal studies that eating habits develop in childhood and persist into adulthood:

- Early consolidation and tracking of self-reported food preferences has been found, revealing that children who made the fewest healthy choices in 1983 also made the fewest healthy choices in 1989 (Kelder et al. 1994).
- Tracking of intake of nutrients including energy, fat and calcium has been found to commence from four years of age (Boulton, Margery & Cockington 1995; Singer et al. 1995).
- In 1980, 3569 children aged 3–18 years participated in the baseline dietary study. At follow-ups in 1986 and 2001, 1200 and 1037 respectively of the original sample, participated. Nutrients selected for further examination were those implicated in the risk of cardiovascular disease: saturated, monounsaturated, polyunsaturated and n-3 fatty acids, fibre and salt. The average intakes showed substantial changes since 1980 but intake of fat and consumption of vegetables in childhood were important determinants of the cardiovascular quality of the adult diet, even after 21 years (Mikkilä et al. 2004).

There is further support specifically for the parental role in dietary patterns developing in childhood and persisting into adulthood. Eating habits, such as ‘cleaning the plate’ established in childhood can persist at least into late adolescence (Braden & Fletcher 1999). Lau, Quadrel & Hartman (1990, p. 242) proposed ‘the enduring family socialisation model’ and describe parental health practices and beliefs (reported by parents at baseline) as being specific predictors of their children’s beliefs.
One longitudinal study has established that childhood intake predicts overweight and obesity later in life (Fiorito et al. 2009). Sweetened beverage intake at five years of age, but not milk or fruit juice intake, was positively associated with adiposity from 5 years until 15 years. This study showed that the association between sweetened beverage intake and adiposity remained significant ($p<0.05$) after control for initial energy intake at age five years. The concept that, even though overweight and obesity may not be present in childhood, poor eating habits developed in childhood are likely to result in overweight and obesity later in life is, therefore, supported.

**g) Childhood growth and parental weight**

In this section, childhood growth patterns and parental weight as risk factors for overweight and obesity will be discussed.

Childhood weights at various ages and growth patterns have been found to relate to overweight and obesity risk. Times of intensive growth including gestation, early infancy, adiposity rebound and puberty are critical periods in childhood for the development of overweight and obesity (Baird et al. 2005; Dietz 1994; Magarey et al. 2003; Reilly et al. 2005; Toschke, Beyerlein & von Kries 2005). Adiposity rebound is a term used to describe the early childhood increase in body mass index (BMI) or increase in body fat which usually occurs around ages 3–7 years. Early adiposity rebound is associated with increased body fatness at age seven (Reilly et al. 2005), in adolescence (Rolland-Cachera et al. 1984) and in adulthood (Rolland-Cachera et al. 2006). In a review of studies considering rapid weight gain within the first 12 months and later overweight and obesity, Stettler (2007) concluded that current evidence was insufficient to demonstrate origins of overweight and obesity during infancy or to change public health recommendations, but that the potential for overweight and obesity prevention during infancy is promising.

However, interventions to curb infant overweight and obesity may be effective as rapid early weight gain before two years of age is associated with increased risk of overweight in later childhood (Ong & Loos 2006; Monteiro & Victora 2005; Stettler et al. 2002). Rate of weight gain, increased weight for length, BMI, or measurements of adiposity during the first two years have been positively associated to BMI and/or adiposity during the preschool years (Dattilo et al. 2012) and most excess weight gained before puberty is gained by the age of five years (91 per cent girls, 70 per cent boys) (Gardner et al. 2009).

Strong evidence indicates that having overweight or obese parents raises the risk of overweight and obesity, independent of genetic factors (Reilly et al. 2005; Whitaker et al. 1997; WHO 2002); however, the association between parental and child weight may not be evident until after preschool years (e.g. Whitaker et al. 2000). Also, childhood overweight and obesity persist into adulthood (Serdula et al. 1993; Venn et al. 2007).
This review of literature regarding risk factors for overweight and obesity concludes that the focus on the eating behaviours of young children is appropriate. More specific examination of influences of primary caregivers on children’s eating behaviours and weight will be presented in Sections 2.3 and 2.4. This section concludes with a discussion regarding the interventions undertaken to address childhood overweight and obesity and highlights the salient role of the primary caregiver.

2.2.5 Interventions to treat and prevent childhood overweight and obesity

In this section, research regarding interventions aimed at treatment or prevention of childhood overweight and obesity is presented. This section further justifies why ‘prevention is better than cure’ and why primary caregivers of young children have a key role in overweight and obesity prevention.

As the risk factors for overweight and obesity are multi-factorial, there is also no doubt that the solution to the problem is multi-sectoral – upstream, midstream and downstream (Lee & Kotler 2011) – requiring the efforts of governments, international agencies, the media, communities, the food industry and consumers (McGinnis 2006; WHO 2000). A call has been made recently that priority actions be upstream and should include policies to improve the food and built environments, cross-cutting actions (such as leadership, healthy public policies and monitoring), and that much more funding should be provided for prevention programs (Gortmaker et al. 2011). Justification for such a call (Gortmaker et al. 2011) and considerations (Crowle & Turner 2010) are beyond the scope of this literature review. Briefly however, considerations of downstream impact include awareness of weight bias and avoidance of the suggestion that the population is failing to take enough ‘personal responsibility’ (Schwartz & Brownell 2007). Another consideration is the concern of some health professionals that dramatic environmental and policy changes to decrease overeating and inactivity may lead to an increase in our societal preoccupation with dietary restraint and worsening body image, thereby increasing the incidence of eating disorders (Schwartz & Henderson 2009).

The complex aetiology of overweight and obesity and limited success in their treatment have been long recognised (Brownell & Wadden 1992). As recently as 2005, the evidence base for prevention and treatment strategies used for addressing childhood overweight and obesity across a range of countries and child ages, was considered to be limited (Campbell et al. 2001; Summerbell et al. 2005). A more recent review of studies from the United States, Canada, Europe and Australasia reported small effects from dietary and physical activity interventions for treatment of childhood overweight and obesity (Oude Luttikhuis et al. 2009).

The strategy to prevent adult overweight and obesity by focusing more attention on the development of overweight and obesity in children is not new. In fact, as early as 1985 scholars recognised ‘it is not
advantageous to wait until an obese child becomes an adult and then attempt to achieve ideal weight’ (Epstein, Wing & Valoski 1985, p. 363). In 2005, evidence suggested that many diet and exercise interventions to prevent overweight and obesity in children (predominantly school-based) are not effective in preventing weight gain, but can be effective in promoting a healthy diet and increased physical activity levels (Summerbell et al. 2005). At that time, few programs (6 per cent) addressed the 0–5 year age range despite upward crossing of weight centiles being recognised as a risk for overweight and obesity; and even fewer programs (3 per cent) were conducted in the home, a pivotal setting for greater involvement of family, whose involvement is being recognised as crucial to the success of treatment and prevention programs (Flynn et al. 2006).

The role of primary caregivers is demonstrated in interventions. Two clinic-based programs targeting older children (6–12 years) have shown that using parents as the agents of change is very effective (Golan & Crow 2004; Golan, Fainaru & Weizman 1998; Golan & Weizman 2001; Epstein et al. 2001). One program in particular demonstrated that using parents as the agents of change was more effective in managing childhood overweight compared with a child-only approach (Golan, Kaufman & Shahar 2006), and this program has provided evidence that this approach was superior in the long term (7 years) (Golan & Crow 2004). There has also been success in the treatment of pre-pubertal children with parenting skill training combined with promoting a healthy lifestyle, that is, at 12 months (six months after program completion) (Golley et al. 2007). Similarly, in a study involving obese 8–12-year-old children and their parents, parental BMI change has been found to be a predictor of child BMI change at six and 24 months after participation in family-based weight control programs (Wrotniak et al. 2004).

In a later review of literature regarding interventions to prevent childhood overweight and obesity published between 1995 and mid-2008 (Hesketh & Campbell 2010), the increase in publications focusing on children between the ages of birth and 5 years was noted. Many of the studies reported in the preschool/childcare setting showed no evidence of effect on behaviours that contribute to overweight and obesity despite, in many cases, strong study designs. The reviewers made conclusions highly relevant to this thesis; a) that during these early childhood years, parental involvement is important and perhaps vital for observable and lasting changes to be effected in childhood behaviour and b) that interventions which showed evidence of success in positively impacting weight and/or behaviours that contribute to overweight and obesity were designed to impact not only on parent and other caregiver knowledge but also on skills and competencies suggesting a social behavioural theory underpinning.

Hesketh and Campbell (2010) criticised the studies reviewed for several reasons including their lack of generalisability (two-thirds were conducted in the United States and about half targeted
socioeconomically disadvantaged families); a common limitation was failure to report data on the
cost-effectiveness of the intervention programs evaluated and a lack of theoretical underpinning of
their interventions. However, the studies reviewed did support the premise that parents and caregivers,
even those most at risk of rearing children who will become overweight or obese, are receptive to
intervention programs and, in some cases, can be supported to make positive changes to dietary,
physical activity, and sedentary behaviours of their young children. Another recent review shows that,
despite the emerging observational evidence for the role of parenting in children’s weight-related
outcomes, few interventions have been developed that address general parenting in the prevention of
childhood overweight and obesity (Gerards et al. 2011).

As the literature points to the role of primary caregiver it also points to intervention for children of
younger ages. Ciampa et al. (2010) reviewed studies that evaluated an intervention designed to
prevent or reduce overweight or obesity in children younger than two years. Only 10 studies met
study inclusion criteria. Eight studies used educational interventions to promote dietary behaviours,
and two studies used a combination of nutrition education and physical activity. Study settings
included home (n = 2), clinic (n = 3), classroom (n = 4), or a combination (n = 1). Intervention
durations were generally less than six months and had modest success in affecting measures, such as
dietary intake and parental attitudes and knowledge about nutrition. No intervention improved child
weight status. Studies were of poor or fair quality (median quality score, 0.86; range, 0.28–1.43)
(Chiampa et al. 2010).

In their review of the parental variables targeted in interventions designed to modify risk factors for
overweight and obesity in children aged 2–6 years, Skouteris et al. (2011) concluded that the scientific
study of this area is in its infancy but results suggest that the modification of parental variables known
to be associated with overweight and obesity-promoting behaviours in preschool children may show
promise as an obesity prevention strategy.

Further evidence supports the call for primary caregiver involvement in intervention into childhood
overweight and obesity. It comes from the perspective of mental health; in a review of published
research on psychiatric aspects of child and adolescent overweight and obesity. Zametkin et al. (2004)
found that the most effective treatments include substantial parental involvement. The crucial role of
the primary caregiver is acknowledged by children themselves in that the majority of children believe
their primary caregivers play the greatest role in helping them eat healthily, and over two-thirds of the
children claim that their primary caregivers are the most important source of information regarding
food-related issues (Neumark-Sztainer et al. 1999; McCullouch, Yoo & Ainsworth 2004).
Additionally, and with relevance to this thesis, the call for primary caregiver involvement comes
regarding self-regulation. In a paper proposing that weight gain and overweight and obesity are
inevitable outcomes of the mismatch between our evolutionary endowment and modern lifestyle in
developed countries, Lowe (2003) surmises that treatment and prevention programs that focus on
improving self-regulation skills will be unable to sufficiently modify energy intake and energy
expenditure to ameliorate or prevent overweight or obesity, except through programs that include
parents as agents of change.

The focus on very young children and the role of primary caregivers is certainly increasing. The
recent Dattilo review (2012, p. 1) concludes that the genesis of overweight and obesity:

occurs in the first years of life as feeding patterns, dietary habits, and parental feeding
practices are established. Obesity prevention evidence points to specific dietary factors,
such as the promotion of breastfeeding and appropriate introduction of nutritious
complementary foods, but also calls for attention to parental feeding practices,
awareness of appropriate responses to infant hunger and satiety cues, physical
activity/inactivity behaviours, infant sleep duration, and family meals. Interventions that
begin at birth, targeting multiple factors related to healthy growth, have not been
adequately studied.

The recognition that metabolic and behavioural patterns are often established within the first years of
life has been exemplified by development of individual patient data (IPD) prospective meta-analyses
(PMA). Such an IPD PMA is the Early Prevention of Obesity in Children (EPOCH) Collaboration
which has been initiated where four randomised controlled trials (RCTs) have been identified for
inclusion in analysis, where analysis and selection methods and selection criteria have been specified
a priori (Askie et al. 2010). One of the four RCTs in the EPOCH Collaboration is the NOURISH trial
often referenced in this thesis (Daniels et al. 2009). The main questions that will be addressed by the
EPOCH Collaboration expecting a final sample size of 1800 infants are:

- Do early intervention programs designed to prevent childhood obesity, compared with usual care,
  offer clinically important benefits in terms of lower BMI z scores at age 18–24 months; higher
  prevalence of breastfeeding; better children’s dietary quality; less child TV viewing time and
  higher prevalence of parenting styles and feeding practices that are consistent with effective self-
  regulation and development of healthy weight status?

- Do the effects of early interventions to prevent childhood obesity differ according to the risk
  profile of the infants and their families in terms of birth weight, maternal education, maternal
  BMI and maternal smoking status?

- Do the intervention effects differ according to a) mode of delivery (home, clinic or community-
  based), b) intensity (number/frequency of sessions), c) whether the intervention commenced
antenatally or after birth, and d) the extent of ‘well-child’ early childhood services already offered in the community?

In 2012, WHO developed a set of tools for member states to determine and identify priority areas for action in the field of population-based prevention of childhood obesity. The tools are intended to facilitate a prioritisation process that is both systematic and locally relevant. Three priority-setting approaches are described in the document: the WHO Stepwise Framework for Preventing Chronic Disease, the Modified Problem/Solution Tree (mPAST) process and the ANGELO (Analysis Grid for Elements Linked to Obesity) process (WHO 2012b). Most appropriate for incorporation of the results of this thesis is the ANGELO process as it enables categorisation and scanning of the environment for potential environmental barriers to healthy eating and physical activity. It examines four environments – physical, economic, policy and sociocultural.

In summary, this section has highlighted the general ineffectiveness of treatment of childhood overweight and obesity whilst demonstrating the growing awareness of a focus on young children and the role of primary caregivers. The need for evidenced-based solutions is reflected in the comprehensive and systematic research currently underway and flexible tools available.

### 2.2.6 Section summary – Overweight and obesity

In summary of Section 2.2, the prevalence of overweight and obesity is generally increasing in both adults and children, worldwide and in Australia, impacting on chronic disease and escalating health costs. Prevention is the solution to the problem – not only prevention of childhood overweight and obesity but a focus on young children’s eating behaviours is appropriate. The salient role of primary caregivers of young children has been demonstrated. How primary caregivers influence young children’s eating behaviours is presented next.

### 2.3 How primary caregivers influence young children’s eating behaviours

In Section 2.2, the complex aetiology of overweight and obesity was presented; their prevalence, health effects and financial costs were also discussed. The literature presented in the previous section identified that priority actions include prevention; that young children are an appropriate target; and that primary caregivers of young children have a seminal role. This section presents literature regarding how primary caregivers influence young children’s eating behaviours.

Section 2.3 commences with discussion of children’s self-regulation of energy intake and food preference as it is through these child predispositions that many primary caregiver influences are mediated.
2.3.1 Child predispositions

As depicted in Figure 2.2 primary caregiver influences on children’s eating behaviours are commonly mediated by a) children’s self-regulation of energy intake and b) children’s food preferences. Research regarding neophobia and ‘fussy’ eating is also presented as these issues impact on primary caregivers’ behaviours and are salient to this thesis.

**Figure 2.2  Child predispositions mediating primary caregivers’ behaviours**

<table>
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<tr>
<th>Primary caregivers’ behaviours</th>
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<tr>
<td>Section 2.3.1 Child predispositions</td>
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<tr>
<td>Self-regulation of energy intake</td>
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<tr>
<td>Children’s food preferences</td>
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<tr>
<td>Young children’s eating behaviours</td>
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*Source: Developed for this research.*

**a) Self-regulation of energy intake**

Self-regulation refers to the ability for children to regulate their energy intake. Self-regulation of intake in infancy is in response to internal hunger and satiety cues (Birch et al. 1991). There is evidence of the existence of self-regulation of energy intake in children with the adjustment of the intake of breast milk (Adair 1984) and formula (Fomon et al. 1969). Evidence from experimental and cross-sectional studies suggests that children under five years have the ability to self-regulate energy intake (Birch & Deysher 1986; Birch et al. 1991; Fox et al. 2006). Although there is evidence that self-regulation is present at age 2–3 years (Rolls, Engell & Birch 2000) evidence further indicates that this ability is diminishing as early as age two years (Fox et al. 2006).

Despite this theoretical knowledge regarding self-regulation of energy intake, a recurrent theme in this thesis – and acknowledged repeatedly in the literature – is the desire of primary caregivers for young children to eat more or ‘enough’ as determined by the primary caregiver. Reports of primary caregivers coaxing or coercing their child to eat more have been made across infancy from 12–36 months (Chan 2005), in children aged 3–5 years (Moore, Tapper & Murphy 2007) and 5–6-year-old children (Orrell-Valente et al. 2007). In the pilot study for the Australian randomised control trial NOURISH, (n= 361 primary caregivers of toddlers aged 12–36 months), 75 per cent self-reported
coaxing or coercing the child to eat more; only 56 per cent interpreted general food refusal as satiety; and 40 per cent at least sometimes used food as a reward with more primary caregivers being concerned about their child being underweight (22 per cent) than overweight (9 per cent) (Chan 2005). Other research highlights primary caregiver feeding strategies with the objective of the child eating more (Birch 1999; Pagnini et al. 2007). Such strategies include deliberately increasing the amount of food put on children’s plates, playing games with the foods, having children participate in cooking, role modelling, hiding vegetables and repeated exposure.

In summary, evidence suggests that a goal of primary caregivers is for young children to eat ‘more’ despite the existence of children’s ability to self-regulate their energy intake. The other child capability through which primary caregivers’ behaviour is mediated is children’s food preference.

b) Children’s food preference

In this section firstly the importance of preference as a determinant of intake is established and, secondly, preference development is explored. Thirdly, as it is linked with preference development, research regarding ‘fussy eating’ is also presented.

i) Food preference is a major determinant of food intake

Children simply ‘eat what they like’; children’s food preferences are highly predictive of their intake (Baxter & Thompson 2002; Birch 1979b; Drewnowski 1997; Gibson, Wardle & Watts 1998; Perez-Rodrigo et al. 2003; Resnicow, Baranowski & Hearn 1997) and children’s food preferences determine the food made available to them (Campbell, Crawford & Hesketh 2006). However, foods that 2–8-year-old children like most are rarely of high nutritional value (Skinner et al. 2002; Wardle et al. 2001). Intake of non-core foods by 16-24-month-old Australian children is concerning; non-core foods providing 27 per cent of energy intake (Webb et al. 2006).

Although, as children grow up, their preference for most foods including vegetables increases (Nicklaus et al. 2004), food preferences that develop in childhood are reflected in food choices made later in life (Cusatis et al. 2000; Kelder et al. 1994; Nicklaus et al. 2004; Resnicow et al. 1998; Singer et al.1995). The strong relationship between familiarity and preference has been emphasised with researchers finding that the number of foods liked decreases with age as a function of the number of foods tried, thus interpreting that the foods that children try later in life are intrinsically less likeable than those commonly offered to younger children (Cooke & Wardle 2005). Therefore, establishing a preference for healthy food in childhood is paramount to establishing healthy eating habits and reducing the risk of overweight and obesity later in life.
ii) Food preference development

Considering these issues, it is highly relevant for this thesis that the genesis of food preference is understood. Research reveals the complex interplay of innate, physiological and environmental factors which shape children’s food preferences. A discussion of innate and physiological factors follows while environmental influences on children’s preference development are discussed in Section 2.3.

Firstly, it is recognised that the human response to some tastes is innate (Birch 1999; Cowart 1981) and that the hereditability of food preferences is negligible when compared to the effect of experience (Breen, Plomin & Wardle 2006; Greene, Desor & Millar 1975; Rozin & Millman 1987). Secondly, understanding preference development requires an understanding of food neophobia (Rozin 1976). Food neophobia is generally regarded as the reluctance to eat, or the avoidance of, new foods. This is in contrast to ‘fussy’ eaters who reject familiar foods (Dovey et al. 2008). Food neophobia, which is widespread among omnivorous species, has been described as an efficient behavioural strategy to cope with the ‘omnivore’s dilemma’ (Rozin 1977). Omnivores need to be cautious regarding novel foods in order to avoid the risk of ingesting poisonous substances (Milton 1993). Some propose that neophobia is not a functional response during infancy when food is provided by primary caregivers, but it provides important protection when children have begun to explore the environment and eat by themselves (Birch, Gunder & Grimm-Thomas 1998; Cashdan 1994; Cooke, Wardle & Gibson 2003). Moreover, higher levels of neophobia in 2–6-year-old children were associated with lower consumption of vegetables, fruit and meat (Cooke, Wardle & Gibson 2003), which are the most potentially dangerous foods given the possible presence of plant toxins and food poisoning bacteria (Cashdan 1998; Kalat & Rozin 1973).

Evidence supports that neophobia is influenced genetically (Knaapila et al. 2007) but of more relevance to this research is its pattern of influence. Children aged 2–5 years are more neophobic than infants (4–7 months old). From a low baseline at the age of introduction of solids (approximately six months), neophobia increases sharply as a child becomes more mobile, reaching a peak between 2 and 6 years of age (Addessi et al. 2005; Cashdan 1994; Cooke, Wardle & Gibson 2003) then decreases as the individual ages until it is relatively stable in adulthood (McFarlane & Pliner 1997).

Seemingly aligned with this pattern of influence of neophobia is work based on children’s cognitions about foods. Infants learn to like the foods given to them during the first year of life (Harris 1993). The easiest time to get an infant to accept new foods is during the period from 14-20 weeks, which seems to be a ‘window of optimal acceptance’ (Harris, Blissett & Johnson 2006, p. 149). During this first year the child progresses from a learned preference, based on taste and smell, to a preference based on the way food looks. In the second year, the child moves to a conceptual stage (Harris 1997); foods are grouped into conceptual categories mediated by a verbal label. At this age, new foods may
well be rejected on sight without having been tasted (Birch 1989). By the time this stage has been reached, the introduction of new foods becomes more difficult; the most effective way then is through modelling of eating behaviour. From the age of 14 months, new foods tend to be tried only if adults are seen to be eating them rather than if they are just offered to the child (Harper & Sanders 1975).

This cognitive approach supports the work by Cooke and Wardle (2005) and emphasises the importance of early introduction of a variety of foods – ideally before approximately 14 months to optimise acceptance and develop a preference for a broad range of foods. In addition, the peak phase of neophobia occurring between the ages of 2–6 years makes it increasingly difficult to widen the range of the child's diet, particularly if the introduction of new foods has been poor for the first three or four years of a child's life (Harris, Blissett & Johnson 2006).

Research regarding the variety of foods reflects the pattern of intake determined by neophobia. During the second year of life, both mother’s practices and infant’s acceptance pattern for a variety of foods track from the first year of life (Skinner et al. 1997). During the third year of life, children’s quantitative needs increase but might be covered by a narrower selection of foods, with a focus on preferred foods (Nicklaus, Boggio & Issanchou 2005; Nicklaus et al. 2005). The decrease in variety of food choices at this age is occurring with the appearance of food refusals and the development of food neophobia (Dovey et al. 2008). After the third year of life, previously acquired food behaviour tends to track over time, in particular in relation to the variety of the diet. Children whose diets were varied at 27 months of age still have varied diets at the age of 60 months (Cox et al. 1997). At the end of the second year, behaviours such as food refusal, food neophobia or ‘fussiness’ start to appear (Dovey et al. 2008). Taken together, this suggests that food variety, one of the features of human food behaviour, develops over time from infancy to childhood. It rises slowly from the start of introduction of solid foods into the infant’s diet before peaking around the age of 2½ years, and then it slightly decreases until the age of eight years when neophobia has ceased (Dovey et al. 2008).

The habit of eating a variety of foods (acquired before the neophobic phase) tracks further on into childhood, adolescence and early adulthood. This underlines the importance of promoting the access to a variety of foods in early childhood. Eating a varied diet offers a nutritional advantage, but it is also recognised that providing a variety of foods generally stimulates food intake and, therefore, might favour overweight and obesity. Experimental studies have shown a positive relationship between the variety of foods offered during a meal and food intake (Hetherington et al. 2006; Pliner et al. 1980; Rolls et al. 1981; Rolls, van Duijvenvoorde & Rolls 1984; Stubbs et al. 2001), and that limiting variety across days tends to reduce food intake (Raynor & Wing 2006). More research is needed to understand the link between variety and overweight and obesity, which might be food-
The variety of energy-dense foods might be more involved in the development of overweight and obesity than the variety of foods such as fruits or vegetables.

iii) ‘Fussy’ eating

‘Fussy’ eating is behaviourally and theoretically distinct from food neophobia (Pelchat & Pliner 1986; Pliner & Hobden 1992). Food neophobia can remain as a part of a ‘fussy’ eater’s behavioural profile (Pelchat 1996), while ‘fussy’ eating is not a part of food neophobia.

Problems associated with eating appear to be common in early childhood, but less frequent in older children. Primary caregivers report an increased perception of their child’s ‘fussiness’ as they age to two years (see Carruth et al. 2004; Gilmore 2006).

The nutrient intake of ‘fussy’ eaters appears to reflect that of ‘non-fussy’ eaters in most aspects of their diet. There are, however, some distinct differences between the two groups. ‘Fussy’ eaters consume fewer amounts of foods containing vitamin E, vitamin C, folate and fibre – probably due to their lower consumption of fruits and vegetables (Galloway et al. 2005) – compared to ‘non-fussy’ eaters. Although a reduced intake of fruit and vegetables is common to both ‘fussy’ eaters and children with neophobia, a difference is that the diets of children with neophobia are also likely to be low in meats and fish. Another contrasting characteristic between children exhibiting food neophobia and ‘fussy’ eaters is that ‘fussy’ eaters do not appear to compensate for the lack of fruits and vegetables through consuming higher amounts of fat or sweets (Galloway et al. 2005).

A longitudinal study of children from ages two to five years found that ‘fussy’ eaters were twice as likely to be underweight at 4.5 years as children who were never ‘fussy’ eaters; overeaters were six times more likely to be overweight at 4.5 years than were children who were never overeaters (Dubois et al. 2007). This complies with the suggestion by Galloway et al. (2005) that genuinely ‘fussy’ eaters are not at risk of establishing habits of over-consumption of energy-dense, highly palatable foods, eventually culminating in excessive weight gain; but children who are experiencing neophobia mistakenly labelled as being ‘fussy’ eaters (Daniels et al. 2012), are more likely to develop such habits (Lewinsohn et al. 2005). Further evidence suggests that neophobia, but not ‘fussy’ eating, is modifiable by experience. Galloway, Lee and Birch (2003) found that in contrast to neophobia, ‘fussy’ eating in children was predicted primarily by environmental or experiential factors such as being breastfed for less than six months, having mothers with less variety in their vegetable intake, and having mothers who perceived their family to have little time to eat core foods.

In summary, this section has provided evidence that establishing a preference for healthy food in childhood is paramount to establishing healthy eating habits later in life and that early introduction of a variety of foods – ideally before approximately 14 months – will optimise acceptance and develop a
preference for a broad range of foods. Characteristics of ‘fussy’ eating and neophobia were presented. Additionally, ‘fussy’ eating in contrast to neophobia is not readily modified by experience but current evidence suggests that neophobia – a normal adaptive response – may be labelled ‘fussy’ eating and that such children may be at risk of establishing a preference for energy-dense foods.

Primary caregiver behaviours – modelling and feeding practices – and how these behaviours impact on children’s eating behaviours will be discussed.

2.3.2 Primary caregivers’ behaviours

This section presents research regarding primary caregivers’ behaviours: a) modelling eating behaviours and b) feeding practices. See Figure 2.3 below.

**Figure 2.3  Primary caregivers’ behaviours**

Source: Developed for this research

a) Modelling eating behaviours

The extant literature regarding modelling of eating behaviours is now presented under the following sub-headings i) modelling – teaching eating behaviours; ii) modelling is effective, iii) eating together and iv) modelling and child weight. As their influence is predominantly through modelling, research regarding the influences of v) primary caregivers’ partners and vi) children’s siblings will also be briefly presented in this section.

i) Modelling – teaching eating behaviours

Modelling is a normal aspect of children’s learning to eat. It is at around the age of 12 months that human infants begin to tune their attention to the behaviour of adults and spontaneously do what others are doing (Tomasello 1999). When an individual eats in the presence of others who are eating, they eat more than when eating alone (de Castro & Brewer 1992; Redd & de Castro 1992). In the

As discussed in Section 2.3.1, the primary dietary goal of many primary caregivers of young children in Western culture is for the child to eat more or ‘enough’ as determined by the primary caregiver. Modelling food consumption through adult, peer and sibling models has been shown to be an effective means of encouraging consumption (e.g. Birch 1980; Harper & Sanders 1975; Hendy & Raudenbush 2000) and modelling of eating is recognised by primary caregivers as being a strategy for increasing intake in preschool aged children (Moore, Tapper & Murphy 2007).

ii) Modelling is effective
A review of the literature concluded that eating core foods modelled by primary caregivers is positively associated with eating of core foods by children (up to 18 years of age) (Brown, Scragg & Quigley 2008). Numerous cross-sectional studies, including those of ethnically diverse populations, revealed that the extent to which primary caregivers practise eating core foods and make core foods readily available correlates positively with children's core food eating behaviours (see Birch, Fisher & Smiciklas-Wright 1999; Campbell, Crawford & Ball 2006; Fisher et al. 2001; Galloway, Lee & Birch 2003; Gibson, Wardle & Watts 1998; Johnson, Panely & Wang 2001; Reynolds et al. 1999; Rozin 1990; Tibbs et al. 2001; Wardle, Carnell & Cooke 2005; Wind et al. 2006). Also, longitudinal observational studies support cross-sectional evidence that modelling of intake and availability of core foods both predict healthier diets in children over time (see Cullen et al. 2003; Fisher et al. 2004). There is evidence for the effects of primary caregiver modelling persisting from early childhood into adolescence (see Hanson et al. 2005; Keski-Rahkonen et al. 2004).

However, the effectiveness of modelling is also enhanced by positive social responses that are tied to the food. Children’s food preferences are shaped by other factors of the experience, such as foods being offered in a positive context (Birch, Zimmerman & Hind 1980; Martins, Pelchat & Pliner 1997; McFarlane & Pliner 1997; Pelchat & Pliner 1995). For example, Hendy and Raudenbush (2000) demonstrated that enthusiastic comments made by a teacher about the targeted food were associated with greater acceptance and consumption of the new food by preschool children. Also primary caregivers often act anxiously when feeding children healthy food (e.g. vegetables) and excitedly when giving less healthy foods, such as ice cream (Jebb, Steer & Holmes 2007). As they are revealing their opinion of the food, it is important to raise awareness amongst parents of the power of such unconscious actions (Hart et al. 2003).
Other research indicates that modelling by primary caregivers is more influential than the effect of advertising (Bolton 1983); that adult modelling of eating behaviour is more effective than prompts to eat (Harper & Sanders 1975); and that a positive primary caregiver role model may be a better method for improving a child’s diet than attempts at dietary control (Brown & Ogden 2004).

iii) Eating together

The frequency of the family eating meals together is associated with health promoting eating behaviours and a reduced risk of overweight and obesity especially in younger children. Children who have companionship at mealtimes tend to eat more servings of core foods (Stanek, Abbott & Cramer 1990). The frequency of the family eating meals together is associated with health promoting eating patterns including consumption of more fruit and vegetables, grains and calcium-rich foods (Campbell, Crawford & Ball 2006; Gillman et al. 2000; Neumark-Sztainer et al. 2003) and negatively associated with soft drink consumption (Neumark-Sztainer et al. 2003). The more meals the child shares with the ‘family food preparer’ (FFP), the stronger the relationship of FFP fruit and vegetable intake with child fruit and vegetable intake (Hannon et al. 2003); but the frequency of children eating dinner with the family decreases as the child ages from 9 to 14 years (Gillman et al. 2000). The frequency of a child’s participation in shared family meals per week has been inversely associated with overweight, obesity or increased risk of overweight in preschool age children (Anderson & Whitaker 2010; Hammons & Fiese 2011).

Research regarding primary caregivers’ appreciation of eating meals together as a strategy for modelling is discrepant. Moore, Tapper and Murphy (2007) suggest its value is recognised; whilst Campbell, Crawford and Hesketh (2006) suggest that primary caregivers valued eating together more for other reasons. Single-parent families and low-SES families have been found to be less likely to eat together (Orrell-Valente et al. 2007). Dwyer et al. (2008) found that primary caregivers of 2–5-year-old children claim that they do not have time to eat together as a family and that hungry children are not able to wait for dinner.

iv) Modelling and child weight

Research seeking associations between modelling of eating behaviours and weight of young children is limited, and research involving older children has discrepant findings. However, overall the association between primary caregivers’ modelling of health promoting eating behaviours and children’s health promoting eating behaviours does seem to extend to a reduced risk of childhood overweight and obesity.

Kröller and Warschburger (2008), found no association between primary caregivers’ modelling of low HFSS eating behaviours and weight status of children aged 3–6 years. Similarly, despite identification of the perception that eating together is associated with a reduced risk of overweight and
obesity, a US study found no association between the number of times a family actually ate together and the risk of overweight and obesity in children five years and 14 years of age (Mamun et al. 2005). In contrast however, Veugelers and Fitzgerald (2005) found the risk of being overweight was reduced in 10–11-year-old children who ate the evening meal together with their family three or more times a week; and in a large sample of 9–14-year-old children the frequency of eating family dinner was inversely associated with overweight prevalence at baseline but not with likelihood of becoming overweight three years later (Taveras et al. 2005).

In their cross-sectional study involving 183 mothers of 2–4-year-old children, Gregory, Paxton and Brozovic (2010) concluded that, although primary caregivers are aware of the function of modelling in enhancing child food consumption, it is not used by primary caregivers when they are concerned regarding their child’s weight.

v) Primary caregivers’ partners

This section presents research regarding the direct influence of children’s fathers on their eating behaviours; differences in single versus two parent families; and the influence of primary caregivers’ partners on primary caregivers.

The research regarding the impact of fathers’ behaviours on their children’s eating behaviours or weight is meagre but what exists suggests that, in young children, the paternal role has a minor impact when compared to that of the mother. In a study of 3–5-year-old children, the children’s weight was related to the mothers’ BMI but not the fathers’ (Johannsen, Johannsen & Specker 2006); mothers’ food neophobia scores, but not fathers’, were positively associated with food neophobia scores of their seven-year-old daughters (Galloway, Lee & Birch 2003); and fathers tended to use pressure tactics with boys whereas mothers praised girls for eating (Orrell-Valente et al. 2007). The role of fathers seems more evident as children become older (Eme & Danielak 1995; Stein et al. 2005; Striegel-Moore & Kearney-Cooke 1994; Swarr & Richards 1996; Vincent & McCabe 2000).

Primary caregivers have the opinion that their partners are poor role models (Reed 1996; Reicks, Randall & Haynes 1994) and their behaviour is tolerated to varying extents by primary caregivers (Pettigrew & Roberts 2007). However, there is very little known about the influence of fathers via the primary caregiver on children’s eating behaviours although approval of partner/spouse has been found to predict introduction of solids at six months (Hamilton et al. 2011).

Research regarding overweight and obesity rates of younger children in single rather than dual parent households is not available; however, children aged 5–13 years in single parent households are at greater risk of overweight and obesity (Danielzik et al. 2004; Gibson et al. 2007). An observational study of primary caregivers and their kindergarten age children at mealtime, however, has identified
that single mothers made as many total attempts to encourage children to eat compared with mothers and fathers from two parent families combined (Orrell-Valente et al. 2007).

vi) Children’s siblings
Peers and siblings impact both positively and negatively on the preferences and intake of children (Birch 1980; Dwyer et al. 2008; Salvy et al. 2008). This effect seems to be directly on the child but, where siblings are cited as being poor role models (Hart et al. 2003), it seems reasonable to presume that the influence of the sibling is at least partly mediated through the primary caregiver. The work of Anderson, Winett and Wojcik (2000) also suggests that a child with siblings will have a less healthy diet; adult participants with children or more children tended to have less healthy nutrition behaviour.

In summary, modelling is a highly effective strategy for promoting behaviours in children, particularly if the modelling is coupled with positive social responses. Primary caregivers use modelling to increase children’s food consumption. As modelling is an effective strategy to promote healthy eating behaviours in children, it is also effective in promoting undesirable behaviours. Research suggests that modelling is more effective than other influences on children’s eating behaviours but modelling is not used by primary caregivers even when they are concerned regarding their child’s weight.

b) Primary caregiver feeding practices
As presented in Figure 2.3, the other area of interest is ‘primary caregivers’ feeding practices’. This section presents the extant literature regarding the influences of primary caregiver feeding practices on children’s eating behaviours and weight. Firstly, research is presented that primary caregivers are motivated to conduct particular feeding practices such as pressure to eat in response to concerns and children’s eating behaviours. Secondly, research is presented regarding specific feeding practices: i) exposure to foods, ii) availability of foods, iii) pressure to eat, iv) use of food as bribe or reward to accomplish feeding goals and v) restriction of food.

Primary caregivers who perceive their 3–11-year-old children to be overweight report using less pressure to eat (Brann & Skinner 2005; Fisher & Birch 1999a; Francis, Hofer & Birch 2001; Kasemsup & Reicks 2006; Keller, KL et al. 2006; Ogden, Reynolds & Smith 2006) and primary caregivers who perceive the child to be thin or as being ‘fussy’ eaters are more likely to report use of pressure to increase the child's intake (Carruth et al. 1998; Farrow, Galloway & Fraser 2009; Galloway, Lee & Birch 2003). Even within families this variation has been identified (Keller, KL et al. 2006).

These findings indicate that child-feeding practices are influenced by the perceived weight status of the child (Birch & Fisher 2000) but others have found no association between restrictive practices and
the child’s actual weight in 2–6-year-old children (Crouch, O’Dea & Battisti 2007; May et al. 2007). A confounding factor in studies based on primary caregiver concern regarding their children’s weight status is that primary caregivers have been found to be poor at accurately identifying weight status in their 2–5-year-old children (Carnell et al. 2005; Jain et al. 2001; May et al. 2007; Sherry et al. 2004). However, a consistent association has been found between the actual weight of children at 11–17 months, mother’s perception of her child’s weight status (underweight or overweight), and her concern about the child either becoming underweight or overweight (Daniels et al. 2010).

i) Exposure to foods

Increased tolerance to certain flavours has been found to be associated with exposure to certain flavours as early as before birth via the amniotic fluid and breast milk (Mennella et al. 2001; Sullivan & Birch 1994). Repeated exposure increases preference for and intake of novel foods (Birch 1999; Birch & Marlin 1982; Birch et al. 1987; Koivisto, Fellenius & Sjoden 1994; Liem, Mars & de Graaf 2004; Maier et al. 2007b; Sullivan & Birch1990; Sullivan & Birch 1994; Wardle et al. 2003).

Repeated exposure, at least five to ten times, may be required for acceptance of novel core foods, (e.g. fruit and vegetables) (Birch 1999; Satter 1990). Repeat exposure to HFSS foods also enhances their acceptance (Birch 1998) and even very young children have high levels of exposure to these foods, e.g. US infants (4–24 months) (Devaney et al. 2004; Grzywacz et al. 2010) and Australian children (1–4 years) (Bell et al. 2005; Chan 2005; Webb et al. 2006).

Additionally, there is evidence that children are not being repeatedly exposed to new foods (Carruth et al. 2004; Maier et al. 2007b), particularly children considered to be ‘fussy eaters’ who may be exposed to new foods only two to three times (Carruth et al. 2004). However, results from the NOURISH intervention trial indicate that training of mothers of 14-month-old children resulted in an increased rate of reoffering refused food (L Daniels 2011, pers. comm., 11 May).

ii) Availability of food

Children generally choose to eat the foods that they were served most often, and they tend to prefer to eat foods that are readily available in the home (Baranowski, Cullen & Baranowski 1999; Birch 1992; Birch et al.1987a; Birch & Marlin 1982; Pliner 1982; Reinaerts, de Nooijer & de Vries 2007 2007). The association between availability and accessibility of foods and children’s intake of those foods is shown for fruit and vegetables (Cullen et al. 2003; Hearn, Baranowski & Baranowski 1998; Kratt, Reynolds & Shewchuk 2000; Neumark-Sztainer 2003; Reynolds et al. 1999); soft drinks (Grimm, Harnack & Story 2004); milk (Larson et al. 2006); and HFSS foods (Campbell et al. 2007).
iii) Pressure to eat

Pressure to eat certain foods has been found to result in a reduced preference for those foods. Pressure to consume foods is associated with higher expression of food neophobia (Fisher et al. 2002; Galloway et al. 2005; Wardle, Carnell & Cooke 2005) and, while pressure to eat may be a response to food neophobia, experimental research provides evidence that pressure can result in food dislikes and reduced intake (Galloway et al. 2006). It is suggested that children who are forced to eat certain foods develop a ‘cognitive aversion’ for those foods (Batsell et al. 2002).

Research also indicates associations between pressure to eat and self-regulation of energy intake. Pressuring strategies have been linked to the emergence of dietary restraint and disinhibition in five-year-olds, eating styles characterised by a lack of responsiveness to internal hunger and satiety cues (Carper, Orlet Fisher & Birch 2000).

Some older studies have reported a positive association between primary caregiver pressure to eat and child weight – more pressure to eat is applied to heavier young children (Klesges et al. 1983; Waxman & Stunkard 1980). Other results from observational studies seeking association between pressure to eat/prompting are discrepant (Klesges et al. 1986; Koivisto, Fellenius & Sjöden 1994) suggesting a more complex relationship between primary caregiver prompting and child BMI.

There is cross-sectional evidence for an inverse association between primary caregivers’ use of pressure and child weight; in other words, more pressure is applied to lower weight children (Birch et al. 2001; Brann & Skinner 2005; Carnell & Wardle 2007; Francis, Hofer & Birch 2001; Keller, KL et al. 2006; Matheson et al. 2006; Powers et al. 2006; Spruijt-Metz et al. 2002); including 2-year-old toddlers (Jansen et al. 2012), but the direction of this association is unclear. Longitudinal studies support this association – that pressure to eat is ineffective in resulting in weight gain (Carruth & Skinner 2000; Faith et al. 2004a; Galloway et al. 2005).

More specifically, primary caregiver inattention to children’s hunger or satiety cues has been positively associated with overfeeding or overweight in infants (Kavanagh et al. 2008; Worobey, Islas Lopez & Hoffman 2009).

iv) Use of food as bribe or reward

It is a common finding in child feeding literature that food is used as a bribe or reward to accomplish feeding goals (Campbell, Crawford & Hesketh 2006; Reed 1996; Sherry et al. 2004) or as a reward for desirable behaviour (Morton et al. 1999). However, food used as a bribe or reward results in a decreased preference for the target food (Birch et al. 1982; Birch, Marlin & Rotter 1984; Birch, Zimmerman & Hind 1980; Newman & Taylor 1992) and an increased preference for the food used as the reward (Newman & Taylor 1992). However, when foods are used as rewards in a positive context,
for example, associated with praise, they have been shown to enhance both liking and consumption (e.g. Handen, Mandel & Russo 1986; Horne et al. 2004; Lowe et al. 2004).

Research indicates that training of primary caregivers to avoid use of food as a bribe or reward has been successful in primary caregivers of children aged 14 months (Daniels et al. 2012) but not primary caregivers of children aged 2–5 years (Haire-Joshu et al. 2008). Daniels et al. (2012) also found that children in the control group had higher BMI-for-age z-scores and were more likely to show rapid weight gain from baseline to follow-up. The authors comment that the effectiveness of this technique in older or overweight children, whose ability to self-regulate intake may already be compromised, is unknown.

v) Restriction of foods
Experimental and cross-sectional studies regarding restriction of foods have indicated that restriction leads to increased preference for and intake of the restricted food once the prohibition was lifted (Fisher & Birch 1999; Jansen, Mulkins & Jansen 2007; Liem, Mars & De Graaf 2004). However, there is inconsistency regarding an association between restrictive feeding practices and higher weight status of children. Experimental studies link restrictive feeding practices with higher child weight status (Birch & Fisher 2000; Carper, Orlet Fisher & Birch 2000; Fisher & Birch 1999a; Fisher & Birch 1999b; Fisher & Birch 2000; Johnson & Birch 1994).

Some cross-sectional studies have reported that higher levels of restriction are associated with higher child weight (Fisher & Birch 1999a; Francis, Hofer & Birch 2001; Ogden, Reynolds & Smith 2006), while others have reported no association between primary caregiver restriction and child weight (Carnell & Wardle 2007; Kröller & Warschburger 2008; Powers et al. 2006). These cross-sectional data cannot, however, inform us as to whether restrictive feeding practices are a response to or a cause of higher child weight. Of greater relevance, longitudinal studies have indicated that restrictive practices predict higher weight particularly in children with a predisposition to overweight and obesity (Faith et al. 2004a; Fisher & Birch 2002). Webber et al. (2010), however, found no significant longitudinal associations between child weight and maternal restriction in their study of 7–9-year-old girls, and again three years later. Their results were more consistent with a ‘child-responsive’ model whereby a mother’s choice of feeding practice is influenced by her child’s weight status rather than her feeding practices influencing the child’s weight gain (Webber et al. 2010).

Other researchers have examined the issue of restriction in other ways. Intervention studies into reducing restrictive behaviours have mixed outcomes regarding child weight gain (Harvey-Berino & Rourke 2003; Skouteris et al. 2011). Ogden, Reynolds and Smith (2006) found that greater covert control by primary caregivers of children 4 and 11 years of age predicted a decreased intake of unhealthy snacks, greater overt control predicted an increased intake of healthy snacks. Gregory,
Paxton & Brozovic (2010) suggested that primary caregivers of 2–4-year-old children use pressure to eat and food restriction to control a child’s weight pre-emptively, rather than attempting to modify the child’s current weight status.

2.3.3 Section summary - How primary caregivers influence young children’s eating behaviours

This section has presented research regarding self-regulation of energy intake and food preference being child predispositions through which many primary caregiver influences on young children’s eating behaviours are mediated.

- **Self-regulation of energy intake** is present in young children but feeding practices predict uninhibited overeating and greater weight gain. With training of primary caregivers of very young children, a more appropriate response to food refusal may be attained and may contribute to development of healthier eating patterns.

- Young children’s eating behaviours are impacted by neophobia which is a normal adaptive response, readily modified by experience. Primary caregivers contribute to the acceptance of foods and development of taste **preferences** in their children through exposure, especially repeated exposure commencing with breastfeeding, modelling, and feeding practices such as pressure to eat, restriction and use of foods as bribes or rewards. The literature highlighted the importance of early introduction of a variety of foods; ideally before approximately 14 months to optimise acceptance and development of a preference for a broad range of foods.

- **Modelling** is a highly effective strategy for primary caregivers to increase children’s food consumption. The research suggests that modelling is more effective than feeding practices in achieving healthy food intake in children, but modelling is not used by primary caregivers even when they are concerned regarding their child’s weight.

- Primary caregiver use of **pressure to eat** is elicited by concerns about the child’s low weight status or concern that food intake is inadequate but pressuring children to eat does not have the desired effects on food preferences or consumption.

- **Use of food as a bribe or reward** does not have the desired effects on food preferences or consumption.

- With **training**, primary caregivers’ use of such practices (pressure to eat and use of food as a bribe or reward) on very young can be reduced.

This literature review now turns to examine research regarding the antecedents to these primary caregiver behaviours; why primary caregivers behave the way they do.
2.4 *Why primary caregivers behave the way they do*

In the previous section, research regarding *how* primary caregivers influence children’s eating behaviours was presented. In this section, research regarding factors which influence primary caregiver behaviours will be discussed.

For the purpose of examining *why* primary caregivers behave the way they do, Social Cognitive Theory (SCT) provides the theoretical framework utilised in Stage Two of this research. As detailed in Chapter 3, SCT proposes that there are antecedents that determine an individual’s behaviour. These antecedents have direct relationship with the research issues developed in Chapter 3. The antecedents to primary caregivers’ behaviours which impact on young children’s eating behaviours are:

- Antecedent 1: Short-term objectives
- Antecedent 2: Knowledge
- Antecedent 3: Environmental factors,
- Antecedent 4: Personal factors
- Antecedent 5: Long-term goals.

This section is presented within this structure. See Figure 2.4 for a representation of these antecedents and their position within this literature review.
2.4.1 Antecedent 1: Short-term objectives

This section discusses primary caregiver short-term objectives that influence their behaviours that, in turn, impact on their young children’s eating behaviours.

An overview of this section and examples of salient literature are represented in Table 2.1.

Table 2.1 Overview of Section 2.4.1: Short-term objectives

<table>
<thead>
<tr>
<th>Theme</th>
<th>Examples from the literature</th>
</tr>
</thead>
</table>
| Short-term objectives | -Sherry et al. 2004  
- to provide a healthy diet  
- to be ‘good mothers’  
- for child to eat more  
-Pettigrew & Roberts 2007  
- Chan 2005; Moore, Tapper & Murphy 2007;  
Orrell-Valente et al. 2007 |

Source: Developed for this research.

The available literature suggests that primary caregivers’ short-term objectives are for children to eat healthy food, in quantities determined by the primary caregivers.
Research both from the United States (Sherry et al. 2004) and Australia (Pettigrew & Roberts 2007) found that a short-term objective of primary caregivers is to provide their children (aged 2–5 years and 1–12 years respectively) with a healthy diet. Also, the drive to be ‘good mothers’ has been reported (Pettigrew & Roberts 2007) and that ‘good parenting’ is the main motivating force to purchase healthy food (Noble et al. 2007).

As previously presented, primary caregivers coax or coerce their 1-6-year-old-children to eat more (Chan 2005; Moore, Tapper & Murphy 2007; Orrell-Valente et al. 2007). Orrell-Valente et al. (2007) concluded that, regardless of SES, marital status or sex of child, the overriding mealtime goal of the majority of caregivers of young children is for children to eat more during meals. Although such research suggests that all primary caregivers have the objective of their child eating a healthy diet, having such an objective reflects the priority that it is given. To explain, among lone parent families on low incomes (Dowler & Calvert 1995), those with the lowest income had the least healthy dietary pattern, least variety in food and greater likelihood of inadequate nutrient intakes. Importantly however, those primary caregivers expressing positive attitudes to healthy diets achieved more positive dietary scores than those not mentioning this goal in their food selection.

2.4.2 Antecedent 2: Knowledge

This section discusses issues regarding primary caregivers’ knowledge that influences their behaviours which, in turn, impact on young children’s eating behaviours. The section addresses themes of primary caregiver knowledge, namely:

**Theme 1:** Type and quantity of foods suitable for a young child

**Theme 2:** Other issues of child development.

An overview of this section and examples of salient literature are represented in Table 2.2 below.

**Table 2:2 Overview of Section 2.4.2: Knowledge**

<table>
<thead>
<tr>
<th>Theme</th>
<th>Examples from the literature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type and quantity of foods suitable for a young child</td>
<td>-Types of food -Quantity of food -Pagnini et al. 2007; Dwyer et al. 2008; Hughes et al. 2005 -Dwyer et al. 2008; Pagnini et al. 2007</td>
</tr>
</tbody>
</table>

*Source: Developed for this research.*
Theme 1: Type and quantity of foods suitable for a young child

This theme is presented as two sub-themes: a) type of foods and b) quantity of foods.

a) Type of foods

Research findings suggest that Australians have a good understanding of the factors which influence childhood overweight and obesity; subjects of these studies are adults in general (Hardus et al. 2003), primary caregivers of children aged 7–11 (Hesketh et al. 2005) and primary caregivers of 2–5-year-old children (Pagnini et al. 2007). Primary caregivers’ nutritional knowledge and concern for disease prevention have been found to be positively associated with children’s fruit and vegetable intake (Gibson, Wardle & Watts 1998) and negatively associated with children’s total energy and fat intake (Contento et al. 1993).

Although knowledge and awareness of what types of food comprise a healthy lifestyle have been reported, this knowledge does not always translate consistently to health promoting behaviours towards children as this knowledge is held simultaneously with other beliefs promoting the provision of HFSS foods to children (Hesketh et al. 2005; Pettigrew & Roberts 2007). Consumption of HFSS foods by young children is consistently reported (e.g. Bell et al. 2005; Chan 2005).

Other concerning practices or attitudes which reflect primary caregivers’ knowledge regarding food type have also been reported. Primary caregivers may be relaxed regarding the provision of unhealthy foods at home if their young child received a nutritious meal that day at a child care centre (Dwyer et al. 2008; Hughes et al. 2005). Similarly, some primary caregivers are reported to believe that an unhealthy school lunch is acceptable as this was only one meal of the day and would be ‘counteracted’ if the remaining meals of the day were healthy (Hesketh et al. 2005).

b) Quantity of foods

Although there is considerable research regarding a child’s ability to self-regulate their energy intake, and that this ability is influenced by feeding practices, there is very little research regarding primary caregivers’ knowledge of children’s self-regulatory ability. Dwyer et al. (2008) identified a differentiation among primary caregivers in the control they exerted over the type and quantity of foods consumed by their 2–5-year-old children. Australian research has also identified that some primary caregivers have the practice of providing healthy foods, but not pressuring their children to eat (Pagnini et al. 2007); however, in the same study the researchers commented that ‘the participants were actively trying to feed their children the ‘right’ foods in the ‘right’ amounts’ (Pagnini et al. 2007, p. 808). Pagnini et al. (2007) noted that there was rarely evidence of primary caregiver knowledge encouraging the development of children’s self-regulation of appetite. Reed (1996) reported that primary caregivers with the aims of increasing consumption bribe and spoon-feed preschool children,
which does not encourage long-term independent feeding but also overrides self-regulatory mechanisms.

Additionally, the abundance of research regarding primary caregivers’ efforts towards young children eating more and the strategies they use such as bribing and rewarding (see Chan 2005; Moore, Tapper & Murphy 2007; Orrell-Valente et al. 2007; Pagnini et al. 2007) is highly suggestive that primary caregivers have little knowledge for children’s self-regulatory capability and is, therefore, considered a gap in the literature.

**Theme 2: Other issues of child development**

This theme considers literature regarding primary caregivers’ knowledge of a) preference development and b) issues relating to stages of infant feeding.

**a) Preference development**

The literature demonstrates that establishing a *preference* for healthy foods in childhood is paramount to establishing healthy eating habits and reducing the risk of overweight and obesity later in life. Factors surrounding the development of food preferences have been discussed in detail in Section 2.3.1.

As well as the common lack of understanding regarding children’s predisposition for self-regulation of intake, the extant literature also suggests that primary caregivers’ knowledge regarding development of food preference is poor. This theme is minimally reported as a specific finding in the extant literature; however, in their qualitative study examining the extent to which primary caregivers employ feeding strategies and within what contexts, Moore, Tapper and Murphy (2007) found that preference or ‘liking’ was not mentioned as a feeding goal and there was no evidence that the mothers were aware of the effect of repeated exposure on taste preference. In fact, the researchers concluded that the most dominant outcome sought by mothers was to establish eating behaviours associated with a well-balanced diet rather than to increase liking for particular foods (Moore, Tapper & Murphy 2007). Additionally, Hart et al. (2003) commented that primary caregivers often perceived children’s food preferences to be fixed, formed by chance and resistant to change.

Less direct evidence is that the abundance of literature regarding primary caregivers’ practices – modelling, pressure to eat and use of food as a bribe or reward – indicate a distinct lack of appreciation of the development of food preferences in young children. Further research suggesting that primary caregivers’ awareness of preference development is poor is from Ludvigsen and Sharma (2004) who described as a key finding an expectation among both children and adults that children are *supposed* to prefer HFSS foods.
Particularly when contrasted to the abundance of literature addressing barriers to provision of healthy lifestyle and primary caregivers’ feeding practices, this literature review has revealed the dearth of literature regarding primary caregivers’ knowledge of preference development in children.

b) Issues related to stages of infant feeding

This section presents research into primary caregivers’ knowledge regarding the introduction of solids and self-feeding.

The *Infant Feeding Guidelines for Health Workers (Draft)* (2011) recommends exclusive breastfeeding until around six months of age and continued breastfeeding for 12 months and beyond. Introduction of solid (or spoon) foods is recommended at around six months (22–26 weeks). As research regarding primary caregivers’ knowledge is not available, research reporting on their behaviours may reflect their knowledge. Primary caregivers commence introduction of solids over a wide age range (3–9 months) with a tendency for earlier introduction rather than later (Retallack, Simmer & Gibson 1994; Wright, Parkinson & Drewett 2004). In the literature, a reason cited for the early introduction of solids is that primary caregivers have felt that their child was more advanced and introduced solids at an earlier age (Heinig et al. 2006; Olson et al. 2010). Harris, Blissett and Johnson (2000) have commented that the late introduction of solids may result in children developing a preference for a limited range of foods and the label of being ‘fussy’ eaters.

Very little literature regarding primary caregivers’ knowledge of self-feeding is available, but lack of knowledge is reflected as reported behaviours and researchers’ comments. Reed (1996) reported that primary caregivers aiming to increase consumption bribe and spoon-feed preschool children which overrides self-regulatory mechanisms but also does not encourage long-term independent feeding. Carruth and Skinner (2000) found that individual children exhibit a wide age range for achieving feeding behaviours and suggest that parents may need encouragement about allowing their children to autonomously explore activities related to the feeding process. These findings are contrary to the theoretical awareness that developmental progress is a consequence of the system (that is the infant) and active exploration is related to solving the problem, e.g. how to self-feed with a spoon (Thelen et al. 1993).

In summary, primary caregivers have knowledge regarding types of food suitable for young children; however, primary caregivers have little knowledge of children’s self-regulatory predisposition. There is a dearth of literature regarding primary caregivers’ knowledge of preference development and self-feeding but, as the literature available suggests, primary caregivers’ knowledge in these areas is poor.
2.4.3 Antecedent 3: Environmental factors

This section discussing factors of influence from the primary caregiver’s environment is divided into the following themes:

**Theme 1:** Attitudes justifying provision of high fat sugar and salt (HFSS) foods

**Theme 2:** Feedback

**Theme 3:** Direct instruction about healthy eating for children.

Research regarding major influences from within the home environment, namely primary caregivers’ partners and children’s siblings, was presented in Section 2.3.2.

An overview of this section and examples of salient literature are represented in Table 2.3.

**Table 2.3 Overview of Section 2.4.3: Environmental factors**

<table>
<thead>
<tr>
<th>Theme</th>
<th>Examples from the literature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitudes justifying provision of HFSS foods</td>
<td></td>
</tr>
<tr>
<td>- ‘to avoid deprivation’</td>
<td>- Pagnini et al. 2007</td>
</tr>
<tr>
<td>- exposure needed for management</td>
<td>- Pagnini et al. 2007</td>
</tr>
<tr>
<td>- ‘obsession’ belief</td>
<td>- Jansen, Mulkens &amp; Jansen 2007</td>
</tr>
<tr>
<td>- attitude regarding use of food for behaviour control</td>
<td>- Campbell, Crawford &amp; Hesketh 2006</td>
</tr>
<tr>
<td>Feedback</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Pagnini et al. 2007; Pettigrew &amp; Roberts 2007</td>
</tr>
<tr>
<td>Direct instruction about healthy eating for children</td>
<td></td>
</tr>
<tr>
<td>- infant feeding guidelines</td>
<td>- Dietary Guidelines for Children and Adolescents in Australia 2003; Satter 1990</td>
</tr>
<tr>
<td>- effectiveness of high profile campaign</td>
<td>- Go for 2 &amp; 5 2007</td>
</tr>
<tr>
<td>- scepticism</td>
<td>- Hart et al. 2003</td>
</tr>
<tr>
<td>- influence of authority versus ‘significant others’</td>
<td>- Bruss, Morris &amp; Dannison 2003</td>
</tr>
</tbody>
</table>

Source: developed for this research.

**Theme 1: Attitudes justifying provision of high fat sugar and salt (HFSS) foods**

That parenting norms and behaviours related to overweight and obesity risk are influenced by broader social, structural and cultural norms is acknowledged (Davison & Campbell 2005). Primary caregiver attitudes reflect the social norms and studies in adults indicate that people are very sensitive to social norms for food consumption and use these norms to judge what they should be eating (Wansink 2004).

Some themes justifying or supporting the provision of HFSS foods, such as the acceptability of convenience foods and that primary caregivers experience pressure to provide their children such foods, are discussed in Section 2.4.4: Personal Factors. Other themes considered to be commonly socially held attitudes and supportive of provision of HFSS foods now discussed are:

- that children should not be ‘deprived’
that children need exposure to HFSS foods to learn how to manage them

that children will become obsessed, and

food being used for behaviour control.

Primary caregivers justify the provision of HFSS foods to children aged 2–5 years simply as a source of pleasure. Pagnini et al. (2007) reported parental attitudes that ‘junk’ food ‘treats’ were considered to be acceptable; that food ‘treats’ for children should be allowed, in fact they were considered entitlements, and that, for some primary caregivers, not providing ‘treats’ was referred to as a form of deprivation.

An argument advocated by those who support advertising to young children such as Furnham (2000) is that primary caregivers should allow treats so that children can learn to differentiate between core foods and ‘treats’. This theme was also reported by Pagnini et al. (2007, p. 808):

I think the kids now and then need to eat a little bit of rubbish – that little bit for balance so they know when to control themselves. (A mother)

Another theme prevalent in the current research and identified in the extant literature related to the notion that if children are not provided HFSS foods that they will become ‘obsessed’ by such foods and, when able, will tend to overeat them. This argument posits that people are primarily influenced by internal factors, such as their desire for a particular food and their reaction to feeling deprived. This position is rooted in the dietary restraint model (Heatherton, Polivy & Herman 1990).

Although Schwartz (2009) does not support the theme of restriction resulting in compensatory over-intake, at least in the school setting, other experimental studies involving children from 3–6 years of age do demonstrate that restriction increases preference for and intake of the restricted food (Fisher & Birch 1999a; Jansen, Mulkens & Jansen 2007). These studies suggest that the act of restriction in children aged 3–6 years seems to teach desirability; however, there is no research into children aged less than age three years regarding restriction being a predictor of increased preference for the restricted food. The extant literature previously discussed presents inconsistent findings between restrictive feeding practices and higher weight status of children. There is also a discrepancy in longitudinal studies but evidence suggests that, at least amongst middle-class white families, restrictive practices predict higher weight particularly in girls with a predisposition to overweight and obesity.

Another attitude commonly held by primary caregivers and relevant to this thesis relates to the use of food to control children’s behaviour or the use of food as a bribe or reward (Campbell, Crawford & Hesketh 2006; Morton et al. 1999; Reed 1996; Sherry et al. 2004). Research regarding the effect of
food used as a bribe or reward has been previously presented. Conclusions were that food used as a bribe or reward results in an increased preference for the food used as the reward; and that training to reduce use of food as a bribe or reward has been successful in primary caregivers of 14-month-old children (Daniels et al. 2012), but not primary caregivers of children aged 2–5 years (Haire-Joshu et al. 2008). The acceptability of using food as a bribe or reward was reported by Campbell, Crawford and Hesketh (2006) in their interviews with parents of 5–6-year-old children. Specifically, the use of food as a reward, to encourage intake was considered a reasonable and practical solution to food ‘fussiness’ although it was recognised as not necessarily being a desirable feeding strategy.

In summary, the research has identified the presence of attitudes amongst primary caregivers which promote the provision of HFSS foods. These attitudes are that children should not be ‘deprived’; that without those foods children will become obsessed, and that the use of food for behaviour control is acceptable.

**Theme 2: Feedback**

Extant literature relating to feedback addresses primary caregivers being advised regarding their young child’s overweight or obese condition, and primary caregivers tolerating others providing their children with HFSS foods. Pagnini et al. (2007) identified within their participants – primary caregivers of children aged 2–5 years – a unanimous opinion that it was a doctor’s responsibility to raise the issue of a child being overweight or obese. Participants gave mixed responses regarding whether early childhood educators or family and friends should raise the issue, with some feeling that it was inappropriate for a non-health professional to comment (Pagnini et al. 2007).

Reasons for primary caregivers of children 1–12 years tolerating and not providing feedback or comment to others who provide their children HFSS foods have been identified (Pettigrew & Roberts 2007). These reasons included trying to please their children and create an emotional bond; convenient entertaining; providing a special and exciting outing; and dependence on the extended family for child care assistance (Pettigrew & Roberts 2007).

Such a lack of feedback perpetuates the social norm as does the finding that primary caregivers use comparison with other children as one of the ways they judge a child’s weight status (Carnell et al. 2005). Supporting the notion that it is inappropriate for a non-professional to comment about a child’s weight, Pagnini et al. (2007) found that mothers of 2–5-year-old children were reluctant to label (another’s) child overweight, even though their criteria for judging a child to be overweight or obese were based on physical appearance such as weight for height, type and location of body fat, and comparisons with other children and clothing sizes.
Theme 3: Direct instruction about healthy eating for children

This section presents extant literature concerning infant feeding guidelines; scepticism of nutrition recommendations; and the finding that the impact of direct instruction on primary caregivers from ‘significant others’, such as peers, can be greater than the effect of recommendations made by authorities.

According to the *Infant Feeding Guidelines for Health Workers (Draft)* (2011), introduction of solid (or spoon) foods is recommended at around six months (22–26 weeks). The guidelines recommend the early introduction of iron-containing foods, the introduction of a variety of solid foods; and that, by 12 months of age, a variety of nutritious foods from the five food groups is consumed as described in the *Australian Guide to Healthy Eating*.

In contrast, the *US Dietary Recommendations for Children and Adolescents: A Guide for Practitioners* (Gidding et al. 2006) states that the period from weaning (introduction of solids) to consumption of a mature diet is from 4 to 6 months to 2 years of age, and highlights the areas in which adult influences are most important to childhood nutrition. The US recommendations state that ‘Parents choose the time for meals and snacks and the types of foods and beverages to be served. Children can then choose how much to consume’. Again, in the advice for feeding children aged 2–6 years, the US guidelines (p. 551) state:

Parents should remember that they are responsible for choosing foods that are eaten and when and where they are eaten. The child is responsible for whether he or she wants to eat and how much. Two natural parental impulses, pressuring children to eat and restricting access to specific foods, are not recommended because they often lead to overeating, dislikes and paradoxical interest in forbidden items.

The US guidelines also recommend that primary caregivers do not introduce foods without overall nutritional value simply to provide calories. ‘Bright Futures’ is a US national health promotion and disease prevention initiative that addresses children’s health needs in the context of family and community and makes similar recommendations (see <http://brightfutures.aap.org/>).

Unlike these clear recommendations in the US guidelines, such a recommendation that the child should determine the quantity of food consumed is not evident in the current Australian guidelines. An Australian parenting website, the Raising Children Network, which is sponsored by the Australian Government, does refer to the ‘division of responsibility’ as proposed by Satter (1990); however, the advice is given in a hidden article, not in the mainstream advice.

Although recommended nutrition messages are reaching target audiences (Dwyer et al. 2008; Go for 2&5 2007; Noble et al. 2007), primary caregivers in the UK have reported to be sceptical of information from the media, food manufacturers and the UK government, as all were named as
sources of potentially biased or ‘scare mongering’ information (Hart et al. 2003). Early results from a longitudinal study of infant feeding indicate that ‘friends and family’ and the ‘primary caregivers’ mothers and grandmothers’ were amongst the major sources of influence regarding increasing the child’s food variation (69 responses and 36 responses respectively), compared to medical practitioners and maternal and child health nurses (21 responses and 6 responses respectively) (R Newby [University of Queensland] 2012, pers. comm., 17 October).

In summary, advice regarding infant feeding provided by Australian authorities, although currently under review or in draft form, is not current with other known facts regarding infant feeding and advice from the United States. Also, research suggests that primary caregivers are more receptive to the ‘direct instruction’ received from family members or personal advisors rather than from agents of authority.

2.4.4 Antecedent 4: Personal factors

This section discussing personal factors that influence primary caregivers’ behaviours that impact on their young children’s eating behaviours is divided into the following themes:

Theme 1: Previous experiences
Theme 2: Psychological state
Theme 3: Perception of degree of control
Theme 4: Personal characteristics.

An overview of this section and examples of salient literature are represented in Table 2.4.

Table 2:4 Overview of Section 2.4.4: Personal factors

<table>
<thead>
<tr>
<th>Themes – Personal factors</th>
<th>Examples from the literature</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Previous experiences</strong></td>
<td>- Steptoe, Pollard &amp; Wardle 1995</td>
</tr>
<tr>
<td><strong>Psychological state</strong></td>
<td>- Hart et al. 2003; Pagnini et al. 2007</td>
</tr>
<tr>
<td>- responsibilities and stresses of parenting</td>
<td>- Pagnini et al. 2007; Dwyer et al. 2008; Pettigrew &amp; Roberts 2007; Brown, Scrugg &amp; Quigley 2008; Brewis &amp; Gartin 2006</td>
</tr>
<tr>
<td>- factors of expedience</td>
<td>- Pagnini et al. 2007; Dwyer et al. 2008; Inglis, Ball &amp; Crawford 2007; Gilmore 2006; Backett-Milburn et al. 2006</td>
</tr>
<tr>
<td>- socioeconomic factors</td>
<td></td>
</tr>
<tr>
<td><strong>Perception of degree of control</strong></td>
<td>- Pettigrew &amp; Roberts 2007</td>
</tr>
<tr>
<td>- self-efficacy</td>
<td>- Dwyer et al. 2008; Hesketh et al. 2005</td>
</tr>
<tr>
<td>- pressure to provide HFSS</td>
<td></td>
</tr>
<tr>
<td><strong>Personal characteristics</strong></td>
<td>- Anderson, Winett &amp; Wojcik 2000</td>
</tr>
<tr>
<td>- age of primary caregiver</td>
<td>- Buchholz 2003</td>
</tr>
<tr>
<td>- education level of primary caregiver</td>
<td></td>
</tr>
</tbody>
</table>

Source: Developed for this research.
Theme 1: Previous experiences

There is a dearth of literature specifically relating to how primary caregivers’ own previous experiences (in childhood or later in life, observed or experienced) impact on their children’s eating behaviours. The fact that primary caregiver experiences do impact on their children’s eating behaviours is reported in some literature but how specific experiences impact is not clear. For example, in their qualitative research examining factors influencing the eating behaviours of adolescents, Neumark-Sztainer et al. (1999) report that primary caregivers’ influences included familial, cultural and religious practices, and that parental cultural and religious practices were likely to be ‘inherited’ during their own life course. However, what these practices were and how they impacted on their children’s eating behaviours were not reported.

Seminal work by Steptoe, Pollard and Wardle (1995) confirmed that ‘familiarity’ is one factor which influences people’s dietary choices and refers to an individual’s satisfaction with respect to consuming their usual diet rather than exploring new food choices (Steptoe, Pollard & Wardle 1995). Their Food Choice Questionnaire (FCQ) which is still used in recent research when assessing familiarity (see Piggford et al. 2008) asks questions concerning food usually eaten, familiar foods and foods like those eaten as a child. The importance of experience is also reflected when considering intervention. Mothers, at least those with low education levels, have been found to be more receptive to education material that relates well to their own personal experiences (Hartman et al. 1994; Reed 1996).

A gap was identified in the literature regarding how primary caregivers’ own previous experiences, in childhood or later in life, observed or experienced, impact on their own young children’s eating behaviours.

Theme 2: Psychological state

This theme addresses factors which are considered to impact on primary caregivers’ psychological states. These factors are a) responsibility and stress of caregiving, b) factors of expedience and c) socioeconomic factors (food cost, food waste and refusal).

a) Responsibility and stress of caregiving

Primary caregivers experience stress regarding the responsibility of giving care to 2–12-year-old children (Hart et al. 2003; Pagnini et al. 2007); 2–5-year-old children being underweight (Pagnini et al. 2007) or a child being a ‘picky eater’ (Reed 1996). Another source of stress for primary caregivers is the perception of the management of their child’s eating behaviours as an indication of their adequacy in the primary caregiver role (Pagnini et al. 2007). Although an unrecognised act, primary caregivers are deeply conflicted about issues related to their children’s eating, childhood overweight...
and obesity (Pagnini et al. 2007). In contrast to these themes, primary caregiver abrogation of responsibility has also been reported (Dwyer et al. 2008; Hughes et al. 2005).

b) Factors of expediency
Primary caregivers have explained the purchase of unhealthy foods by ‘expediency’ (Noble et al. 2007). Factors relating to ‘ease’ for the primary caregiver have been abundantly presented in the literature as barriers to the provision of healthy lifestyles for children:

- insufficient time (Devine et al. 2006; Dwyer et al. 2008; Pagnini et al. 2007), due to employment and ‘stresses of managing family life’ such as the numerous educational, sporting and social commitments resulting in a reliance on fast foods and take away meals (Pettigrew & Roberts 2007). Although the literature examining the link between maternal employment and children’s weight has inconsistent outcomes (Anderson, Butcher & Levine 2003b; Johnson, Smiciklas-Wright & Crouter 1992; Takahashi et al. 1999), employment/family spillover has varying effects on children’s eating behaviours (Brown, Scragg and Quigley 2008).
- desire for maintenance of a happy home and child (Brewis & Gartin 2006; Dwyer 2008; Hoerr, Utech & Ruth 2005; Jebb, Steer & Holmes 2007; Pagnini et al. 2007; Reed 1996).

c) Socioeconomic factors
Low-income groups spend a much larger proportion of their gross income on food than their high-income counterparts, for example, 28 per cent versus 10 per cent reported by the UK National Family Food Survey (Department for Environment, Food and Rural Affairs 2005).

Socioeconomic groups can be characterised by dietary and food purchasing differences (Andrieu, Darmon & Drewnowski 2006; Department for Environment, Food and Rural Affairs 2005; James et al. 1997; Neumark-Sztainer et al. 1998; Ruxton et al. 1996; Wyatt & Triana Tejas 2000; Xie et al. 2003). Differences in feeding practices have also been identified between socioeconomic groups (Orrell-Valente et al. 2007). Despite these factors, in Australia differences in eating behaviours between socioeconomic positions have been almost wholly explained by perceptions of food availability, accessibility and affordability (Inglis, Ball & Crawford 2007).

Concern regarding food waste is a barrier to new foods being repeatedly offered to children (Dunn et al. 1994; Reed 1996; Reicks, Randall & Haynes 1994) and concern regarding food cost is not limited to families of low income (Dwyer et al. 2008; Pagnini et al. 2007).

In summary, the research provides evidence of stress associated with fulfilling the role of primary caregiver. Employment and other activities of family life contribute to a perceived lack of time and the justification of use of convenience/HFSS foods. Nutritional goals often become secondary to the
parental desire for maintenance of a happy home and child. Although it is possible to have healthy and inexpensive eating behaviours and there is evidence that perceptions of food availability, accessibility and affordability largely explain differences in eating behaviours between socioeconomic positions, economic concern impacting on food purchases is not limited to families of low income.

**Theme 3: Perception of degree of control**
This theme deals with literature relating to primary caregivers’ perception of their degree of control – specifically, the influence of peers and media and pressure from others to provide HFSS foods.

Firstly, primary caregivers of children within the age range of one to six years attribute food preferences and pestering behaviour of children to influences from media and peers (Campbell, Crawford & Hesketh 2006; Dwyer et al. 2008; Pettigrew & Roberts 2007). Peer food choices do influence children, not only in their food preferences (Birch 1980) but as a means for acceptance and belonging to the peer group (Ludvigsen & Sharma 2004). Primary caregivers commonly yield to children’s requests (e.g. Isler, Popper & Ward 1987; McNeal 1992; Taras et al. 2000) and, it has been noted, tend to overestimate the influence of peers and underestimate their own influence and the malleability of their 7–12 year old children’s behaviour (Hart et al. 2003). In fact, Jebb, Steer and Holmes (2007) surmised that primary caregivers are complicit in perpetuating the social norm as they provide school lunches including foods rich in fat and/or sugar (Sanigorski et al. 2005) and are reluctant to create a situation where the child might be excluded from their own peer group (Food Standards Agency 2007). Primary caregivers justify the providing of HFSS foods as avoiding deprivation but and avoiding the appearance of the child’s being ‘deprived’ when compared to their peers (Pettigrew & Roberts 2006; Pettigrew & Roberts 2007; Roberts 2005).

Secondly, primary caregivers report that others undermine their health promoting practices. Pressure to provide HFSS foods as reported by primary caregivers comes from the child and from partners as previously discussed, but also, specifically, the children’s grandparents (and aunts and uncles), teachers and coaches, the school canteen and medical practitioners (Pettigrew & Roberts 2007; Roberts & Pettigrew 2010). Although not presented in the literature as a major influence, primary caregivers also experience pressure from other primary caregivers (Hesketh et al. 2005; Pagnini et al. 2007).

**Theme 4: Personal characteristics**
Personal characteristics or demographic characteristics of primary caregivers relevant to this research and discussed elsewhere are socioeconomic status (see Section 2.2.5); employment status (see Section 2.4.1) and family configuration (see Section 2.4.2). Research regarding a) age of the primary caregiver and b) education level of the primary caregiver now follows.
a) Age of primary caregivers
Research regarding the effect of the age of primary caregivers on their children’s eating behaviours is scarce; however, in a study by Anderson, Winett and Wojcik (2000) the effect of age on nutrition behaviour was positive and direct – older shoppers tended to have healthier food purchases and intake.

b) Education level of primary caregivers
Higher education of primary caregivers has been associated with health consciousness in food choices (see Anderson, Butcher & Levine 2003b; Dennison, Erb & Jenkins 2001; North & Emmett 2000); and children having a more nutritious intake (Xie et al. 2003); and inversely related to preschool children’s added sugar intake (Kranz & Siega-Riz 2002). The association between education and overweight/obesity is complex and, as Buchholz (2003) asserts, although poorly educated people still have a higher overall incidence of obesity, college-educated – not poorly educated people – accounted for the most rapid growth in BMI scores between the 1970s and the 1990s.

2.4.5 Antecedent 5: Long-term goals
This section discussing primary caregivers’ long-term goals and their impact on their children’s eating behaviours is divided into the following themes:

Theme 1: General caregiving goals
Theme 2: Food-related goals.
An overview of this section and examples of salient literature are represented in Table 2.5 below.

Table 2.5 Overview of Section 2.4.5: Long-term goals

<table>
<thead>
<tr>
<th>Theme – Long-term goals</th>
<th>Examples from the literature</th>
</tr>
</thead>
<tbody>
<tr>
<td>General care-giving goals</td>
<td>-Harkness &amp; Super 1996; Keller, H et al. 2006</td>
</tr>
<tr>
<td>Food-related goals</td>
<td>-Hart et al. 2003; Dwyer et al. 2008; Pagnini et al. 2007; Crowle &amp; Turner 2010</td>
</tr>
</tbody>
</table>

Source: Developed for this research.

Theme 1: General caregiving goals
Parents all over the world have ideas and hold beliefs about child care. Parental ethno-theories are cultural understandings that parents hold (Harkness & Super 1996) and vary amongst sociocultural environments (e.g. Harkness & Super 1992; Harwood, Miller & Lucca Irizarry 1995; Harwood, Schoelmerich & Schulze 2000).

Socialisation goals mediate between broader sociocultural orientations and parenting ethno-theories (Keller, H et al. 2006b). There appears to be no studies involving parenting ethno-theories or socialising goals and childhood overweight and obesity although Gable and Lutz (2000) hint at an
association. Gable and Lutz (2000) examined the family processes that potentially put children at risk of overweight and obesity; the household environment, parenting beliefs and child characteristics of obese and non-obese children. The authors suggested that parents, particularly those of obese children, may not recognise their role in socialising their children’s healthy growth and may grant their children more responsibility for meeting their nutritional needs (Gable & Lutz 2000).

A gap exists in the literature regarding long-term general care-giving goals and children’s eating behaviours; such a relationship is relevant to this thesis.

**Theme 2: Food-related goals**

There is evidence supporting the concept that primary caregivers do not relate their behaviours to their children’s longer-term health; this finding has been made regarding primary caregivers of children aged 2–5 years (Dywer et al. 2008), and 7–11 years (Hesketh et al. 2005). Similar findings have been made specifically regarding obese 2–5-year-old children (Pagnini et al. 2007) and obese primary-aged children (Jeffrey et al. 2005). Also, in their qualitative study with primary caregivers attempting to identify facilitators of healthy behaviours, Hart et al. (2003) suggested that primary caregivers have a short-term health focus with little concern regarding the potential long-term consequences of their actions.

The importance of the tendency for people to prioritise what may be short-term gains over long-term effects has been highlighted in the Staff Working Paper by the Productivity Commission ‘Childhood Obesity: An Economic Perspective’ (Crowle & Turner 2010). The Productivity Commission is the Australian Government’s independent research and advisory body on a range of economic, social and environmental issues affecting the welfare of Australians. Its role, expressed most simply, is to help governments make better policies in the long-term interest of the Australian community. The paper analyses the issue of childhood overweight and obesity within an economic policy framework and discusses behavioural biases that can help to explain the way people make decisions that can affect their weight.

Two key limitations are bounded rationality and bounded willpower. Bounded rationality refers to the difficulty many people have in weighing up all of the benefits and costs of taking different courses of action open to them. For example, they make less than ideal choices because they are sensitive to the context in which decisions are made. Bounded willpower refers to the difficulty many people have in implementing strategies that they know are in their long-term best interests. A very high priority may be given to short-term gains that outweigh long-term effects, leading to overconsumption in the current period (Crowle & Turner 2010).
This concludes the section regarding why primary caregivers behave the way they do; influences from their short-term objectives, knowledge, environmental factors, personal factors and their long-term goals. Chapter 2 concludes with a synthesis of theoretical and contextual constructs and development of the research objectives.

2.5 Synthesis and research objectives

Initially this literature review presented the evidence supporting the increasing incidence of overweight and obesity in both adults and children worldwide and in Australia. The impact of this increase is being felt in the earlier presentation of traditionally adult-onset chronic disease and escalating health costs. The literature highlights the complex nature of adult overweight and obesity but encourages a focus on prevention of overweight and obesity. Research into children’s eating behaviours is appropriate for several reasons; change in dietary pattern is considered one of the direct drivers of population weight gain (Popkin 2005; Prentice & Jebb 1995; Swinburn & Egger 2004; Swinburn, Gill & Kumanyik 2005); childhood overweight and obesity persist into adulthood, eating behaviours established in childhood persist into adulthood; and childhood intake reflects later weight status. Another reason given for the focus on prevention relates to the physiology of weight gain and loss and the fact that reversal of overweight and obesity trends becomes increasingly difficult as excess weight accumulates (Gortmaker et al. 2011). The salient role of primary caregivers of children is demonstrated by evidence that interventions omitting primary caregivers’ involvement have been largely unsuccessful while parent-based interventions have shown success.

The literature regarding primary caregivers’ influences on children’s eating behaviours has been examined. One focus of the extant literature relates to the barriers experienced by primary caregivers regarding the provision of a healthy lifestyle. Another focus of the extant literature is feeding practices, establishing that primary caregivers’ use of pressure is elicited by concerns about children’s low weight status or eating behaviours but that pressuring children to eat and using coercive feeding practices such as the use of food rewards do not have the desired effects on food preferences or consumption. Similarly, restriction may contribute to increased preference for the restricted food and higher child weight, particularly in predisposed children.

The literature regarding modelling of eating behaviour is less complicated. Modelling is recognised as a strategy for primary caregivers to assist in achieving their goal of increasing young children’s food consumption. Modelling and sharing of family meals are effective in promoting both desirable and undesirable child eating behaviours, but modelling is not used by primary caregivers when they are concerned about their child’s overweight status.
The literature review also presented available research into self-regulation of energy intake and food preference as it is through these child predispositions that many primary caregiver influences are mediated. The extant literature is deficient in research regarding primary caregivers’ knowledge of these child predispositions. Primary caregivers’ behaviours suggest that their awareness of self-regulation of energy intake and preference development is poor.

In summary, major gaps identified in the extant literature are:

- the relative dearth of literature regarding young children (0–5 years of age), even more so very young children (< 2½ years)
- the relative abundance of research available which examines the influence of primary caregivers on children’s eating behaviours (how), in contrast to the dearth of literature regarding factors influencing primary caregivers (why)
- that research regarding how primary caregivers influence children’s eating behaviours has a narrow focus on feeding practices
- that research regarding factors influencing primary caregivers (why) has a narrow focus on barriers to provision of healthy lifestyle
- the absence of research into primary caregivers’ knowledge of young children’s self-regulation of energy intake and food preference development.

As the literature review was conducted under constructs (antecedents) provided by Social Cognitive Theory, specific gaps of influence on primary caregivers were identified. These gaps were specific to the influences on primary caregivers: their previous experiences, short-term objectives and their long-term goals.

Figure 2.5 provides a diagrammatic summary of the key findings of the literature review.
### Young children’s eating behaviours

### Child predispositions
- **Self-regulation of energy intake**
  - Self-regulation of energy intake exists
  - A goal of primary caregivers is for the child to eat more

### Children’s food preference
- Preference determines intake
- Understanding neophobia (modified by experience)
- Understanding ‘fussy’ eating (not modified by experience)
- Ideal to develop a preference for a wide variety of foods, early

### Primary caregivers’ behaviours
- **Modelling eating behaviours**
  - Modelling is effective in promoting behaviours in children > 12/12
  - Eating together is associated with health promoting eating behaviours
  - Discrepant findings: PCG awareness of eating together as opportunity for modelling
  - Modelling is enhanced by social response
  - Modelling not used by PCGs in response to concern of overweight children
  - Influences of partners and siblings

### Primary caregiver feeding practices
- Concern predicts feeding practices, but PCGs poor at identifying actual weight status
- Exposure: increases preference; may require 5–10 for acceptance
- Availability: associated with intake
- Pressure to eat: associated with reduced preference; associated with disinhibition; ineffective in increasing intake in the long-term
- Food as bribe/reward: common practice; reduces preference for target; increases preference for reward; associated with higher weight
- Restriction: used pre-emptively; predicts higher weight in children predisposed

### Why primary caregivers behave the way they do

<table>
<thead>
<tr>
<th>Short-term objectives</th>
<th>Knowledge</th>
<th>Environmental factors</th>
<th>Personal factors</th>
<th>Long-term goals</th>
</tr>
</thead>
<tbody>
<tr>
<td>- To provide healthy diet</td>
<td>- Regarding type of food is good</td>
<td>- Attitudes justifying provision of HFSS foods</td>
<td>- Previous experiences</td>
<td>- Gap regarding general long-term goals and children’s eating behaviours</td>
</tr>
<tr>
<td>- For child to eat more</td>
<td>- HFSS food intake countered by core food intake</td>
<td>- Lack of feedback</td>
<td>- Responsibilities and stresses</td>
<td>- Poor appreciation of current PCG behaviours impacting long-term child health</td>
</tr>
<tr>
<td>- To be ‘good caregivers’</td>
<td>- Gap regarding self-regulation</td>
<td>- Infant feeding guidelines</td>
<td>- Factors of expedience</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Gap regarding preference development</td>
<td>- Effectiveness of high profile campaign</td>
<td>- Socioeconomic factors</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Gap regarding self-feeding</td>
<td>- Scepticism</td>
<td>- Pressure to provide HFSS</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Authorities versus ‘significant others’</td>
<td>- Age/education of PCG</td>
<td></td>
</tr>
</tbody>
</table>

### Environmental factors
- Attitudes justifying provision of HFSS foods
- Lack of feedback
- Infant feeding guidelines
- Effectiveness of high profile campaign
- Scepticism
- Authorities versus ‘significant others’

### Personal factors
- Previous experiences
- Responsibilities and stresses
- Factors of expedience
- Socioeconomic factors
- Pressure to provide HFSS
- Age/education of PCG

### Long-term goals
- Gap regarding general long-term goals and children’s eating behaviours
- Poor appreciation of current PCG behaviours impacting long-term child health

---

**Source:** Developed for this research

**Note:** PCG = primary caregiver

---

**Figure 2:5 Key findings of the literature review**
The majority of research in this area of childhood overweight and obesity related to how primary caregivers influence children’s eating behaviours, in contrast to why? During the ten years after the call in 2001 for research into childhood overweight and obesity to ‘reflect the contextual complexity and dynamic systems within which risk factors for childhood overweight emerge’ (Davison & Birch 2001, p. 168), research has been conducted in broader contexts such as the fields of parenting style and family functioning. There has also been an increase in intervention research focusing on children from birth to five years of age (Hesketh & Campbell 2010). However, even these shifts continue to address how – not why. Qualitative research was appropriate in this relatively under-researched area to address the question of why primary caregivers of young children behave the way they do (Healy & Perry 2000). Further support for this approach comes from Hesketh and Campbell (2010) who noted that interventions which showed evidence of success were designed to impact not only on knowledge but also on skills and competencies of primary caregivers.

Social marketing was the immediate discipline of this thesis which is concerned with ‘analysing the marketplace’ or ‘knowing our target audience’. Establishing why primary caregivers do what they do regarding their children’s eating behaviours was expected to provide direction for social marketing campaigns to improve children’s eating behaviours and reduce the risk of overweight and obesity. In order to understand why primary caregivers do what they do, it was necessary to link influences on primary caregivers to their behaviours. Consequently, the research question for this research was broad and, as the area is under-researched, a qualitative research approach was appropriate to ask how and why.

**Research Question:** ‘How and why do primary caregivers influence the eating behaviours of young children in an obesogenic environment?’

This research was, therefore, exploratory yet aimed to link antecedents to primary caregivers’ behaviours (why) to their behaviours which influence children’s eating behaviours (how) to enable social marketers to address overweight and obesity. Thus, the research objectives that frame the study were two-fold:

**Research Objective 1.** To explore primary caregivers’ influences on young children’s eating behaviours.
Research Objective 2. To develop an integrated social marketing approach to improve the influence of primary caregivers on young children’s eating behaviours in obesogenic environments.

This concludes the review of the literature, the synthesis of theoretical and contextual constructs and presentation of the research question and research objectives.

2.6 Chapter summary

This chapter initially presented the theory relevant to this thesis, the discipline of social marketing. An examination of the literature established that prevention is an appropriate strategy to address the overweight and obesity problem; that young children’s eating behaviours, in contrast to childhood overweight and obesity, is an appropriate area for research; and that primary caregivers of young children have a seminal role in these behaviours.

The literature review examined how primary caregivers influence their young children’s eating behaviours, and why primary caregivers behave the way they do. Major gaps in the literature were identified, in particular the dearth of literature regarding factors influencing primary caregivers (why they behave the way they do).

The chapter presented a synthesis of theoretical and contextual constructs, development of the research question and the research objectives. This research aimed to link antecedents to primary caregivers’ behaviours (why) to their behaviours which influence young children’s eating behaviours (how) for the purpose of social marketers developing initiatives to address overweight and obesity.

Chapter 3 presents Stage One, the exploratory stage of the research, the convergent interview method used and the findings which were used to inform Stage Two, the main study of this research.
3.0 Introduction

Chapter 2 highlighted the pertinence of prevention as a means of addressing the overweight and obesity epidemic, the appropriate focus on young children’s eating behaviours and the salient role of primary caregivers of young children. This chapter, as represented in Figure 3.1, presents Stage One, the exploratory, inductive stage of this research. Social Cognitive Theory (SCT) is introduced to provide the theoretical framework for Stage Two.

Figure 3:1 Outline of this chapter

<table>
<thead>
<tr>
<th>Chapter 1 – Introduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter 2 – Literature review</td>
</tr>
<tr>
<td>Chapter 3 – Stage One: Convergent interview method, analysis and findings</td>
</tr>
<tr>
<td>Chapter 4 – Stage Two: Case study methodology</td>
</tr>
<tr>
<td>Chapter 5 – Stage Two: Analysis and findings</td>
</tr>
<tr>
<td>Chapter 6 – Discussion and implications for social marketing</td>
</tr>
</tbody>
</table>

3.0 Introduction to this chapter
3.1 Justification for the realism paradigm and qualitative research methodology
   3.1.1 The realism paradigm
   3.1.2 Qualitative research methodology
3.2 Stage One: The convergent interviewing method
   3.2.1 Justification for the approach
   3.2.2 Convergent interviewing process
   3.2.3 Issues of validity, reliability and limitations of convergent interviewing
3.3 Role of prior theory
3.4 Implementation of Stage One interviews
   3.4.1 Unit of analysis and sample selection
   3.4.2 Stage One data collection
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   3.4.4 Stage One data analysis process
3.5 Analysis of Stage One convergent interviews
   3.5.1 Modelling
   3.5.2 Diversity in attitudes and behaviours among primary caregivers
   3.5.3 Diversity in attitudes and behaviours within primary caregivers
   3.5.4 Change in primary caregivers’ behaviours over time
   3.5.5 Other themes and their contribution to the research
   3.5.6 Stage One analysis summary
3.6 Social Cognitive Theory (SCT)
   3.6.1 Need for a theoretical framework
   3.6.2 Synthesis and development of Stage Two research issues
3.7 Chapter summary

Issues of qualitative research and the realism paradigm are discussed (Section 3.1), followed by justification for the use of the convergent interviewing technique, explanation of the convergent
interview process, its limitations and reliability and validity considerations (Section 3.2). Next, prior theory in relation to the convergent interviewing process is discussed (Section 3.3), followed by the implementation of convergent interviews in this research (Section 3.4). The collected data are summarised and analysed in Section 3.5. In Section 3.6, SCT is presented to provide a theoretical framework appropriate for Stage Two, with discussion of its synthesis with the research thus far and development of the research issues. Finally, the chapter is summarised (Section 3.7).

3.1 Justification for the realism paradigm and qualitative research methodology

This section presents the realism paradigm and qualitative research methodology and justifies their use in this research. It is acknowledged that specifically within the social marketing domain, the paradigms of research continue to be argued (Brennan, Voros & Brady 2011).

3.1.1 The realism paradigm

A research paradigm is an overall conceptual framework within which a researcher may work, or the ‘basic belief system or world view that guides the investigator’ (Guba & Lincoln 1994, p.105). Scientific research paradigms have been synthesised into four categories: positivism, critical theory, constructivism and realism (Guba & Lincoln 1994). Realism was the paradigm used for this research as it was considered most appropriate to answer the research question and achieve the research objectives.

Specifically, the realism paradigm is an appropriate paradigm within which to describe and explain complex social phenomena (Healy & Perry 2000) such as the influence of primary caregivers on young children’s eating behaviours. Realists believe that there is a ‘real’ world to discover even though it is only imperfectly apprehensible (Guba & Lincoln 1994; Tsoukas 1989). Realism suits this research as it involves social beings who are able to provide the researcher insights into their real world experiences (Guba & Lincoln 1994). In constructivism research, participants’ perceptions are being studied for their own sake; a distinguishing feature of realism is that participants’ perceptions are being studied to provide a window to a reality beyond those perceptions (Healy & Perry 2000). An overview of the other research paradigms is provided in Appendix 3A.
Specifically, justification for a realism approach is two-fold. First, primary caregiver influence on young children’s eating behaviours is a complex social phenomenon that requires triangulation of various sources of evidence to discover structures and mechanisms that underlie events and experiences (Healy & Perry 2000). Second, realism is appropriate for investigations that require a basis for theory development, where the focus is not transformation and is not limited to subjectivity (see Guba & Lincoln 1994; Perry, Riege & Brown 1999). The next section examines a methodology suited to the realism paradigm, qualitative research methodology.

3.1.2 Qualitative research methodology

This section introduces the qualitative methodology that formed the basis of both stages of this research. A qualitative research design was appropriate for this research as it enabled the collection of in-depth information often not available through quantitative methods (Burns, Williams & Maxham 2000). Furthermore, qualitative research follows a flexible approach allowing the discovery of rich information that can provide the opportunity for new insights on issues (Gilmore & Carson 1996). This flexible and in-depth approach provides answers to the how and why research issues consistent within the realism paradigm (Healy & Perry 2000).

Importantly, the adoption of subjective qualitative research methods is appropriate where it is deemed necessary to generate theory, or to overcome problems of complexity when the research literature is lacking in depth (Parkhe 1993), as is the case in this research. Qualitative research methodology is not uncommon in social marketing; as in development of strategies to influence HIV/AIDS preventive behaviours among teens and young adults in Ethiopia (Cho & Witte 2005), and in research seeking insights into eating behaviours and attitudes (Hesketh et al. 2005; Pagnini et al. 2007). Qualitative research was deemed appropriate as a significant portion of the salient studies in the literature was experimental (Healy & Perry 2000).

Research can be conducted at a ‘point-in-time’, as a cross-sectional study, or longitudinally over a period of time (Rindfleisch et al. 2008). Longitudinal study data are collected at different times from either the same or different respondents and changes occurring over time are observed (Neuman 1997). This research is not concerned with observing changes over time but with the collection of a broad range of cross-sectional data. As such, a cross-sectional study period of three months was deemed appropriate for data collection for Stage One of this research.

This research involved a two-stage approach – commencing with induction (convergent interviews) and then progressing to deduction (case study) – an approach considered preferable
for inexperienced qualitative researchers working in areas where some understanding has been achieved but where more theory building is required (Eisenhardt 1991; Miles & Huberman 1994). Theory construction and theory building were goals of this research, rather than theory testing and theory verification, as theory development is required in the area of primary caregiver influences on young children’s eating behaviours. As the methodology was qualitative, this research did not involve anthropometric measures of children.

Stage One of this research was framed by:

**Research Objective 1.** To explore primary caregivers’ influences on young children’s eating behaviours.

Figure 3.2 represents the process of data collection for this research, highlighting the function of the convergent interviews in the development of the protocol for Stage Two of the research (1).

**Figure 3:2 Overview of data collection**

Stage One informed Stage Two which had the aim of developing an integrated social marketing approach to improve the influence of primary caregivers’ on young children’s eating behaviours in obesogenic environments, thus meeting Research Objective 2. Stage One was framed around the convergent interviewing approach as posited in seminal work by Dick (1990), and will be discussed in more detail.
3.2 Stage One: The convergent interviewing method

This section firstly justifies the use of the convergent interviewing method, the interviewing process is then presented, followed by discussion of issues of validity, reliability and the method’s limitations.

3.2.1 Justification for the approach

The purpose of Stage One in its exploration of primary caregivers’ influences on young children’s eating behaviours was the identification of key themes. Convergent interviewing was used to enable the researcher to narrow the focus of Stage Two (Riege & Nair 2004).

Convergent interviewing is a form of in-depth interviewing and was considered to be the most appropriate method for this stage of the research. The convergent interviewing method has been used to refine issues for exploration in other fields such as events tourism (Stokes 2006). Use of focus groups was considered by the researcher; however, there was concern that the presence of others in the group might limit discussion of sensitive information and the problem of logistical requirements (Dillon, Madden & Firtle 1994). In-depth interviewing has similar aims to focus groups in that the interviewer asks relatively unstructured questions in an attempt to obtain unrestricted insight. In-depth interviewing, in contrast with focus groups, involves only one respondent allowing more comfortable expression and more focused and thorough exploration of the respondent’s attitudes and beliefs (Carson et al. 2001; Hair, Bush & Ortinau 2000). The primary reason for using convergent interviewing was its usefulness in exploring areas that lack a theoretical base (Rao & Perry 2003) as is the situation with primary caregivers’ attitudes and behaviours regarding young children’s eating behaviours.

Convergent interviewing uses a cyclic approach; themes that are newly identified can be included in successive interviews (Dick 1990; Riege & Nair 2004). Specifically, if a primary caregiver reveals an issue that influences their child’s eating behaviour, this issue can be discussed in subsequent interviews. Convergence occurs when no new data are revealed; data collection can then cease and the objective of identifying key themes and providing a focus for the research is achieved (Driedger et al. 2006; Riege & Nair 2004).
3.2.2 Convergent interviewing process

This section overviews the general process of the convergent interviewing method. Convergent interviewing involves a series of in-depth interviews that eventually converge on important issues (Dick 1990; Driedger et al. 2006). The interviewing initially is relatively unstructured and flexible to allow the interviewer to gain insight into the interviewees’ attitudes and opinions regarding the research topics. The interviewing becomes more structured in later interviews as the information gathered through previous interviews converges. According to Rao and Perry (2003), this structure occurs because the interviewer is able to interpret and incorporate the issues that were raised in previous interviews. The interviewer seeks agreement between what interviewees say as well as disagreement (Carson et al. 2001) and probe questions are used to facilitate this understanding and explanation of the issues. Although the content becomes more structured with time, the introduction of new issues is still possible (see Figure 3.3).

**Figure 3:3  Convergent interviewing process**

![Convergent interviewing process diagram](image)


Dick (1999) notes that the resulting data decide the sample size; the sample size and any variations to the process refine and answer the research questions. Interviewing continues until theoretical saturation is reached; until it is considered that no new data are being contributed and the researcher’s objectives have been reached. Although the content of the interviews, and particularly the sequencing of interview content, is relatively unstructured, the Interview Guide itself provides guidelines (Nair & Riege 1995). The Interview Guide for this study is discussed further in Section 3.5.
3.2.3 Issues of validity, reliability and limitations of convergent interviewing

As with all research methods, convergent interviewing has some disadvantages. These disadvantages and how they were addressed in this research are discussed below.

Validity

If convergent interviewing is the only method of data collection being used, validity is threatened (Dick 1990; Marshall & Rossman 1995). To overcome this issue, in Stage Two a different qualitative methodology – case studies – was used, thus adding validity to the process of theory building, in a manner similar to that used in other qualitative research (see Carrington, Neville & Whitwell 2011; Spencer-Matthews 2003; Wong et al. 2011).

Construct validity refers to the formation of suitable operational measures for the concepts being investigated (Emory & Cooper 1991). How construct validity was addressed in Stage One is summarised in Table 3.1.

Table 3:1 How construct validity was addressed in Stage One

<table>
<thead>
<tr>
<th>Issue</th>
<th>How addressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construct validity</td>
<td>-convergent interview process involves cross-checking (Dick 1990; Rao &amp; Perry 2003)</td>
</tr>
<tr>
<td></td>
<td>-triangulation of interview questions</td>
</tr>
<tr>
<td></td>
<td>-use of projective technique (Driedger et al. 2006; Williams &amp; Lewis 2005).</td>
</tr>
</tbody>
</table>

Case study research using in-depth interviews and convergent interviews share many similar issues relating to reliability and validity which are discussed in more detail in Chapter 4. The limitation of the lack of use of cross-coders in analysis is acknowledged.

Interviewer error

The interviewer requires skills to enhance rapport and cooperation with the interviewee to optimise the interview outcome (Aaker, Kumar & Day 1998; Kvale 2007; Yin 2011). The researcher, who was the interviewer in this research, is an experienced dietitian with extensive experience in conducting interviews in the topic area. The possibility of errors
occurring through record keeping was reduced by the recording of interviews, thus allowing the interviewer to focus more on questions, responses and the interviewee. The interviewer was cognisant of the need to avoid interrupting the interviewee, using leading questions and expressing her opinion (Dick 1990; Wolcott 1990).

**Bias**

Bias on behalf of the interviewer or interviewee can be yet another disadvantage of this method. Interviewer bias may be the result of the interviewer’s previous knowledge set and can influence the degree and type of interpretation (Dick 1990). This potential bias was minimised by the interviewer having detailed knowledge of the relevant literature and, with awareness that experience could actually *contribute* to interviewer bias (Williams & Lewis 2005), great attention was given to issues being clarified with the use of probing questions. Additionally, the interviews were transcribed and a copy provided to the interviewee for correction of any errors.

Another form of potential bias is interviewee bias. In this research the risk of such bias was considered to be high. A tendency for interviewees to portray a more favourable situation regarding their young child’s eating behaviours than actually occurs was expected. During Stage One, the risk of interviewee bias was addressed primarily with methodological triangulation, specifically the use of direct observation, the convergent interviews and a projective technique. Triangulation is discussed in more detail in Chapter 4. Bias related to unqualified participants was not a concern in this research as only participants who met the criterion of being primary caregivers of children aged 1–5 years were chosen to participate.

**Time requirement**

The unstructured and in-depth nature of interview data means that these data can be time consuming to collect and analyse; however, it was considered that the time taken was not excessive considering the value of the data collected.

The major purpose of convergent interviews in this research was to explore the influences of primary caregivers on young children’s eating behaviours. This allowed the identification of important themes and a narrowing of the project’s focus (Riege 2003). Establishing clear agreement and disagreement between all or most interviewees on a range of issues – as has been presented in other examples of convergent interviewing (see Rao & Perry 2003; Stokes 2006) – was not an aim of convergent interviews in this research. The core attributes of convergent
interviewing – their unstructured content, their structured process and dialectical analysis (Riege 2003) – were maintained.

In order to maintain these core attributes of convergent interviewing and to further address the high risk of interviewee bias, within-case analysis was used in Stage One of the research. This analysis served to promote the diversity of convergent interviewing in meeting particular research needs (Riege & Nair 2004).

In summary, the disadvantages of convergent interviewing were addressed through the research design and were considered to be outweighed by the advantages of the method. The role of prior theory in Stage One of this research will now be discussed.

### 3.3 Role of prior theory

According to Dick (1990), prior theory is not considered essential for convergent interviews; however, it is recommended by others including Miles and Huberman (1994), Neuman (1994) and Yin (1994). Prior theory allows gaps in the literature to be revealed, thus contributing towards identifying research direction.

Prior theory has contributed in several ways to this part of the research. The literature review informed this research about the influences of primary caregivers on young children’s eating behaviours by presenting the areas of research interest and the extent of research undertaken to date. The literature review highlights the plethora of studies regarding primary caregivers’ behaviours such as feeding practices and modelling (e.g. Birch et al. 1982; Birch, Marlin & Rotter 1984; Birch, Zimmerman & Hind 1980; Carruth & Skinner 2000; Daniels et al. 2012; Faith et al. 2004a; Galloway et al. 2005; Galloway et al. 2006; Gregory, Paxton & Brozovic 2010; Newman & Taylor 1992) and provides background research regarding self-regulation and food preferences. These are the mechanisms by which most primary caregivers’ behaviours impact on young children’s eating behaviours.

The literature review also revealed the dearth of studies regarding factors of influence on primary caregivers’ behaviours. Of most relevance, however, at this stage of the research, was that the literature review revealed firstly, the dearth of studies regarding primary caregivers’ influence on children younger than five years and, secondly, the apparent need for qualitative research as a significant portion of the salient studies in the literature was experimental (Healy & Perry 2000). Consequently, appropriate research design issues such as data collection and analysis techniques...
were determined (Robson 1993; Yin 1994). The role of prior theory in Stage Two of this research is discussed further in Section 4.2.2. In the next section the process of convergent interviewing used in Stage One will be discussed in more detail.

### 3.4 Implementation of Stage One interviews

With the aim of exploring primary caregivers’ influences on young children’s eating behaviours, convergent interviews were conducted with 16 primary caregivers of children aged between one and five years. This section presents demographic data about the participants and details regarding sample selection, data collection and, finally, the process of data analysis.

#### 3.4.1 Unit of analysis and sample selection

The unit of analysis refers to that unit on which the research will focus (Veal 2005). Units of analysis can be individuals (actors), dyads or groups (Veal 2005). In this research the unit of analysis is the primary caregiver of a young child. The ‘primary caregiver’ is the person predominantly responsible for making decisions regarding what food is made available to the child and, in general, has most influence over what the child eats (see Appendix 1A). Behaviours and attitudes of other people were relevant to the research only in that they influence the primary caregiver; the focus of this research was the primary caregiver.

Selection of the cases is of key importance in qualitative research as it is in quantitative studies (Veal 2005). For this research, purposive case selection was required to:

i) produce dissimilar results

ii) allow the provision of a rich description of primary caregivers’ influences on young children’s eating behaviours.

The focus during Stage One was that the primary caregiver would be the predominant influence on the young child’s eating behaviour, so an effort was made to minimise other sources of direct influence. Consequently, primary caregivers of children not attending school or child care centres were sought as peer influence regarding food preference has been identified as being present in pre-schoolers (Birch 1980) and 5–11-year-old children (Salvy et al. 2008). The primary caregiver was to have a child (the ‘case child’), thus meeting the criterion of attending a child care facility or having similar exposure to children outside the family for a maximum of one day per week. A lower age range for the case child was set at 12 months as it was expected that most children by
this age would be consuming ‘family food’ (Infant Feeding Guidelines for Health Workers (Draft) 2011 p. 9). The upper age range of five years was set to exclude all school-aged children.

Critical cases with high variability were required by the methodology to provide theoretical density (Patton 1990; Riege & Nair 2004). To meet the intended expectation of producing contrasting results, primary caregivers of both first-born and not-first-born children were purposively sought (such as Bingley et al. 2000). This selection relates to the assumption that previous experience is likely to have an influence on antecedents to primary caregivers’ attitudes and behaviours. It was recognised that the presence of siblings in a child’s environment would be likely to influence the ‘case child’ through the primary caregiver but also directly. Similarly, to meet the expectation of producing a diversity of results, the interviewees were recruited from several locations including a swimming centre and two general medical practices (one bulk-billing, one non-bulk-billing)\(^4\).

As previously noted, the sample size is not predetermined in convergent interviewing as the content of the data gathered determines the number of interviews necessary (Dick 1990). Dick (1990, p. 25) originally recommended that the minimum number of interviews be 12 but Riege and Nair (2004) note that convergence can occur with fewer than 12 interviews. This being the case, the number of convergent interviews in this research – 16 interviews – exceeded Dick’s (1990) recommended threshold. In this research stage, no new issues were being revealed and theoretical saturation was reached with 16 interviews and, therefore, interviewing ceased.

Demographic data about the participants and their child/ren are summarised in Table 3.2 below.

**Table 3:2 Demographic data of participants**

<table>
<thead>
<tr>
<th>Participant*</th>
<th>Primary caregiver</th>
<th>Case child</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Age (yrs)</td>
<td>Gender</td>
</tr>
<tr>
<td>Linda</td>
<td>38</td>
<td>Female</td>
</tr>
<tr>
<td>Melanie</td>
<td>32</td>
<td>Female</td>
</tr>
<tr>
<td>Dana</td>
<td>42</td>
<td>Female</td>
</tr>
<tr>
<td>Nigela</td>
<td>34</td>
<td>Female</td>
</tr>
<tr>
<td>Yasmin</td>
<td>38</td>
<td>Female</td>
</tr>
</tbody>
</table>

\(^4\) Bulk billing is a payment option under the Australian Medicare system. The health service provider is paid 85 per cent of the scheduled fee directly by the government and may not charge the patient further for that service. Bulk billing is used to a lesser extent in more affluent areas and, thus, it was expected that use of different billing systems would produce respondents who differed in terms of behaviours.
### Stage One: Convergent interview method, analysis and findings

<table>
<thead>
<tr>
<th>Name</th>
<th>Age</th>
<th>Gender</th>
<th>Siblings</th>
<th>Case Children</th>
<th>Other Siblings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Janette</td>
<td>38</td>
<td>Female</td>
<td>None</td>
<td>2 years</td>
<td>Male</td>
</tr>
<tr>
<td>Judy</td>
<td>29</td>
<td>Female</td>
<td>Male</td>
<td>2 ½ years</td>
<td>Female</td>
</tr>
<tr>
<td>Natalie</td>
<td>32</td>
<td>Female</td>
<td>Female</td>
<td>3 years</td>
<td>None</td>
</tr>
<tr>
<td>Kim</td>
<td>30</td>
<td>Female</td>
<td>Female</td>
<td>2 years</td>
<td>Older brother, older sister</td>
</tr>
<tr>
<td>Shelley</td>
<td>35</td>
<td>Female</td>
<td>Male</td>
<td>18 months</td>
<td>None</td>
</tr>
<tr>
<td>Georgia</td>
<td>39</td>
<td>Female</td>
<td>Female</td>
<td>2 years</td>
<td>Two older brothers</td>
</tr>
<tr>
<td>Sarah</td>
<td>30</td>
<td>Female</td>
<td>Female</td>
<td>2 years</td>
<td>None</td>
</tr>
<tr>
<td>Sandy</td>
<td>28</td>
<td>Female</td>
<td>Female</td>
<td>21 months</td>
<td>None</td>
</tr>
<tr>
<td>Kat</td>
<td>41</td>
<td>Female</td>
<td>Male</td>
<td>3 years</td>
<td>None</td>
</tr>
<tr>
<td>Kelly</td>
<td>34</td>
<td>Female</td>
<td>Male</td>
<td>2 ½ years</td>
<td>Each other</td>
</tr>
<tr>
<td>Kaila</td>
<td>32</td>
<td>Female</td>
<td>Male</td>
<td>19 months</td>
<td>None</td>
</tr>
</tbody>
</table>

**Summary**

<table>
<thead>
<tr>
<th></th>
<th>Mean 32 (28-42)</th>
<th>All Female</th>
<th>Mean 26 mths (12 mths -4 yrs)</th>
<th>12 Female 9 Male</th>
<th>50% no siblings</th>
</tr>
</thead>
</table>

*Note: names of participants have been changed to protect their identity.*

*Source: Developed for this research.*

In summary, all participants in Stage One were female, mean age 32 years; mean age of case children was 2 years and 2 months, five participants had two case children eligible for discussion (57 per cent of children were female) and 50 per cent of case children had siblings.

### 3.4.2 Stage One data collection

Data collection was conducted via face-to-face, in-depth interviews. The two steps to conducting the interview according to Dick (1990) are i) planning the interview and ii) managing the interview.

**i) Planning the interview**

Participants were recruited from two medical practices and a swimming centre on the Sunshine Coast, Queensland. Recruitment notices in the form of flyers and posters (Appendix 3B) were displayed in the various centres encouraging participants to contact the researcher. Members of staff were encouraged to draw the attention of primary caregivers with young children to the flyers.
That the potential participant actually be the person in the child’s environment who is likely to have the greatest influence over the young child’s eating behaviours was of most importance. To assist in determining the primary caregiver, the following questions were asked of potential participants:

- Who is the person predominantly responsible for making decisions about foods purchased and provided to the young child?
- Who is the person predominantly present with the child when s/he eats?

After the criteria of eligibility for participation were established, the Research Information Sheet was provided (See Appendix 3C). Information regarding privacy (Appendix 3D) and the Consent Form (Appendix 3E) were also provided. The requirement that the interview was to be recorded was discussed at this stage. An interview time and venue were arranged. Some demographic information was collected over the telephone to enhance rapport between researcher and participant but also to minimise time required for interviews (Appendix 3F).

The Interview Guide was developed around procedures for convergent interviewing and the interview questions reflected issues revealed by the literature. Appendix 3G provides a copy of the Interview Guide. The structure of the Interview Guide remained constant but, due to the evolutionary nature of convergent interviewing process, the sub-questions and probing became more focussed.

**ii) Managing the interview**

One interviewer conducted all interviews which took approximately one hour but tended to be longer for later interviews. Prior to the commencement of the recorded interview, the researcher ensured that the participant had received the Research Information Sheet (Appendix 3C) and privacy information (Appendix 3D). Additional copies were provided if required. Some key points were reiterated including details of the researcher, the purpose of the research, how results will be used, confidentiality, how the data were to be recorded, length of session, number of sessions and the fact that there were no ‘right’ answers. The Consent Form was discussed and signed (Appendix 3E) and demographic data collection completed (Appendix 3F). The complete interview was audio-recorded, transcribed and then checked for accuracy by the researcher.

The interview process used was adapted from Dick (1990):
1. Rapport was established, whilst explaining purpose of interview, motives of interviewer and guarantees of anonymity and confidentiality were given.

2. An introductory question was asked ‘Tell me about your family’, reiterating and detailing demographic data.

3. The next question was non-threatening and open-ended ‘Tell me about shopping, cooking and eating in the household’.

4. The participant was encouraged to keep talking by using techniques such as pregnant pauses, encouraging non-verbals, repetition of the last word or phrase, ‘yes’ and ‘go on’, without steering the interview.

5. Probe questions were asked.

6. The interview was directed by the interview guide (Appendix 3G).

7. A projective technique was incorporated into the interview; three drawings considered most relevant regarding the age of the case child were presented. The projective technique was introduced with a request to describe the scenario, not necessarily being themselves nor their own child, not necessarily being what they considered ‘the right thing to do’. For each drawing, prompts such as ‘What is happening?’, ‘What could happen after that?’, ‘Why would s/he do/say that?’ were used (see diagrams Appendix 3H).

8. Towards the end of the interview, the interviewer asked for a summary of the key points which was compared mentally to the interviewer’s own summary.

9. Any probe questions were asked.

10. The participant was thanked and informed about obtaining results of the research. The interviewees were also asked to encourage others who may be interested to participate in the convergent interview process.

While the Interview Guide provided structure, the flexible nature of in-depth interviews meant that the order and content of questions could and did change (Carson et al. 2001). In particular, the content of the interviews changed due to convergence. For example, focus on issues surrounding the provision of HFSS foods became more apparent during the interview process. All questions were asked of all interviewees but the depth of the answer varied according to the amount of convergence previously gained.
The interviewer was aware of the requirement to avoid interviewer bias. In addition to research design measures, the potential for bias was addressed during the interview by the interviewer attempting to avoid interrupting the interviewee, using leading questions or expressing her opinion as recommended by Dick (1990) and Wolcott (1990) and Berg and Lune (2012).

The researcher made notes during and after the interviews. The notes and audio-transcriptions from the tapes were then cross-checked for accuracy. Collected data were stored on a database providing efficient and secure organisation of the data. After tapes were transcribed, all information relevant to each case was kept on an electronic database.

### 3.4.3 Stage One ethical considerations

In any research, paying particular attention to ethical requirements is vital. Not doing so may lead to unwanted negative effects on the participating individuals or organisations (Kvale 2007; Patton 1990; Stake 1995). In turn, these negative effects can impact on the outcomes of the research (Cooper & Emory 1995; Yin 2011). The potential for harm was considered in both stages of the research. The ethics research protocol required by the University of the Sunshine Coast was followed. The ethics standards of the university were met through an Application for Ethics Approval for Research Involving Humans –Ethics Approval Number for Stage One was HREC: [S/08/142]. As the participants of the research were the primary caregivers, not the children, written consent was obtained from the primary caregivers. No measures regarding the safety of children or the interviewing of children were warranted. This section briefly highlights the measures taken to meet ethical considerations.

*Research participants* have the right to be treated in a manner considerate of their interests (Patton 1990). Measures taken to achieve this were i) participation was voluntary, ii) written consent was obtained (Appendix 3E) and iii) participants were informed of the purpose of the research and the process of the interview in the Research Information Sheet (Appendix 3C). Additionally, participants’ privacy was protected (Miles & Huberman 1994); written information regarding privacy was provided and discussed (Appendix 3D); participants were informed that information provided by them would be de-identified and accessible only to the researcher and supervisors; and withdrawal with no penalty was possible at any stage (Appendix 3E).
Researcher issues relate to the professional reputation of the researcher and the associated university. Professionalism was ensured with the researcher treating the participants with respect and conducting herself in a businesslike manner (Stake 1995).

Research outcomes were also dependent on ethical considerations being incorporated into the research design (Cooper & Emory 1995). The researcher’s genuine, open yet sensitive manner fostered cooperation of participants and quality research outcomes.

As well as having an awareness of the possibility of the participants experiencing distress associated with the interview process, the researcher was aware of the possibility of the disclosure of unlawful conduct, or concealment of a crime. No such situations eventuated.

In summary, ethical concerns were addressed and measures were taken to ensure that the research met ethical standards. The participants were likely to be confident in the research, thus enhancing the quality of research outcomes.

3.4.4 Stage One data analysis process

Notes made by the interviewer during and immediately after the interview included observations and salient or new issues emerging from the interview. As soon as possible a transcription of the audio-recorded interview was made, checked for accuracy and coded (open and axial) (Ezzy 2002). A total of 341 pages of transcripts resulted from the 16 interviews. Within-case analysis was required in certain themes, such as determination of the primary caregiver’s level of control of HFSS foods (restrictive or liberal) and establishment of primary caregivers’ use of food as a reward. As an example of within-case analysis, when asked, a participant may claim not to use food as a bribe or reward but, during the projective technique such a use of food may be revealed. The issue of who controls the quantity of core foods the young child eats (primary caregiver or child) was another topic warranting within-case analysis. Salient or new issues emerging directly from the interviews and issues resulting from within-case analysis of the interviews were still incorporated into subsequent interviews in accordance with standard procedure for convergent interviewing posited by Dick (1990).

Emerging themes of how and why primary caregivers influence young children’s eating behaviours will be discussed.
3.5 Analysis of Stage One convergent interviews

This section presents the themes emerging from the convergent interviews; those contributing to the direction of Stage Two and those contributing to the research otherwise. All themes emerging from Stage One are summarised (Appendix 3I); however, the following discussion focuses on new issues emerging from the convergent interviews and how Stage One identified key areas to direct Stage Two.

In Stage One, with the aim of exploring primary caregivers’ influences on young children’s eating behaviours (Research Objective 1), convergence was considered to have been achieved after 16 interviews. As summarised in Table 3.3 below, direction was provided for Stage Two in the areas of modelling (Section 3.5.1), diversity in attitudes and behaviours between primary caregivers (Section 3.5.2), diversity in attitudes and behaviours within primary caregivers (Section 3.5.3) and change in primary caregiver behaviour over time (Section 3.5.4). Themes from Stage One which contribute to the research otherwise are also discussed (Section 3.5.5).

Table 3:3 Themes from Stage One directing Stage Two

<table>
<thead>
<tr>
<th>Themes from Stage One(Convergent Interviews)</th>
<th>Action in Stage Two(Case Studies)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Modelling:</strong></td>
<td></td>
</tr>
<tr>
<td>-high awareness, varying behaviour</td>
<td>-deep exploration; direct questioning, indirect questioning and the projective technique</td>
</tr>
<tr>
<td>-influence of ex/partners</td>
<td>-partners’ presence or absence was an attribute selected for theoretical sampling</td>
</tr>
</tbody>
</table>

| Diversity in attitudes and behaviours between primary caregivers: |                                   |
| -self-regulation issues; expectation of some primary caregivers to ensure child consumes certain types/quantities of food; overfeeding risk behaviours | -general exploration; origin of expectation; motivations and expected outcomes of overfeeding risk behaviours |
| -HFSS foods—diversity of attitudes and justifications for provision (for behaviour control, regarding diversity and ‘deprivation’, regarding factors of expedience, regarding socioeconomic issues); diversity regarding social expectations | -general exploration of HFSS foods including socially held attitudes and pressures; specific focus on perceived time constraints (employment status was an attribute selected for theoretical sampling); priority given to food; socioeconomic diversity was an attribute selected for theoretical sampling |
| -childhood experiences have major influence on primary caregivers | -childhood experiences |

| Diversity in attitudes and behaviours within primary caregivers: |                                   |
| -presence of motivations for opposing behaviours i.e. provide core foods and provide HFSS foods | -general goals of caregiving; goals regarding food provision; barriers |
| -attitudes regarding current actions of primary caregiver having long term impact on child health |                                   |

| Change in primary caregivers’ behaviours over time: |                                   |
| -change from child being fed to self-feeding | -exploration of child’s feeding history |

Source: Developed for this research.
3.5.1 Modelling

The literature provides evidence of the effects of modelling by primary caregivers particularly on young children (e.g. Birch, Fisher & Smiciklas-Wright 1999; Campbell, Crawford & Ball 2006; Wardle, Carnell & Cooke 2005). A review of the literature concluded that eating core foods modelled by primary caregivers is positively associated with eating of core foods by children (up to 18 years of age) (Brown, Scragg & Quigley 2008). Themes emerging in Stage One associated with a) primary caregivers being role models and b) primary caregivers’ ex/partners are presented next. Modelling and associated issues proved to be salient to the entire thesis.

a) Modelling by the primary caregiver

The convergent interviews allowed a detailed and comprehensive examination of the themes surrounding the issue of primary caregivers being role models. Firstly, participants showed a high awareness of themselves as models for their young children. This awareness was demonstrated simply by comments indicating that it is part of the primary caregiver’s role; their eating behaviours changed after having children and certain foods were not eaten in the presence of their child. Primary caregivers also expressed recognition of peers and siblings being role models for their young children, and a very high awareness of their partners being models. However, despite this awareness, primary caregivers were not consistent role models for healthy eating behaviours.

Sharing of meals is considered in research and practice an opportunity for modelling (e.g. Campbell, Crawford & Ball 2006; Hannon et al. 2003; Gillman et al. 2000; Neumark-Sztainer et al. 2003). Some primary caregivers valued eating together as an opportunity to model eating, while an equal number of primary caregivers saw eating meals together as only an opportunity to teach manners and for social interaction. Various reasons for not eating meals together were given:

We like eating together at the family table. I grew up like that, but it just doesn’t work with Tony getting home so late. And Rubin’s past it ... you know… (Shelley)

In direct contrast to the behaviour expected of primary caregivers who are aware of their role as models for eating, a previously unidentified theme emerged from the convergent interviews – primary caregivers actually adapt their own eating behaviours to suit the preferences of the child:

We used to live on curries. I don’t ever cook it any more ... yeah, he’s not into spicy, that is something that he won’t eat, spicy, hot foods, he doesn’t enjoy it, anyway ... (Kat)
Similarly, some primary caregivers used language that reflects an under-appreciation of their role as models—provision of HFSS foods was ‘probably just to break up the boredom of sandwiches and fruit’ (Kim).

The theme of primary caregivers as role models emerged from the convergent interviews as being complex—a high awareness of the concept of modelling but varying degrees of its translation into behaviour. Further exploration of modelling issues was central to the Stage Two research requiring exploration through direct questioning, indirect questioning and the projective technique which involved the ex/partner as well as the primary caregiver.

**b) Influences from primary caregiver’s ex/partners**

A major finding of the convergent interviews, and most commonly presented as a barrier to provision of healthy food, was the prominent influence of the primary caregivers’ partners (or ex-partners). In the convergent interviews, the partner or ex-partner of every primary caregiver was the child’s father. Notably, the influence of partners on primary caregivers is under-reported in the literature.

Comments made by primary caregivers regarding their partners were most commonly regarding his role as a model. Primary caregivers commonly remarked that the child’s eating behaviours were worse when the partner was present.

> I don’t disapprove of any food specifically, but I mean, I try ... I mean I try and keep it as healthy as possible but when Dad’s around it’s probably as unhealthy as possible (laughs). (Judy).

In one case, however, the child’s eating behaviour was considered better when the partner was present; although this primary caregiver reported the child’s diet being more limited due to the partner’s limited preferences. The primary caregiver made more effort to provide regular meals with the partner present and, thus, constitute a family unit:

> We probably did used to eat healthier when he was living here too. I was more into routines and stuff when we were together; it was like, ‘cos it was like I was doing everything for us, for a family and now I don’t feel like that anymore. When I had a partner, it was like I was doing everything for the whole family, and I was pleasing more people (Kim).

Other criticisms of partners related to the need to prepare meals to suit their tastes, the partner not being supportive of having family meals, and his frequent use of take-away meals. Some primary caregivers reported their partner being supportive of their efforts regarding their child’s eating
behaviours, but such comments were less frequent. The presence of the partners reportedly had both positive and negative effects on the eating behaviours of the primary caregivers.

The nature of the partner’s influence and the influence of the partner’s presence or absence were explored in Stage Two. Family configuration including presence or absence of the partner was an attribute selected for theoretical sampling.

3.5.2 Diversity in attitudes and behaviours among primary caregivers

This section discusses several themes relevant to feeding practices where there was diversity amongst primary caregivers’ attitudes and behaviours. These themes are a) self-regulation issues, b) provision of HFSS foods and c) childhood experiences.

a) Self-regulation issues

Self-regulation issues are discussed cognisant of the theme identified in Stage One that a factor of ‘good caregiving’ is to ensure that the child eats appropriate foods. The literature indicates that ‘good parenting’ is the main motivational force for caregivers to purchase healthy food (e.g. Noble et al. 2007). The convergent interviews revealed a range of attitudes and practices that primary caregivers associated with ‘good caregiving’. The more common attitudes were ‘to teach good eating habits’ or ‘to teach between good and bad’; to make ‘healthy’ food available or to ensure consumption of a healthy diet; to expose to variety and encourage trying new foods; and to eat together/act as model. Less common factors cited as being associated with ‘good caregiving’ were being in-tune with the child’s needs other than for food, creating a ‘no-fuss’/unregimented eating environment and teaching the fun/celebratory nature of food. Managing a child’s behaviour and providing comfort to a child were also cited as part of the caregiving role.

In Stage One the objective of every primary caregiver interviewed to ensure that their child consumed healthy foods was indicated by their reported behaviour or verbal reporting. Stress resulted if it was perceived that this objective was not achieved, an indicative statement being:

So I’m thinking, this is make or break time with everything. Like … what I’m giving him to eat … that stress is just sending me like, oh; my God, the responsibility is just humungous. (Shelley)

More specifically, the drive for some primary caregivers to ensure their child consumes certain quantities of foods appeared as paramount in Stage One and prompted investigation of its origin in Stage Two. The extant literature indicates that pressure to eat is associated with perceived or
real concerns regarding inadequate intake or the child being underweight (Faith et al. 2004a; Fisher et al. 2002; Spruijt-Metz et al. 2002; Wardle, Carnell & Cooke 2005).

However, the literature also indicates that the regulation of energy intake is associated with child-feeding practices and weight status. Provision of large portion size, in contrast to self-determination of intake, results in greater consumption (in grams and calories) (Fisher 2007; Fisher, Rolls & Birch 2003; Orrell-Valente et al. 2007; Rolls, Engell & Birch 2000), even in children as young as two years of age (Fisher, Rolls & Birch 2003). Also, children who exhibit less self-regulation have been found to be significantly heavier and had mothers who were more controlling of their intake (Birch & Fisher 2000; Johnson & Birch 1994). Pressuring strategies have been linked to disinhibited eating later in life as a result of reduced sensitivity to satiety cues (Carper, Orlet Fisher & Birch 2000).

A common feeding objective of primary caregivers of young children is for the child to eat more (Birch 1999; Pagnini et al. 2007) and strategies used to achieve this end include deliberately increasing the amount of food on children’s plates, playing games with the foods, having children participate in cooking, role modelling, hiding vegetables and repeated exposure. Feeding practices including coercion, coaxing and the use of alternatives or rewards (food or otherwise) as well as encouragement and praise, have been shown to be ineffective in improving food intake and variety (Birch 1999; Satter 2000) but, with training, primary caregivers are more likely to interpret food refusal as satiety (Daniels et al. 2012). The literature demonstrates that there are also inadvertent undesirable effects on food preference by pressuring children to eat (Galloway et al. 2006) and using food as a reward (e.g. Birch, Zimmerman & Hind 1980; Newman & Taylor 1992).

A key finding of the convergent interviewing process was the divergence between primary caregivers who determined the amount of core foods their child eats and those who allowed the child to determine the amount eaten. For some primary caregivers, ensuring that the child eats foods in ‘appropriate’ quantities, as determined by the primary caregiver, was considered an aspect of the caregiving role. The Stage One interviews revealed primary caregivers’ behaviours which could lead to the child over-consuming or eating when not hungry. These ‘overfeeding risk behaviours’ are:

- feeding a child who can self-feed, with the purpose of increasing intake
- using dessert or other ‘healthy’ food as an incentive to eat all dinner
• using HFSS food as a bribe or reward.

This finding prompted direct questioning, indirect questioning and a projective technique addressing the question of who determines the quantity of core foods the child eats in Stage Two. These issues surrounding the quantity of core foods that a child should eat also evolved as salient to this thesis in general.

b) Provision of HFSS foods

The literature reported on the socially held attitudes that HFSS foods should be allowed (Hesketh et al. 2005) and that using such foods for convenience and to control children’s behaviour is socially acceptable (e.g. Campbell, Crawford & Hesketh 2006; Dwyer et al. 2008; NPD Group 2000). Identified in the literature (Hesketh et al. 2005) and the convergent interviews, primary caregivers experience pressure from others to provide their young children with such foods. Convergent interviews revealed that this pressure was particularly felt in social settings and that grandparents were the most common perpetrators. The opinion also emerged that if a child is not provided HFSS foods they are likely to become obsessive or out of control when they do have access to these foods: ‘because, I think long-term, if they’re not allowed it when they’re younger, then it becomes an almost obsessive need for it as they get older…’ (Judy).

Associated with primary caregiver expediency, the literature reported that the malleability of children’s behaviour is generally underestimated by primary caregivers (Hart et al. 2003). This theme was evident in the convergent interviews, but it also emerged that children are accepting of the primary caregivers’ instruction. ‘… and I figure with Olga if she only knows that it comes one way, then she’ll just eat it that way...’ (Sarah).

From the convergent interviews, the motivations and expected outcomes for giving HFSS foods or ‘treats’ can be categorised as being associated with:

• primary caregivers’ attitudes regarding if and how much a child should eat (discussed above)

• primary caregivers’ attitudes and practices regarding using food for behaviour control: regarding food, ‘treats’ were given as an incentive to eat more or as an incentive to try new foods or if other foods were rejected (encapsulated by the attitude that ‘something is better than nothing’); ‘treats’ were also provided for general behaviour control especially in public and to satisfy primary caregivers’ desires for well-behaved, happy children; ‘treats’ were provided to soothe or placate the child or simply as yielding to the child’s demand
• primary caregiver attitudes about diversity and deprivation: ‘treats’ were given for diversity in the diet or to avoid deprivation in contrast to the theme that a child would not miss HFSS foods if not provided them,

• factors of expediency: ‘treats’ were given for convenience of the primary caregiver, perceived time constraints, child approval (‘to be a nice Mum’), and in response to feelings of guilt

• socioeconomic factors: HFSS foods were provided by some because they were cheaper but, for others, they were not given because they were too expensive.

In summary, the provision of HFSS foods was revealed to be a complex issue and was further investigated in Stage Two. Pressure, expectations and socially held attitudes regarding provision of HFSS foods were examined. Particularly, issues surrounding of use of food as a bribe or reward – the divergence in opinion, lack of self-awareness of use of the practice and social acceptance – were also a focus in Stage Two. The identified divergence in primary caregivers regarding their knowledge of the malleability of children’s behaviour was also considered in Stage Two. The priority that a primary caregiver gives to food in general may be an overarching factor influencing frequently reported barriers such as time, energy and motivation. Also, for some primary caregivers, the avoidance of HFSS foods seemed a low priority, yet for others provision of HFSS foods was justified, if not intentional, for example to provide pleasure or to maintain the caregiving role of teaching children to manage their consumption of HFFS foods. For these reasons, in Stage Two the priority that primary caregivers gave food was examined. Based on prior theory from the literature review and these divergent findings from the convergent interviews, employment status and socioeconomic status of primary caregivers were attributes selected for theoretical sampling in Stage Two.

c) Childhood experiences

First, the extant literature identifies that cultural factors influence primary caregivers’ practices (Neumark-Sztainer et al. 1999) and that familiarity is one factor which influences people’s dietary choices (Steptoe, Pollard & Wardle 1995). The literature demonstrates support for the notion that eating habits develop in childhood and persist into adulthood (Braddon, Rodgers & Wadsworth 1986; Dietz 2001; Freedman et al. 2005) and that parental health practices and beliefs are predictors of their children’s beliefs (Branen & Fletcher 1999; Lau et al. 1990). No other literature examines the real or perceived influence of previous experiences on primary caregivers and their children’s eating behaviours as presented in this research. The convergent interviews
revealed themes of greater depth, in support of and in opposition to the extant literature. These themes proved to have relevance, particularly to the implications of this research.

Data gathered in Stage One suggest that whether or not childhood experiences are carried into caregiving practice appears dependent on the nature of the primary caregivers’ own childhood experience. Participants who reported being allowed ‘treats’ as a child, allowed ‘treats’ for their own child as primary caregivers. However, there were broad ranges regarding the circumstances under which ‘treats’ were allowed, the frequency of ‘treats’, and the general nature of the children’s eating behaviours. Analysis revealed that primary caregivers, who limit their children’s access to HFSS foods but allow the child to determine the quantity of food eaten, have all had childhood experiences of very limited access to ‘treats’.

Primary caregivers who reported not being given ‘treats’ as children seemed likely to react against this when such foods became accessible. However, they claimed to return to their own parents’ style when they became primary caregivers themselves. A focus on the fun and celebratory role of food enjoyed in childhood was also carried into caregiving practice. Primary caregivers reporting being forced to eat or having no control over eating as children either reacted against or carried on such patterns as caregivers themselves.

Two participants reported being allowed a ‘diet as desired’ or a poor diet as children. This was associated with a childhood reportedly deprived of emotional attention. Both participants experienced eating disorders. As adults they allow ‘treats’ for their own children but are highly conscious of providing core foods and the notion that ‘treats’ may be given as a substitute for addressing children’s emotional needs.

In addition to childhood experiences, other experiences of primary caregivers emerged as factors of influence on their children’s eating behaviours. Becoming a parent prompted an improvement in the primary caregiver’s eating behaviours; primary caregivers having experiences with their own health or diets, or with their older children also impacted on the primary caregivers’ behaviours towards the case child. The divergence in the effect of childhood experiences and the emergence that other primary caregiver experiences have a major influence on primary caregivers prompted a more directed examination of experiences influencing primary caregivers in Stage Two.

In summary, Stage One identified diversity in attitudes and behaviours among primary caregivers in themes regarding i) quantity issues, ii) provision of HFSS foods and iii) childhood experiences,
and this diversity provided direction for Stage Two. Diversity in attitudes and behaviours within primary caregivers will now be discussed.

3.5.3 Diversity in attitudes and behaviours within primary caregivers

This section discusses themes demonstrating diversity within individual primary caregivers regarding their attitudes or behaviours. These themes relate to the goals of the primary caregivers.

The literature review demonstrated that goals of primary caregivers are a) to provide their children with a healthy diet (Pettigrew & Roberts 2007; Sherry et al. 2004) and b) for young children (aged 3–5 years), to encourage these children to eat more during meals (e.g. Orrell-Valente et al. 2007). The convergent interviews reiterated these themes. It was a goal of every participant to ensure that their child consumed core foods. Certainly, primary caregivers have motivations to provide core foods for their children, but the convergent interviews demonstrated that they also have motivations to provide HFSS foods – a diversity in objectives which results in conflicting behaviours. The researcher was prompted to consider questioning the primary caregivers’ general goals of caregiving in Stage Two as well as specific food-related goals, and to examine conflicting motivations, barriers or ‘forces working against you’.

Another theme relevant to a change in primary caregiver behaviour relates to a change in behaviour over time.

3.5.4 Change in primary caregivers’ behaviours over time

This section discusses primary caregivers’ behaviour changes over time, specifically from the child being fed to self-feeding. Initially as a criticism levelled at other primary caregivers, one participant commented regarding the change in behaviour of primary caregivers from solid introduction to self-feeding:

I’ve always taken care about what I eat … um and since having Mandy, I have really taken an interest and I just don’t know what it is with … when … when they go on to solids, all my friends and all other mums I know get so worried about giving them the right food and they painstakingly puree the vegetables and they introduce them – but then something happens when they get to about Mandy’s age (2 years) – it all goes out the window! They start giving them sweets and chocolates and –“Oh it’s OK” – and I was like – these are the same women that were so fastidious 18 months ago! (Janette)
In subsequent interviews in Stage One, the theme emerged that other primary caregivers experienced a change in what the child accepted. Although the Australian NOURISH randomised control trial (Daniels et al. 2009) acknowledges that neophobia is a normal adaptive response readily modified by repeat exposure, there is no research indicating the level of awareness of this phenomenon amongst primary caregivers. This theme, that primary caregivers notice a change in what young children will accept to eat, prompted an exploration of the children’s feeding histories in Stage Two and evolved as a salient theme for this thesis.

This completes the discussion regarding emerging issues that provided direction for Stage Two as reflected in the Interview Guide used in Stage Two (see Appendix 4I). The next section presents themes from the convergent interviews that contributed to the research in other ways.

3.5.5 Other themes and their contribution to the research

A summary of all themes emerging from the convergent interviews is given in Appendix 3I. As detailed in Section 3.5.2, themes were identified which guided the next stage of the research. These themes relate to modelling, quantity of food eaten, provision of HFSS foods (for behaviour control, for diversity and deprivation, expediency and socioeconomic factors), childhood experiences, malleability of children’s behaviour, and conflicting and changing behaviours of primary caregivers.

Other themes identified in Stage One also have relevance to the thesis pertaining to the theoretical framework. In Section 3.6, SCT is presented as a suitable theory for providing a theoretical framework for the subsequent stage of this research. During the process of determining the suitability of SCT, several other theories were considered as discussed in Appendix 3J.

Themes identified in Stage One and relevant to the thesis when the theoretical framework was developed are discussed in relation to the extant literature in Section 3.6.2 (Synthesis and the development of Stage Two research issues) and are:

- influence of marketing or branding through young children on primary caregivers
- primary caregivers comparing their young child with others
- primary caregivers’ reluctance to confront other primary caregivers regarding their caregiving behaviours
Stage One: Convergent interview method, analysis and findings

- socialising with like-minded others regarding their young children’s eating behaviours
- the theme of ‘power issues’ (between primary caregiver and young child)
- long-term effects of current actions.

In addition to within-case analysis conducted to determine the primary caregiver’s level of control of HFSS foods (restrictive or liberal) and establishment of primary caregiver use of food as a reward, analyses were also conducted regarding i) child behaviour and ii) childhood experiences. These analyses are presented in Appendix 3K and are supportive of findings in Stage Two.

3.5.6 Stage One analysis summary

The convergent interviewing process was used to explore the influences of primary caregivers on their 1–5-year-old children’s eating behaviours. The objectives of identifying important themes and allowing a narrowing of the research focus as suggested by Riege (2003) were achieved. The themes and findings that emerged from the convergent interviews are presented in Table 3.2 as they enabled development of the Interview Guide for Stage Two. Themes from Stage One were also relevant to determining the theory best suited to frame Stage Two.

In addition to the specific themes identified by the convergent interviews, the analysis of Stage One confirmed the expectation that a more specific gap in the literature is not so much how primary caregivers influence young children’s eating behaviours, but why? It was, therefore, considered appropriate to focus Stage Two research on factors influencing primary caregiver behaviour which in turn influences young children’s eating behaviours. Stage One also revealed that the broad age range of the children being discussed (1–5 years) contributed to diversity in primary caregivers’ response. As children age the influence of the primary caregiver reduces (Huston et al. 1999), so the researcher decided, in an effort to focus even further on issues surrounding influences of the primary caregiver, that the young children of the primary caregivers in Stage Two would be younger (1-2 ½ years).

The next section presents Social Cognitive Theory (SCT). SCT provides the theoretical framework and allows determination of the research issues which were used to guide Stage Two in examining the factors influencing primary caregivers’ behaviour and explaining why primary caregivers influence their young children’s eating behaviours.
3.6 Social Cognitive Theory (SCT)

The main aim of this section is to present Social Cognitive Theory (SCT), the theoretical framework it offers and the research issues which were used to guide Stage Two, the main study. SCT is a predominant theory for understanding human behaviour (Bandura 2004; Schwarzer 2008) particularly in relation to public health (Bandura 2004; Sharma, Wagner & Wilkerson 2006; Schwarzer 2008). SCT has been applied in public health research for over thirty years (Bandura 1989, 2004) which has considered a broad range of health issues including diet, weight loss, eating disorders and physical activity (e.g. Bandura 2004, 2005; Schwarzer 2008; Sharma 2005; Wise 2003).

This section will also demonstrate the gaps in the research of primary caregivers’ influence on young children’s eating behaviours; these gaps are highlighted when prior theory (the extant literature in combination with findings from the convergent interviews) is presented in the framework offered by SCT. Firstly, the need for a theoretical framework for this research is discussed.

3.6.1 Need for a theoretical framework

After completing Stage One of the research, the need for an overarching framework into which Stage Two of the study could be couched was apparent. According to Anfara and Mertz (2006, p. 192), ‘interpretive or theoretical frameworks are important because they help focus a study, offer a means for assessing or judging the value of research, and allow for entry into scholarly conversation’.

In a paper proposing guidelines for authors and reviewers of qualitative studies, Malterud (2001, p. 486) states that ‘a thorough, well prepared, and well documented analysis is what distinguishes scientific approach from superficial conjecture’. Specifically, regarding the function of a theoretical framework she asks the following questions:

- Are the perspectives and ideas used for data interpretation presented?
- Is the framework adequate, in view of the aim of the study?
- Does the author account for the role given to the theoretical framework during analysis?
Malterud (2001, p. 486) explains that ‘the theoretical framework can be equated with the reading glasses worn by the researcher when she or he asks questions about the material’. Sharing the type and role of framework is essential to maintain ‘communicative validity’.

Additionally, in their updated appraisal of peer-reviewed dietary and physical activity intervention literature published between 1995 and mid-2008, Hesketh and Campbell (2010) criticised the studies for the lack of theoretical underpinning of their interventions. As this research proposes to contribute to some social marketing activity addressing overweight and obesity, it cannot be limited by the lack of a theoretical framework.

SCT will now be presented as an appropriate theory to provide a theoretical framework to guide the remainder of the research, complementing social marketing as a parent discipline. At the completion of Stage One, a number of theoretical frameworks were appraised in order to determine which had the greatest synergies with the study. Four theories were examined: 1) Social Cognitive Theory (SCT), 2) Theory of Social Norms, 3) Harm Chain and 4) Rational Choice Theory. SCT was deemed the most appropriate framework for this study. Details of the other theories and the reasons they were unsuitable are provided in Appendix 3J.

**3.6.2 Synthesis and development of Stage Two research issues**

In this section SCT is presented, and the theoretical framework is developed followed by the research issues. Synthesis between prior theory (extant literature and Stage One) and SCT is demonstrated, as are gaps in the literature and the direction of Stage Two. The development of the research issues marked a shift from inductive research (Stage One) to deductive research (Stage Two). SCT and the research issues were used to reframe the progressing development of the research.

Overweight and obesity are major health problems for society (e.g. Swinburn et al. 2011). The literature review (Chapter 2) established that it was appropriate to research children’s eating behaviours and that the role of primary caregivers of young children was salient, particularly the antecedents to their behaviours (Davison & Birch 2001). Stage One confirmed the existence of this gap. To research this gap in the literature it was necessary to link a) antecedent influences on primary caregivers (to explore why) to b) their behaviours, which in turn influence young children’s eating behaviours (to explore how). Stage One also narrowed the direction of Stage Two to primary caregivers of younger children (aged 1–2½ years) as there was a dearth of
research regarding young children (0–5 years) and the younger age range of case children allowed
greater concentration of the influence of primary caregivers. Qualitative research was deemed
appropriate as a significant portion of the salient studies in the literature was experimental (Healy
& Perry 2000). An aim is to generate theory in this complex area where current literature is
lacking in depth (Parkhe 1993).

It is proposed that findings from this research will provide the foundations for future social
marketing campaigns by contributing to this significant gap in the literature regarding the
influence of the current behaviours of primary caregivers on their young children’s eating
behaviours. Research Objective 2 of this research was to develop an integrated social marketing
schema to improve the influence of primary caregivers’ on young children’s eating behaviours in
obesogenic environments and so assist social marketers in influencing primary caregivers’
behaviours through education, motivation and advocacy.

Currently, literature regarding the factors influencing primary caregivers’ behaviours which
impact on young children’s eating behaviour, has a focus on barriers to healthy lifestyle
behaviours and reflects a lack of support from a theoretical model. SCT offers a comprehensive
structure within which to examine human behaviour. According to SCT, the human capabilities
that provide the cognitive means by which behaviour is determined – symbolising, vicarious,
self-reflective and self-regulatory capabilities, and forethought – are themselves determined by
factors which can be categorised into sources of influence to explain behaviour (personal factors,
environment and behaviour) (Bandura 1986, 1989). Background regarding the history of SCT and
its use in public health is available at Appendix 3L.

The purposes of SCT are (Bandura 1977b, 2004):

- to understand and predict individual and group behaviour
- to identify methods in which behaviour can be modified or changed
- for use in interventions aimed at personality development, behaviour pathology and health
  promotion.

SCT defines human behaviour within a triadic, dynamic and reciprocal interaction of personal
factors, behaviour, and the environment where human’s cognitive processes are influenced by
their perceived self-efficacy, perceived outcomes, perceived expectancy of outcome within the
context of their personal goals, morals and standards, which in turn mediates how and if
behaviours will be performed (Allen 2004; Bandura 1986; Lent, Brown & Hackett 1994). The interaction between personal factors, environmental factors and behaviour is termed ‘reciprocal determinism’.

Figure 3.4 represents the interaction between personal factors, environmental factors and behaviour (Bandura 1986). These sources of influence are of varying strength and do not all occur simultaneously. The interaction between the three factors will differ according to the individual, the particular behaviour being examined, and the specific situation in which the behaviour occurs (Bandura 1989).

**Figure 3:4    Reciprocal determinism**

![Reciprocal determinism diagram]

*Source: Wood and Bandura (1989, p 362)*

As presented in Figure 3.4 above, the person-behaviour interaction involves the bi-directional influences of one’s thoughts, emotions, and biological properties and one’s actions (Bandura 1977a, 1986, 1989). For example, a person’s expectations, beliefs, self-perceptions, goals and intentions influence behaviour; however, the behaviour that is conducted will then affect one’s thoughts and emotions (Bandura 1986).

The bi-directional interaction between the environment and personal characteristics involves the development and modification of human expectations, beliefs, and cognitive competencies by social influences and physical structures within the environment. Social influences can be mediated through factors including modelling, instruction, and social persuasion (Bandura 1986). Also, humans evoke different reactions from their environment as a result of their physical characteristics, such as age, size, race, sex and physical attractiveness.

The final interaction is between behaviour and the environment, that is that a person's behaviour will determine the aspects of their environment to which they are exposed, and behaviour is, in
turn, modified by that environment (e.g. an aggressive person will create a hostile environment) (Bandura 1977a, 1986).

The comprehensiveness and complexity of SCT can make it difficult to operationalise, with many applications of SCT focusing on just a few constructs, while ignoring others (Stone 1998). However, for this research each of the three key determinants of SCT has been incorporated into the theoretical framework.

*Personal* and *environmental* influences on primary caregivers become two of the five antecedents of the theoretical framework for this research.

In health promotion and disease prevention literature, the key determinants of SCT are:

- **knowledge** of health risks and benefits of different health practices
- **perceived self-efficacy**, i.e. beliefs of exercising control over one’s health habits
- **outcome expectations** about the expected costs and benefits for different health habits
- the health **goals** people set for themselves and the concrete plans and strategies for realising them
- the **perceived facilitators** and social and structural **impediments** to the changes they seek.

(Bandura 2004, p.144)

In terms of this research, primary caregiver **knowledge**, **outcome expectations** (*short-term objectives*) and **goals** (*long-term*) become the additional three antecedents of the theoretical framework.

Other determinants of SCT – **perceived facilitators** and **impediments** – are absorbed into categories of personal and environmental influence. **Self-efficacy** is one of the most important types of self-reflection and is a major determinant of self-reflection. According to Bandura (1977a), self-efficacy develops as a result of personal experiences and psychological state, and environmental or social influences. For the purposes of this research, these personal and environmental determinants of self-efficacy are considered, but not self-efficacy *per se*. **Outcome expectations** (*short-term objectives*) provides an important dimension of time and, with the addition of **knowledge** and **goals**, and the incorporation of **facilitators** and **impediments** into **personal** and **environmental** factors, all key determinants of SCT are expressed, thus providing a comprehensive framework examining human behaviour. For this research, and for the purposes of
clarity, *outcome expectations* are short-term and, instead of ‘outcome expectations’, will be referred to as ‘objectives’. *Goals* are long-term.

Antecedents to primary caregivers’ behaviours which influence young children’s eating behaviours are:

**Antecedent 1**: Short-term objectives of primary caregivers

**Antecedent 2**: Primary caregivers’ knowledge

**Antecedent 3**: Factors of primary caregivers’ environments

**Antecedent 4**: Personal factors of primary caregivers

**Antecedent 5**: Long-term goals of primary caregivers.

Themes within each antecedent were established and will be presented and discussed in relation to the extant literature, findings from Stage One and how they provided direction for Stage Two.

**Antecedent 1: Short-Term objectives of primary caregivers**

*Outcome expectations* (in this research – ‘short-term objectives’) stand alone as a key determinant of SCT. Outcome expectations (short-term objectives) refers to the expected costs and benefits for different health habits; *anticipated time to goal attainment* is considered a factor influencing degree of motivation and *perceived value of an activity* is a factor determining the degree to which a standard is internalised (Bandura 1986).

Long-term goals can set the course of personal change; however, Bandura (2004) proposes that there are too many competing influences at hand for distal goals to control current behaviour, thus making short-term attainable goals more effective at helping people to succeed by enlisting effort and guiding action in the present (Bandura 1986, 2004). In this research factors such as expected costs and benefits for short-term objectives are considered in Antecedent 1, while all factors associated with long-term goals are addressed in Antecedent 5. No themes relate to Antecedent 1, as displayed in Figure 3.5.

**Figure 3:5 Themes of Antecedent 1**

![Themes of Antecedent 1 diagram]

*Source: Developed for this research.*
During the convergent interviews it became apparent that primary caregivers have what appears to be conflicting motivations – to provide their children core foods but also to provide their children with HFSS foods. Such findings were also present independently in the extant literature (e.g. Pagnini et al. 2007; Pettigrew & Roberts 2006). The findings prompted the questioning regarding long-term goals (general and food-related) in Stage Two. A gap was identified in the literature regarding associations between primary caregivers’ general caregiving goals and short-term objectives. Additionally, an explicit question regarding conflicting motivations or ‘forces working against you’ was asked in Stage Two.

**Antecedent 2: Primary caregivers’ knowledge**

As for *outcome expectations* (short-term objectives), this antecedent stands alone as a key determinant of SCT, that is knowledge of health risks and benefits of different health practices (Bandura 2004). For this research this antecedent focuses on issues relating to food suitable for young children and other issues relating to child development (see Figure 3.6).

**Figure 3:6 Themes of Antecedent 2**

<table>
<thead>
<tr>
<th>Type and quantity of foods suitable for a young child</th>
<th>Primary caregivers’ knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other issues of child development</td>
<td></td>
</tr>
</tbody>
</table>

*Source: Developed for this research.*

*Type and quantity of foods suitable for a young child* includes themes of the nature and quantity of core foods; the nature and frequency of HFSS foods, and primary caregivers’ reasons why HFSS foods should and should not be provided to young children. Stage One contributed little to the extant literature with respect to the *type* of foods young children should eat; however, issues regarding the *quantity* of core foods a young child should eat became a focus of this research.

A summary of the extant literature relevant to quantity of food is as follows. The existence of children’s ability to self-regulate energy intake was established (Birch & Deysher 1986; Birch et al. 1991; Fox et al. 2006); however, it is a prevalent desire for children to eat more or ‘enough’ as determined by the primary caregiver (Chan 2005; Moore, Tapper & Murphy 2007; Orrell-Valente et al. 2007), and feeding practices predict uninhibited overeating and greater weight gain (Birch & Fisher 2000; Carper, Orlet Fisher & Birch 2000; Fisher 2007; Fisher, Rolls & Birch 2003; Johnson & Birch 1994; Orlet Fisher et al. 2003; Rolls, Engell & Birch 2000). Additionally,
pressure to eat can result in food dislikes and associated reduced intake of foods children are pressured to eat (Galloway et al. 2006). Pressure to eat is, however, ineffective in achieving weight gain (Faith et al. 2004a) which is one of the motivations for primary caregivers to pressure children to eat (Faith et al. 2004b; Fisher et al. 2002; Galloway, Lee & Birch 2003; Galloway et al. 2005; Spruijt-Metz et al. 2002; Wardle et al. 2005).

A key finding of Stage One was the diversity among primary caregivers regarding control of the quantity of core foods young children eat. Stage One revealed primary caregivers’ behaviours which could lead young children to over-consume or to eat when not hungry. These findings, informed by the extant literature, prompted a deep investigation in Stage Two of issues surrounding the quantity of core foods young children eat.

The theme of other issues of child development addresses primary caregiver knowledge regarding i) preference development and ii) issues relevant to stages of infant feeding. The extant literature provides comprehensive information regarding preference development in children, neophobia and ‘fussy’ eating (see Section 2.3). Stage One identified the key finding that primary caregivers change in their feeding behaviour as a child moves from being fed to self-feeding. This prompted exploration of children’s feeding histories in Stage Two.

**Antecedent 3: Factors of primary caregivers’ environments**
Themes included within this antecedent are a) influences from within the home, b) influences from beyond the home, c) feedback and iv) direct instruction. Most perceived facilitators and social and structural impediments to the changes primary caregivers seek (Bandura 2004) are incorporated into the antecedent ‘Personal factors of the primary caregiver’, or the first two themes of this antecedent, influences from within the home environment and influences from beyond the home environment. See Figure 3.7.

**Figure 3:7 Themes of Antecedent 3**

![Diagram showing themes of Antecedent 3](source: Developed for this research.)
Modelling by significant others is incorporated into this antecedent. Modelling is considered an influence from which people develop moral standards (Bandura 1986, 1989) and having a model like oneself or with a strong association is considered a factor which determines the degree to which a standard is internalised (Bandura 1989). The discussion regarding modelling within this antecedent relates to the influence of significant others on the primary caregiver – including the primary caregiver’s partner, the parents of the primary caregiver (child’s grandparents) and other primary caregivers.

Influences from within the home environment include those from the primary caregivers’ ex/partners and from the children’s siblings. Influences from beyond the home environment include influences on primary caregivers from society at large but with particular focus on attitudes supporting provision of HFSS foods. Feedback is a specific theme as, according to Bandura (1986, 1989), it influences the degree of one’s self-motivation, self-efficacy and development of moral standards. Discussed within the theme of feedback are ‘confronting others’ regarding their behaviour and ‘comparison of performance against peers’, the latter being a factor contributing to development of self-efficacy (Bandura 1977).

Direct instruction, in addition to feedback and modelling by significant others, is recognised as a factor contributing to development of moral standards (Bandura 1986) and impacting on behaviour. Standards are also developed from institutions such as education, media and religion, and political and legal agencies. Bandura (1989, 1991) contends that observation of behaviour often outweighs verbal instruction as an influence on internalisation of morals and standards. This theme incorporates direct instruction from authorities such as health campaigns as well as from other primary caregivers. ‘Persuasion of others’ is another factor contributing to development of self-efficacy (Bandura 1986).

Overall Stage One confirmed or augmented findings from the extant literature regarding factors of influence from the primary caregivers’ environments.
Antecedent 4: Personal factors of primary caregivers

Themes included within this antecedent are a) previous experiences, b) psychological state, c) perception of degree of control and d) personal characteristics. See Figure 3.8.

Figure 3:8 Themes of Antecedent 4

![Diagram showing themes of Antecedent 4]

Source: Developed for this research.

The theme of previous experiences relates to experiences of the primary caregiver; the theme includes childhood experiences as well as experiences since childhood, both observed and experienced. According to Bandura (1977) previous experience includes observed or experienced success or failures and impacts on self-reflective and forethought capabilities and is a major determinant of self-efficacy. There is no extant literature examining the real or perceived influence of previous experiences on primary caregivers and young children’s eating behaviours; however, the divergence in effect of childhood experiences and the potent effect of other experiences of primary caregivers identified in Stage One gave direction to Stage Two.

The theme of psychological state includes the areas of i) food as a priority for primary caregivers ii) responsibility and stresses of caregiving, iii) factors of expedience (time, desire for a happy home and child approval) and iv) socioeconomic issues (food costs, food refusal and wastage). One’s psychological state impacts on self-reflective capability and is also a major determinant of self-efficacy (Bandura 1977). Firstly, Stage One confirmed the high degree of stress experienced by some primary caregivers associated with caregiving. Secondly, factors of expedience and socioeconomic issues are commonly presented in the extant literature as barriers to healthier lifestyle behaviours (e.g. Brown, Scragg & Quigley 2008; Dwyer et al. 2008; Pagnini et al. 2007; Pettigrew & Roberts 2007). Stage One identified diversity amongst primary caregivers regarding these factors prompting further general exploration, selection of certain attributes (employment status and socioeconomic status) for theoretical sampling and inclusion of the sub-theme of priority given to food.
Perception of degree of control is a factor determining the degree to which a standard is internalised and it impacts on self-regulatory capability and self-efficacy (Bandura 1989). Key factors relevant to perception of degree of control were incorporated into this theme; they related yo pressure to provide HFSS foods, particularly in social settings.

Personal characteristics of primary caregivers including those attributes selected for theoretical sampling are included in this theme. Attributes selected for theoretical sampling are socioeconomic status, employment status and family configuration (presence of partner and presence of siblings). Demographic characteristics also considered in this theme are the age and education level of the primary caregiver; and the child’s age, breastfeeding duration and gender.

Antecedent 5: Long-term goals of primary caregivers
The final antecedent in health promotion and disease prevention relates to goals, specifically the goals that people set for themselves and the concrete plans and strategies for realising them (Bandura 1986, 2004). See Figure 3.9.

Figure 3:9 Themes of Antecedent 5

For this antecedent the long-term goals of primary caregivers were examined. Limited extant literature (Hart et al. 2003; Pagnini et al. 2007) suggesting that primary caregivers have little concern regarding the potential long-term consequences of their actions was not corroborated by the theme from Stage One that habits developed early are likely to persist. Research regarding the long-term goals of primary caregivers was identified as a gap in the literature and became a focus of analysis in Stage Two.

Thus, SCT provides a comprehensive framework for this research into primary caregivers’ influences on young children’s eating behaviours. The theoretical framework is presented in Figure 3.10. The antecedents are in direct relation with the research issues of Stage Two. The research issues are:


Research Issue 3. What factors in primary caregivers’ environments impact, via their behaviour, on young children’s eating behaviours? *How and why?*


The theoretical framework is depicted in Figure 3.10, and has been used for presentation of the research findings of Stage Two in Chapter 5.
Figure 3:10 Theoretical framework: Themes and antecedents

**Themes**

- Short-term objectives of primary caregivers
- Type and quantity of foods suitable for a young child
- Other issues of child development
- Influences from within the home
- Influences from beyond the home
- Feedback
- Direct instruction
- Previous experiences
- Psychological state
- Perception of degree of control
- Personal characteristics
- General long-term goals of caregiving
- Long-term food-related goals

**Antecedents**

- Short-term objectives of primary caregivers
- Primary caregivers’ knowledge
- Factors of primary caregivers’ environments
- Personal factors of primary caregivers’
- Long-term goals of primary caregivers

**Primary caregivers’ behaviours**

**Children’s eating behaviours**

*Source: Developed for this research.*
It is necessary to link these influences on primary caregivers (antecedents) to their behaviours which influence young children’s eating behaviours. The behaviours of primary caregivers which influence young children’s eating behaviours are feeding behaviours and primary caregivers as models for eating. The salience of primary caregivers as models to young children is established in the extant literature (e.g. Brown, Scragg & Quigley 2008) and confirmed in Stage One. Themes of primary caregivers as models warranted deep exploration in Stage Two.

### 3.7 Chapter summary

The aim of Stage One of this research was to identify important themes surrounding the influences of primary caregivers on young children’s eating behaviours, thus providing direction for the next stage of the research. This chapter examined the convergent interviewing method used for Stage One. The data gathered from the convergent interviews were analysed and reported. Results of the convergent interviews confirmed the impression gained from the literature review that a greater contribution can be made by this research examining the antecedent influences on primary caregivers of young children (*why they behave the way they do*); though it is considered necessary to link these influences on primary caregivers to *how* their behaviours influence children’s eating behaviours.

SCT has been presented as an appropriate theory providing a framework within which to proceed with this research. The theoretical framework in conjunction with findings of the convergent interviews and the extant literature synthesise to reveal gaps in the literature and direction for Stage Two. As Stage One informed the research regarding focus and direction for Stage Two, it also informed Stage Two regarding appropriate methodology. Case study methodology used in Stage Two is examined in the next chapter, Chapter 5.
Chapter 4 – Stage Two: Case study methodology

4.0 Introduction

Chapter 3 presented Stage One of this research which provided direction for Stage Two which uses case study methodology. Stage One was inductive and allowed the determination of SCT as an appropriate theory and the development of the theoretical framework of the research. Chapter 4 has nine sections (Figure 4.1). After this introduction, the chapter continues with a discussion of case study research and the two-stage approach used in this research (Section 4.1). Next, validity and reliability assessment are discussed in Section 4.2; then research design issues (Section 4.3). Data collection procedures are then discussed (Section 4.4) followed by data analysis (Section 4.5). Finally, ethical considerations (Section 4.6) and limitations of the case study methodology are presented (Section 4.7), followed by the chapter summary (Section 4.8).

Figure 4:1 Outline of this chapter
4.1 Case study research

This section introduces case study research as a method within the realism paradigm. Its use in Stage Two of this research is justified; a discussion of the two-stage methodological approach and the role of prior theory are presented in this section.

The realism paradigm using case studies is applied when research needs to identify crucial factors associated with a problem. The case method ‘describes a way to systemise observation … and aims for in-depth understanding of the context of a phenomenon’ (Cavaye 1996, p. 229). Case study research is suited to descriptive studies as its goal is to gain an understanding of the underlying reasons and motivations of the phenomena within its real life context (Berg & Lune 2012; Malhotra & Birks 1993; Yin 2009). Case study research can also be described as a methodology that focuses on a group, organisation or industry in order to rigorously explore and analyse contemporary real-life experiences, in-depth (Creswell 2007; Riege 1996). It is concerned with describing real world phenomena rather than developing normative decision models. As such, case study research fits well within the realism paradigm.

The definition of case studies is two-fold (Yin 2009). Firstly, relating to the scope of a case study, a case study is an empirical inquiry that investigates a contemporary phenomenon in depth and within its real life context especially when the boundaries between phenomenon and context are not clearly evident. Secondly, data collection and data analysis strategies comprise the definition. The case study inquiry copes with the technically distinctive situation in which there will be many more variables of interest than data points, and as one result relies on multiple sources of evidence, with data needing to converge in a triangulating fashion, and as another result benefits from the prior development of theoretical propositions to guide data collection and analysis (Yin 2009, p. 18).

A number of different research strategies can be used in descriptive studies. Table 4.1 describes the situations for different research strategies or methodologies (Yin 2009).
### Table 4:1 Relevant situations for different research strategies

<table>
<thead>
<tr>
<th>Strategy or method</th>
<th>Form of research question</th>
<th>Requires control over behavioural events?</th>
<th>Focuses on contemporary events?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experiment</td>
<td>How, why</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Survey</td>
<td>Who, what, where, how many, how much</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Archival analysis</td>
<td>Who, what, where, how many, how much</td>
<td>No</td>
<td>Yes/No</td>
</tr>
<tr>
<td>History</td>
<td>How, why</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Case Study</td>
<td>How, why</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*Source: Yin 2009, p. 8.*

The use of case research methodology for this research was appropriate as it provided an opportunity to build theory; and it enabled the examination of *how* and *why* research questions relevant to contemporary events in an environment where control over the events being researched was not possible.

The two-stage approach and the role of prior theory are now discussed.

#### 4.1.1 Two-stage approach

There is controversy about the role prior theory can play in case research and theory building. Pure inductive theory building can assume that theoretical constructs are developed through the collection of primary data and, therefore, prior theory is considered by some researchers to have no role in the research (see Eisenhardt 1989; Parker & Roffey 1997). On the other hand, other researchers acknowledge that prior theory has a place in case research (see Miles & Huberman 1994; Yin 2009).

This research, as proposed by Perry (1998b), employs a model of research situated somewhere between pure induction (theory building) and deduction (theory testing). The concepts of induction and deduction can be viewed on a continuum (Perry 2001) with acknowledgement that ‘fact and theory’ (that is induction and deduction) are each necessary for the other to be of value (Berg & Lune 2012; Emory & Cooper 1991). Pure induction, also known as grounded theory, emphasises theory building solely from primary data and is situated at one extreme of the continuum (Glaser & Strauss 1967). At the other extreme of this continuum lies pure deduction whose focus is primarily testing existing theory (Guba & Lincoln 1994).
Figure 4.2 below illustrates the use of induction and deduction in theory building case study research. The left hand side of the figure shows the more inductive or ‘exploratory’ approach (Yin 1994, 2009) where the first case on the left hand side of the figure is almost purely grounded theory. Data collection and analysis of the next cases on the left hand side are informed by the first case and from prior theory (if used).

Figure 4:2  Comparison of two case study positions

The disadvantages of this very inductive approach is that all cases cannot be compared with each other because different interview questions are used for each case and the researcher runs the risk of ‘discovering’ existing theory (Perry 1998b). This two-stage research approach of using convergent interviews followed by case studies has been used by others (Carrington, Neville & Whitwell 2011; Spencer-Matthews 2003; Wong et al. 2011).

The process of theory building relies on past literature and empirical observation or experience as well as the insight of the theorist to build more powerful theories. There are times when little is known about a phenomenon and current perspectives seem inadequate because they have little empirical substantiation or they conflict with each other or common sense. In these situations, theory building from case studies is particularly appropriate because this method does not rely on previous literature or prior empirical evidence. Theory building from case studies is most appropriate in the early stages of research on a topic or to provide freshness in perspective to an already researched topic (Eisenhardt 1991). The framework of building theory from case study
research is appropriate for this research and results predominantly from seminal work established by Yin (2009), Miles and Huberman (1984), Eisenhardt (1991) and Perry (2001). In addition, a priori specification of constructs, population specification, flexible instrumentation, cross-case analysis tactics and uses of literature are processes directed towards the development of testable hypotheses – or in this research, propositions – which are generalisable across settings (Eisenhardt 1991).

4.1.2 Use of prior theory

In Chapter 2, the extant literature was examined (summarised in Figure 2.5 displaying themes of primary caregivers’ influences on young children’s eating behaviours). Stage One (16 convergent interviews) was exploratory and its findings were used to inform Stage Two as outlined in Chapter 3. Also resulting from Stage One, the question ‘why do primary caregivers behave the way they do’ provides a focus for Stage Two. SCT was identified as an appropriate theory and was used to develop the theoretical framework and research issues underpinning Stage Two. For Stage Two, themes and issues emerging from Stage One allowed development of the interview questions as detailed in Section 4.4. More specifically, prior theory was used predominantly in Stage Two of this research, as illustrated in Figure 4.3 below. Just one interview protocol was used in Stage Two to confirm or disconfirm elements of prior theory whilst still allowing introduction of new concepts. Stage Two research involved 24 cases and enabled the generation of new theory through cross-case data analysis (Perry 1998b) (see Figure 4.3).
This two-stage approach acknowledges that ‘fact and theory’ (that is induction and deduction) are each necessary for the other to be of value (Berg & Lune 2012; Emory & Cooper 1991) or, as Perry (2001) explains, the process of ongoing theory advancement requires continuous interplay between the two. Results from case studies include the contribution of rich insights, the development of concepts, the generation of theory and the drawing of specific implications. The current research contributes to theory in three of these areas: firstly, the contribution of rich insights into the primary caregivers’ influences on the eating behaviour of young children using a multiple case approach; secondly, the generation of theory in the area of primary caregiver influence on young children’s eating behaviours that can be further tested in subsequent studies; and finally, the implications for theory and practice.
In summary, the usefulness and applicability of case study research to the research issues under investigation have been highlighted. Eisenhardt (1991) notes that theory building from case studies is likely to generate novel theory; emergent theory is likely to be testable with constructs (antecedents, which convert directly to research issues) and hypotheses – or, in this research, propositions – that can be proven false and the resultant theory is likely to be empirically valid, because the theory building process is so intimately tied with evidence.

In brief, case study research fits within the realism paradigm and, as in this research, uses a model of research incorporating both induction (theory building) and deduction (theory testing). The next section explains how the findings of this research were based on sound methodological principles and practice.

### 4.2 Validity and reliability assessment

This section explains how this research was conducted to meet the criteria for judging the validity and reliability of qualitative research within the realism paradigm as proposed by Healy and Perry (2000) and others (Lincoln & Guba 1985; Miles & Huberman 1994; Neuman 1994; Yin 1994). These criteria for rigour are presented within the elements of research paradigms – ontology, epistemology and methodology – and are summarised in Table 4.2. Especially as ‘ideas for increasing trustworthiness are … should dos rather than must dos’ (Carlson 2010, p. 1102), the measures taken are considered to have been adequate with the high risk of participant bias in research involving only one researcher. For a more detailed discussion and comparison of these criteria with measures traditionally associated with qualitative and quantitative research see Appendix 4A.

A common criticism of social marketing is the lack of theory and direct applications (Brennan, Voros & Brady 2011). Brennan, Voros and Brady (2011) propose taxonomy of types of validity resulting in four categories of validity each of which have a separate role in social marketing research. These concepts of validity are acknowledged but were not utilised in this research.

As presented in Table 4.2 at all levels, measures have been taken to assure validity and reliability of the research. Despite efforts at the epistological and methodological levels the lack of use of cross-coders is acknowledged as a limitation of the research.
Table 4.2 Criteria for validity and reliability

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Definition/explanation</th>
<th>Measures taken</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ontological level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ontological appropriateness</td>
<td>Realism assumes that the research is dealing with complex social phenomena involving reflective people.</td>
<td>Primary caregivers’ influence on young children’s eating behaviours is a complex social phenomenon.</td>
</tr>
<tr>
<td>Contingent validity</td>
<td>Achieved by naming and describing broad, generative mechanisms (Perry, Riege &amp; Brown 1999).</td>
<td>Focus of Stage Two is ‘why?’ and ‘how?’ theoretical and literal replication (see Section 4.4); description of the research participants is provided.</td>
</tr>
<tr>
<td><strong>Epistemological level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multiple perceptions of participants and of peer researchers</td>
<td>Multiple perceptions about a single reality</td>
<td>Multiple sources of evidence (direct observation, in-depth interviews and projective techniques); multiple interviews; peer reviewed papers (Healy &amp; Perry 2000).</td>
</tr>
<tr>
<td>Respondent/member validation</td>
<td></td>
<td>Clarification with participant during and post interview (e.g. Miles &amp; Huberman 1994; Kvale 2007; Yin 2009).</td>
</tr>
<tr>
<td>Objectivity / researcher craftsmanship</td>
<td></td>
<td>Researcher self-description and awareness of her values supporting evidence and broad questions before probes (Healy &amp; Perry 2000).</td>
</tr>
<tr>
<td>Pragmatic validation</td>
<td></td>
<td>Checking; that the researcher plays ‘the devil’s advocate towards his or her own findings’ (Glaser &amp; Strauss 1967; Kvale 2000); reflective practice (Denzin &amp; Lincoln 2008)</td>
</tr>
<tr>
<td><strong>Methodological level</strong></td>
<td></td>
<td>Observation and (reported) actions of primary caregivers’ behaviours (Kvale 2007)</td>
</tr>
<tr>
<td>Methodological trustworthiness</td>
<td>The extent to which the research can be audited.</td>
<td>Interview transcripts, researcher notes are available; case selection (Section 4.3), interview procedures (Section 4.4), data analysis techniques and open and axial coding are explained to allow auditability; findings incorporate the use of relevant quotations and matrices that summarise data (Chapter 5).</td>
</tr>
</tbody>
</table>
Analytic generalisation | Theory-building | Recording of rich descriptions of data; use of cross-case analysis and coding during the data analysis stage (Lincoln & Guba 1985; Miles & Huberman 1994; Neuman 1994; Yin 1994). Transferability is enhanced by triangulation (Jick 1979); theory building regarding influences on primary caregivers which in turn impact on their young children’s eating behaviours.

Construct validity | How well the information about the constructs (antecedents) in the theory being built is measured in the research. | Triangulation (multiple sources of evidence: Sections 4.4 and 4.5; (Patton 1990); establishment of a chain of evidence (recording the data collection process, utilisation of the interviewer’s guide (Appendix 4H) and verbatim transcription of the in-depth interviews (Hirschman 1986; Yin 1994) which facilitated the data analysis process; identification of research issues and use of interview protocol.

Source: Adapted from Healy and Perry (2000); synthesised from sources acknowledged in the table.

In summary, this section outlined the measures used to ensure the research achieved rigorous outcomes. The following section addresses issues regarding case study research design.

### 4.3 Case study research design

This section commences with a discussion of the number of cases and their selection. It concludes with a discussion of the types of case study research designs. Replication logic (both literal and theoretical replication) is then discussed in relation to this research.

#### 4.3.1 Case selection

Case selection is determined by two main criteria: the number of cases (either single or multiple) and the number of units of analysis (either single or multiple).

Firstly, when considering the number of cases, a single case study is only appropriate when a) the case is a critical test of an existing theory; b) the case represents a unique, rare or extreme situation; or c) the case is revelatory or d) the study is longitudinal (Yin 2009). None of these situations apply to this research and, therefore, a multiple case research design is required.
Multiple case research design provides rich information suitable for theory building (Perry 1998). It also allows for the use of replication logic to provide clarity or contrasting results for explainable reasons (Perry 1998; Yin 1994, 2009) and is suitable in the investigation of a complex phenomenon (Eisenhardt 1989; Yin 2009).

The second criterion in determining the research design relates to the unit of analysis. Whether the study is single or multiple case design, more than one unit of analysis may be embedded within each case. A case that has a single unit of analysis is known as a holistic case – such as this research (Yin 1994, 2009). Whether a case is embedded or holistic depends on what is being researched and the research question (Yin 1994, 2009). A holistic design is appropriate when the information sought is broad and abstract (Yin 1994), as is the case for this research. Although in some instances the partner of the primary caregiver was present during the research interview, the unit of analysis is the primary caregiver of a young child and a holistic, multiple case design is used.

4.3.2 Replication logic

Multiple case design uses replication logic rather than sampling logic when selecting cases (Patton 1990). Replication logic involves the selection of cases that either predict similar results (literal replication) or predict contrasting results but for anticipatable reasons (theoretical replication) (Yin 2008, 2009). Selection of specific cases allows extension of the theory to a broad range and multiple cases within each category allows findings to be replicated within categories (Eisenhardt 1989). In this research theoretical replication is the basis of the research design of case selection. Selection of an appropriate population controls extraneous variation and helps to define the limits for generalising the findings. The research design used for Stage Two provides both a) literal replication and b) theoretical replication which will now be discussed.

a) Literal replication

Literal replication is provided by the selection of cases that predict similar results (Yin 2008, 2009). In this research the environmental variation is controlled by purposeful selection of primary caregivers of young children. For Stage Two, cases were primary caregivers of children aged between 1–2½ years. The desired age of the child is as young as practically possible as i) primary caregivers’ influence reduces as children age (Huston et al. 1999); ii) eating behaviours established in childhood persist into adulthood (Boulton, Margery & Cockington 1995; Kelder et al. 1994; Mikkilä et al. 2004; Singer et al. 1995); iii) childhood intake reflects later weight status.
(Fiorito et al. 2009); iv) risk of overweight and obesity commences at a very early age (Reilly et al. 2005); and v) childhood overweight and obesity persist into adulthood (e.g. Dietz 2001; Freedman et al. 2005). The lower end of the age range was selected as, by one year of age, children are expected to be eating family food (Dietary Guidelines for Children and Adolescents in Australia 2003) and are, therefore, subject to modelling by primary caregivers. It is expected that if children are eating family food, in contrast to being at various stages of eating solids, variation in primary caregiver behaviour is minimised. The narrow age range of the child, 1–2½ years of age, has also been chosen for this reason. Also, with younger children primary caregiver memories are likely to be more accurate and these are the most current primary caregivers of society; hence, the research is contemporary.

b) Theoretical replication

Theoretical replication is provided by the selection of cases that predict contrasting results but for anticipatable reasons (Yin 2008, 2009). In keeping with the research methodology of filling theoretical categories and providing examples of polar types, diversity in cases is sought. Specifically, diversity is sought regarding i) socioeconomic status, ii) family configuration and iii) employment status of the primary caregiver. Each of these theoretical categories will be discussed.

i) Socioeconomic status

As discussed in Chapter 2 (Section 2.2.5), in affluent countries overweight and obesity are associated with lower socioeconomic status, especially in women and rural communities (Pena & Bacallao 2000; Seidell & Rissanen 2004). Research has indicated differences across socioeconomic status groups regarding issues such as i) dietary intake of children (Ruxton et al. 1996), adolescents (Neumark-Sztainer et al. 1998; Xie et al. 2003) and families (Department for Environment, Food and Rural Affairs 2005; Dowler & Calvert 1995); ii) childhood overweight and obesity (Nichols et al. 2011; Sanigorski et al. 2008; Veugelers & Fitzgerald 2005); iii) mealtime structure and feeding practices (Orrell-Valente et al. 2007); and iv) caregiver enforcement of restrictive feeding practices, attribution of responsibility to schools and receptiveness to nutritional advice (Hart et al. 2003).

As primary caregivers are more commonly females (ABS 2012b), influences on women’s eating behaviours which have found to vary by SES are also relevant; these influences are health consciousness and a lack of time due to family commitments (more salient among higher SES women) (Inglis, Ball & Crawford 2005); perceived high cost of healthy eating (e.g. Promoting
Healthy Eating & Active Living in Children Project 2002); and lack of time due to work commitments (more important for low SES women) (Inglis, Ball & Crawford 2005).

However, as discussed in Chapter 2, there was some evidence that in Western countries such as Australia overweight and obesity are becoming increasingly sociocultural, in contrast to socioeconomic issues (Booth et al. 2007; Food Standards Agency 2007; McLaren 2007; Nichols et al. 2011; Swinburn et al. 2004).

ii) Family configuration

Variation in family configuration, particularly regarding the presence of a partner and the number of children in the family, was considered a relevant case selection criterion. Children from single parent households are at increased risk of being overweight or obese (Danielzik et al. 2004; Gibson et al. 2007); are less likely to have an organised mealtime environment; and are less likely to eat with others (Orrell-Valente et al. 2007). A major finding of the convergent interviews (Stage One), and commonly presented as a barrier to provision of core foods, was the prominent influence of the primary caregivers’ partners (or ex-partners). Also, periodical absence of a partner was identified as an influencing factor on the primary caregiver. Regarding number of children in the family, a study using a social cognitive model identified shoppers with more children had less healthy nutrition behaviour and lower self-efficacy for healthy nutrition (Anderson, Winett & Wojcik 2000).

iii) Employment status

Variation regarding employment status of the primary caregiver was also considered a relevant case selection criterion. As presented in Chapter 2, research specifically examining the link between caregiver employment and children’s weight is very limited, but work-family spill over appears to affect eating behaviours in some families while others appear to have developed coping strategies to negate potential problems (Brown, Scragg & Quigley 2008). The attendance of the case child at a child care centre was considered acceptable for this stage of the research to access primary caregivers in the workforce and the possible influence of peers on the child’s eating behaviours is recognised.

This concludes the discussion of case selection criteria for replication logic in the research design. Details of cases regarding socioeconomic status, family configuration (partner presence and presence of siblings) and employment status of the primary caregiver are provided in Table 4.3.
Table 4:3 Cases represented to demonstrate theoretical and literal replication

<table>
<thead>
<tr>
<th>Subject#</th>
<th>SES</th>
<th>Employment status*</th>
<th>Partner present</th>
<th>Siblings of case child**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Candice</td>
<td>High</td>
<td>NH (PT)</td>
<td>FT</td>
<td>0o ; 0y</td>
</tr>
<tr>
<td>Don</td>
<td>High</td>
<td>NH (PT)</td>
<td>FT</td>
<td>1o ; 1y</td>
</tr>
<tr>
<td>Helga</td>
<td>High</td>
<td>NW</td>
<td>FT</td>
<td>1o ; 0y</td>
</tr>
<tr>
<td>Heather</td>
<td>High</td>
<td>NW</td>
<td>FT</td>
<td>1o ; 0y</td>
</tr>
<tr>
<td>Jinny</td>
<td>High</td>
<td>NW</td>
<td>FT</td>
<td>2o ; 0y</td>
</tr>
<tr>
<td>Leslie</td>
<td>High</td>
<td>NH (PT)</td>
<td>FT</td>
<td>2o ; 0y</td>
</tr>
<tr>
<td>Lillian</td>
<td>High</td>
<td>NH (PT)</td>
<td>FT</td>
<td>0o ; 0y</td>
</tr>
<tr>
<td>Raven</td>
<td>High</td>
<td>NH (PT)</td>
<td>PT</td>
<td>2o ; 0y</td>
</tr>
<tr>
<td>Raelene</td>
<td>High</td>
<td>NH (PT)</td>
<td>FT</td>
<td>0o ; 0y</td>
</tr>
<tr>
<td>Reanna</td>
<td>High</td>
<td>NH (PT)</td>
<td>FT</td>
<td>0o ; 0y</td>
</tr>
<tr>
<td>Sally</td>
<td>High</td>
<td>H (PT)</td>
<td>FT</td>
<td>1o ; 0y</td>
</tr>
<tr>
<td>Andrea</td>
<td>Low</td>
<td>NH (PT)</td>
<td>FT</td>
<td>2o ; 0y</td>
</tr>
<tr>
<td>Jacki</td>
<td>Low</td>
<td>AH (PT)</td>
<td>FT</td>
<td>twin</td>
</tr>
<tr>
<td>Jeanie</td>
<td>Low</td>
<td>NW</td>
<td>FT</td>
<td>0o ; 0y</td>
</tr>
<tr>
<td>Karly</td>
<td>Low</td>
<td>H (PT)</td>
<td>None</td>
<td>0o ; 0y</td>
</tr>
<tr>
<td>Kate</td>
<td>Low</td>
<td>NH (PT)</td>
<td>FT</td>
<td>0o ; 0y</td>
</tr>
<tr>
<td>Kelsie</td>
<td>Low</td>
<td>NW</td>
<td>FT</td>
<td>1o ; 0y</td>
</tr>
<tr>
<td>Kerry</td>
<td>Low</td>
<td>NH (PT)</td>
<td>FT</td>
<td>0o ; 0y</td>
</tr>
<tr>
<td>Lindy</td>
<td>Low</td>
<td>NW</td>
<td>None</td>
<td>1o ; 0y</td>
</tr>
<tr>
<td>Nita</td>
<td>Low</td>
<td>NW</td>
<td>FT</td>
<td>0o ; 1y</td>
</tr>
<tr>
<td>Regina</td>
<td>Low</td>
<td>NH (PT)</td>
<td>FT</td>
<td>2o ; 0y</td>
</tr>
<tr>
<td>Savannah</td>
<td>Low</td>
<td>NH (PT)</td>
<td>FT</td>
<td>1o ; 0y</td>
</tr>
<tr>
<td>Tania</td>
<td>Low</td>
<td>NW</td>
<td>None</td>
<td>1o ; 0y</td>
</tr>
<tr>
<td>Teresa</td>
<td>Low</td>
<td>H (PT)</td>
<td>FT</td>
<td>0o ; 0y</td>
</tr>
</tbody>
</table>

# Names of participants have been changed to protect their identity
* working status-not working (NW); working from home, part time (H (PT)); working away from the home, part time (NH (PT)); or full-time (NH(FT))
*** number of older and younger siblings of the case child in the household, e.g. one older sibling, no younger siblings 1o ; 0y.

Source: Analysis of field data.

Although the research was confined to the Sunshine Coast, Queensland, the socioeconomic diversity of participants was broad; 13 of the 24 cases were from a lower socioeconomic region, 11 from a higher socioeconomic region. The research accessed 2006 Census data, from which a SEIFA (Socio-Economic Indexes for Areas) score is created using information about people and households in a particular area. The Australian Bureau of Statistics (ABS) recommends that deciles should be used for most analyses. The distribution of scores is divided into ten equal groups. The lowest scoring 10 per cent of areas are given a decile number of 1, the second-lowest 10 per cent of areas are given a decile number of 2 and so on, up to the highest 10 per cent of areas which are given a decile number of 10. Percentiles divide a distribution into 100 equal groups.
Table 4.4 displays the SEIFA scores, deciles and percentiles for each of the socioeconomic areas by state and Australia-wide indicating that the socioeconomic diversity of participants in the study, although not statistically representative, is indicative of the wider Australian population.

Table 4.4 Socio-Economic Indexes for Areas (SEIFA) scores

<table>
<thead>
<tr>
<th>Area</th>
<th>SEIFA Score</th>
<th>Decile</th>
<th>Percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Queensland</td>
<td>Australia</td>
</tr>
<tr>
<td>Low SES</td>
<td>888</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Area</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High SES</td>
<td>1070</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Area</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Developed for this research from 2006 Census data.

The family configuration of the sample was also indicative of the Australian population with three of the 24 cases (12.5 per cent) being one parent families headed by mothers. According to the Australian Bureau of Statistics, in 2006–2007, 14 per cent of families were one parent families. In Table 4.3 instead of simply indicating marital status, the presence of the partner is categorised as full-time (FT), absent periodically (PT) or no partner (None). Presence of older and younger siblings in the household of the case child is also detailed.

In 2008, 45 per cent of children aged 0–2 years within couple families had both parents employed (ABS 2009b). In this study 12 of 21 (57 per cent) of the primary caregivers from couple families reported to work away from home (part-time or full-time). In 2008, for single parent families of children aged 0–2 years, only 28 per cent had the parent employed and in this study one of three primary caregivers from sole parent families was employed. Again, although statistical representation cannot be claimed, the cases were considered indicative of Australian families.

Theoretical replication regarding socioeconomic status, family configuration and work status of the primary caregiver was sought and achieved within the cases. Cases were purposively recruited from two divergent socioeconomic regions and, to achieve equal representation from both regions, more effort was required to recruit from the lower socioeconomic region. During the selection procedure monitoring of family configuration and employment status occurred and purposive selection regarding these characteristics was not required. Contact and recruitment procedures will be discussed next as the process used to select the cases is described.
4.3.3 Case selection procedure

Cases were selected using purposeful sampling (Patton 1990) designed to provide in-depth information regarding primary caregivers’ influences on young children’s eating behaviours. Both theoretical and literal replications were gained through selecting cases from two diverse socioeconomic regions and limiting cases to being primary caregivers of children aged 1–2½ years old. Two diverse socioeconomic regions according to SEIFA scores were targeted. Cases were recruited from medical centres and child care centres within each of these regions as primary caregivers – employed and unemployed – were sought.

Recruitment notices in the form of flyers and posters (See Appendix 4B) were displayed in the various centres. Members of staff were encouraged to draw the attention of caregivers with young children to the flyers. The recruitment notices used in Stage Two used layman’s terminology and had a tone of empathy for difficulties that primary caregivers may experience with feeding. Compared to the approach used in Stage One, this language was considered to be less confronting and more likely to result in responses. The approach used in Stage Two was not considered to have biased the sample as, firstly, ‘difficulties’ experienced by the participants were not different from those reported by the participants as being experienced in the wider population. Secondly, participants who were interviewed were asked to consider friends or acquaintances as to their preparedness to participate in the study – the snowball technique was used (Berg & Lune 2012; Cooper & Schindler 2001; Marshall 1996).

The same criteria of eligibility for participation were applied as in Stage One except that the child of the primary caregiver was aged 1–2½ years. It is noteworthy that the Recruitment Notice (Stage Two) stipulates that participants are to be the primary caregivers of a child between 1 and 2 years of age. During recruitment, the age was extended to 2½ years due to the lack of availability of participants. After eligibility was established, participants were provided some general information regarding the research. The Research Information Sheet (Appendix 4C), information regarding privacy (Appendix 4D) and the Consent Form (Appendix 4E) were provided either by email or post. The requirement that the interview was to be recorded was discussed at this stage. Either at this stage or later, an interview time and venue were arranged. Some demographic information was collected over the phone to enhance rapport between researcher and participant but also to minimise time required for interviews (Appendix 4F). Details of the interview guide and conducting the interviews are given in Section 4.5: Data Collection Procedures. A total of 29 potential participants made contact with the researcher but
five were excluded from the research for the following reasons; ineligibility due to not having a child meeting the age criteria (n=2) or an interview was unable to be arranged during the interview period (n=3).

4.3.4 Number of cases

There are no precise guides to the number of cases to be included in qualitative research (Patton 1990; Perry 1989). However, cases are required in sufficient numbers to provide valid, meaningful insight and information richness (Eisenhardt 1989); to achieve literal and theoretical replication (Patton 1990; Yin 1994, 2009) and/or to provide saturation (Lincoln & Guba 1985; Mason 2010). The study of too few cases does not meet these objectives and does not allow for adequate theory building (Eisenhardt 1989), whilst too many cases provide unnecessary complexity (Miles & Huberman 1994). The recommended range of cases varies from a minimum of four (Eisenhardt 1989; Perry 1998) to a maximum of 15 (Miles & Huberman 1994; Perry 1998). Overall, the widest accepted range seems to fall between two to four as the minimum and ten, 12 or 15 as the maximum (Perry 1998).

Perry (1998) recommends that established guidelines be used as a starting point for research design and reflects on Patton’s comment (1990, p. 185):

The validity, meaningfulness and insights generated from qualitative inquiry have more to do with the information-richness of the cases selected and the observational/analytical capabilities of the researcher than with sample size.

Perry (1998) recommends that a doctoral thesis should aim for 35–50 interviews. The total number of interviews for this thesis is 40 with Stage One comprising 16 interviews and Stage Two comprising 24 interviews. The guiding principle affecting sample size in qualitative research is recommended to be saturation (Mason 2010) – and saturation was reached.

Mindful of these considerations and recommendations for the required number of cases, the number of interviews is considered appropriate. In particular, for Stage Two of this research each of the 24 cases provided one interview and the division based on the case selection criteria of socioeconomic status was fairly even (11 cases from the higher socioeconomic region and 13 cases from the lower socioeconomic region). As the sample represented the wider population and met the other case selection criterion previously described, the number of cases was considered adequate.
This completes the discussion regarding the case selection criteria and procedure. In the next section data collection procedures used in the research are presented.

### 4.4 Data collection procedures

This section outlines the data collection technique used in Stage Two of this research. Firstly, a reminder of the overall process of data collection for the entire research is given in Figure 4.4.

**Figure 4:4  Data collection for the research project**

![Data collection process diagram](image)

*Source: Developed for this research.*

Convergent interviews (Chapter 3) were used to give direction to the research and develop the interview protocol for Stage Two (1). As depicted, pilot studies (n=2) were conducted (2, 3), allowing trialling of the preliminary interview guide as part of the interview protocol development before collection of the data for Stage Two (4) (see Section 4.4.3). Before presenting information regarding the interview protocol, the skills necessary for data collection and the multiple sources of evidence in data collection are discussed.
4.4.1 Researcher skills required for case study data collection

Case research requires certain skills and awareness on the part of the researcher. In line with the framework suggested by Patton (2002, p. 566), more information about the research is gained through answers to the following three questions.

1. **What experience and training does the researcher have?**

The researcher is an Accredited Practising Dietitian who has worked in private practice for over 20 years. She is also qualified and has been working as a Credentialled Diabetes Educator for over 10 years. As such, she is experienced in observation and one-on-one interviewing which require skills necessary for in-depth interviewing. This interviewing experience has been important in allowing the researcher to establish rapport with interviewees and maintain the flow of information during the interview (Patton 1990; Yin 1994, 2009). As a comfortable flow of information was desirable during the interviews, each interview was approached somewhat differently. Although a guide was used to provide some degree of structure to the interviews, the researcher was required to employ a flexible and tailored questioning style. Issues were often addressed nonsequentially due to the open-ended nature of many of the questions. In addition, probe questions were used throughout the interviewing process to capture the individual nature of responses (Carson et al. 2001) and to clarify meaning and understanding.

The work history of the researcher has predominantly involved adults with clinical issues including overweight and obesity and related conditions such as type 2 diabetes mellitus and hyperlipidaemia. Consequently, the researcher has an acute awareness of the personal and health risks associated with overweight and obesity. In addition, the researcher has had her own children and, as a dietitian with a high level of interest in nutritional issues, she has experienced the challenges of combining motherhood with employment, factors considered advantageous to the research and its methodology. Whilst her experience with nutrition-related issues was considered advantageous, her comparative lack of professional involvement with children was also considered advantageous as it may have been a cause for interviewer bias.

As a Member of the Dietitians Association of Australia since 1985, the researcher has been exposed to and worked under the profession’s Code of Ethics. In addition, the researcher has attended courses in Applied Research Methods and NVivo during the course of this research.
2. What perspective does the researcher bring to the field?

The perspective adopted by the researcher was complementary with the realism paradigm of the research. She acknowledges that individuals experience the world differently; that people construct their own meaning based on their own perceptions, experiences and background; but that meaning is socially constructed.

3. What prior knowledge did the researcher bring to the research topic and study site?

Due primarily to the researcher’s training and experience she brought knowledge associated with eating, food science and overweight and obesity. Her knowledge also included an appreciation of the great impact that families do have on their children’s eating behaviours. Although the majority of her work has not been associated with children, her approach in dealing with overweight children has required whole family involvement and modelling.

4.4.2 Measures to address respondent bias

As background to this discussion of sources of evidence, it is appropriate to discuss the high level of respondent bias or social desirability bias predicted in the research.

‘Social desirability’ is the tendency of an individual to convey an image in keeping with social norms and to avoid criticism in a ‘testing’ situation (Hebert et al. 1995). Social desirability bias occurs when respondents are unwilling or unable to report accurately on sensitive topics resulting in data that are systematically biased towards respondents’ perceptions of what is ‘correct’ or socially acceptable (Maccoby & Maccoby 1954). Social desirability bias has been found to occur in virtually all types of self-report measures and across nearly all social science literatures (Levy 1981).

One such area of research is that of alcohol consumption. Points of view regarding accuracy and reliability of self-reported alcohol consumption vary. Numerous studies have shown that self-reported methods have been both accurate and reliable (Brener, Billy & Grady 2003; Cooper et al. 1981; Dufour 1999; Harrison 1997; Patrick et al. 1994). The accuracy of self-reporting is largely a function of the social stigma surrounding the behaviour and likelihood that the respondent will report sensitive information (Harrison 1997). As alcohol use is widely accepted and young adults are less concerned with reporting sensitive information (Harrison 1997), this method has been deemed appropriate to gather information surrounding young women’s alcohol consumption (O’Hara et al. 2007; O’Hara et al. 2008), although this has been challenged and other reasons for inaccurate self-reporting of alcohol intake have also been identified (Rundle-Thiele 2009).
Such an endorsement, however, cannot be made regarding self-reporting of food intake and the issue of respondent bias is likely to be present; measures are needed in the research method to reduce this bias. It is widely held that specific types of foods or patterns of eating are healthy or desirable and others are unhealthy or undesirable (Drewnowski 1990; Lake et al. 2007). Specific dietary recommendations aimed at population subgroups appear to influence dietary self-reporting, for example, pregnant women have been shown to upwardly bias their estimates of total energy intake in a manner consistent with antenatal dietary advice (Suitor, Gardner & Willett 1989). In other female populations where lower intakes are the ideal, a downward bias is observed (Willett et al. 1985). Social desirability bias is well documented in dietary self-reporting but it has also been identified where primary caregivers are reporting intake on behalf of children (Sobo et al. 2000).

Other considerations relevant to this discussion are that expressing one’s desire for social approval is considered inappropriate, at least in American culture (Fisher 1993); individuals consistently evaluate themselves as less motivated by social approval than typical others (Fisher 1993); and susceptibility to social influence decreases with age (Park & Lessig 1977). Indirect questioning has been found to reduce social desirability bias on variables subject to social influence but has no significant effect on socially neutral variables (Fisher 1993).

To address and minimise the issue of social desirability bias, particularly in this stage of the research, indirect questioning and other measures were incorporated into various stages of the research design (recruitment, interviews and analysis):

- appealing to primary caregivers having ‘difficulties’ regarding feeding their children in rather than presenting the research as being about ‘parental influences’ during participant recruitment (Appendix 4B)
- presentation of the researcher as a researcher; her background as a dietitian while not concealed, was not promoted
- use of the Interview Guide (Section 4.5.3); specific use of indirect questioning and the projective technique during the interviews (previously presented in Section 3.4.2)
- consciousness on the part of the researcher to build rapport, take time and be non-judgemental
- multiple sources of evidence for triangulation
• measures previously discussed in Section 4.3 to meet criteria for multiple perceptions of peer researchers (see Table 4.2).

Multiple sources of evidence were required for triangulation to address this bias and to meet quality criteria as discussed in Section 4.3. Sources of evidence – observation and in-depth interviews incorporating a projective technique – are discussed in more detail throughout this section.

*Observation* is a qualitative research technique that assists the researcher in gaining an insight into the participants’ true feelings through the observation of non-verbal behaviour (Patton 1990; Yin 1994) in the natural setting of the ‘case’ (Yin 2009). Observations may be made regarding facial expressions, body language, the use of silence and the use of noise. In this research, observations were recorded as notes made immediately after the interviews prompted by the Interview Guide (see Appendix 4G). They included observations regarding the home environment of the participant such as presence of containers from take-away meals or the general order of the home. Observations regarding the physical state of the interviewee and partner, if present, were noted. Hesitation, brevity of responses and inconsistency in direction of responses were also considerations contributing to data analysis. Examples of how this information was used in the analysis process are provided in Appendix 5C.

*In-depth interviews* were the second source of evidence allowing the researcher to obtain rich insights into the research issues through careful questioning and the development of a rapport with respondents (Cooper & Schindler 2001). The interview process incorporated the opportunity to probe into issues that required further exploration or clarification (Merriam 1988; Yin 2009). Indirect questioning and the use of a projective technique also incorporated into the interview process were considered imperative in this research to reduce interviewer bias and meet criteria for rigour.

### 4.4.3 The Interview Guide

The major function of the Interview Guide is to meet the quality criterion of *analytic generalisation* as discussed in Section 4.3. Each of the five research issues emerging from the theoretical framework (Chapter 3) was addressed in the Interview Guide, as detailed in Table 4.5.

*Source: Developed for this research.*
### Table 4:5 Interview questions and corresponding research issues

<table>
<thead>
<tr>
<th>Interview question</th>
<th>Alignment with research issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Tell me about the history of the child’s eating...</td>
<td>RI 2: Knowledge</td>
</tr>
<tr>
<td></td>
<td>RI 4: Personal factors</td>
</tr>
<tr>
<td>2. Tell me what you think about food.</td>
<td>RI 2: Knowledge</td>
</tr>
<tr>
<td></td>
<td>RI 4: Personal factors</td>
</tr>
<tr>
<td>3. Tell me about your experiences regarding food as a child.</td>
<td>RI 4: Personal factors</td>
</tr>
<tr>
<td>4. Generally, what are your objectives as a parent?</td>
<td>RI 1: Short-term objectives</td>
</tr>
<tr>
<td></td>
<td>RI 5: Long-term goals</td>
</tr>
<tr>
<td>5. Regarding food, what are your objectives as a parent?</td>
<td>RI 1: Short-term objectives</td>
</tr>
<tr>
<td></td>
<td>RI 5: Long-term goals</td>
</tr>
<tr>
<td>6. What do you think are ways that parents influence their children about what they eat?</td>
<td>RI 3: Environmental factors</td>
</tr>
<tr>
<td>7. Are there any differences in your child’s diet when you’re working or not working (or busy vs. less busy)?</td>
<td>RI 3: Environmental factors</td>
</tr>
<tr>
<td></td>
<td>RI 4: Personal factors</td>
</tr>
<tr>
<td>8. What about the amount a child should eat? Who determines that?</td>
<td>RI 2: Knowledge</td>
</tr>
<tr>
<td>9. Tell me what you consider to be foods that should be provided to a child on an everyday basis.</td>
<td>RI 2: Knowledge</td>
</tr>
<tr>
<td>10. Now let’s talk about the other foods.</td>
<td>RI 2: Knowledge</td>
</tr>
<tr>
<td></td>
<td>RI 3: Environmental factors</td>
</tr>
<tr>
<td>11. Do you think there’s a conflict between what you’re trying to achieve and other needs?</td>
<td>RI 1: Short-term objectives</td>
</tr>
<tr>
<td></td>
<td>RI 4: Personal factors</td>
</tr>
<tr>
<td></td>
<td>RI 5: Long-term goals</td>
</tr>
<tr>
<td>12. Use Projective Technique (see Appendix 4I)</td>
<td>RI 3: Environmental factors</td>
</tr>
<tr>
<td>- child in trolley in supermarket – child crying, mother frustrated, stranger looking on</td>
<td>RI 3: Environmental factors</td>
</tr>
<tr>
<td>- man drinking from a can – child reaching up</td>
<td>RI 2: Knowledge</td>
</tr>
<tr>
<td>- mothers talking – toddlers playing</td>
<td>RI 3: Environmental factors</td>
</tr>
<tr>
<td>- child in high-chair at table – making mess; man and woman at table</td>
<td>RI 3: Environmental factors</td>
</tr>
<tr>
<td>13. Tell me your thoughts about your own eating habits.</td>
<td>RI 4: Personal factors</td>
</tr>
<tr>
<td>14. Do you eat meals together?</td>
<td>RI 3: Environmental factors</td>
</tr>
<tr>
<td>15. Do you ever eat foods you consider unhealthy with or in front of your child?</td>
<td>RI 4: Personal factors</td>
</tr>
</tbody>
</table>

*Source: Developed for this research.*

Specifically, the Interview Guide serves to manage each interview consistently and allows provision of data for confirming or disconfirming theory. The Interview Guide consists of three parts; a) procedures before and after the interview, b) the interview questions and prompts and c) an interview summary prompting the researcher to make notes immediately after the interview including key points made, non-verbal issues and new information emerging (see Appendix 4G).
The interview questions and prompts were developed predominantly from the literature review (Chapter 2) and the outcomes from the convergent interviews (Chapter 3).

Interviews are verbal reports and, as such, are potentially subject to problems of bias, poor recall and inaccurate articulation and, therefore, cannot be considered without reference to other sources (Yin 1994, 2009). To address these concerns, triangulation of data sources and careful design of the instrument were required. The questions were designed so that, although the interview remained largely open-ended and assumed a conversational manner, the interviewer was seeking to gather new insights into the topic, and also to corroborate certain facts that had been previously established from the literature and Stage One. Stage Two of the research required a more structured Interview Guide, aiming for all questions to be asked to allow cross-case comparison during analysis. The preliminary interview guide was trialled through two pilot cases allowing testing of content, structure and procedure (Yin 1994, 2009). The pilot cases were selected on the basis of close geographic proximity, easy accessibility and willingness to participate.

The pilot cases allowed the researcher to review the process and make final adjustments before proceeding with data collection. Procedures for conducting the pilot study interviews were similar to those for the main study with only minor differences. After it was established that the participant was eligible and prepared to participate, they were asked to consider all aspects of the contact and interview procedures for later discussion. At the completion of the interview, participants in the pilot study were asked to comment on the contact procedures and the interview experience (Appendix 4I). As a result of the pilot studies the order of some questions was changed and terminology of some questions was modified. The final and complete Interview Guide is at Appendix 4G.

Once the final version of the interview protocol was completed, data were collected using multiple cases. Interviews were conducted according to the procedures of the Interview Guide with an emphasis on establishment of rapport. All interviews were taped and later transcribed by two organisations providing professional secretarial services. There were a total of 612 pages transcribed from the 24 interviews. Each of the cases was summarised as soon as possible after the interview. The interviews ranged in time from 50 minutes to 1 hour and 30 minutes.

Collected data were stored on a database providing efficient and secure organisation of the data. After tapes were transcribed all information relevant to each case was kept on an electronic
database. This completes the discussion regarding data collection instruments and procedures. Data analysis is now discussed.

4.5 Data analysis

The previous section presented issues relevant to data collection. This section describes the processes of data analysis employed in Chapter 5. The process of data analysis is imperative in qualitative research because this analysis can lead to the development of theory (Eisenhardt 1989). The quality of qualitative data analysis often depends on the interpretive and analytical abilities of the researcher since there are few standards guiding analysis (Eisenhardt 1989; Miles & Huberman 1984; Yin 1994).

Seminal authors in qualitative analysis, Miles and Huberman (1994, p. 12) contend that ‘qualitative analysis is a continuous iterative enterprise’ in which data reduction, data display and drawing conclusions are part of the analytical process. Overall, analysis of data in Stage Two was conducted using these processes, as displayed in Figure 4.5 below.

**Figure 4:5 Components of Stage Two data analysis: Interactive model**

![Interactive model diagram]

*Source: Miles & Huberman (1994, p. 12).*

For Stage Two, initial steps in data analysis for each case commenced at the data collection phase and took the form of immediate checking of interviewer notes. Audio-recordings were transcribed and transcriptions were checked with the audio-recording to clarify any missing or unclear detail. The interviewees were provided a copy of the revised transcript and were invited to report any
Stage Two: Case study methodology

misinterpretations. To develop a chain of evidence throughout the collection of cases, each individual case was described and briefly analysed (approximately one page per case) to provide an overview. Each individual case summary included details of the interview, observations and a brief description of main or new issues emerging.

For data reduction, the following steps are suggested (Berg & Lune 2012; Miles & Huberman 1994; Neuman 1997):

1) classifying/coding the provided information into different arrays to facilitate the search and retrieval of data and identify emerging themes and patterns
2) summarising and paraphrasing
3) subsuming specific instances into larger patterns
4) quantifying instances into numbers and ranks.

Accordingly, data reduction in this research consisted of identifying themes from the data – or ‘open coding’ (Ezzy 2002) – and coding or classifying the data to reduce and organise the mass of data to a manageable but meaningful and structured amount (Patton 1990). Initial classification was grounded in categories based on the interview questions. Further categories were developed as new themes emerged from the data, and some categories of themes were merged (axial coding). Ezzy (2002, p. 91) states that the aim of axial coding ‘is to integrate codes around the axes of central categories’. Selective or theoretical coding also occurred where the core category around which the analysis focuses was identified (Ezzy 2002).

Software packages such as NUD*IST (and NVivo8) are intended for managing unstructured research data and identifying themes in the data (Miles & Huberman 1994). Use of such software packages has been criticised as potentially leading to the creation of distance between the researcher and the understanding of their data (Carson & Coviello 1996; Ezzy 2002). In this research, the majority of the data analysis was undertaken manually to ensure full immersion in the data and NVivo 8 was used primarily for data management.

Data displays were used to summarise data enabling the categories of data to be effectively and efficiently presented. It has been argued that validity may be enhanced by data displays that are focused enough to permit viewing of a full data set on one location, are systematically arranged to answer the research questions at hand; and help to see patterns (Miles & Huberman 1994, p. 432-433). The categories of data can be manipulated and arranged to provide meaningful insight,
comparison, contrast and access to information (Miles & Huberman 1994). In this research, the data were displayed through the use of matrices in the form of tables and figures, as well as quotations. This allowed complex issues to be examined in a simple format, the frequency of issues to be measured and patterns identified.

*Conclusions* can then be drawn from the displayed data. Drawing and verifying conclusions required data to be condensed, clustered, sorted, and linked over time. Seeking regularities and patterns, drawing explanations and re-checking data formed part of this process (Yin 1994, 2009).

As previously discussed, the research was expected to involve considerable respondent bias or, more specifically, social desirability bias. The research design including the analysis incorporated strategies to address this. Within-case analysis was necessary for each case before proceeding with cross-case analysis. Within-case analysis was considered essential to determine i) the intake of HFSS foods by primary caregivers (thus reflecting the nature of their eating behaviours), ii) the intake of HFSS foods by children (thus reflecting the nature of their eating behaviours), and iii) whether it is the child or the primary caregiver who determines quantity of core foods the child eats.

Various strategies for cross-case analysis were employed (Eisenhardt 1989). Similarities and differences were sought between selected groups of cases. Categories were selected then within-group similarities coupled with intergroup or across-group differences were sought. As theories were developing, the emergent frame was systematically compared with the evidence from each case. This involved the sharpening of constructs (antecedents) by i) refining or measuring the definition of the construct (antecedent) and ii) verifying relationships or building evidence which measures the construct (antecedent) in each case (Eisenhardt 1989). The construct (antecedent), its definition and measurement often emerge from the analysis process itself (Eisenhardt 1989). Analysis involved the verification that the emergent relationships between antecedents fit with the evidence provided (see Appendix 5I).

An additional strategy used in theory building was comparison of emergent themes with extant literature. Literature which conflicts with the emergent theory was examined i) to increase confidence in findings and ii) to result in deeper insight into emergent theory and the conflicting theory. Literature discussing similar findings but in a different context was also examined with the purpose of associating underlying similarities in phenomena normally not linked with each other. This provided theory with stronger internal validity; wider generalisability and higher
conceptual level (Eisenhardt 1989). Conclusions drawn from the data collection were able to be evaluated against findings from prior theory culminating in further development of theory in Chapter 5 which also presents findings from the data compared with the extant literature. In Section 5.5 analysis culminates in a diagrammatic representation of the research findings (themes and associations).

In summary, in accordance with the two stage research design, Stage Two has an emphasis on cross-case analysis and is directed towards the development of testable propositions which are generalisable across settings.

4.6 Ethical considerations

In research, ethical considerations need to be made to protect the participant, the researcher and the integrity of the research (Cooper & Schindler 2001; Patton 1990; Stake 1995). In Stage Two of this research, the ethics research protocol required by the University of the Sunshine Coast was followed. The ethics standards of the university were met by having approved an Application for Ethics Approval for Research Involving Humans – Ethics Approval Number for Stage Two was HREC: [S/09/209]. Issues regarding the research participants, the researcher and the research itself were addressed by the ethics approval and will be briefly discussed.

Research participants have the right to be treated in a manner considerate of their interests (Patton 1990). Measures taken to achieve this were i) participation was voluntary, ii) written consent was obtained (Appendix 4F), and iii) participants were informed of the purpose of the research and the process of the interview in the Research Information Sheet (Appendix 4D). Additionally, participants’ privacy was protected (Miles & Huberman 1994); written information regarding privacy was provided and discussed (Appendix 4E); participants were informed that information provided by them would be de-identified and accessible only to the researcher and supervisors; and withdrawal with no penalty was possible at any stage (Appendix 4F).

Researcher issues relate to the professional reputation of the researcher and the associated university. Professionalism was achieved by the researcher treating the participants with respect and conducting herself in a businesslike manner (Stake 1995).

Research outcomes were also dependent on ethical considerations being incorporated into the research design (Cooper & Emory 1995). The researcher’s genuine, open yet sensitive manner fostered cooperation of participants and quality research outcomes.
This completes the discussion regarding ethical considerations of the research. Limitations of the research are discussed in the next section.

## 4.7 Limitations of case study research

The usefulness and applicability of case study research to the issues under investigation have been highlighted; however, this method, as with all methods, is not without its limitations (Eisenhardt 1989; Perry 1998). Six limitations of case study research are presented; some strategies used in the research to address the limitations have been discussed at length elsewhere but are summarised in Table 4.6; with discussion of each to follow.

### Table 4.6 Limitations of case study research and strategies to address them

<table>
<thead>
<tr>
<th>Limitation</th>
<th>Strategy to address</th>
<th>Relevant chapters or sections</th>
</tr>
</thead>
</table>
| 1. Overly complex theory       | • Role of prior theory  
|                                | • Research issues developed  
|                                | • Interview Guide                                                           | Chapters 3 and 4; Section 4.4; Appendix 4G |
| 2. Operational difficulty      | • Interview Guide and associated procedures                                    | Section 4.4; Appendix 4G                |
| 3. Propensity for bias         | • Avoiding leading questions  
|                                | • Cognisant of sensitivity to bias                                             | Section 4.4                              |
| 4. Limited external validity   | • Role of prior theory  
|                                | • Multiple cases                                                                | Chapters 3 and 4; Section 4.3; Section 4.3; Chapter 5 |
|                                | • Replication logic                                                              |                                          |
|                                | • Comparison of results to literature                                           |                                          |
| 5. Limited generalisability    | • Role of prior theory  
|                                | • Multiple cases                                                                | Chapters 3 and 4; Section 4.4; Chapter 4.3 |
|                                | • Research design                                                               |                                          |
| 6. Restrictions of approach    | • Variety of data sources and collection techniques                             | Chapter 3; Section 4.4                  |

*Source: Based on Yin (1994); Parkhe (1993); Eisenhardt (1989).*

Firstly, it has been suggested that case studies can lead to the development of *overly complex theory* that proves less than useful in illuminating the selected research issues (Eisenhardt 1989; Parke 1993). This relates to the intensity of data collection resulting in superfluous data confounding data analysis. For the purposes of this research, this limitation was managed through the use of prior theory in focusing and refining the research issues (Chapter 3) and developing the Interview Guide prior to data collection and analysis (Chapter 3; Section 4.4).
The second limitation of case study research relates to *operational difficulty*. Operational difficulty involves the problems of conducting the research in terms of logistics and procedural issues (Eisenhardt 1989; Parkhe 1993). This limitation was managed through the use of the Interview Guide and associated procedures to guide the interview process (Parkhe 1993; Yin 1994, 2009) (see Section 4.4; Appendix 4G).

The third limitation is regarding the propensity for *bias*, either from the researcher or the participants (Eisenhardt 1989; Hamel 1993). Risk of respondent bias was an issue managed predominantly through triangulation of data sources and other measures as discussed in Section 4.5.2. The risk of researcher bias was managed in this research through awareness of its potential and measures taken as extensively discussed (see Section 4.4).

The fourth limitation is the issue of limited *external validity* (Eisenhardt 1989), a criticism stemming from quantitative research techniques that value statistical generalisation (Yin 1994). This problem was addressed in this research through the use of multiple case studies and replication logic, thus using analytical generalisation for theory building (Yin 1994, 2009). Findings were further enhanced in Chapter 5 through comparison with extant literature.

The fifth limitation is *limited generalisability* of case research, specifically, that the resulting theory may be narrow in its application (Eisenhardt 1989; Yin 1994). This limitation was addressed in this research through the use of prior theory and multiple cases thus increasing the generalisability of the research (Section 4.3).

The final limitation concerns *restrictions of approach* and relates to the inability of a single approach to achieve sound theory development (Parkhe 1993). This limitation was addressed by the use of a range of data sources and data collection techniques. Data were collected by the use of prior theory, convergent interviewing and case studies.

In summary, this research took the necessary steps to ensure that the limitations of case study research were minimised, resulting in a robust methodology.
4.9 Chapter summary

In summary, case study research is highly complementary to incremental theory building when a fresh perspective is needed or for research where existing theory seems inadequate (Parkhe 1993). This chapter has demonstrated the appropriateness of the case study method for studying the primary caregiver influence on the eating behaviours of young children. The case study method was justified in terms of its appropriateness to the realist research paradigm. The research process was outlined in terms of the process itself and analytical activities used. Next, the findings for Stage Two of the research are presented.
Chapter 5 – Stage Two: Analysis and findings

5.0 Introduction to this chapter

While the previous chapter detailed the case study methodology for Stage Two, this chapter presents analysis procedures and findings from Stage Two. The chapter is arranged into six main sections (Figure 5.1). Firstly this section describes the purpose and layout of the chapter (Section 5.0). Next, each case and its participants are described (Section 5.1). An overview of Stage Two analysis procedures is provided (Section 5.2). Section 5.3 presents associations between demographic characteristics and key attributes and Section 5.4 presents the findings (themes and associations) by each research issue. Section 5.5 provides a schema of the research findings and associations. The chapter is summarised in Section 5.6. Note that the term ‘association’ used in this Chapters 5 and 6 is not intended to suggest statistical significance but describes patterns identified in the data.

Figure 5:1 Outline of this chapter

<table>
<thead>
<tr>
<th>Chapter 1 – Introduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter 2 – Literature review</td>
</tr>
<tr>
<td>Chapter 3 – Stage One: Convergent interview method, analysis and findings</td>
</tr>
<tr>
<td>Chapter 4 – Stage Two: Case study methodology</td>
</tr>
<tr>
<td>Chapter 5 – Stage Two: Analysis and findings</td>
</tr>
<tr>
<td>Chapter 6 – Discussion and implications for social marketing</td>
</tr>
</tbody>
</table>

5.0 Introduction to this chapter

5.1 Profile of participants

5.2 Overview of Stage Two analysis procedures

5.3 Associations between demographic characteristics and key attributes
   - 5.3.1 Theoretical sampling attributes
   - 5.3.2 Other demographic characteristics of primary caregivers and case children

5.4 Research findings (themes and associations) by research issue
   - 5.4.1 Short-term objectives
   - 5.4.2 Primary caregivers’ knowledge
   - 5.4.3 Environmental factors
   - 5.4.4 Personal factors
   - 5.4.5 Long-term goals of primary caregivers

5.5 Schema explaining how and why primary caregivers influence young children’s eating behaviours in an obesogenic environment

5.6 Chapter summary
5.1 Profile of participants

Stage Two involved 24 cases selected for diversity in socioeconomic status, family configuration and employment status of the primary caregivers (see Section 4.3). Each family unit is a case, with one or two participants (primary caregiver alone or with partner) per case. One in-depth interview per case was conducted. Triangulation was provided by the use of a projective technique and observation.

Although the research was confined to the Sunshine Coast, Queensland, the socioeconomic diversity of participants was broad. The socioeconomic diversity attained amongst the participants although not statistically representative, was considered indicative, of the Australian population, as was the family configuration of the sample and employment status of the primary caregivers.

This section gives an overview of each case as part of the within-case analysis process, as espoused by Patton (1990). This, as well as further within-case analysis, helps contextualise the later, cross-case analysis of the data. Firstly, generic descriptions of the cases were developed. These are summarised in Table 5.1 which shows the case code, number of interviewees, date of the interview, relevant demographic data and data relevant to theoretical sampling.

Data presented in Table 5.1 were collected as relevant to primary caregivers being influential on children’s eating behaviours. Education level of the primary caregiver was categorised by secondary and tertiary levels but also according to the relevance of tertiary training to child development. Post-secondary school training considered not relevant to child development included Honours or Bachelor Degrees in Arts, English, Business Administration, Social Work, Adult Education and Training, Financial Planning, Business, Marketing and Marine Science and Diploma or Certificate 3 level training in Journalism, Nursing and Office Administration. Post-secondary school training considered relevant included Bachelor Degrees in Human Services (Mother, Child and Family), Special Education, Early Childhood, Education, Nursing, Science (Food Science and Technology) and other recognised child care training.
### Table 5: Overview of cases

<table>
<thead>
<tr>
<th>Case#</th>
<th>Interviews</th>
<th>Date of Interview</th>
<th>Age (yrs)</th>
<th>Gender</th>
<th>Primary caregiver Education Level*</th>
<th>Employment Status**</th>
<th>Partner Present</th>
<th>Age (months)</th>
<th>Gender</th>
<th>Siblings***</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HIGH SOCIOECONOMIC AREA–SEIFA</strong>&lt;sup&gt;4&lt;/sup&gt; <strong>SCORE 1070</strong></td>
<td>Candice</td>
<td>1</td>
<td>16.7.09</td>
<td>32</td>
<td>Female</td>
<td>R</td>
<td>NH (PT)</td>
<td>FT</td>
<td>19</td>
<td>Male</td>
</tr>
<tr>
<td></td>
<td>Don</td>
<td>1</td>
<td>8.9.09</td>
<td>39</td>
<td>Male</td>
<td>NR</td>
<td>NH (FT)</td>
<td>FT</td>
<td>27</td>
<td>Male</td>
</tr>
<tr>
<td></td>
<td>Helga</td>
<td>1</td>
<td>16.7.09</td>
<td>34</td>
<td>Female</td>
<td>&lt;incl Yr12</td>
<td>NW</td>
<td>FT</td>
<td>22</td>
<td>Male</td>
</tr>
<tr>
<td></td>
<td>Heather</td>
<td>2</td>
<td>10.7.09</td>
<td>44</td>
<td>Female</td>
<td>R</td>
<td>NW</td>
<td>FT</td>
<td>27</td>
<td>Male</td>
</tr>
<tr>
<td></td>
<td>Jimmy</td>
<td>1</td>
<td>15.9.09</td>
<td>41</td>
<td>Female</td>
<td>R</td>
<td>NW</td>
<td>FT</td>
<td>26</td>
<td>Female</td>
</tr>
<tr>
<td></td>
<td>Leslie</td>
<td>1</td>
<td>7.7.09</td>
<td>37</td>
<td>Female</td>
<td>NR</td>
<td>NH (PT)</td>
<td>FT</td>
<td>17</td>
<td>Male</td>
</tr>
<tr>
<td></td>
<td>Lillian</td>
<td>2</td>
<td>8.10.09</td>
<td>25</td>
<td>Female</td>
<td>NR</td>
<td>NH (PT)</td>
<td>FT</td>
<td>18</td>
<td>Female</td>
</tr>
<tr>
<td></td>
<td>Raven</td>
<td>1</td>
<td>22.9.09</td>
<td>30</td>
<td>Female</td>
<td>&lt;incl Yr12</td>
<td>NH (PT)</td>
<td>PT</td>
<td>27</td>
<td>Female</td>
</tr>
<tr>
<td></td>
<td>Raelene</td>
<td>1</td>
<td>25.8.09</td>
<td>39</td>
<td>Female</td>
<td>&lt;incl Yr12</td>
<td>NH (PT)</td>
<td>FT</td>
<td>27</td>
<td>Female</td>
</tr>
<tr>
<td></td>
<td>Reanna</td>
<td>1</td>
<td>14.7.09</td>
<td>33</td>
<td>Female</td>
<td>NR</td>
<td>NH (PT)</td>
<td>FT</td>
<td>16</td>
<td>Male</td>
</tr>
<tr>
<td></td>
<td>Sally</td>
<td>1</td>
<td>16.9.09</td>
<td>33</td>
<td>Female</td>
<td>NR</td>
<td>H (PT)</td>
<td>FT</td>
<td>12</td>
<td>Female</td>
</tr>
<tr>
<td><strong>LOW SOCIOECONOMIC AREA–SEIFA</strong>&lt;sup&gt;4&lt;/sup&gt; <strong>SCORE 888</strong></td>
<td>Andrea</td>
<td>1</td>
<td>10.9.09</td>
<td>34</td>
<td>Female</td>
<td>R</td>
<td>NH (PT)</td>
<td>FT</td>
<td>29</td>
<td>Male</td>
</tr>
<tr>
<td></td>
<td>Jacki</td>
<td>1</td>
<td>6.10.09</td>
<td>31</td>
<td>Female</td>
<td>NR</td>
<td>H (PT)</td>
<td>FT</td>
<td>13</td>
<td>Male</td>
</tr>
<tr>
<td></td>
<td>Jeannie</td>
<td>1</td>
<td>30.9.09</td>
<td>36</td>
<td>Female</td>
<td>NR</td>
<td>NW</td>
<td>FT</td>
<td>23</td>
<td>Male</td>
</tr>
<tr>
<td></td>
<td>Karly</td>
<td>1</td>
<td>27.6.09</td>
<td>38</td>
<td>Female</td>
<td>NR</td>
<td>H (PT)</td>
<td>None</td>
<td>17</td>
<td>Female</td>
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<td></td>
<td>Kate</td>
<td>1</td>
<td>22.7.09</td>
<td>40</td>
<td>Female</td>
<td>NR</td>
<td>NH (PT)</td>
<td>FT</td>
<td>12</td>
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<tr>
<td></td>
<td>Kelsie</td>
<td>1</td>
<td>19.8.09</td>
<td>33</td>
<td>Female</td>
<td>R</td>
<td>NW</td>
<td>FT</td>
<td>14</td>
<td>Male</td>
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<tr>
<td></td>
<td>Kerry</td>
<td>1</td>
<td>13.8.09</td>
<td>27</td>
<td>Female</td>
<td>R</td>
<td>NH (PT)</td>
<td>FT</td>
<td>24</td>
<td>Female</td>
</tr>
<tr>
<td></td>
<td>Lindy</td>
<td>1</td>
<td>10.9.09</td>
<td>36</td>
<td>Female</td>
<td>NR</td>
<td>NW</td>
<td>None</td>
<td>26</td>
<td>Female</td>
</tr>
<tr>
<td></td>
<td>Nita</td>
<td>2</td>
<td>30.9.09</td>
<td>24</td>
<td>Female</td>
<td>NR</td>
<td>NW</td>
<td>FT</td>
<td>28</td>
<td>Female</td>
</tr>
<tr>
<td></td>
<td>Regina</td>
<td>1</td>
<td>10.9.09</td>
<td>29</td>
<td>Female</td>
<td>&lt;incl Yr12</td>
<td>NH (PT)</td>
<td>FT</td>
<td>13</td>
<td>Female</td>
</tr>
<tr>
<td></td>
<td>Savanna</td>
<td>1</td>
<td>22.7.09</td>
<td>24</td>
<td>Female</td>
<td>&lt;incl Yr12</td>
<td>NH (FT)</td>
<td>FT</td>
<td>20</td>
<td>Female</td>
</tr>
<tr>
<td></td>
<td>Tania</td>
<td>1</td>
<td>19.8.09</td>
<td>28</td>
<td>Female</td>
<td>NR</td>
<td>NW</td>
<td>None</td>
<td>18</td>
<td>Female</td>
</tr>
<tr>
<td></td>
<td>Teresa</td>
<td>1</td>
<td>19.8.09</td>
<td>33</td>
<td>Female</td>
<td>NR</td>
<td>H (PT)</td>
<td>FT</td>
<td>26</td>
<td>Male</td>
</tr>
</tbody>
</table>

**Note:** Shading to aid readability only. # Names of participants have been changed to protect their identity. 
*Source: Analysis of field data.*

<sup>4</sup>SEIFA(Socio-Economic Indexes for Areas) Scores used to indicate socioeconomic status in this research

<sup>*</sup>Education level—<incl Yr12 (up to and including Year 12); R(tertiary education considered relevant included Bachelor Degrees in Human Services (Mother, Child and Family), Special Education, Early Childhood, Education, Nursing, Science (Food Science and Technology) and other recognised Child Care training); NR(tertiary education considered not relevant included Honours or Bachelor Degrees in Arts, English, Business Administration, Social Work, Adult Education and Training, Financial Planning, Business, Marketing and Marine Science and Diploma or Certificate 3 level training in Journalism, Office Administration and Nursing)

** working status—not working (NW), working from home, part time (H (PT)), working away from the home, part time (NH (PT)) or full-time (NH(FT)); *** number of older (no) and younger siblings (ny) in the household, e.g. one older sibling, no younger siblings 1o : 0y. 

**Stage Two: Analysis and findings**

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Additionally, the employment status of the primary caregiver is categorised as not working (NW), working from home, part-time (other than in child care role) (H (PT)), working away from the home, part-time (NH (PT)) or full-time (NH (FT)). Presence of the partner was considered as Stage One had identified that periodical absence of the partner was an influencing factor on the primary caregiver. Presence of older and younger siblings in the household is also detailed.

A case database was established by the researcher and provides information about the individual participants including contact details as well as interview transcripts, field notes and other miscellaneous documentation (Yin 1994). The database was maintained under secure conditions according to requirements of the ethics protocol and during analysis, as indicated in Table 5.1 above, participant data were de-identified.

5.2 Overview of Stage Two analysis procedures

The processes of subsequent within-case analysis and cross-case analysis are presented in this section. The next stage of analysis was within-case and involved processing other data received from the interview encounter. This was aided by the use of NVivo 8. The interview transcripts were initially coded by response to interview questions. Despite all participants being asked the same questions, there were not always clear answers to each question from each participant. In addition to responses to questions asked, other data were coded into detailed categories (see Appendix 5A). Associated categories were then merged into themes, often presenting conflicting reports of attitudes or behaviours of primary caregivers. By way of illustration, the topics of these themes and an example of one of these themes (modelling) including quotes and researcher notes, are provided in Appendix 5B.

Determination of intake of HFSS foods by primary caregivers and young children is used in this research to reflect the nature of their eating behaviours. A major focus of the with-in case analysis was to make a determination of certain attributes:

a) eating behaviours of primary caregiver (low or high in HFSS foods)

b) eating behaviours of case child (low, regular or high in HFSS foods)

c) whether the child or the primary caregiver determined the quantity of core foods eaten by the child.

For cases in which there were two participants (the primary caregiver and the primary caregiver’s partner), the comments of the partner served as a source of triangulation. More commonly, however, within-case analysis was complicated by the participant providing conflicting information on the same
topic but in differing contexts during the interview. The professional experience of the researcher was pertinent to this process and the resulting determinations. The researcher was particularly cognisant of participant bias so observation of the household environment and non-verbal cues also served as triangulation, thus contributing to the analysis and data reduction. Specific examples of this process are presented in Appendix 5C.

The cases were categorised by eating behaviours of primary caregiver and case child. The resultant categories and coded cases are presented in Table 5.2. For other key attributes (behaviours and attitudes), a table was developed for data display and to aid cross-case analysis as suggested by Miles and Huberman (1994) (see Appendix 5D).

### Table 5.2 Categories by eating behaviours of primary caregiver and case child

<table>
<thead>
<tr>
<th>Category by eating behaviour</th>
<th>Cases#</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary caregiver (low HFSS eating behaviours) Case child (low HFSS eating behaviours)</td>
<td>Candice, Jacki, Kelsie, Nita, Reanna</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary caregiver (low HFSS eating behaviours) Case child (regular or high HFSS eating behaviours)</td>
<td>Karly, Leslie</td>
</tr>
<tr>
<td>Primary caregiver (high HFSS eating behaviours) Case child (low HFSS eating behaviours)</td>
<td>Andrea, Helga, Jeannie, Kate, Lillian</td>
</tr>
<tr>
<td>Primary caregiver (high HFSS eating behaviours) Case child (regular HFSS eating behaviours)</td>
<td>Don, Heather, Raelene, Teresa, Kerry</td>
</tr>
<tr>
<td>Primary caregiver (high HFSS eating behaviours) Case child (high HFSS eating behaviours)</td>
<td>Jinny, Lindy, Raven, Regina, Savana, Sally, Tania</td>
</tr>
</tbody>
</table>

# Names of participants have been changed to protect their identity
Source: Analysis of field data.

Having completed within-case analysis, comparison of patterns that arise across the cases was undertaken. This comparison is cross-case analysis and involves using the variables from the data to identify patterns, similarities and differences between the cases as suggested by Eisenhardt (1989) and Yin (1989). Cross-case analysis was conducted primarily with the use of the Table of Key Attributes (Appendix 5D) to seek associations. This was performed initially among the attributes determined from with-in case analysis, namely Primary caregiver eating behaviours, Case child eating behaviours and Child determines quantity of core food eaten, with other general attributes (primary caregiver attitudes or comments). Where robust associations were identified between these three key attributes and other general attributes, these general attributes were deemed key and prompted further analysis. These additional attributes considered key were Messy food exploration is normal, Awareness of long-term effects and Caregiving goal of social acceptance. Details of results of these analyses are available in Appendix 5E (5E.3 – 5E.5).
5.3 Associations between demographic characteristics and key attributes

This section discusses associations (not statistically significant) between demographic characteristics of the primary caregiver or the case child and key attributes (namely Primary caregiver eating behaviours, Case Child eating behaviours, Child determines quantity of core food eaten, Caregiving goal of social acceptance, Awareness of long-term effects and Messy exploration of food is normal). See Table 5.3 below for identified associations. Demographic characteristics selected for theoretical sampling as well as other demographic characteristics are discussed.

Table 5.3 Associations with demographic characteristics

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Primary caregiver</th>
<th>Case child</th>
</tr>
</thead>
<tbody>
<tr>
<td>SES*</td>
<td>Employment Status*</td>
<td>Partner presence*</td>
</tr>
<tr>
<td>Eating behaviours</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Child determines quantity of core food eaten</td>
<td></td>
<td>√</td>
</tr>
<tr>
<td>PCG goal of social acceptance</td>
<td></td>
<td>√</td>
</tr>
<tr>
<td>Awareness of long-term Effects</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Messy food exploration normal</td>
<td>√</td>
<td>√</td>
</tr>
</tbody>
</table>

Notes: √ indicates an association
*indicates theoretical sampling attributes
PCG: primary caregiver

Source: analysis of field data.

5.3.1 Theoretical sampling attributes

The attributes selected for theoretical sampling are a) socioeconomic status, b) employment status and c) family configuration (presence of partner and presence of siblings).

a) Theoretical Sampling Attribute 1: Socioeconomic status

As presented from discussion in Chapter 2, clear associations exist between overweight and obesity and socioeconomic status but the strong connection between economic and sociocultural factors is
highlighted. There continues to be consistent support for the concept that, in affluent countries, a low SES is a risk factor for overweight and obesity in women (Swinburn et al. 2011) and childhood overweight and obesity continue to be associated with lower SES in North America (Veugelers & Fitzgerald 2005) and Australia (Sanigorski et al. 2008). For Stage Two, participants were selected from two diverse socioeconomic regions; 11 participants from a high socioeconomic area (decile of 9) and 13 participants from a low socioeconomic area (decile of 2). There were no associations between socioeconomic status and attributes described. This lack of association supports other studies which suggest that, in recent times, overweight and obesity is becoming a sociocultural rather than a socioeconomic issue (Booth et al. 2007; Nichols et al. 2011).

b) Theoretical Sampling Attribute 2: Employment status
Limited research examining the link between maternal employment and children’s weight suggests an association (see Anderson, Butcher & Levine 2003b; Takahashi et al. 1999). However, in this research and concurring with Brown, Scragg and Quigley (2008) no associations were identified between employment status of the primary caregiver and key attributes. As reported by Brown, Scragg and Quigley (2008) in their review of factors of the home environment impacting on children’s eating behaviours, employment-family spillover appears to have detrimental effects on some children’s eating behaviours while other primary caregivers appear to have developed coping strategies to negate potential problems.

c) Theoretical Sampling Attribute 3: Family configuration
This discussion regarding configuration of the family consists of influences of i) the primary caregiver’s partner and ii) the child’s sibling/s. The influence of the partner of the primary caregiver and presence of siblings are factors relevant to the outcome of this thesis.

i) Primary caregivers’ partners – presence and influence
The research confirms findings from the extant literature in that a) primary caregivers tend to be of the opinion that the influence of their partners is generally detrimental to their children’s eating behaviours through the partner being a poor role model or their actions directly opposing the objectives of the primary caregiver (Reed 1996; Reicks, Randall & Haynes 1994) and that b) partners’ behaviours are tolerated by the primary caregivers to varying degrees (Pettigrew & Roberts 2007).

In this research, the presence of the partner was found to have both positive and negative influences on the eating behaviours of the primary caregiver. Other contributions of this research related to themes of
fathers being an influence from childhood memories (either fond memories or memories of enforcement of control) and of partners have a role in making eating a ‘fun’ experience:

I think that, yeah, he definitely at dinner time he tries to model that he enjoys ... like he’ll say to me “Oh Mum this is so nice” or he’ll do “The Castle” thing, like, “Oh, what did you do to this Dahl?” ... So, he’s very um, humorous ... Yeah. So – he’s actually – he’s very funny. He went on, he gets on the computer. I mean, because he’s an engineer, so everything, you know, technology is what it’s all about for him. So he got on the computer and found all these websites where – one’s called “Fun Food for Kids”, you know, things like that. (Kelsie)

However, a contribution of this research is the finding that the mere presence of the partner may be their greatest positive influence on the child’s eating behaviour by providing a greater impetus for the primary caregiver to provide regular meals. This finding goes some way toward explaining why children in single parent households are at greater risk of overweight and obesity as found in studies of older children by Gibson et al. (2007) and Danielzik et al. (2004). In Stage Two of this research, all children of the three single mothers had eating behaviours considered regular or high in HFSS foods. For these primary caregivers, the stresses of managing a young child alone were evident and, although one comment was made that the child's father’s absence was advantageous, difficulties commonly expressed related to establishing what they considered was a social environment for eating:

I remember one woman just said you know “It shouldn’t be a stressful time when you’re eating. It should be just, whoever’s in the family you should all sit down together and it’s like a social thing”. So then I felt I couldn’t even do that properly ... (Karly)

An additional association regarding the presence (or absence) of partner was that all single mothers held the view that messy exploration of food is normal.

ii) Siblings – presence and influence

The extant literature reports that peers influence a child’s food preference (Birch 1980). In an experimental literature design, presence of a sibling has been found to enhance intake in 5–11-year-old children compared to when the child is eating with a stranger or when eating alone (Salvy et al. 2008). This effect seems to be on the child directly but, where siblings are cited as being poor role models (Hart et al. 2003), it seems reasonable to presume that the influence of the sibling is at least partly mediated by the primary caregiver. The work of Anderson, Winett and Wojcik (2000) also suggests that a child with siblings will have less healthy eating behaviours; adult participants with children or more children tended to have less healthy nutrition behaviour, but they also tended to have lower self-efficacy for buying and eating healthier foods.
Advances were made through this research in understanding the influence of siblings. The research confirmed the finding that siblings act as role models (Hart et al. 2003), but the influence of siblings on children’s eating behaviours is more likely to be negative – as this research contributed by demonstrating that the older siblings are permitted by the primary caregiver to consume more HFSS foods (Stage Two). A major factor reported by primary caregivers which contributes to young children eating HFSS foods within the household is the presence of siblings, ‘... with his older brother, Jason, because he is often allowed to have, because he’s much older, but that as soon as he has it, Liam wants to have it.’ (Don).

The introduction of HFSS foods at an early age also seems more likely with an older sibling:

... when she could help herself, like she was walking at 8 months, so, like she, well she was a bit wobbly, but, um, she couldn’t get into the cupboards then...um... but it depended on Jane as well. If they went to the fridge and got, you know if Jane got a chocolate out, then she’d give Molly some of it.... Molly would have, like if it was a block Jane would normally get a row out and between the three of us we’d eat it. (Savana)

Associations were identified between the presence of siblings and the eating behaviours of primary caregivers and their case child. In cases where the primary caregiver and the case child have eating behaviours limited in HFSS foods (n=5), four of these have no older siblings, while in all cases where eating behaviours of the primary caregiver and the case child are liberal in HFSS foods, the case child has older siblings.

Another contribution of this research was the association identified between families who reported consistently eating all meals together (n=6) and the presence of older siblings, giving further importance to eating being a social activity and the function of modelling.

5.3.2 Other demographic characteristics of primary caregivers and case children

This discussion continues regarding associations between other demographic characteristics of the primary caregivers or the case children and key attributes determined during the course of analysis. The other demographic characteristics are primary caregivers’ a) age and b) education level, and children’s c) age, d) duration of breastfeeding duration and e) gender.

a) Age of primary caregivers

Research regarding the effect of age of primary caregivers is scarce; however, in the study by Anderson, Winett and Wojcik (2000), the effect of age on nutrition behaviour was positive and direct — older
shoppers tended to have healthier food purchases and intake. The only association identified in this research between age of primary caregivers and key attributes was in Stage Two where nine of the primary caregivers who allowed the child to determine the quantity of core foods eaten (from a total of 12) were older than 30 years of age.

b) Education level of primary caregivers

The education level of primary caregivers has been associated with children’s dietary quality. Higher education of primary caregivers has been associated with health consciousness in food choices (see Anderson, Butcher & Levine 2003b; Dennison, Erb & Jenkins 2001; North & Emmett 2000) – their children having a more nutritious intake (Xie et al. 2003) – and inversely related to preschool children’s added sugar intake (Kranz & Siega-Riz 2002).

The analysis of the data from Stage Two considered the level of education of primary caregivers (maximum of secondary level or post-secondary education) as well as the relevance of the education. No associations between eating behaviours and education of primary caregivers were identified in this research. However, in Stage Two an association was found between primary caregivers having a goal of social acceptance for their children and low or irrelevant education status. Specifically, one primary caregiver of seven with the caregiving goal of social acceptance had tertiary education considered relevant to child development.

In contrast to this finding and the literature, other associations regarding education are not as expected. Education considered relevant to child rearing appears not to be associated with an appreciation of child development issues (as reflected by comments that messy exploration of food is normal and the lack of association between those with relevant education and those who allow the child to determine quantity of core foods eaten). The association between education and overweight and obesity is complex and, as Buchholz (2003) asserts, although poorly educated people still have a higher overall incidence of overweight and obesity, college educated, not poorly educated, people accounted for the most rapid growth in BMI scores between the 1970s and the 1990s. This research supports this complexity. Associations do not appear as expected between education considered relevant and attributes reflecting appreciation of child development; most primary caregivers making the comment that messy exploration of food is normal had tertiary education considered not relevant to child care or development, or had an education level less than or only to Year 12. Such a lack of association between level or relevance of education and most other primary caregiver attributes is borne out by the findings in this research regarding gaps in primary caregiver knowledge.
In summary, the research has made contributions regarding the education of primary caregivers. No associations were identified between levels of education or relevance of education to child rearing and eating behaviour categories or attributes considered to reflect an appreciation of child development such as allowing the child to determine quantity of core foods eaten and that messy exploration of food is normal. However, an association was identified between those primary caregivers expressing a goal for their child of social acceptance and low or irrelevant education.

c) Age of Case Children
The focus of this research was primary caregivers of young children, so research comparing young children with older children is not relevant. However, the only association identified in this research regarding the age of case children was that all case children of primary caregivers who reported awareness of long-term effects of their current actions (n=9) were aged less than two years (eight of the 24 case children were older than 2 years).

d) Breastfeeding duration
Evidence suggests that a lower risk of developing overweight and obesity may be directly related to length of exclusive breastfeeding (Butte 2001; Gillman et al. 2001; von Kries et al. 1999) although it may not become evident until later in childhood (Dietz 2001). Although this evidence exists, the role of breastfeeding in overweight and obesity is considered minor compared with other factors (NHANES 2005).

Associations identified in this research regarding breastfeeding duration seem to reflect a relationship between breastfeeding duration and appreciation of child health – both shorter-term and longer-term. There were five cases where the eating behaviours of both primary caregiver and child were limited in HFSS foods; four of these breastfed for more than 12 months. All participants having the caregiving goal of social acceptance (n=7) breastfed the case child for less than 12 months. Two case children from the group of primary caregivers expressing awareness of their long-term effect (n=9) were breastfed for less than 12 months. Three of the primary caregivers who commented that messy exploration is normal (n=9) breastfed their case child for less than 12 months.

e) Gender of Case Child
Again there is no extant literature regarding gender and eating behaviours of young children. However, this research identified associations between children’s gender and eating behaviours. In all cases where eating behaviours of both primary caregiver and the case child were high in HFSS foods, the case child was a girl; in contrast, in most cases where the primary caregiver and child both have limited intake of
HFSS foods (low or regular), the case child was a boy. This finding has not been incorporated into the research outcomes but is considered a contribution and warrants consideration in future research.

In summary, the findings relevant to demographic characteristics of primary caregivers and those of the case child, their alignment with research issues and relation to the extant literature are presented in Table 5.4 below. For each finding relevant demographic characteristics, its alignment with relevant research issues is indicated and the finding is compared with the extant literature (confirms or augments the extant literature, or contributes to the extant literature).

**Table 5:4 Summary of findings relevant to demographic characteristics**

<table>
<thead>
<tr>
<th>Findings from this research relevant to demographic characteristics</th>
<th>Alignment with RIs</th>
<th>Confirms</th>
<th>Augments</th>
<th>Contributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>-no association between SES and primary caregivers’ attributes (confirming salience of sociocultural factors)</td>
<td>RI4</td>
<td>✓ (+)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-no association between employment status and primary caregivers’ attributes</td>
<td>RI4</td>
<td>✓ (+)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-confirmation of PCG general opinion that partner influence is detrimental, but augmentation of literature that some partners are supportive</td>
<td>RI3</td>
<td>✓ (+)</td>
<td>✓ (+)</td>
<td></td>
</tr>
<tr>
<td>-partners’ behaviours are tolerated by PCGs to varying degrees</td>
<td>RI3</td>
<td>✓ (+)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-partners have influence through childhood experiences and making eating fun</td>
<td>RI3</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-main influence of partner on PCG is through mere presence</td>
<td>RI3</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-older siblings are allowed eating behaviours more liberal in HFSS foods</td>
<td>RI3</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-association between eating meals together and presence of older siblings</td>
<td>RI3</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-association between PCGs being older and allowing child to determine quantity of food eaten</td>
<td>RI4</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-no association between PCG education and attributes reflecting appreciation of child development</td>
<td>RI4</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-association between low or irrelevant education and goal of social acceptance</td>
<td>RI4;RI5</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-association between PCG having awareness of long-term effects of current actions and case child being &lt; 2yo</td>
<td>RI5</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-PCG with goal of social acceptance associated with low duration of breastfeeding</td>
<td>RI5</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-PCG with awareness of long-term effects of current actions associated with longer duration of breastfeeding</td>
<td>RI5</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-PCGs and their child with intakes liberal in HFSS foods associated with case child being girls</td>
<td>RI4</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:** the extent to which the finding confirms or augments the extant literature is indicated; (+) to a minor extent; (++) to a moderate extent; (+++) to a major extent; PCG = primary caregiver

*Indicates a theoretical sampling attribute. Source: Developed for this research.

This completes the discussion of findings regarding demographic characteristics. The next section presents findings (themes and associations) for each research issue.
5.4 Research findings (themes and associations) by research issues

In this section the research findings (themes and associations) will be examined based on the research issues developed from Chapter 3. The research issues were derived from the literature in combination with Social Cognitive Theory linking antecedents of human behaviour to effects of these behaviours, specifically, the antecedents to primary caregivers’ behaviours (why) to their behaviours which influence children’s eating behaviours (how). These how and why factors are closely interrelated and this presentation of the research findings does not distinguish between them. For every key theme, the extent to which the findings of this research confirm the extant literature, augment the extant literature or identify gaps in the extant literature is discussed. Quotations from the data are used to support the findings and tables are used to display identified associations between attributes as suggested by Miles and Huberman (1994). The term ‘association’ used here does not suggest statistical significance but describes patterns identified and are detailed in the related appendices.

5.4.1 Short-term objectives


Research from both the US (Sherry et al. 2004) and Australia (Pettigrew & Roberts 2007) has found that a goal of primary caregivers is for their children to eat a healthy diet while a common food-related goal of primary caregivers is for the child to eat more (Chan 2005; Moore, Tapper & Murphy 2007; Orrell-Valente et al. 2007). In Stage One of the research these dietary goals of primary caregivers for their children were confirmed. It was demonstrated to be an objective of every participant that their child consumed core foods, either indicated by their reported behaviour or verbal reporting. The drive for the child to eat – preferably core foods – was evident and, as reported elsewhere relating to preschool-aged children (Reed 1996), if this was not achieved, stress was experienced by some and often prompted behaviours including provision of HFSS foods.

The origin of the attitude that primary caregivers should determine the quantity of food eaten was identified to be their own childhoods and associated expectations. In contrast, of the primary caregivers who allowed the child to determine the quantity of their core food intake (n=12), four suggested that it was common knowledge and three reported that their attitude came from their training, personal experiences in child care, or with nurturing their first child. Two commented about their own childhood
experiences; one reacted against being force fed; the other continuing how she was raised (she was not forced to eat, but no alternative food was available). Four participants of Stage Two were still breastfeeding their child (age range 1 year – 2 years 2 months) and three of these were in the category of allowing the child to determine the quantity of core foods consumed. The comfort offered by the belief that breastfeeding would provide ‘enough’ nutrition was expressed by all three primary caregivers.

This research did not involve measurement of the children’s weights and heights but concern regarding inadequate intake was certainly a theme emerging and influenced primary caregiver behaviour. The clash between primary caregivers’ concern regarding overweight and obesity and their drive for the child to eat was evident as some primary caregivers were in a dilemma regarding their children’s eating behaviours. This was the situation with two participants and their case children, and three participants with siblings older than the case child. The attitude of primary caregivers, who considered their child was a poor eater or was not meeting expectations of intake, could be that ‘something is better than nothing’.

This research has highlighted the notion that ‘good caregiving’ is largely synonymous with young children eating a liberal intake, preferably of core foods. The drive to be ‘good mothers’ has been reported in terms of feeding practices (Pettigrew & Roberts 2007) as has ‘good parenting’ being the main motivational force to purchase healthy food (Noble et al. 2007). In Stage One, diversity regarding aspects considered to be appropriate to the caregiving role was highlighted – both between and within participants. A range of attitudes and practices that primary caregivers associated with ‘good caregiving’ was expressed. The more common attitudes were to ensure consumption of core foods, to make ‘healthy’ food available, to expose to variety, to encourage trying new foods and to eat together/act as models. Less common factors cited as being associated with ‘good caregiving’ were, being in-tune with the child’s needs other than for food, creating a ‘no-fuss’/unregimented eating environment, and teaching the fun/celebratory nature of food. Managing a child’s behaviour and providing comfort to a child were also perceived by participants as part of the caregiving role.

In Stage Two, goals regarding food were discussed with each participant; the majority of primary caregivers (n=21) responded that they wanted their child’s eating behaviours to be balanced and to include a variety of foods; they wanted their child to know the difference between core foods and ‘treat’ foods and to be able to make appropriate choices. The focus of one primary caregiver related to quantity of food, specifically, to teach avoidance of excessive intake of core foods as well as HFSS foods. Other common themes were that the child should not be ‘fussy’ (n=6), that food should be enjoyed and that eating is not a stressful experience (n=6). Single responses were made regarding avoidance of the child...
becoming overweight and the child having enough to eat. The majority of participants claimed that they were aiming to achieve their goals relevant to food by providing core foods, limiting HFSS foods, and providing a variety of foods (n=15). Other strategies involved verbal teaching, having a routine, and being role models. Those with goals oriented towards getting the child to eat more commented on strategies such as using rewards, and disguising vegetables. Three primary caregivers were aiming to meet their goals with their child by getting the child to eat as they do.

Stage One demonstrated that primary caregivers had motivations to provide core foods for their children, but they also had motivations to provide HFSS foods. The focus of primary caregivers of children aged 1–2½ years in addressing short-term rather than longer-term goals is evident. The research also highlights the numerous short-term challenges faced by primary caregivers of young children. These actions of primary caregivers in addressing short-term rather than longer-term goals confirm Bandura’s proposal (1986, 2004) that proximal goals are more effective than distal goals. In Appendix 5F, the numerous short-term challenges as experienced by primary caregivers are summarised.

This research identified short-term benefits to primary caregivers being associated with certain attitudes and behaviours. Primary caregivers who i) favoured a long-term goal of child wellbeing over social acceptance, ii) had an appreciation of child development issues such as allowing the child to determine quantity of core foods eaten and iii) whose eating behaviours were low in HFSS foods, enjoyed benefits in addition to the desirable outcome of the child’s intake being more likely to be low in HFSS foods. These benefits to primary caregivers are summarised as having a more compliant and manageable child as, in the course of the research, it emerged that these primary caregivers i) had a low incidence of ‘power issues’, ii) were more likely to report that they have ‘no problems yet’ regarding their child’s eating behaviours, and iii) were more likely to report that the child follows instructions. Further detail regarding these associations is provided in Section 5.5 and Appendix 5I.

In Table 5.5, for each key finding relevant to Research Issue 1: Short-Term Objectives an indicative statement is provided; the finding is compared with the extant literature (confirms or augments the extant literature, or contributes to the extant literature).
### Table 5:5 Summary of findings relevant to short-term objectives

<table>
<thead>
<tr>
<th>Findings relevant to short-term objectives</th>
<th>Confirms</th>
<th>Augments</th>
<th>Contributes</th>
<th>Indicative statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>- an objective of PCGs of 1–2½-years-olds is for their child to eat a varied and ‘balanced’</td>
<td>✓ (+++)</td>
<td></td>
<td></td>
<td>‘Um, we want them to eat a balanced diet. Um, I think that’s probably a big one.’ (Kelsie)</td>
</tr>
<tr>
<td>- a child not eating to expectation is stressful for PCGs and prompts other behaviours</td>
<td>✓ (+++)</td>
<td></td>
<td></td>
<td>‘and I’ve been trying not to just keep offering her things, especially bad things. You know, because I want her to eat something. I want to see her eating. She must eat…’ (Karly)</td>
</tr>
<tr>
<td>- breastfeeding offers PCGs comfort regarding their child receiving adequate nutrition, thus alleviating concern regarding ‘enough’ food being consumed</td>
<td></td>
<td>✓ (+)</td>
<td></td>
<td>JN: ‘OK. So, have you got any concerns? I mean, that she’s not eating enough?’ Lillian: ‘While I am still breast feeding I wasn’t, but now that we’re deciding to cut it down, I would like her to eat a bit more, but it’s so hard to, you know, give her what you think will fill her up…’</td>
</tr>
<tr>
<td>- PCGs experience dilemma between drive for child to eat and desire for child to eat core foods</td>
<td></td>
<td>✓ (+)</td>
<td></td>
<td>‘I have family and friends that think it is better to feed a child whatever as long as they’re eating. And I completely disagree. I think if a child doesn’t eat healthy then they should go hungry until they decide to eat healthy. Whereas a few of my family members say “If she wants some cake it’s better for her to have something in her stomach rather than nothing”. And I’m like no…she’s filling up on junk and crap rather than good stuff’. (Helga)</td>
</tr>
<tr>
<td>- origin of the opinion that the PCG should determine quantity of food a child eats is PCG experiences</td>
<td></td>
<td></td>
<td>✓ (+)</td>
<td>‘I suppose I just find it frustrating ‘cos I eat everything and he doesn’t.’ (Jeannie)</td>
</tr>
<tr>
<td>- short term challenges are motivations to provide HFSS</td>
<td></td>
<td></td>
<td>✓ (+)</td>
<td>‘I think there’s this great.. pressure on women in society generally, to be absolutely Wonder Woman and say your kid will have the five food groups today ...(go to)..soccer training, and.. do their homework … there’s huge pressure.. Anyway, something’s got to give and so sometimes it might be that we’ll just have chicken nuggets and chips you know?’</td>
</tr>
</tbody>
</table>

Source: Developed for this research.

Note: the extent to which the finding confirms or augments the extant literature is indicated; (+) to a minor extent; (++) to a moderate extent; (+++) to a major extent.

PCG = primary caregiver

In the next section, the research findings regarding primary caregiver knowledge will be examined.
5.4.2 Primary caregivers’ knowledge

Research Issue 2. What factors of primary caregivers’ knowledge impact on young children’s eating behaviours? How and why?

This research confirmed findings in the extant literature that primary caregivers’ knowledge regarding the types of foods suitable for young children is adequate (Pagnini et al. 2007), although this knowledge was not reflected in their behaviours (Hesketh et al. 2005; Pettigrew & Roberts 2007). As in the literature (Dwyer et al. 2008; Hesketh et al. 2005; Hughes et al. 2005), this research identified the theme that primary caregivers believe that the intake of HFSS foods is countered by intake of core foods.

The key themes presented in this section are knowledge of a) self-regulation of energy intake, b) preference development, c) introduction of solids and d) self-feeding.

a) Knowledge of self-regulation of energy intake

The issues of the amount of core foods a young child eats and self-regulation are salient to this research; a précis of the relevant extant literature will be provided. Young children have the ability to self-regulate their energy intake (Birch & Deysher 1985; Birch & Deysher 1986; Fox et al. 2006). A common feeding objective of primary caregivers is for the young child to eat more (Birch 1999; Pagnini et al. 2007) but such feeding practices promote a) greater energy intake (Fisher, Rolls & Birch 2003), b) disinhibited eating (Carper, Orlet Fisher & Birch 2000) and c) higher weight status (Birch & Fisher 2000; Johnson & Birch 1994). The extant literature indicates that by encouraging children to self-determine their portion size, less will be consumed (Orlet Fisher, Rolls & Birch 2003) and that, with training, primary caregivers are more likely to interpret food refusal as satiety (Daniels et al. 2012). A recommendation for primary caregivers to allow children to determine the quantity of core foods consumed is supported by this literature; however, in contrast to the American Dietary Recommendations for Children and Adolescents (2006), no such definite recommendation is made in the current Dietary Guidelines for Children and Adolescents in Australia (2003) nor in the revised Infant Feeding Guidelines for Health Workers (Draft) (2011).

Although the extant literature has identified a differentiation among primary caregivers regarding how much control they exerted over the amount of foods their children consume (Dwyer et al. 2008; Pagnini et al. 2007), there is very little research regarding primary caregivers’ knowledge of children’s self-regulatory ability. The abundance of research regarding primary caregivers’ efforts towards having young children eat more and the strategies they use such as bribing and rewarding (Campbell, Crawford &
Hesketh 2006; Dunn et al. 1994; Orrell-Valente et al. 2007; Pagnini et al. 2007; Reed 1996) is highly suggestive that primary caregivers have little knowledge of children’s self-regulatory predisposition.

This research identified a divergence regarding knowledge and behaviour of primary caregivers regarding the amount of core foods a child eats. A key finding of Stage One was the distinction between primary caregivers who determined the amount of core foods their child eats and those who allowed the child to determine the amount they eat. In Stage One, it was found that primary caregivers who deem that it is their responsibility to determine the quantity of core foods the child eats (in contrast to the child) practised behaviours which could lead the child to over-consumption or eating when not hungry. These behaviours were a) using core foods as an incentive (bribe) to eat all the meal, b) feeding a child who is able to self-feed (with the purpose of increasing intake) and c) using HFSS foods as bribes or rewards. An additional reinforcement of this behaviour for some participants in Stage One was that they considered it an expectation of the caregiving role to ensure that the child eats foods in ‘appropriate’ quantities. While some primary caregivers clearly allow the child to determine the quantity eaten, some who do not, act with conviction.

Further examination of primary caregivers who allow the child to determine the quantity of core foods eaten compared with those who do not, was, therefore, a major objective of Stage Two. Stage Two, yielded some cases in which the primary caregiver stated that they allow the child to determine the quantity of their intake; however within-case analysis revealed this not to be the situation. Of the primary caregivers who were deemed to determine the quantity of core foods their child should eat (n=12), six made verbal responses that it is either ‘both’ or ‘don’t know’ or ‘the child’ but their reported behaviour indicated that it was the primary caregiver determining quantity. Although several reported that they considered it acceptable to use food as a bribe or reward for behavioural issues not related to eating and others disagreed with the use of food as a bribe or reward under any circumstance, it was apparent that food or dessert was used to encourage young children to eat more in some households.

The literature indicates that primary caregivers’ concerns regarding children’s intake or weight impact on their behaviour towards their child (Brann & Skinner 2005; Carruth et al. 1998; Farrow, Galloway & Fraser 2009; Fisher & Birch 1999; Francis, Hofer & Birch 2001; Galloway, Lee & Birch 2003; Kasemsup & Reicks 2006; Keller, KL et al. 2006; Ogden, Reynolds & Smith 2006) and that such concerns are associated also with children’s actual weight (Johannsen, Johannsen & Specker 2006; Spruijt-Metz et al. 2002). In this research, however, which involved primary caregivers of children aged five years or less, the main concern of the primary caregivers was that the child was eating.
In Table 5.6 below, for each key finding relevant to primary caregivers’ knowledge of children’s self-regulation of energy intake, an indicative statement is provided; the finding is compared with the extant literature (confirms or augments the extant literature, or contributes to the extant literature).

Table 5:6 Summary of findings of primary caregivers’ knowledge of children’s self-regulation of energy intake

<table>
<thead>
<tr>
<th>Findings relevant to PCG knowledge</th>
<th>Confirms</th>
<th>Augments</th>
<th>Contribution</th>
<th>Indicative statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>-as an expectation of the caregiving role, PCGs act with confidence in determining the amount a child eats</td>
<td>√(+++).</td>
<td></td>
<td></td>
<td>‘We’ve always said, “That’s not enough”. Um, if Jane comes to me with her sausages and potato and says “I’ve had enough” and she’s only had two spoonfuls and I’ll say “No you haven’t”. So she comes back and normally finishes it’. (Savanah)</td>
</tr>
<tr>
<td>-PCGs who determine the amount a 1-2½ yo child eats practise behaviours which could lead the child to over-consuming or eating when not hungry</td>
<td>√(+) cause/effect</td>
<td></td>
<td></td>
<td>‘Um, we usually have ice cream, we have plain vanilla ice cream in the house… Um, and if he has eaten well he can have some of that and it often is, like a couple of scoops and cut fruit – like a banana, cut up or something like that. So that’s, that’s … And that can sometimes be an incentive to him if he says “Have I had enough to have ice cream?” So I’ll [say] “Four more bites…”’ (Lindy)</td>
</tr>
</tbody>
</table>

Source: developed for this research.

Note: the extent to which the finding confirms or augments the extant literature is indicated; (+) to a minor extent; (+++) to a moderate extent; (++++) to a major extent

PCG = primary caregiver

Primary caregivers determining the quantity that a child eats were found to be more likely to have high HFSS eating behaviours, as did their children. Twelve primary caregivers in Stage Two were deemed to determine the quantity of core foods the child eats; one of these had eating behaviours low in HFSS foods as did her child; seven primary caregivers who determined the quantity of their children’s core food intake had low HFSS eating behaviours, as did their children; while only two primary caregivers who determined the quantity of their child’s core food intake and also had high HFSS eating behaviours appeared successful in establishing low HFSS eating behaviours in their children. The remaining two primary caregivers had low HFSS eating behaviours while their children’s eating behaviours were regular or high in HFSS foods. Refer to Appendix 5E.2: Child determines quantity, for details of the associations between these 12 primary caregivers and other attitudes and behaviours. These associations are used in the development of the schema to explain how and why primary caregivers influence young children’s eating behaviours in an obesogenic environment (Section 5.4.2).
b) Knowledge of preference development

Chapter 2 presented the literature demonstrating that establishing a preference for core foods in childhood is paramount to establishing health promoting eating habits and reducing the risk of overweight and obesity later in life. Chapter 2 also highlighted that factors of children’s environments such as primary caregiver modelling and feeding practices are major influences on preference development. This discussion refers to the extant literature and current research regarding i) primary caregivers’ knowledge of children’s preference development, ii) primary caregivers’ knowledge regarding repeat exposure and iii) themes suggesting knowledge of preference development.

i) Primary caregivers’ knowledge of children’s preference development

The current research and the extant literature suggest that primary caregivers’ knowledge regarding development of food preference is poor. The theme is minimally reported in the extant literature; with one comment made by Hart et al. (2003) that children’s food preferences are often perceived to be fixed, formed by chance and resistant to change. Also, Moore, Tapper & Murphy (2007) conclude that ‘liking’ as a feeding goal was not mentioned by primary caregivers of children aged 3–5 years. An accumulation of findings regarding feeding behaviours and modelling in the extant literature and in this research result in the contribution that primary caregivers’ knowledge regarding food preference and its development is poor.

The extant literature has identified numerous barriers to primary caregivers providing their children a healthier lifestyle and reasons why primary caregivers provide their children HFSS foods (e.g. Dwyer et al. 2008; Jebb, Steer & Holmes 2007; Pagnini et al. 2007; Pettigrew & Roberts 2007). In Stage One the motivations for giving ‘treats’ or expected outcomes from giving treats were categorised as being associated with:

- primary caregivers’ attitudes regarding if and how much a child should eat: ‘treats’ were given as an incentive to eat more, as an incentive to try new foods, or if other foods were rejected (‘something is better than nothing’)
- primary caregivers’ attitudes about diversity and deprivation: ‘treats’ were given for dietary diversity or to avoid ‘deprivation’
- personal factors influencing the primary caregiver: ‘treats’ were given for convenience of the primary caregiver, to be a ‘nice Mum’ and in response to feelings of guilt; HFSS foods were provided because they were cheaper but for others they were not given for the reason of being too expensive
• primary caregivers’ desires for a well-behaved, happy child: ‘treats’ were provided for general behaviour control especially in public, to soothe or placate the child, or simply in yielding to the child’s demand.

The provision of HFSS foods was revealed to be a complex issue and was further investigated in Stage Two. In Stage Two primary caregivers’ reasons given as to why HFSS foods should be provided to a child were again reiterated as:

• the pleasurable nature of the foods and that the child should not be deprived
• that exposure is inevitable
• for primary caregivers’ convenience
• for celebration
• that children will become obsessed with HFSS foods if not provided them.

No literature appears to address the attitudes of primary caregivers regarding reasons against the provision of HFSS foods. When primary caregivers in Stage Two discussed why HFSS foods should not be provided, their reasons related more to child behaviour having an adverse impact on the primary caregiver and to a lesser extent on child development issues. Three primary caregivers did respond that HFSS foods should not be given as the child may get used to the taste and reject other foods, while two felt that the child would not be hungry for core foods. One participant commented that such foods are not nourishing, but by far the most common comment (n=5) regarding why HFSS foods should not be used is that they affect the child’s behaviour and thus impacts on the primary caregiver.

Overall, these findings reflect numerous justifications for provision of HFSS foods, a concern that providing HFSS foods may adversely impact on the primary caregiver, and a general lack of appreciation that the introduction of HFSS foods is likely to result in a preference for such tastes.

Similarly, use of food as bribes and rewards also influences food preferences (Birch et al. 1982; Birch, Marlin & Rotter 1984; Birch, Zimmerman & Hind 1980; Newman & Taylor 1992). The reason most commonly cited by primary caregivers in Stage Two (n=6) as to why foods should not be used in this way was not that the child would develop a preference for the foods, but that the child would come to expect a food reward for desired behaviours.
Pressure to eat also influences food preferences (Galloway et al. 2006); there is evidence of at least some primary caregivers in this research pressuring their child to eat. Modelling also plays a key role in increasing food consumption and preference (Addessi et al. 2005; de Castro & Brewer 1992; Redd & de Castro 1992; Visalberghi & Addessi 2000). Findings regarding modelling will be discussed in detail in Section 5.3.4.

Another emerging theme which reflected lack of appreciation of preference development was that a child will develop a preference for core foods with time, even though HFSS foods are being provided in the meantime.

ii) Primary caregivers’ knowledge regarding repeated exposure

The extant literature demonstrates that repeated exposure to foods increases preference. Repeated exposure, at least 5–10 times, enhances acceptance of new foods; both core foods (e.g. fruit and vegetables) (Birch 1999; Satter 1990) and HFSS foods (Birch 1998). The majority of studies investigating repeated exposure find that children consumed more of and reported increased preference for a novel food after being repeatedly exposed to it (Birch 1999; Birch & Marlin 1982; Birch et al. 1987; Koivisto, Edlund & Sjoden 1994; Liem, Mars & De Graaf 2004; Maier et al. 2007b; Sullivan & Birch 1990; Sullivan & Birch 1994; Wardle et al. 2003). While repeated exposure of a new food as a means to increase variety and intake seems to be recognised by primary caregivers (Pagnini et al. 2007), there is evidence that children are not being repeatedly exposed to new foods (Carruth et al. 2004; Maier et al. 2007a), especially in low income families (Dobson et al. 1994) or if children are considered ‘fussy’ eaters (Carruth et al. 2004). There is, however, evidence that, with training, primary caregivers increase the rate of reoffering refused food (L. Daniels 2011, pers. comm., 11 May).

In Stage One the great majority of the primary caregivers reported that they act with an apparent awareness of the notion that regular exposure to food – ‘healthy’ or not – is associated with preference and habit development for that food or taste. In Stage One, it was commonly expressed by primary caregivers that they made efforts for their child to try new foods and the recommendation of repeated exposure to new foods to enhance acceptability was specifically expressed by three primary caregivers. The concept of ‘repeated introduction of foods’ was also voluntarily mentioned by 11 of 24 primary caregivers in Stage Two.

The current research confirmed that primary caregivers acknowledge the objective regarding repeated exposure, however, the motivation of at least some primary caregivers to repeat exposure is to enhance
short-term intake rather than to establish food preferences as identified in the extant literature (Moore, Tapper & Murphy 2007).

iii) Themes suggestive of knowledge of preference development

There were, however, other themes emerging from this research reflecting a possible appreciation of preference development. In Stage One, the *early* introduction of a wide variety of foods and tastes having beneficial effects was recognised by some primary caregivers (*n*=4). The theme that a child would not miss HFSS foods if they have not been exposed to them was identified in Stage One as well as being expressed by several primary caregivers in Stage Two. Also not identified in the extant literature is the recognition by some primary caregivers that, if a child is provided highly flavored HFSS foods, it is likely that a preference for them will develop. This theme was identified in Stage One with one primary caregiver suggesting that ‘treats’ should not be introduced until a child is old enough to understand that they are for occasional use only, and in Stage Two by three primary caregivers who commented that HFSS foods should not be given as the child may get used to the taste and reject other foods. Although these themes were present in attitudes or knowledge of the primary caregivers in Stage Two, all children (1–2½ years) had been exposed to or were regularly receiving HFSS foods, indicating the ineffectiveness of this knowledge.

In Table 5.7 below, for each key finding relevant to primary caregivers’ knowledge of children’s preference development, comparison with the extant literature is made and an indicative statement provided.

**Table 5.7 Summary of findings relevant to primary caregivers’ knowledge of children’s food preference development**

<table>
<thead>
<tr>
<th>Findings relevant to PCG knowledge of preference development</th>
<th>Confirms</th>
<th>Augments</th>
<th>Contributes</th>
<th>Indicative statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>-PCG knowledge of development of food preferences in children is limited</td>
<td></td>
<td></td>
<td>√</td>
<td>NA</td>
</tr>
<tr>
<td>-the most commonly cited reasons for <em>not</em> providing HFSS foods are for reasons other than that a preference for such foods will develop</td>
<td></td>
<td>√</td>
<td></td>
<td>‘and I was more than happy for him to have dessert there. ‘Cos it was once a week and um, the other kids were having it, and I didn’t have a problem with it, but at 10 o’clock at night I was still trying to get him to bed’. (Kelsie)</td>
</tr>
<tr>
<td>-the most commonly cited reasons given why food should not be used as a bribe or reward are not that preference for such food will</td>
<td></td>
<td>√</td>
<td></td>
<td>‘..from the stuff I’ve read … bribing toddlers doesn’t work, so don’t even start trying, ‘cos you’ll regret it in the end. I mean, actually, if I thought</td>
</tr>
<tr>
<td>- PCG knowledge regarding modelling and repeat exposure is good but seems to be used to enhance short-term intake rather than to establish food preferences</td>
<td>√</td>
<td>‘They would reject things if they didn’t like the taste of it initially, but then I’d re-introduce it a few days later’. (Jacki).</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| - the theme that a child will develop preference for healthy food with time | √ | ‘I often hear some mums say, “Oh, don’t worry they’ll grow out of it”. But I don’t think they will. Unless they’re given the opportunity to try the other things that they don’t want.’ (Jacki)  
‘I see it at play group all the time and even in our own family, like my sister-in-law, she’s happy for her child to sit at the table and just eat a bowl of lollies, just so he shuts up and he’s happy and she’s not really that concerned, she’s like, “Oh, you know, when you’re an adult he can make his own decisions. He can choose what he wants” ’ (Tania)  
‘… and I figure with Olga if she only knows that it comes one way, then she’ll just eat it that way…’ (Sarah). |
| - early introduction of a wide variety of foods is beneficial | √ (++) | ‘She’s got a broad taste ... she’s not a fussy eater (because)...we’ve introduced her to a lot of foods and a lot of tastes early on’. (Jodi). |
| - that a child would not miss HFSS foods if they have not been exposed to them | √ | ‘… oh I don’t want him to love chocolate, I guess over other foods … um, yeah I think it was that fear of “oh, he loves that – what if he doesn’t still want his dinner?” kind of thing, maybe’. (Candice). |

**Source:** Developed for this research.

**Note:** the extent to which the finding confirms or augments the extant literature is indicated; (+) to a minor extent; (++) to a moderate extent; (+++) to a major extent  

PCG = primary caregiver
c) Knowledge of introduction of solids

This section presents associations between primary caregivers with attributes considered representative of an appreciation of child development. This analysis was used in the development of the schema of the research findings and associations.

Researchers posit that developmental progress is a consequence of the system (the infant) and active exploration is related to solving the problem, for example, how to self-feed with a spoon (Thelen et al. 1993). Carruth and Skinner (2002) found that individual children exhibit a wide age range for achieving feeding behaviours and suggest that primary caregivers may need encouragement to allow their children to autonomously explore activities related to the feeding process. However, there is no literature regarding the attitudes of primary caregivers regarding messy exploration of food being a normal part of eating development.

In Stage Two, when presented with a drawing depicting a child sitting at a table in a mess with food, nine of the 24 participants commented that it was normal behaviour for a child:

Oh ...OK, well that’s what Linley does at most meals – when she’s had enough she throws the food on the floor. Um. So that’s, to me that just looks like a normal little toddler throwing food around ... because they’ve had enough, because they’re bored, because they don’t like it. Who knows?
Because they like the sounds ... (Kate)

Each primary caregiver described a range of actions that they would take in response to the situation. One primary caregiver was primarily concerned about the mess (and her partner’s reaction to the mess) demonstrating a clear lack of consideration of this developmental concept:

I’d be up, going “No! Stop it! Take it away!” I’d probably be worried about the mess … Um, and my husband would then, what I think he would be thinking would then kick in. He is very um, hates a mess. Like she can’t have a crumb on her face, he’s got to wipe her down. And always wiping her nose when she doesn’t have a runny nose and stuff like that. So that would be me. I’d be thinking, and he’d just be sitting there going, “What’s going on?” And I’d be going “Oh no, not the mess, not the mess!” ’Cos he would just get cranky if it gets messier!’ (laughs) ... I’d probably just take the spoon so there’d be no food like that and just try and use the finger option and try and control it. I’d stop what I was doing and sit there and control it. Or take her away, and put her in a different spot and try and get her to eat… probably. (Raelene)

Respondents making comments regarding the messy exploration of food being normal was considered representative of their appreciation of child development (see Appendix 5E). Associations were found, firstly, between primary caregivers with attributes considered to reflect an appreciation of child development issues and their eating behaviours and/or their children’s eating behaviours. Secondly, associations were found amongst primary caregivers who expressed attributes considered to reflect an
appreciation of child development. Such attributes are i) allowing the child to determine quantity of core food eaten, ii) that messy exploration of food is normal, iii) recognition of primary caregiver actions having long-term impact, iv) that a child does not miss HFSS foods, and v) that a child is likely to develop a preference for HFSS food when provided them. Details of these associations are provided in Appendix 5E.

d) Knowledge of self-feeding
This section presents research regarding the introduction of solids; it concludes with the finding that the transition from the child being fed to self-feeding seems associated with concern by primary caregivers, and demonstrates a lack of knowledge regarding neophobia.

Findings regarding the introduction of solids are consistent with that of the extant literature, they are of low relevance to this research outcomes but highlight the time in an infant’s feeding when primary caregiver concern and ignorance of neophobia combine to prompt the introduction of HFSS foods. The literature suggests a lack of association between age of introduction of solids and subsequent weight gain (Cohen et al. 1994; Mehta et al. 1998; Townsend, Phillimore & Beattie 1988; Wright, Parkinson & Drewett 2004). According to the draft of the revised Dietary Guidelines for Children and Adolescents in Australia (2011), it is ideal that infants be breastfed until six months, at which time it is recommended that solid food be introduced. This research found that primary caregivers commence introduction of solids over a wide age range (3–9 months) and, as identified in other literature (Retallack, Simmer & Gibson 1994; Wright, Parkinson & Drewett 2004), there is a tendency for solids to be introduced earlier than recommended (the majority around 4–5 months). In Stage Two, most primary caregivers reported no difficulties with the introduction of solids. Some primary caregivers made clear references to following the recommended guidelines based on age of the child.

In the literature a reason cited for the early introduction of solids is that primary caregivers have felt that their child was more advanced and, therefore, introduced solids at an earlier age (Heinig et al. 2006; Olson et al. 2010). In this research, reasons given for early introduction of solids were most commonly that the child demanded it, or that it was recommended to assist with reflux. The main reason for delayed introduction of solids was that the child was not interested. Another reason proposed for delaying the introduction of solids was that early introduction of solids caused ‘fussy’ eating. Three primary caregivers, with hindsight, reported that their first child was not ready for solids and that the early introduction of solids may have contributed to their ‘fussy’ eating. This opinion is in direct contrast to that of Harris, Blissett and Johnson (2000) who suggest that the late introduction of solids may result in children developing a preference for a limited range of foods and the label of being ‘fussy’ eaters.
Differences between ‘fussy’ eating and neophobia have been presented (Section 2.3); most relevant to this research are the findings that neophobia is a normal adaptive response and that ‘fussy’ eating is not readily modified by experience. Findings from this research highlight primary caregivers’ ignorance regarding neophobia. In Stage Two, during the discussion of the child’s feeding history three primary caregivers reported that the case child became ‘fussy’ at around 12 months of age; two others described a change in food preference at this age; yet more descriptions of children becoming ‘fussy’ eaters were reported as being triggered by illness. The dilemma experienced by primary caregivers with a drive for the child to eat conflicting with the desire for the child to eat core foods was considered the situation with two participants and their case children, and three participants with siblings older than the case child. This dilemma can result in the attitude that ‘something is better than nothing’. The more common opinion that early introduction of solids was the cause for ‘fussy’ eating was in contrast to the opinion of one primary caregiver who believed that, for her first child, his liberal and regular exposure to HFSS foods contributed to his ‘fussy’ eating. The opinion of this primary caregiver aligns with the concept discussed again in Section 5.4.3 that early introduction of HFSS foods is likely to produce a preference for such foods.

The transition from the child being fed to self-feeding seems associated with concern by some primary caregivers, and demonstrates their lack of knowledge regarding neophobia. Primary caregivers are confronted by an apparent change in the child’s eating behaviours (neophobia), which, it is suggested, is mistakenly described as the child becoming ‘fussy’. This, and a sense of failure of providing ‘good caregiving’ combined with primary caregivers’ drive for the child to eat (displaying ignorance of self-regulation of energy intake), may prompt primary caregivers to introduce, and commence the preference development process for, HFSS foods.

In Table 5.8 an indicative statement representing primary caregivers’ knowledge of neophobia is provided. The key finding that primary caregivers are ignorant of ‘fussy’ eating and neophobia is a contribution of this research to the extant literature.

<table>
<thead>
<tr>
<th>Findings relevant to PCG knowledge of neophobia</th>
<th>Confirms</th>
<th>Augments</th>
<th>Contribution</th>
<th>Indicative statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>-apparent ignorance of ‘fussy’ eating and neophobia prompt introduction of HFSS foods</td>
<td></td>
<td></td>
<td>✓</td>
<td>‘And I actually waited with him. ‘Cause I.. put her on solids at four months. And I thought that’s why she’s a fussy picky eater’ (Helga)</td>
</tr>
</tbody>
</table>

Source: Developed for this research.

In the next section, the research findings regarding factors of primary caregivers’ environments will be examined.
5.4.3 Environmental factors

Research Issue 3. What factors in primary caregivers’ environments impact, through their behaviour, on young children’s eating behaviours? How and why?

The key themes presented in this section are a) attitudes justifying the provision of HFSS foods, b) feedback and c) direct instruction. Influences from primary caregivers’ partners and siblings of the case children have been previously presented.

a) Attitudes justifying provision of HFSS foods

This section examines attitudes amongst primary caregivers regarding justification for the provision of HFSS foods. It is acknowledged that caregiving norms and behaviours related to overweight and obesity risk are influenced by broader social, structural and cultural norms (Davison & Campbell 2005). Primary caregivers’ attitudes reflect the social norms and studies of adults indicate that people are very sensitive to social norms for food consumption and use these to judge what they should be eating (Wansink 2004).

The findings presented relate to i) the attitude that young children should not be deprived of HFSS foods, ii) the attitude that young children will become ‘obsessed’ with HFSS foods if not provided them, iii) provision of HFSS foods being acceptable to control young children’s behaviour, iv) young children needing exposure to HFSS foods to learn how to manage them, v) children’s preferences and vi) the influences of media and advertising on young children.

i) The attitude that young children should not be deprived of HFSS foods

The current research confirms findings in the literature regarding avoidance of ‘deprivation’ (Hesketh et al. 2005; Pagnini et al. 2007). Pagnini et al. (2007) suggest that primary caregivers justify the provision of HFSS foods to children aged 2–5 years simply for the pleasure. The theme was also evident in Stage Two in primary caregivers of children aged as young as 16 months.

The justification provided by some primary caregivers for giving HFSS foods to young children – ‘to avoid deprivation’ – is in contrast with another theme unidentified in previous literature, that a young child won't miss HFSS foods if they have not been exposed to them.

ii) The attitude that young children will become ‘obsessed’ with HFSS foods if not provided them

Another theme prevalent in the research related to the notion that if children are not provided HFSS foods that they will become ‘obsessed’ by such foods and, when able, will tend to overeat these foods. This argument posits that people are primarily influenced by internal factors, such as their desire for a
particular food and their reaction to feeling deprived. This position is rooted in the dietary restraint model (Heatherton, Polivy & Herman 1990).

In Stage One, justification for provision of HFSS foods to avoid ‘obsession’ was expressed; that if ‘treats’ are allowed they will not want them all the time. In Stage Two, the opinion that a case child will become ‘obsessed’ with HFSS foods if not provided them was mentioned by five primary caregivers. An association was found between primary caregivers with this opinion and their case children having high HFSS eating behaviours.

Although the study by Schwartz, Novak & Fiore (2009) does not support the theme of restriction resulting in compensatory over-intake, at least in the school setting, other studies do demonstrate that restriction in children aged 3–6 years seems to teach desirability (Fisher & Birch 1999a; Jansen, Mulkens & Jansen 2007). There is, however, no research in children aged less than age three years regarding restriction being a predictor of increased preference for the restricted food. In fact, it seems safe to assume that children aged three years and older are likely to have already been exposed to highly flavoured HFSS foods while the main impact of introducing such foods to children aged 1–2½ years would be an effect of increasing preference and possibly creating an aversion to previously consumed foods. This was a finding from Stage One in this research regarding a child aged 19 months at the time. The child was introduced to chocolate when he was about 12 months old; he continued to have access to it until about 16 months of age when it was removed from his diet. Although the aversion to fruit may have coincided with the commencement of neophobia, it seems possible that the introduction of chocolate prompted the aversion to fruits. This association was identified by the primary caregiver only during the course of the interview. This finding, that introduction of highly flavoured HFSS foods is likely to create preferences for such foods and aversions to previously accepted foods is supported by the child’s re-acceptance of fruits subsequent to the removal of very sweet foods.

iii) That provision of HFSS foods is acceptable to control children’s behaviour

Another attitude commonly held by primary caregivers and relevant to this thesis relates to the acceptance of food being used to control children’s behaviour or the use of food as a bribe or reward. The use of food rewards is a common occurrence for children as young as two years of age (Campbell, Crawford & Hesketh 2006; Dywer et al. 1996; Reed 1996; Sherry et al. 2004) and, although such behaviour may have the desired effect on consumption in the short-term, it does not have the desired effect on food preferences (Birch et al. 1982; Birch, Marlin & Rotter 1984; Birch, Zimmerman & Hind 1980; Newman & Taylor 1992), which is a major influence on eating behaviours in the longer-term. There is, however,
evidence that, with training, primary caregivers’ use of such practices can be reduced (Daniels et al. 2012).

In Stage One of this research the use of food as a bribe or reward was evident. ‘Treats’ or desserts were allowed if the child ate ‘well’ or ‘enough’. Foods used by primary caregivers to influence the child’s behaviour were not always HFSS foods; they may have been yoghurt, cheese or fruit. Findings from Stage One regarding the use of food as a bribe or reward was not only that the practice was common and it was considered socially acceptable but that it was often unrecognised by the primary caregiver.

In Stage Two, the theme that the practice of using foods to control a child’s behaviour is socially tolerated was confirmed. With the use of a projective technique (as described in Section 3.4.2), the majority of participants considered it socially acceptable to quieten the child with HFSS foods in a social setting. Participants were shown a drawing of a woman in a supermarket with a crying child and a fellow shopper looking on. They were asked how the woman may be feeling and what might occur next. Some participants felt that the onlooker may also have sympathy for her but the majority reported that the woman would be experiencing some negative emotion, typically embarrassment, as a reflection of her caregiving ability. Regarding the behaviour of the woman in the scenario, the majority of participants considered it socially acceptable to quieten the child with HFSS foods. Other participants reported that they would not give a child HFSS foods in such a situation, while others reported that giving food, but not HFSS foods, was acceptable. Others reported dealing with the situation with other strategies such as distraction. The use of foods as a bribe or reward was also considered acceptable for behaviour control in other circumstances such as toilet training. Some primary caregivers disagreed with the use of food as a bribe or reward under any circumstance with the most common reason being that the child would come to expect it and that the strategy would become ineffective.

iv) Children need exposure to HFSS foods to learn how to manage them

Stage One of the research revealed the themes that ‘treats’ were acceptable in certain circumstances such as social settings and at child care. In Stage Two all primary caregivers agreed that HFSS foods should be allowed for various reasons; that it is a caregiver’s right, that such foods are simply enjoyable; or that consumption of such foods is part of our society and that children need to learn how to manage them. In fact, the concept that children should be allowed ‘treats’ so they can learn to differentiate between core foods and HFSS foods was presented in Stage One as being a responsibility of ‘good caregiving’.

This theme that primary caregivers should allow treats so that children can learn to differentiate between core foods and HFSS foods was also reported by Pagnini et al. (2007) from their qualitative work with
primary caregivers of children aged 2–5 years. This theme is also an argument advocated by those who support advertising to young children such as Furnham (2000). Furnham (2000) argues that advertising is only one of many influences on children and, indeed, plays an important role in their socialisation through consumption and that caregivers are expected to provide their children with a range of decision-making and consumption opportunities to prepare them for life in a commercial world.

v) What children prefer
The research augmented another finding regarding the attitudes that are held by primary caregivers of children 1–2½ years of age. In their survey involving 4–15-year-old children and their parents, Ludvigsen and Sharma (2004) described as a key finding an expectation among both children and adults that children are *supposed* to prefer HFSS foods. This theme was identified also in the current research amongst primary caregivers of children 1–2½ years who made the assumption that children would not like certain foods or commented on ‘kid-friendly’ foods.

vi) The influences of media and advertising on young children
Another finding from this research absent from the extant literature highlights more differences between younger and older children. This relates to the tendency for primary caregivers to implicate external influences when it is themselves introducing HFSS foods to their young children. Primary caregivers often cite peers and marketing as being sources of influence encouraging their children to pester (Dwyer et al. 2008; Hart et al. 2003; Pettigrew & Roberts 2007). Although the existence of ‘pester power’ is not denied (for example Isler, Popper & Ward 1987; McNeal 1992; Taras et al. 2000), the literature ultimately suggests that primary caregivers are motivated to provide their young children HFSS foods so they are not deprived of the pleasure (Pagnini et al. 2007) and because they are concerned that their child may be criticised by their peers or be ostracised from the peer group (Jebb, Steer & Holmes 2007; Ludvigsen & Sharma 2004). Both these motivations hold relevance to this thesis. Firstly, providing HFSS foods to young children, for any reason, is proposed to create a preference for that food. Secondly, providing children HFSS foods with the intention that such foods facilitate acceptance by peers is consistent with the major finding of this research that the goal of primary caregivers for their children to be socially accepted is fundamentally detrimental to children’s eating behaviours.

Provision of HFSS foods to avoid deprivation of pleasure was a theme confirmed by this research. This research also identified that primary caregivers are complicit in the maintenance of the social norm; in fact, primary caregivers may pre-empt peer pressure. Provision of HFSS foods to young children in a peer group setting was found in this research to be initiated by the primary caregiver, *not* in response to peer
pressure and the child’s demands as is often proposed by primary caregivers (for example Dwyer et al. 2008).

Additionally, despite the plethora of justifications for provision of HFSS foods and some diversity in opinion, this research highlights that the effect of personal experience can be greater than such opinions. Socially held attitudes and common practices are very influential but this research indicates that personal experiences can ‘trump’ socially held opinion. One primary caregiver opposed the opinion that a child will become ‘obsessive’ regarding HFSS foods if not exposed to them; her opinion was based on the fact that it was not her own experience – although not exposed to HFSS foods as a child she did not become ‘obsessed’ with such foods. This theme is supported by analysis from Stage One which suggested that primary caregivers given ‘no treats’ as children followed their own parents’ style when they became parents (Appendix 3J).

In Table 5.9 below, for each key finding relevant to social influences, an indicative statement is provided; the finding is compared with the extant literature (confirms or augments the extant literature, or contributes to the extant literature).

**Table 5:9 Summary of findings relevant to social influences**

<table>
<thead>
<tr>
<th>Findings relevant to social influences</th>
<th>Confirm</th>
<th>Augment</th>
<th>Contributes</th>
<th>Indicative statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>-PCGs provide HFSS foods to 1-2 ½ yo children for pleasure and/or to avoid deprivation</td>
<td></td>
<td>√ (+++) younger children</td>
<td></td>
<td>JN: ‘Do you think that there are any potential risks of introducing those sorts of things?’ Reanna: ‘Um, not really because it’s only rare that he would get them, and so he wouldn’t miss out on them really...’ (child age 16/12)</td>
</tr>
<tr>
<td>-PCGs of children aged 1-2 ½ years justify provision of HFSS foods to avoid ‘obsession’</td>
<td></td>
<td>√(+++) younger children</td>
<td></td>
<td>‘I know some kids have never been allowed to have soft drink or never been allowed to, have never set foot in McDonalds, or … And I think that sort of restriction is just going to blow up in their face when those kids get to teenage years’. (Kate)</td>
</tr>
<tr>
<td>-introduction of HFSS foods to child 1-2½ year may create aversion to previously enjoyed foods</td>
<td></td>
<td></td>
<td>√</td>
<td>‘… each day for December he would open up the little card and take the chocolate or …. by the time we got to Easter and he ... knew what chocolate was then, he had Easter eggs, and everything, he was just so obsessed with chocolate. He went off that (fruit and vegetables) for about three months ... But he’s started eating fruit again. He’s started asking for apples and</td>
</tr>
</tbody>
</table>
bananas and grapes but ... the chocolate has been out now for a while ... It’s probably the fact that he’s not getting any other sugar now, and the only sugar he’s getting is from fruit (laughs) – What have I done?’ (Kaila)

-PCGs justify providing HFSS foods to children 1-2½ to for behaviour control

<table>
<thead>
<tr>
<th>Reason</th>
<th>Justification</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>-HFSS foods to younger children</td>
<td>√(++)</td>
<td>(in a supermarket with a crying child): ‘Um, OK. Yes, I think it might be Chocolate Frog time!’ (laughs)(Lindy).</td>
</tr>
<tr>
<td>-Children to learn how to manage them</td>
<td>√(++)</td>
<td>‘I probably don’t think that we should have any of those foods. On a practical level, I think that is these days downright impossible. And I think it’s probably inappropriate to raise my children without any influence only of those things.’ (Andrea)</td>
</tr>
<tr>
<td>-Children are supposed to prefer HFSS foods</td>
<td>√(++)</td>
<td>‘I like cooking, but the stuff I cook is more not for kids ... sometimes I cook for us and then cook for them. But usually if we’re having something that the kids probably won’t eat. Like we’ll give them some to see if they will eat it, um, but otherwise they’ll have pasta, like I’ll cook them sausages and they’ll have pasta or something like that. We had a stew the other night, a crock-pot stew, so they had sausages and pasta then … we didn’t try them on that, ’cos there’s bones in it and everything, so …’ (Savanna)</td>
</tr>
<tr>
<td>-Pre-empt peer pressure</td>
<td>√</td>
<td>K.: oh, I don’t want him to feel that he’s missing out …’ JN: ‘OK. you hadn’t had any, um, any suggestion of that from Oliver himself – he wasn’t sort of saying “Mum I’m feeling left out – all the other kids have got…”’ K: … sitting around the table with other kids and their lunchboxes open, and, mind you, I haven’t actually SEEN it happen, I’m imagining it…’</td>
</tr>
<tr>
<td>-Influence of personal experience can be greater than social influences</td>
<td>√</td>
<td>‘I don’t think that (he’ll become obsessive later) … that’s not a concern of mine at all. I didn’t, I mean we grew up without a lot of stuff, with those allergies. I certainly didn’t go and crave it later, and my sister didn’t either. Um, and my mum still doesn’t. So yeah, I don’t think he will …’ (Candice)</td>
</tr>
</tbody>
</table>

Source: Developed for this research.

Note: the extent to which the finding confirms or augments the extant literature is indicated; (+) to a minor extent; (++) to a moderate extent; (+++) to a major extent

PCG = primary caregiver

Overall, whatever the reasons justifying the provision of HFSS foods, the attitude that HFSS foods should be provided seems so ubiquitous that participants in Stage Two expressed either their own concern about
being seen to be too strict or criticised others for being too strict. The reader is reminded that, for whatever reason, all primary caregivers who had children in the 12–18 month age group, the youngest age group of the study, had introduced or were regularly providing cakes, muffins, chips, chocolate, lollies or soft drinks to their child.

d) Feedback

This research confirmed the lack of negative feedback that primary caregivers receive regarding provision of HFSS foods from peers and significant others. Pagnini et al. (2007) identified a unanimous opinion amongst primary caregivers that it was a doctor’s responsibility to raise the issue of their 2–5-year-old children being overweight or obese. Pagnini et al. (2007) identified mixed responses among participants regarding whether early childhood educators, or family and friends should raise the issue. Although, as previously presented, criticism is placed with others such as grandparents providing HFSS foods to children (Pettigrew & Roberts 2007), reasons for tolerating such behaviour, such as dependence on child care, offered by family members have also been reported (Pettigrew & Roberts 2007).

In this research lack of feedback to primary caregivers conducting feeding practices considered inappropriate by others or with children of small stature/possibly underweight was particularly evident. In Stage One, the theme of reluctance to confront others regarding their caregiving behaviours was confirmed. In addition, although primary caregivers expressed that it was easier to confront family members regarding foods provided to their child, they were reluctant to confront other primary caregivers for providing their children with HFSS foods particularly in a social setting. In Stage Two, some primary caregivers were comfortable to advise in a professional capacity or to try to influence through their own behaviour. Some primary caregivers also reported feeling criticised by other primary caregivers regarding the type of food they provided to their young child, although this criticism was not expressed. Such feelings, however, seem to be vindicated. Although not willing to confront other primary caregivers, including friends directly (n=4), they would criticise them in their absence (n=2). In fact, other primary caregivers were more likely to express a criticism directly to primary caregivers attempting to feed their young child in accordance with recommendations, such as providing a variety of (nutritious) foods.

The theme emerges, therefore, that other primary caregivers tend to be critical and judgemental in contrast to being constructive and understanding. Seemingly aligned with this theme of reluctance to confront others and perpetuating the social norm, is the theme also identified in both parts of the research of socialising with like-minded others.
Lack of feedback perpetuates the social norm as does the finding that primary caregivers use comparison with other children as one of the ways they judge a child’s weight status. Supporting the notion that it is inappropriate for a non-professional to comment regarding a child’s weight, Pagnini et al. (2007) found that mothers of 2–5-year-old children were reluctant to label (another’s) child overweight, yet the criteria for judging a child being overweight or obese was based on physical appearance (such as weight for height, type and location of body fat) and comparisons with other children and clothing sizes. Stage One also presented the theme that primary caregivers experience pressure when children are compared to others regarding progress or size. In line with the theme identified in the literature that primary caregivers compare their child with others in terms of size, in Stage One it was revealed by unprompted comments from seven of the 24 participants that their child ‘ate better’ than other children.

In one case, the theme was introduced that the use of comparison can be more influential than advice from authorities. One primary caregiver was concerned that her child (the older sibling of the case child) was not eating enough; her concern was based on her observation that the child was eating less than other children and was smaller than others despite being of an acceptable weight according to growth charts.

In Table 5.10 below, for each key finding relevant to feedback, an indicative statement is provided; the finding is compared with the extant literature (confirms or augments the extant literature, or contributes to the extant literature).

**Table 5:10 Summary of findings relevant to feedback**

<table>
<thead>
<tr>
<th>Findings relevant to feedback</th>
<th>Confirms</th>
<th>Augments</th>
<th>Contributes</th>
<th>Indicative statement</th>
</tr>
</thead>
</table>
| -reluctance to confront others regarding feeding behaviours | √(+++)| | | Heather: ’Yeah, in a lot of the circles that I’m in – my friends I guess are similar to me, like we might complain about what other people let their kids have, like – one of my really good friends – her other friend lets her kids walk around – their babies walk around with bottles full of juice, or milk, sucking on them all day long and … lollies and … yeah people do complain about it and whinge about it to each other, I guess.

JN: Maybe not saying anything directly to her though …

Heather: No, just about them. Usually I suppose you can influence people the way you want them to feed their kids by saying ‘oh we don’t let the kids eat that’ – you wouldn’t say it outright, like “You’re doing the wrong thing”. |
<p>| -lack of constructive feedback | | | |</p>
<table>
<thead>
<tr>
<th>-feedback to PCGs is more likely to oppose recommendations from authorities</th>
<th>√</th>
<th>‘Like I try to give Malcolm variety, and then everyone goes “Well he doesn’t really need variety”....’ (Reanna)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-PCGs use comparison with others to judge child’s weight status</td>
<td>√(+++)</td>
<td>JN: Where do you think that concern has come from? Helga: Oh because I’ve seen other kids her age and even younger, and they’re chunkier. And they don’t eat a lot either but they eat more than what she does and they’re all bigger. I have never seen a kid her age that skinny ever. Anywhere. And she’s got a lot of friends from my mother’s group and none of them are like that. They’re all bigger and meatier.</td>
</tr>
<tr>
<td>-PCGs use comparison with others to judge child’s eating behaviours</td>
<td>√</td>
<td>‘… I have a girlfriend ... who brings cakes over and gives her little boy the cake – she sort of frustrates me (laughs) because I don’t do that with Olga.’(Sarah)</td>
</tr>
<tr>
<td>-comparison can be more influential than advice from authorities</td>
<td>√</td>
<td>Helga: ‘I’ve seen other kids her age and even younger, and they’re chunkier … They’re all bigger and meatier.’ JN: ‘Okay. So what does the doctor say though?’ Helga: ‘She’s in the range of normal, but she’s at the low end of the scale.’ JN: ‘But that doesn’t give you any comfort?’ Helga:’ No.’</td>
</tr>
</tbody>
</table>

Source: developed for this research.

**Note:** the extent to which the finding confirms or augments the extant literature is indicated: (+) to a minor extent; (+++) to a moderate extent; (++++) to a major extent

PCG = primary caregiver

e) Direct instruction

Pagnini et al. (2007) identified that sources of stress for primary caregivers are their management of their child’s eating behaviours as an indication of their adequacy in the primary caregiver role and their being deeply conflicted about issues related to their children’s eating, childhood overweight and obesity, although this conflict may not be recognised. This conflict was expressed in Stage Two as was the comparison of children regarding their size and developmental milestones as a major influence on primary caregivers – and a source of stress.

As comparison with others’ children is a powerful influence on primary caregivers so is the advice from significant others. In Stage Two, the theme that observation or direct instruction from a peer has a potent effect was evident. Bandura’s contention (1989, 1991) that the influence of observation of behaviour is often greater than verbal instruction is further supported by the experience of one well-informed
participant. Candice has a Bachelor Degree in Special Education and works in the field, yet her training did not mean she would subsequently allow her son to determine the quantity of core food he ate. This behaviour did not occur until it was modelled (observed) by a (significant) other primary caregiver. Although the participant had a Bachelor Degree in Special Education and worked in the field, it cannot be assumed that her training included allowing children to self-regulate their intake. This case is specifically reported to emphasis the potency of the influence of ‘significant others’.

Both the extant literature and this research identify that conflict arises between the influence of agents of authority and other sources of advice (Bruss, Morris & Dannison 2003; Humphreys, Thompson & Miner 1998; Olson et al. 2010). In Stage One, a question regarding the origin of information regarding child feeding practices was asked in the first eight interviews. Although it was not asked specifically in the later interviews, two participants made comments. The results indicate a spread of sources of information between authoritative sources (social marketing campaigns and child health) and more immediate sources of influence (the primary caregivers’ mothers, other mothers and friends). Refer to Appendix 5G for more discussion of themes regarding previous experiences.

Although nutrition messages are reaching their targets through social marketing campaigns such as the 2&5 campaign (Go for 2&5 2007), recommendations made by authorities are received sceptically. Hart et al. (2003) reported that primary caregivers of children aged 7 and 12 years feel widespread scepticism about current information, with the media, food manufacturers and the government all being named as sources of potentially biased or ‘scare mongering’ information. The attitude that too much emphasis can be given to young children’s eating behaviours was identified in this research.

Another theme relevant to direct instruction involves the interpretation of recommendations made by authorities. Hesketh et al. (2005) found that most primary caregivers of children aged 7–11 years of age thought that daily food ‘treats’ were acceptable as part of a healthy diet. This research identified the theme that primary caregivers interpret the inclusion of HFSS foods to be in keeping with the recommendation for a varied diet.

In Table 5.11 below, for each key finding relevant to direct instruction, an indicative statement is provided; the finding is compared with the extant literature (confirms or augments the extant literature, or contributes to the extant literature).
Table 5:11 Summary of findings relevant to direct instruction

<table>
<thead>
<tr>
<th>Findings relevant to direct instruction</th>
<th>Confirms</th>
<th>Augments</th>
<th>Contributes</th>
<th>Indicative statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>-PCGs receive inconsistent messages</td>
<td>√(+)</td>
<td></td>
<td></td>
<td>‘So what’s right? What’s wrong? Who determines what – yeah – I don’t know – you get all these ‘bits’ from everybody and try and do the best you can!’ (Raelene).</td>
</tr>
<tr>
<td>-comparison of children’s size and developmental milestones influences PCGs and is a source of stress</td>
<td></td>
<td>√</td>
<td></td>
<td>‘I know when parents get together like generally, like “My child is a little angel” (laughs) like “Ooh, he can do this or they can do that ...” ’ (Tania)</td>
</tr>
</tbody>
</table>
| -the potent effect of direct instruction from a peer | √(+++)  |          |             | JN: ‘Did you feel a failure ... that he wasn’t eating enough?’
Candice: ‘Yep. I think you feel a failure whenever ... ‘Cos I know, the lady next door – second time around – she force-fed the first one because he was premature. She was determined she would feed him until he threw up. And then she’d realise she’d, what she’d done wrong. The second time around – totally different situation. And she was a great support, ‘cos I’d say, “He’s not doing this” and she’d say, “That’s OK – that’s what they do...”’ |
| -too much emphasis                     |          | √(++)    |             | ‘When mums get together they’re constantly talking about what the kids are eating and it gets very boring after a while – about their, you know, “little Jimmy won’t eat this”, and you know, everyone’s talking about their kids and ... Yeah they do all the time, and ... you sort of get over it after a while...’ (Heather) |
| -PCG attitude that provision of HFSS foods is recommended |          |          | √           | JN: ‘OK. So what about the other foods? What are foods that you think shouldn’t be allowed on an everyday basis?’
Jeannie: ‘Um, oh, I suppose I don’t agree with nothing, like, I think you need to have a varied diet. I think you can be exposed to everything but on an everyday basis, like, like Coca Cola and your soft drinks, and chocolate and, yeah, highly refined processed foods I suppose, and chips.’ |

Source: Developed for this research.

Note: the extent to which the finding confirms or augments the extant literature is indicated; (+) to a minor extent; (++) to a moderate extent; (+++) to a major extent

PCG = primary caregiver

In the next section, the research findings regarding personal factors of the primary caregiver will be examined.
5.4.4 Personal factors


The key themes presented in this section are a) factors of expedience, b) financial concerns and c) modelling of eating behaviours by primary caregivers.

a) Factors of expedience

Factors relating to ‘ease’ for the primary caregiver have certainly been presented in the literature as barriers to the provision of core foods for children. Noble et al. (2007) found overall that primary caregivers explained the purchase of HFSS foods by ‘expediency’. Such factors of expedience are perceived time constraints when providing for 2–5-year-old children (Dwyer et al. 2008; Pagnini et al. 2007), and desire for a happy home and child approval (Brewis & Gartin 2006; Hoerr, Utech & Ruth 2005).

In Stage One, perceived lack of time was identified as a factor impacting on primary caregivers’ behaviours. Also identified in Stage One, but only in relation to children older than the case child, were themes of the primary caregivers’ desire for approval by their child and their desire for a ‘happy home’.

In Stage One, primary caregivers reported diversity in attitudes regarding the provision of HFSS foods, in particular in response to potential barriers such as perceived lack of time. The priority that a primary caregiver gives to food in general may be an overarching factor explaining this diversity. Thus, a precept of Stage Two of this research was the exploration of the effects of primary caregivers’ employment status in line with Brown, Scragg and Quigley (2008); the effect of being time-poor was explored for those not in paid employment. In a UK poll (MORI 2001), lack of time was given as a major reason for buying convenience foods and the association between working mothers and use of convenience foods for their children is evident for infants as young as 8 months of age (Grzywacz et al. 2010). The reliance on convenience foods by primary caregivers is acknowledged (Dwyer et al. 2008; Hart et al. 2003) and the acceptability of their use was confirmed in this research, particularly in social settings.

The most common response, when asked if being busy or working had an impact on the case child's eating behaviour, was that the primary caregiver was organised regarding frozen (home-cooked) or quickly prepared meals, while others indicated the acceptability of providing take-away foods when busy. Some participants commented that the child has less time to eat when they are busy or that they are more indulgent with the child when time allows. Another response, expressed with guilt, was that less food was offered when the primary caregiver was busy.
Another theme, previously discussed, was that the main reason cited by primary caregivers of young children for not providing HFSS foods was the child’s ‘hyperactive’ response, which impacted on the primary caregiver.

In Table 5.12 below, for each key finding relevant to factors of expedience, an indicative statement is provided; the finding is compared with the extant literature (confirms or augments the extant literature, or contributes to the extant literature).

**Table 5:12 Summary of findings relevant to factors of expedience**

<table>
<thead>
<tr>
<th>Findings relevant to factors of expedience</th>
<th>Confirms</th>
<th>Augments</th>
<th>Contributes</th>
<th>Indicative statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>-perceived lack of time justifies provision of convenience/HFSS foods</td>
<td>√(+++)</td>
<td></td>
<td></td>
<td>‘Yeah, definitely. Like, if I’m really busy and something’s happening it’s definitely more likely to be chicken nuggets and chips on the menu than if I’ve got the mental or physical space – half an hour or whatever to dice up the vegetables… Yeah. I get stressed … Paul can have chicken nuggets and chips, that means I can get to bed an hour earlier later, but, yeah, stress is just too much. So I just go the easy option.’ (Teresa).</td>
</tr>
<tr>
<td>-desire for happy home and child approval</td>
<td></td>
<td>√(+++)(not in children &lt; 5 yo)</td>
<td></td>
<td>NA</td>
</tr>
<tr>
<td>-when PCG is time poor, less food is offered</td>
<td></td>
<td>√(++)</td>
<td></td>
<td>‘… if I’m busy, then she can just miss out a bit because she … feeding her can be such a thankless task … if I’m busy I’m more likely to ask her if she’s hungry and … she might say no and rather than putting food in front of her when she’s not very interested …’ (Lindy)</td>
</tr>
</tbody>
</table>

Source: Developed for this research.

Note: the extent to which the finding confirms or augments the extant literature is indicated: (+) to a minor extent; (++) to a moderate extent; (+++) to a major extent

PCG = primary caregiver

b) Financial concerns

As previously presented, this research found no associations between socioeconomic status and key attributes described (Diet categories, Child determines quantity of food eaten, Long-term caregiving goal of social acceptance, Awareness of long-term effects and Messy exploration of food is normal). However, after exposure to HFSS foods or when a preference for HFSS foods develops, primary caregivers are
likely to continue providing a child with less nutritious food choices when confronted by financial factors such as food costs, food refusal and concern about food wastage.

Themes associated with socioeconomic issues present in the extant literature – concern for food cost (not limited to low socioeconomic families) (Pagnini et al. 2007), concerns regarding food refusal and food waste (Dunn et al. 1994; Reed 1996; Reicks, Randall & Haynes 1994) – were confirmed in the current research.

In Stage One, those participants who did comment about financial matters influencing them regarding their young children’s eating behaviours had a range of responses. In Stage One, the theme emerged that the higher cost of some food items was justified by primary caregivers for convenience, reduced wastage and to satisfy the child’s preferences. Identified in Stage One and again in Stage Two was primary caregivers’ aversion to food refusal and waste. In a bid to satisfy the primary caregivers’ strong drive for the young child to eat, primary caregivers’ aversion to food refusal and concern about waste were additional motivations to provide young children foods with that they would eat and enjoy:

... it’s not so much the effort, ‘cos I, like, I don’t really care that I’ve gone to that work and done that ... um … I think it’s more the waste of food – like we never ever wasted any food as kids and, I don’t know, like, if I have to throw half a head of lettuce in the bin I cringe – you know, I just can’t waste food. (Teresa)

Additionally, in Stage Two the three primary caregivers with concern about waste had eating behaviours considered high in HFSS foods as did the two primary caregivers who commented about food refusal.

Food refusal can be a barrier to foods being offered repeatedly and, without an understanding of self-regulation and developmental stages in the acquisition of feeding skills and food preferences, caregiver responses to feeding difficulties may exacerbate the problems (Harris, Blissett & Johnson 2000) and result in poorer eating regulation and overweight and obesity (Faith et al. 2004b). Evidence indicates that, with appropriate training, primary caregivers are more likely to respond to food refusal as an indicator of satiety (Daniels et al. 2012).

In summary, socioeconomic concerns provided additional motivation for some primary caregivers to provide their children with HFSS foods. Associations are incorporated into the analysis resulting in schema explaining how and why primary caregivers influence young children’s eating behaviours in an obesogenic environment (see Section 5.5).
c) Modelling of eating behaviours by primary caregivers

Key findings and contributions relevant to the research outcomes are compared with the extant literature here whilst other themes related to modelling are discussed in Appendix 5F.

Research indicates that parental weight status, food preferences and eating behaviours are highly associated with those of their children (e.g. Borah-Giddens & Falciglia 1993; Carruth & Skinner 2000; Pelchat & Pliner 1986, 1995; Pliner 1994; Reilly et al. 2005; Whitaker et al. 1997; WHO 2002). The extant literature suggests that modelling may be more effective than feeding practices in achieving healthy food intake in children (Brown & Ogden 2004), but modelling was not used by primary caregivers of 2–4-year-old children, even when they are concerned about their child being overweight (Gregory, Paxton & Brosovic 2010).

All participants were aware that primary caregivers are role models. Despite this awareness of their being role models, primary caregivers did not always model healthy eating behaviours. Evidence supporting this is presented in Appendix 5H. Other themes also presented in Appendix 5H and relevant to primary caregiver modelling but not key to the outcome of this research, are i) primary caregivers’ acceptance of their own high HFSS eating behaviours and ii) eating together.

Firstly, of salience to the thesis outcomes and confirming findings in the literature, Stage Two analysis revealed that primary caregivers’ eating behaviours are highly associated with those of their young children:

- seven primary caregivers who had high HFSS eating behaviours had children with high HFSS eating behaviours
- an additional five primary caregivers who had high HFSS eating behaviours had children with eating behaviours involving regular intake of HFSS foods
- five primary caregivers who had low HFSS eating behaviours had children with low HFSS eating behaviours.

Secondly, the theme of unconscious modelling (Hart et al. 2003) was also augmented by this research in primary caregivers of children aged 1–2½ years. Diversity was evident amongst the participants as to their awareness of their language and behaviour relevant to modelling. Self-awareness of primary caregivers’ behaviour may be high but, more commonly, primary caregivers revealed how their tone of voice and own food preferences would inadvertently influence their child.
Thirdly, and aligning with the theme initially identified in Stage One that primary caregivers act ‘for’ their children, the theme emerged that primary caregivers ‘put their child first’. This behaviour was portrayed in a self-assured manner as being the ‘right thing to do’. While not explained by participants as being motivated by economic factors, ‘putting the child first’ was commonly cited as a justification for their own high HFSS eating behaviours.

The finding that five primary caregivers with high HFSS eating behaviours had children whose eating behaviours were considered low HFSS suggests that some primary caregivers may be successful in providing their young children intakes low in HFSS foods whilst having a liberal intake of HFSS foods themselves. Four primary caregivers reported ‘putting their child first’. However, for the majority of those who commented that they ‘put their child first’ their case children had high HFSS eating behaviours. This result indicates, firstly, that the drive to feed the child is greater than the drive to model. Secondly, it serves to highlight the prevailing association between primary caregiver and child eating behaviours. Thirdly, it demonstrates the potency of modelling and primary caregivers’ lack of success in providing their children a healthy intake whilst not attending to their own eating behaviours.

Another previously unreported theme was identified in direct contrast to the behaviour expected of primary caregivers who are aware of their role as models for eating. The theme that some primary caregivers actually adapt their own intakes to suit the preferences of the child was identified initially in Stage One; it was also present in Stage Two, with the majority of the four primary caregivers who made this comment having high HFSS eating behaviours. None of the primary caregivers who adapted their intakes to suit the case child were claiming to put the child first. For these primary caregivers, ‘putting the child first’ was not given as a justification for their poor eating behaviours but, adapting their own intakes lends further support for primary caregivers acting ‘for’ children with their focus being on the case child’s eating while they had little appreciation of their role as models. These key findings are summarised in Table 5.13 below where a comparison with the extant literature is made and an indicative statement provided.

**Table 5:13 Summary of findings relevant to primary caregiver modelling**

<table>
<thead>
<tr>
<th>Findings relevant to PCG modelling</th>
<th>Confirms</th>
<th>Augments</th>
<th>Contributes</th>
<th>Indicative statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>- the nature of the diets of primary caregivers is highly associated with the nature of their children’s diets</td>
<td>√(+++)</td>
<td></td>
<td></td>
<td>NA</td>
</tr>
<tr>
<td>- unconscious modelling</td>
<td></td>
<td>√(++)</td>
<td></td>
<td>‘… like she’s had a bit of chocolate cake here and there … We tried not to make it</td>
</tr>
</tbody>
</table>
The examination of the findings regarding the priority that primary caregivers give to food is also considered relevant to the discussion of the salient association between eating behaviours of the primary caregiver and child. These findings, discussed and presented in detail in Appendix 5H, further substantiate the theme of primary caregivers acting in a self-assured fashion in ‘putting the child first’. The discussion of this theme in the context of ‘priority’ further emphasises that an objective of primary caregivers is for their young children to eat core foods despite the apparent absence of them acting as models to achieve this objective.

5.4.5 Long-term goals of primary caregivers

Research Issue 5. What long-term goals of primary caregivers impact on young children’s eating behaviours? How and why?

The key themes presented in this section are a) general long-term goals of caregiving and b) long-term food-related goals.
a) General long-term goals of caregiving

Research regarding caregiving goals and child overweight and obesity is scarce; a gap was identified in the literature regarding any examination of associations between general caregiving goals and child weight. Parental ethno-theories have been demonstrated to vary amongst sociocultural environments. The understanding that parenting is a cultural activity is widespread (Kagitçibaşı 1996, 2005). It is also widely acknowledged that cultural models of the self provide essential frameworks for shaping socialisation goals and parental ideas about what constitutes effective child rearing (D’Andrade 1984; Keller, Voelker & Yovsi 2005; Keller, Yovsi & Voelker 2002; LeVine 1988; Okagaki & Divecha 1993; Super & Harkness 1996). In their study involving 204 mothers of 3-month-old infants from different ecocultural environments, Keller, H et al. (2006) confirmed that socialisation goals mediate between broader sociocultural orientations (familism) and parenting ethno-theories concerning beliefs about good parenting.

No studies could be found involving parenting ethno-theories or socialising goals and childhood weight although Gable and Lutz (2000) suggest that parents, particularly those of obese children, may not recognise their role in socialising their children’s healthy growth and may grant their children more responsibility for meeting their nutritional needs (Gable & Lutz 2000).

In Stage One of the research, general long-term goals of the primary caregivers were not investigated. However, Stage Two participants were asked directly about their caregiving goals for their children. It was made clear that this question was not related to food. In their responses 14 participants included the word ‘happy’ or ‘enjoyment’; five specified ‘healthy’. A differentiation was made between primary caregivers with general caregiving goals relating to personal wellbeing (n=9) and those with general caregiving goals relating to social acceptance (n=7). That primary caregivers may have both goals or that these goals may occur over a continuum is acknowledged, as a goal of some degree of wellbeing (‘happy’ or ‘enjoyment’) was expressed by most participants in their response. However, for some participants who elaborated further in their responses one goal dominated over the other.

As presented in Table 5.14 below, associations were found between eating behaviours and primary caregivers whose general caregiving goals reflected a focus on the child being socially accepted (n=7); all these primary caregivers had high HFSS eating behaviours and six of the seven had children with regular or high HFSS eating behaviours. This finding prompted a thorough examination of the data seeking associations with these primary caregivers thus categorised and other primary caregiver attributes and behaviours (see Appendix 5E.5 for detail).
Table 5.14 Caregiving goal of social acceptance – primary caregiver’s and children’s eating behaviours

<table>
<thead>
<tr>
<th>PCG eating behaviours</th>
<th>Case child eating behaviours</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low HFSS</td>
<td>Regular HFSS</td>
<td>High HFSS</td>
<td></td>
</tr>
<tr>
<td>Low HFSS (n=0)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High HFSS (n=7)</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Source: Analysis of field data.

Note: PCG = primary caregiver

As discussed when demographic characteristics were presented, an association was found between primary caregivers having a goal of social acceptance for their children and low or irrelevant education status. Specifically, one primary caregiver of seven with the caregiving goal of social acceptance had a tertiary education considered relevant to child development.

In Table 5.15 below, indicative statements representing primary caregiver long-term goals (wellbeing versus social acceptance) are presented. The key finding that there is distinction between goals of primary caregivers of children aged 1-2½ years is a contribution of this research to the extant literature.

Table 5.15 Summary of findings relevant to general long-term goals of caregiving

<table>
<thead>
<tr>
<th>Findings relevant to general long-term goals of caregiving</th>
<th>Confirms</th>
<th>Augments</th>
<th>Contributes</th>
<th>Indicative statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>-there is distinction between goals of primary caregivers of children aged 1-2½ years i.e. personal well-being versus social acceptance</td>
<td></td>
<td>√</td>
<td></td>
<td>‘Um, oh, that he’s happy, and, um, he’s well-rounded and well, not necessarily confident but he is his own person ... um, I’d like him to be disciplined to a certain extent but I don’t want him to be over-disciplined that that affects his personality. Um, and I suppose just for him to try and be him, I suppose …’ (Jeannie) Vs. ‘Well it’s not such a big question, like I’m pretty set in what I want to achieve for him. Probably, um bring him up to be a person who is intelligent, articulate, good values, good moral values, um, and just, I guess in summary, to develop him into an older child and eventually an adult who is a good moral citizen, but also, you know, happy. And can have a laugh and relax, and do things for other people, and …(Teresa)</td>
</tr>
</tbody>
</table>

Source: Developed for this research.

Note: the extent to which the finding confirms or augments the extant literature is indicated; (+) to a minor extent; (+++) to a moderate extent; (++++) to a major extent
b) Food-related long-term goals of caregiving

The literature demonstrates that childhood overweight and obesity tracks into adulthood (e.g. Dietz 2001; Freedman et al. 2005), but overweight and obesity may not develop until adolescence or adulthood (Venn et al. 2007). The literature also demonstrates that children’s food preferences (Kelder et al. 1994) and eating habits (Boulton, Margery & Cockington 1995; Braddon, Rodgers & Wadsworth 1986; Branen & Fletcher 1999; Dietz 2001; Freedman et al. 2005; Mikkilä et al. 2004, Singer et al. 1995) track into adulthood and that childhood intake predicts overweight and obesity later in life (Fiorito et al. 2009). The importance of the tendency to prioritise what may be short-term gains over long-term effects has been highlighted in the Staff Working Paper by the Productivity Commission ‘Childhood Obesity: An Economic Perspective’ (Crowle & Turner 2010). Despite this awareness at a policy level, there is evidence supporting the concept that primary caregivers do not relate their own behaviours when their children are young to their children’s longer-term health (Dywer et al. 2008; Hart et al. 2003; Jeffrey et al. 2005; Pagnini et al. 2007).

Predominant long-term food-related goals of primary caregivers were for the child to learn about core and HFSS foods, specifically for the child to know the difference between core foods and ‘treat’ foods and to be able to make appropriate choices. As the research by Hesketh et al. (2005) was limited by not accessing primary caregivers of cultural diversity and lower socioeconomic status, so was Stage One of this research, but both studies found a recognition by primary caregivers that children’s behaviours are shaped early in life. Again in Stage Two, some primary caregivers recognised that their actions have a longer-term impact. Associations were identified between primary caregivers who reported an appreciation of their current actions having long-term effect, those having the attitude that the child would not miss HFSS foods, those making comments regarding ‘no difficulties yet’, and those with children with eating behaviours low in HFSS foods. These associations prompted a thorough examination of the data, seeking associations with the nine primary caregivers who appreciated that their current actions have longer-term consequences and other caregiver attributes. Associations were found in Stage Two between primary caregivers who reported that their current actions have long-term impact and other factors considered to reflect awareness of child development – longer duration of breastfeeding and awareness that introduction of or liberal intake of HFSS foods influences a child’s food preference (see Appendix 5E.4).

The theme that current actions have a long-term impact was in contrast to the theme that a child will eat healthier foods in time. However, opinions differed on this matter. One opinion was that a preference for certain foods will develop with repeated exposure to those foods. Forcing or cajoling a child to eat certain
foods is not the valued activity, but repeated exposure to foods is the valued activity. Another attitude expressed, usually when discussing other primary caregivers, was the expectation that a child’s palate will change, but seemingly without high exposure to healthy foods. In this research two primary caregivers held the opinion that their child will develop a more mature palate – for instance for vegetables – with time. The eating behaviours of both these primary caregivers and their children were high in HFSS foods. These attitudes seem to provide additional ‘reasons’ to be relaxed regarding their children’s current eating behaviours.

This completes the presentation of key findings of the research. The next section provides a schema of analysis of the findings, explaining how and why primary caregivers influence young children’s eating behaviour.

5.5 Schema explaining how and why primary caregivers influence young children’s eating behaviours in an obesogenic environment

In this section, analysis of associations from the data culminates in an outcome of the research being a schema explaining how and why primary caregivers influence young children’s eating behaviours in an obesogenic environment. A detailed description of the five-step analysis is provided in Appendix 5I.

The final, simplified version of the schema is represented in Figure 5.2 below. How primary caregivers influence young children’s eating behaviours is represented by categories of young child HFSS eating behaviours, as intake of HFSS foods by young children is used in this research to reflect the nature of their eating behaviours.

A major factor relating to why primary caregivers influence young children’s eating behaviours is explained by primary caregivers’ personal eating behaviours. The data also indicate strong associations between primary caregiver eating behaviours and primary caregiver long-term goals for young children. Thus, the schema categorises primary caregivers and young children into groups based on these three major characteristics:

- young child eating behaviours
- primary caregiver eating behaviours
- primary caregiver long-term goals for the young child.

The research data link sub-groups of these major categories by attributes (attitudes and behaviours) and
major associations between sub-groups are depicted. Firstly, there are strong associations between eating behaviours of primary caregivers and eating behaviours of young children. These associations are found regarding low HFSS eating behaviours as well as high or regular HFSS eating behaviours. The relationship between high HFSS eating behaviours are reciprocal, as depicted in Figure 5.2.

Secondly, the research revealed that primary caregiver long-term goals for young children are fundamental to young children’s eating behaviours. Although not mutually exclusive, a distinction was identified between primary caregivers who hold a long-term goal for their young children with a focus on wellbeing and those whose long-term goal is focused more towards social acceptance. Primary caregivers whose long-term goal for young children is towards social acceptance are influenced by socially accepted attitudes and practices, linking them to high HFSS food eating behaviours.

On the other hand, the data support an association between primary caregivers with the long-term goal for young children being focused on the child’s wellbeing and appreciation of young children’s development. Some of these primary caregivers are also influenced by socially accepted attitudes and practices supporting the provision of HFSS foods, whilst these influences do not impact on other primary caregivers who reap the benefits with respect to child rearing and health.

Most attributes (attitudes and behaviours) in the data contribute to answering how and why primary caregivers influence young children’s eating behaviours in an obesogenic environment. However, the attributes linking primary caregiver low HFSS eating behaviours with child low HFSS eating behaviours were not presented in the data as being antecedents to or motivations of primary caregivers for their behaviours (why) but analysis suggests these attributes may be benefits consequential to their behaviours.

This completes presentation of the research findings. The chapter is summarised in the next section.
Figure 5.2  Simplified schema: How and why primary caregivers influence young children’s eating behaviours in an obesogenic environment

Notes:

- How primary caregivers influence young children
- Why primary caregivers influence young children
- Benefits to PCGs
  - ease of child-rearing
  - PCG and child health
- Primary caregivers’ attributes
- Width of arrowed lines reflects strength of association

Indicates research data linking major categories
Indicates research data linking major category with attribute
Categories of primary caregivers and young children

Source: developed for this research

Stage Two: Analysis and findings
5.6 Chapter summary

This chapter has presented findings – themes and associations – from Stage Two of this research; the findings have been discussed in relation to demographic characteristics, each of the research issues, the schema and its development to explain how and why primary caregivers influence young children’s eating behaviours in an obesogenic environment.

The next chapter discusses and interprets key themes that emerged from the data analysis. Propositions are developed and are incorporated into the final, integrated social marketing approach.
Chapter 6 – Discussion and implications for social marketing

6.0 Introduction to this chapter

An aim of this chapter is to provide a discussion of findings that emerged from the research. Also, the final integrated social marketing approach is developed and presented to meet the requirements of:

Research Objective 2: To develop an integrated social marketing approach to improve the influence of primary caregivers’ on young children’s eating behaviours in obesogenic environments.

The structure of this chapter and its position in the thesis are presented in Figure 6.1. Section 6.0 continues with a summary of each of the previous chapters.

Figure 6:1 Outline of this chapter

<table>
<thead>
<tr>
<th>Chapter 1 – Introduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter 2 – Literature review</td>
</tr>
<tr>
<td>Chapter 3 – Stage One: Convergent interview method, analysis and findings</td>
</tr>
<tr>
<td>Chapter 4 – Stage Two: Case study methodology</td>
</tr>
<tr>
<td>Chapter 5 – Stage Two: Analysis and findings</td>
</tr>
<tr>
<td>Chapter 6 – Discussion and implications for social marketing</td>
</tr>
</tbody>
</table>

6.0 Introduction to this chapter
6.1 Implications for social marketing
   6.1.1 Education
   6.1.2 Motivation
   6.1.3 Advocacy
6.2 Discussion of key themes and proposition development
   6.2.1 Proposition 1: Short-term objectives of ‘good caregiving’
   6.2.2 Proposition 2: Primary caregivers’ feeding practices
   6.2.3 Proposition 3: Primary caregivers’ modelling
   6.2.4 Propositions 4 and 5: Long-term goals of primary caregivers
   6.2.5 Proposition 6: ‘Significant others’
   6.2.6 Proposition 7: Eating behaviour messages
6.3 An integrated social marketing approach
6.4 Limitations
6.5 Implications for future research
6.6 Chapter summary

Chapter 1 introduced the background to the research and justified the research regarding influences of primary caregivers on young children’s eating behaviours in obesogenic environments. The research question, research objectives and research issues were introduced; this was in close relation to a brief description and justification for the two-stage research design (Section 1.3).
For this research, the research question, the research objectives and the research issues were:

**Research Question:** *How and why do primary caregivers influence the eating behaviours of young children in an obesogenic environment?*

**Research Objectives:**

**Research Objective 1.** To explore primary caregivers’ influences on young children’s eating behaviours.

**Research Objective 2.** To develop a Social Marketing Approach to improve the influence of primary caregivers’ on young children’s eating behaviours in obesogenic environments.

**Research Issues (Stage Two):**

**Research Issue 1.** What short-term objectives of primary caregivers impact on young children’s eating behaviours? *How and why?*

**Research Issue 2.** What factors of primary caregivers’ knowledge impact on young children’s eating behaviours? *How and why?*

**Research Issue 3.** What factors in primary caregivers’ environments impact, through their subsequent behaviour, on young children’s eating behaviours? *How and why?*

**Research Issue 4.** What personal factors of primary caregivers impact on young children’s eating behaviours? *How and why?*

**Research Issue 5.** What long-term goals of primary caregivers impact on young children’s eating behaviours? *How and why?*

Other key contents of Chapter 1 were the contributions made by the research (Section 1.5); delimitations of the research (Section 1.6) – namely Australian primary caregivers of young children; and the outline of the thesis (Section 1.7).

A review of the literature was presented in Chapter 2, framed by social marketing and its requirement of ‘knowing one’s target audience’. Chapter 2 provided an overview of the overweight and obesity epidemic. It was established that prevention is an appropriate strategy and that primary caregivers of young children have a seminal role (Section 2.2). In Section 2.3 influences of primary caregivers on young children’s eating behaviours were examined and, as antecedents to these behaviours, factors influencing primary caregivers were explored in Section 2.4. Chapter 2 indicated that a greater gap in the literature relates to *why* primary caregivers perform their behaviours in contrast to *how* they influence young children’s eating behaviours, thus further justifying the requirement for qualitative
research and the research question. Chapter 2 concluded with a synthesis of theoretical and contextual constructs.

**Chapter 3** presented Stage One, the exploratory stage of this research; the convergent interviewing method used, analysis undertaken and findings made. Stage One fulfilled **Research Objective 1: To explore primary caregivers’ influences on young children’s eating behaviours.** After the chapter outline (Section 3.0), issues of qualitative research were discussed (Section 3.1), followed by justification for the use of convergent interviewing and an explanation of the convergent interviewing process, its limitations and reliability and validity considerations (Section 3.2). Next, the role of prior theory in relation to the convergent interviewing process was discussed (Section 3.3), followed by the implementation of convergent interviews in this research (Section 3.4). Finally, the collected data were summarised and analysed (Section 3.5). Section 3.6 presented Social Cognitive Theory (SCT) as the theoretical framework and the resulting Research Issues which were used to guide Stage Two. Chapter 3 identified themes, narrowed the focus for the next stage of the research and confirmed that a greater gap in the literature relates to why primary caregivers influence their children’s eating behaviours. Section 3.7 summarised the chapter.

**Chapter 4** described and justified the case study methodology used in Stage Two of the research. The chapter was outlined in Section 4.0. In Section 4.1, justification for the research paradigm and case study methodology was provided; the two-stage approach and the use of prior theory were presented. Validity and reliability assessments were made (Section 4.2) and the case study research design was discussed (Section 4.3). Data collection procedures were then discussed (Section 4.4), followed by data analysis (Section 4.5). Finally, ethical considerations (Section 4.6) and limitations of the case study methodology (Section 4.7) were presented, with the chapter summarised (Section 4.8).

**Chapter 5** reported analysis and key findings from Stage Two. After the chapter outline (Section 5.0) each case and its participant/s were described (Section 5.1). An overview of the techniques used to analyse the data was then given (Section 5.2). Section 5.3 presented the associations between demographic characteristics and key attributes. In Section 5.4 research findings (themes and associations) for each research issue were presented. Section 5.5 presented the schema, resulting from analysis of the data, explaining how and why primary caregivers influence young children’s eating behaviours in an obesogenic environment. The chapter was summarised in Section 5.6.

**Chapter 6** commences by unifying the chapters (Section 6.0). Section 6.1 discusses the implications for social marketing and presents the three recommendations for promotion to primary caregivers of young children. These three short-term objectives of ‘good caregiving’ are:

- for primary caregivers to respond appropriately to child satiety
• for young children to prefer core foods
• for primary caregivers to model preference for core foods and an appropriate response to their own satiety.

In Section 6.2, the findings of the research issues are distilled into six significant themes. These themes are a) short-term objectives of 'good caregiving', b) primary caregivers’ feeding practices, c) primary caregivers’ modelling, d) long-term goals of primary caregivers, e) ‘significant others’ and f) eating behaviour messages. Each significant theme is discussed and integrated into seven propositions of the research. In Section 6.3 the propositions are incorporated into the Social Marketing Approach, thus fulfilling Research Objective 2: To develop a social marketing approach to improve the influence of primary caregivers on young children’s eating behaviours in obesogenic environments.

Chapter 6 continues with the research limitations (Section 6.4) and implications for future research (Section 6.5). Section 6.6 summarises the chapter and concludes this thesis.

6.1 Implications for social marketing

In Chapter 5 the findings of this research were compared and contrasted with the extant literature; analysis of the data resulted in the schema explaining how and why primary caregivers influence young children’s eating behaviours in an obesogenic environment. The research has made contributions to knowledge as outlined in Chapter 5. This section takes a broader view by considering the implications of the research for social marketing and other disciplines particularly those relevant to health. These implications will be presented as relevant to each of the interrelated components of a comprehensive social marketing campaign – education, motivation and advocacy – as espoused by Donovan and Henley (2010). The interplay between factors influencing primary caregivers will become evident in the following discussion thus highlighting the need for a comprehensive and complementary approach.

6.1.1 Education

The identification of gaps in knowledge of primary caregivers was a key finding of this research. Primary caregivers’ knowledge regarding foods suitable for children aged 1–2½ years was considered to be adequate. However, knowledge gaps existed specifically relating to a) young children’s self-regulation of energy intake and b) the development of young children’s food preferences. The knowledge gap regarding neophobia is relevant to both these topics.
a) Young children’s self-regulation of energy intake

A recurrent theme in this thesis, and one identified also for five-year-old children (Orrell-Valente et al. 2007) as well as 14-month-old children (Chan 2005), is the desire of many primary caregivers for their children to eat more. A fundamental correction to feeding practices would be to allow the child to determine the quantity of core foods they require. Satter (2000) makes such a proposal, the ‘parent provide child decide’ approach, where the primary caregiver is responsible for providing safe, nutritious, developmentally-appropriate food and the child decides if and how much to eat.

This research identified a clear distinction between primary caregivers who demonstrated awareness of self-regulation of energy intake by allowing the child to determine quantity of core foods consumed and those who did not. This differentiation was particularly evident in Stage One, where primary caregivers who did not demonstrate knowledge of self-regulation practised behaviours which could lead the child to over-consuming or eating when not hungry. These behaviours were i) using dessert or core foods as an incentive (bribe) to eat all the meal, ii) feeding a child who can self-feed (with purpose of increasing intake) and iii) using HFSS foods as bribes or rewards. Such strategies have also been reported elsewhere (e.g. Pagnini et al. 2007).

Lack of knowledge of self-regulation was also evident in Stage Two, where some primary caregivers used strategies to increase children’s intake such as the use of bribes and rewards and other strategies which involved deception. In fact, the theme emerged that ensuring a child eats to the expectations of the primary caregiver is an aspect of ‘good caregiving’. Some primary caregivers were facing a dilemma between the desire for the child to eat core foods and their drive simply for the child to eat or to eat more. The latter drive is so great that some primary caregivers stated, with a sense of guilt, that when ‘time-poor’ they offered less food to the child.

Although some primary caregivers in this research demonstrated an appreciation of child satiety and self-regulation, others interpreted food refusal as due to the child controlling or exerting their power over the primary caregiver (Stage One) or being manipulative, resilient or attention seeking (Stage Two). As confirmed in the NOURISH intervention trial, primary caregivers can be trained to respond to food refusal as an indicator of toddler satiety (Daniels et al. 2012). It is proposed that such behaviour could be promoted as being an aspect of ‘good caregiving’ – the justification for ‘overfeeding risk behaviours’ would then be removed and sabotage of young children’s self-regulatory mechanism would be less likely to result.

The theme also emerged that the attitude and behaviour that primary caregivers should determine the quantity of core foods a child eats, originated from their own childhood. This finding points to an implication for practice: that primary caregivers should be encouraged to consider how different our times are from those of our forebears when food scarcity may have been a genuine concern. Also
highlighted by this research was the finding that primary caregivers are particularly concerned about the adequacy of their children’s food intake when breastfeeding ceases. This, therefore, is a time when the reiteration of advice to allow self-regulation is paramount.

In summary, it is proposed that a short-term objective of ‘good caregiving’ is:

- for primary caregivers to respond appropriately to child satiety.

Education supportive of this recommendation would be explanation regarding a child’s ability to self-regulate energy intake over time periods; the detrimental, though inadvertent, effects of feeding practices which sabotage this mechanism in young children; and the consideration that advice from others to overfeed is likely to have originated from times when food was scarce. Advice that infants’ growth rates are most rapid for the first six months, slow until twelve months, and then slow even further (Thies & Travers 2009) is likely to invoke compliance with this recommendation and possibly even prolong breastfeeding.

b) Development of young children’s food preferences

Another recommendation to primary caregivers of young children as a result of this research is that a short-term objective of ‘good caregiving’ is:

- for young children to prefer core foods.

Another knowledge gap of primary caregivers relates to the development of food preferences in young children. Although overweight and obesity may not be present in childhood, poor eating habits developed in childhood are likely to result in overweight and obesity later in life (Fiorito et al. 2009). As preference is a major determinant of what foods are made available to children (Campbell, Crawford & Hesketh 2006) and new foods are less likely to be tolerated with age (Cooke & Wardle 2005), establishing a preference for healthy foods in childhood is paramount to establishing healthy eating habits and avoiding overweight and obesity later in life. As well as the common lack of understanding regarding a child’s ability to self-regulate energy intake, the extant literature (Hart et al. 2003; Moore, Tapper & Murphy 2007) and the current research also suggest that primary caregivers’ knowledge regarding the development of food preference is poor. It is proposed that primary caregivers be educated to aim to teach young children to prefer healthy foods – not only what to do and what not to do, but why or why not to do it.

This research did reveal some themes supportive of primary caregivers’ knowledge regarding preference development in children aged 1–2½ years such as the beliefs that i) a child would not miss HFSS foods if they have not been exposed to them, ii) a preference for HFSS foods will develop if
such foods are provided, iii) introduction of HFSS foods should be delayed and iv) current actions of
the primary caregiver have long-term effect on the child.

However, there were numerous and varied themes emerging from the research demonstrating an
explicit lack of knowledge regarding preference development. Firstly, the belief that the early
introduction of solids causes ‘fussy’ eating demonstrates ignorance of the natural phenomenon of
neophobia. It is proposed by this researcher that if primary caregivers were educated regarding
neophobia – its age of onset and duration; that it is a natural phenomenon and protective for the child
(Birch, Gunder & Grimm-Thomas 1998; Cashdan 1994; Cooke, Wardle & Gibson 2003; Milton
1993); and how it is differentiated from ‘fussy eating’ (Dovey et al. 2008) – they would be less
concerned regarding a change in their young children’s eating behaviours when progressing from
being fed to self-feeding. It is proposed that understanding this process would allay concerns and,
particularly in conjunction with education regarding self-regulation, a major ‘justification’ for the
introduction of HFSS foods may be removed.

Secondly, there were other ‘justifications’ for the introduction of HFSS foods to 1–2½ year old
children, namely that i) it is an aspect of ‘good caregiving’ to teach children to differentiate between
core foods and ‘treats’ and ii) to avoid ‘obsession’. This research, however, suggests that the main
effect of introducing HFSS foods to children aged 1–2½ years is to create a preference for such foods
and possibly an aversion to previously consumed foods. This is supported by the finding of an
association between primary caregivers with the opinion that a child will become obsessed if not
provided HFSS foods and their children having eating behaviours high in HFSS foods. It is proposed
that explicit education be provided to primary caregivers not only regarding neophobia and how
exposure, especially repeated exposure, to tastes promotes preference, but regarding both the
beneficial and detrimental effects of feeding practices and modelling.

Throughout this thesis, feeding practices – pressure to eat, restriction, use of food as a bribe or reward
– have been closely examined. Overall, they have been shown to be ineffective in their intent and
actually detrimental to desired outcomes. However, the extant literature and the current research
demonstrate that primary caregivers persist in these behaviours.

This research has implications with regard to pressure to eat and use of food as a bribe or reward.
Firstly, pressure to eat may be a response to food neophobia (Fisher et al. 2002; Galloway et al. 2005;
Wardle et al. 2005), but there is experimental evidence that pressure can result in food dislikes and
reduced intake (Galloway et al. 2006). Encouraging self-regulation of energy intake from core foods
is synonymous with avoidance of pressuring to eat and its purpose is two-fold; to encourage self-
regulation and to encourage preference for healthy foods. This research suggests an effect of the
introduction of highly flavoured HFSS foods to young children is the creation of a preference for such foods and an aversion to previously accepted foods. It is proposed that primary caregivers be educated regarding this influence on preference development and that a certain age, based on children’s cognitive development (and their ability to understand that such foods are for occasional use) and preference development, be recommended after which the introduction of HFSS foods is less likely to have detrimental effects on child’s preferences and intake and primary caregivers’ short-term objectives.

Secondly, the use of food as a bribe or reward has been demonstrated to increase the preference for the reward food and minimise preference for the target food (Birch et al.1982; Birch, Marlin & Rotter 1984; Birch, Zimmerman & Hind 1980; Newman & Taylor 1992). With education regarding the detrimental effects of pressure to eat and use of food as bribes or rewards on preference, along with education regarding self-regulation of energy intake, it is proposed that primary caregivers’ awareness of these practices will increase and the occurrence of these behaviours will decrease. Not only did this research identify that the practice of bribing and rewarding with food is commonplace, but it is commonly unrecognised by primary caregivers.

The literature demonstrates that repeated exposure to foods increases preference. Repeated exposure enhances acceptance of new foods – both core foods (e.g. fruit and vegetables) (Birch 1999; Satter 1990) and HFSS foods (Birch 1998). In this research some primary caregivers reported using repeated exposure to enhance intake of core foods but, if the emphasis for primary caregivers is to teach their young children to prefer core foods rather than to eat core foods, it is proposed that the notion of repeated exposure enhancing preference for HFSS foods will also be learnt by primary caregivers. As well as reinforcing the powerful effect of repeated introduction of core foods to create preference for such foods, information about early introduction and repeated exposure to a variety of core foods could be taught. Key teachings from the literature are:

- that the easiest time to encourage an infant to accept new foods is during the period from 14-20 weeks (3½–5 months), which seems to be a ‘window of optimal acceptance’. This message supports breastfeeding, as an increased tolerance to certain flavours has been found to be associated with exposure to certain flavours through the amniotic fluid and breast milk (Mennella et al. 2001; Sullivan & Birch 1994). According to the draft Dietary Guidelines for Children and Adolescents (2011), it is ideal that solid food be introduced around 6 months
- neophobia commences at the end of the first year but food and taste preferences have been acquired as a result of repeated exposure to foods
- from the age of 14 months, new foods tend to be tried only if adults are seen to be eating them rather than if they are just offered to the child (Harper & Sanders 1975)
as the peak phase of neophobia occurs between the ages of 2–6 years, widening the range of the child’s diet is increasingly difficult, particularly if the introduction of new foods has been poor for the first three or four years of a child’s life (Harris, Blissett & Johnson 2000).

Armed with the knowledge that from the age of 14 months, new foods tend to be tried only if adults are seen to be eating them rather than if they are just offered to the child, it is proposed that primary caregivers may be more likely to use modelling as a tool to enhance their children’s preference for healthy foods. The third short-term objective of ‘good caregiving’ recommended is:

- for primary caregivers to model preference for core foods and an appropriate response to their own satiety.

A major contribution of this research was the finding that primary caregivers self-assuredly ‘put their child first’ as a common justification for their own high HFSS eating behaviours. The nature of primary caregivers’ intakes is highly associated with that of their children. This research also found that primary caregivers unconsciously influence their young children. It is proposed that in their bid for their child to eat, primary caregivers who have been educated regarding self-regulation and feeding practices would be less likely be tempted to adapt their own eating behaviours to suit the child’s preferences – another theme identified in this research. An aspect of education regarding modelling is that, as well as being an opportunity for social interaction and teaching manners, eating meals together is an opportunity for primary caregivers to model appropriate response to their own satiety and preference for core foods. Such education is proposed to provide motivation for primary caregivers to achieve their objective of developing preferences in their young children for core foods but simultaneously improve their own eating behaviours.

Education relating to modelling should also include the influence from siblings. This research confirmed that siblings act as role models to young children; that primary caregivers permit older siblings intakes more liberal in HFSS foods than younger children; and that the presence of siblings was associated with eating behaviours of primary caregivers and their case child being liberal in HFSS foods. Primary caregivers need education regarding the influence of older children as poor role models on younger children and should see siblings as well as themselves as models to younger children. The literature indicates that modelling is not used by primary caregivers of 2–4-year-old children even when they are concerned regarding their child being overweight (Gregory, Paxton & Brozovic 2010).

In summary, it is proposed that the three recommendations be promoted to primary caregivers of young children. These short-term objectives of ‘good caregiving’ are:
• for primary caregivers to respond appropriately to child satiety
• for young children to prefer core foods
• for primary caregivers to model preference for core foods and an appropriate response to their own satiety.

In addition, the research suggests that current education considered relevant to child rearing is deficient in imparting such knowledge. Firstly, associations were identified amongst primary caregivers with attributes considered to reflect an appreciation of child development issues. Secondly, associations were identified between primary caregivers with attributes considered to reflect an appreciation of child development issues and intakes of primary caregiver and/or child; however, no association was identified between levels of education or relevance of education to child rearing and factors considered to reflect an appreciation of child development issues.

In summary, whilst it is acknowledged that motivated individuals such as many in this research are highly receptive to education (Rothschild 1999) supportive education should be provided to primary caregivers regarding self-regulation and preference development integrated with encouragement of modelling and repeat exposure, and discouragement of pressure to eat and use of bribes and rewards. These factors should be taught along with the reasons for such recommended practices. Such education would incorporate relevant knowledge regarding breastfeeding and child growth; neophobia and ‘fussy eating’; the effects of early and repeated exposure to foods over time; the effects of pressure to eat and use of food as a reward or bribe; the vital role of modelling by the primary caregiver as well as siblings, and the opportunity for modelling offered by eating together. Such education should also incorporate and challenge the justifications for the introduction of HFSS foods, such as ‘to teach between good and bad foods’ and ‘to avoid obsession’.

6.1.2 Motivation

The second component of a successful social marketing campaign, motivation, is focused on persuading the consumer to adopt the change (Donovan & Henley 2010). Factors considered in this section relate to providing motivation for primary caregivers to change their behaviour and enabling primary caregivers to make the change more easily. These motivations and enabling factors contribute to a more consistent or comprehensive set of influences than those currently experienced by primary caregivers. As discussed, it is proposed that, with knowledge regarding self-regulation of energy intake and preference development, primary caregivers will be better able to achieve their current objective of children eating core foods. Enabling a child to self-regulate intake and establishing a preference for core foods are short-term objectives which are more likely to result in primary caregivers changing current behaviour (Bandura 1986, 2004); the short term benefits reaped by
primary caregivers are also proposed to motivate changes in behaviour. Additionally, this research suggests that primary caregivers should be challenged regarding their long-term goals for their children.

Firstly, this research identified short-term benefits to primary caregivers associated with certain attitudes and behaviours. As the analysis presented, primary caregivers i) who favoured a long-term goal of child wellbeing over social acceptance, ii) who had an appreciation of child development issues such as allowing the young child to determine quantity of core foods eaten, and, iii) who had low HFSS eating behaviours, enjoyed benefits in addition to the desirable outcome of low HFSS eating behaviours of the young children. These benefits to primary caregivers are summarised as having a more compliant and manageable child since, in the course of the research, it emerged that these primary caregivers i) had a low incidence of ‘power issues’, ii) were more likely to report that they have ‘no problems yet’ regarding their young children’s eating behaviours, and iii) were more likely to report that the child follows instructions.

Secondly, it was considered a major finding of this research that the nature of primary caregivers’ general long-term goals for their children is fundamental to their children’s eating behaviours. Specifically, in this research some primary caregivers of children aged 1–2½ years were found to have distinct long-term goals for their children. It is acknowledged that primary caregivers may have both goals of child wellbeing and child social acceptance or that these goals may occur over a continuum, but in this research some primary caregivers had general caregiving goals relating to child wellbeing (n=9), whilst others had general caregiving goals relating to child social acceptance (n=7).

An association was found between primary caregivers with goals focussing on social acceptance and their eating behaviours and those of their children being high in HFSS foods. This finding was incorporated into the schema explaining how and why primary caregivers influence young children’s eating behaviours in an obesogenic environment (Figure 5:2). This finding has the fundamental implication that social marketing campaigns or any promotion towards dietary health of children should ask primary caregivers to consider their long-term goals for their children – do they want their child to have health and wellbeing or do they want their child to assimilate into our obesogenic society?

In addition, the research found an association between primary caregivers who have low or irrelevant education and the goal of social acceptance. This suggests that the drive to comply with the social norm and, hence, the challenge to primary caregivers as to what they want for their children may be most relevant in lower socioeconomic or less educated sectors of society.
In summary, firstly, this research has highlighted that, for the majority of primary caregivers, influences with shorter-term outcomes are greater determinants of behaviour than influences with longer-term outcomes. It is proposed that the short-term objectives of i) allowing a child to self-regulate intake, ii) establishing a child’s preference for core foods (with supportive education to achieve this) and iii) acting as models, are salient to longer term child health. Secondly, it is proposed that a motivation to primary caregivers would be that, in addition to achieving healthier eating behaviours for their children, their children may be more compliant if primary caregivers conduct recommended behaviours. The third motivation to primary caregivers is the challenge of their long-term goals, again supported by education linking childhood eating behaviours with eating behaviours and overweight and obesity in adulthood. Providing these motivations to primary caregivers contrasts with the current short-term objective of primary caregivers, which is to ensure that certain amounts of certain foods are eaten by the child combined with a long-term fear of overweight and obesity or disease. The proposed shift away from the short-term goal of ensuring that certain amounts of foods are eaten by the young child is discussed further in the next section where issues of advocacy are presented.

6.1.3 Advocacy

Individual behaviour change is now recognised as being interrelated with, and largely dependent on, the social, economic and physical environment (Lee & Kotler 2011). Thus, behaviour change is no longer the sole responsibility of the individual but also of society as a whole. Therefore, the third component, advocacy, seeks to achieve change in social structures through lobbying, and sometimes legislation change, at local, state, national, and international levels (Donovan & Henley 2003).

Donovan and Henley (2010, p. 70) describe advocacy as being ‘about actively supporting a person or cause’. A definition of advocacy from the World Health Organisation (WHO) in the context of public health is ‘a combination of individual and social actions designed to gain political commitment, policy support, social acceptance and systems support for a particular health goal or programme’ (WHO 1995). Advocacy strategy includes mobilising the community or public, professionals and politicians (heads of government or state, senior government ministers with responsibilities for health) (Donovan & Henley 2010).

This discussion regarding advocacy pertains to a) others of significant influence on primary caregivers specifically their partners, their parents (children’s grandparents) and other primary caregivers and, b) authorities at state and national level who are required to promote consistent messages based on current knowledge. This section includes also a discussion regarding how the proposed changes might be advocated.
a) ‘Significant others’

It was not the focus of this research to examine the direct influences of individuals on young children other than primary caregivers; however, it did become evident that primary caregivers’ partners, primary caregivers’ parents and other primary caregivers – ‘significant others’ – have influence through the primary caregiver.

The research identified various ways that the partners of primary caregivers impact on young children’s eating behaviours through the primary caregiver. Primary caregivers tend to be of the opinion that the influence of their partners is generally detrimental to their child’s eating behaviours, because the partner is a poor role model or their actions directly opposing the objectives of the primary caregiver. However, the theme was confirmed that the partners’ behaviours are tolerated by the primary caregivers to varying degrees. This research made the contribution that the mere presence of the partner may be their greatest positive influence on the child’s intake by providing a greater impetus for the primary caregiver to provide regular meals. This finding was particularly relevant to single parent households but was also evident in two parent households where the primary caregivers’ partners may spend significant time away from the home due to their occupations. It is, therefore, proposed that future social marketing activities attempting to address the issue of overweight and obesity in both one and two parent households should acknowledge the key role of the partner of the primary caregiver as one of the influences on primary caregivers and their 1–2½-year-old children in our obesogenic environment.

Another group of individuals confirmed by this research as having a potent impact on young children’s eating behaviours through the primary caregiver is their parents (the child’s grandparents), most specifically in the form of providing or pressuring to provide ‘treats’. It is proposed that children’s grandparents also be targets of education regarding self-regulation of energy intake and preference development, enabling them to provide support for primary caregivers in the long-term health of their grandchildren. Highlighting to primary caregivers and their parents the notion that social nutrition priorities have changed over the generations is a particular message relevant to the parents of primary caregivers.

Yet another group proposed for advocacy is ‘other primary caregivers’ in their role of support for their peers. Comparatively little literature suggests that primary caregivers experience pressure to provide their children HFSS foods from other primary caregivers (Pagnini et al. 2007); however, the complexities of this theme were evident in Stage Two. The theme that primary caregivers are reluctant to confront others regarding their caregiving behaviours was confirmed; primary caregivers of children aged 1–2½ years were concerned about being seen to be too strict or they criticised others.
for being too strict. In fact, encouragement was more likely to be given to oppose recommendations made by authorities than to support these recommendations.

The research indicated a lack of overt negative feedback received by primary caregivers with a lack of constructive feedback received by primary caregivers regarding young child feeding practices also evident. It is proposed that, as part of the education provided to primary caregivers of young children, and in contrast to current silent disapproval, primary caregivers might be encouraged to support others in their efforts towards healthier long-term outcomes for their children. As primary caregivers tend to use comparison between their young child and others to make judgements regarding their young child’s eating behaviours and weight status, another element of the proposed education is to emphasise the variations in growth and development among young children, encourage reference to growth charts and developmental milestones, and provide guidance regarding seeking professional advice. Complementary education provided to health professionals including medical practitioners, child health workers and nutrition advisors is also proposed.

Other themes generate consideration of how a change of behaviour may be best promoted. The research confirmed the potency of personal advice or experience, in fact, previous experience was seen to be more influential than commonly held social opinion and practice. The literature highlighted the concept that, although current recommendations are reaching their targets, direct instruction of primary caregivers from ‘significant others’, such as peers, may be in conflict with the recommendations of authorities but may be more influential. This concept, combined with the theme revealed by the research that some primary caregivers have the attitude that too much emphasis can be given to young children’s eating behaviours and the theme from the literature that primary caregivers who feel overloaded with opinions and advice may reject guidelines (Hart et al. 2003), prompts the suggestion that the mode of providing information and/or recommendations for change should be reconsidered. A strategy has been used and evaluated in the United Kingdom to improve community cohesion and communications (Wood 2011). Programs were designed to increase trust and positive perceptions of councils amongst residents through facilitation by ‘community communicators’. ‘Community communicators’ are ‘connectors’ who are able to persuade other people to share their opinions and draw groups together, either through formal means or simply by being the sorts of people who stand and chat to other residents (Wood 2011). The evaluation by Wood (2011) demonstrates the value of word-of-mouth communication in changing attitudes and behaviour and confirms the critical role of relationships and support networks. In a similar vein, engaging primary caregivers as ‘experts’ in the design, implementation and evaluation of an intervention to address childhood obesity has bridged the cultural, socioeconomic, and interpersonal divides between primary caregivers and professionals (Jurkowski et al. 2012).
b) Policy

This research has highlighted the need for the promotion of short-term caregiving objectives and supportive education (Section 6.1.1). Advocacy at state and national level to government and health bodies such as the National Health and Medical Research Council (NHMRC) is appropriate to achieve this. The following discussion further addresses issues of what education is recommended, how it should be promoted and to whom.

In addition to the three recommendations to primary caregivers (the short-term objectives of ‘good caregiving’), it is proposed that changes be made regarding what nutrition information is promoted regarding infant feeding – specifically regarding recommended intakes of foods at various ages and the role of HFSS foods. A draft version of the revised Dietary Guidelines for Australians was been released in December 2011 with consultation closing in late February 2012. The review of the Dietary Guidelines should be finalised in the second half of 2012 (NHMRC 2012b).

Accompanying the draft version of the revised Dietary Guidelines for Australians is a draft version of a brochure aimed towards the public, Australian Guidelines for Healthy Eating where A Modelling System to inform the Revision of the Australian Guide to Healthy Eating (Modelling System) has been used to recommend specific quantities of serves from each food group for various gender and age groups of the population (National Medical Health and Medical Research Council 2012a).

A Modelling System to inform the Revision of the Australian Guide to Healthy Eating is a technical document which translates the nutrient reference values (NRVs) into dietary models. The thorough nature of this document is highlighted by i) its description of the amounts of various foods needed to meet the estimated nutrient requirements of groups of Australian individuals of different ages, genders, lifestyle, body size and activity using the best available scientific evidence, ii) comprehensive consideration of issues including the prevention of diet-related chronic disease, the promotion of health and wellbeing, our social and food cultures and availability within the Australian food system, iii) the incorporation of variances between size, age and activity within each age and gender group, and iv) detailed final composite food groups used for modelling. Some diets (7-day Total Diets) considered ‘discretionary choices’ which included foods and drinks such as cakes, biscuits, confectionary, sugary soft drinks, burgers and pizzas, other foods high in fats, particularly saturated fatty acids such as cream and some spreads, cordials and (for adults) alcoholic drinks.

In the draft brochure, Australian Guidelines for Healthy Eating, tables clearly describe the recommended numbers of serves from each food group. There are no discretionary allowances made for infants (7–12 months) or toddlers (13–23 months), but for children 2–3 years of age, discretionary (or HFSS foods) seem to be incorporated into the daily ‘recommendations’.
Existing resources aimed at primary caregivers of young children provide such guides for quantities of foods from each food group for consumption at varying ages. An example is *Fun not fuss with food: Information for parents* which is produced by Queensland Health (2005) and accompanies ‘Fun not Fuss with Food’ workshops run through Queensland Health Community Health Centres. Similar recommendations for intake, specifically descriptions of serves and recommended numbers of serves for consumption, as well as comprehensive information regarding the introduction of solids, feeding ‘fussy’ toddlers and developmental milestones is available from the Queensland Health website [www.health.qld.gov.au/child-youth/factsheets](http://www.health.qld.gov.au/child-youth/factsheets).

Despite requests from well-intentioned primary caregivers, the specific prescription of amounts of foods to be eaten by children at various ages seems contrary to the promotion of self-regulation of energy intake. Additionally, as demonstrated by the extant and current research, primary caregivers experience stress and anxiety regarding achieving these guidelines and may be prompted to sabotage another recommendation from this research – to teach young children to prefer healthy foods – by the introduction of HFSS foods as bribes or rewards or other overfeeding strategies to achieve meeting these guidelines, further sabotaging children’s self-regulatory ability. These are behaviours which currently occur. Thus, it is proposed that Australia’s recommendations regarding food prescription be more in line with those of the United States.

In contrast to the recently developed Modelling System which is to be used to inform the new *Australian Dietary Guidelines*, the US *Dietary recommendations for children and adolescents: A guide for practitioners* (Gidding et al. 2006) states that the period from weaning (introduction of solids) to consumption of a mature diet is from 4 to 6 months to 2 years of age; and highlights the areas in which adult influences are most important with regard to childhood nutrition. The US recommendations state that ‘Parents choose the time for meals and snacks and the types of foods and beverages to be served. Children can then choose how much to consume’. Again advice for feeding children aged 2–6 years in the US guidelines (p. 551) states:

> Parents should remember that they are responsible for choosing foods that are eaten and when and where they are eaten. The child is responsible for whether he or she wants to eat and how much. Two natural parental impulses, pressuring children to eat and restricting access to specific foods, are not recommended because they often lead to overeating, dislikes, and paradoxical interest in forbidden items.

The US guidelines also specifically advise not to introduce foods lacking in overall nutritional value simply to provide calories (p. 551).
Again, regarding messages promoted by Australian health authorities, it is proposed that a greater emphasis be placed on discouraging the introduction of HFSS foods to young children. Why? Specifically, these foods are not required nutritionally and their introduction at an early age is likely to create a preference for such foods over more nutritious foods. Based on children’s cognitive development (and their ability to understand that such foods are for occasional use) and preference development, an age could be recommended after which the introduction of HFSS foods is less likely to cause problems for the child and primary caregivers. A finding of this research was that primary caregivers of children aged 1–2½ years interpret provision of HFSS foods to be in keeping with the recommendation for a varied diet. In a similar vein, this research found that all children aged 12 months or older were being provided HFSS foods and there was a diversity of opinion regarding the acceptable frequency with which a young child should be provided HFSS foods.

It is recommended that primary caregivers be clearly informed that HFSS foods are not desirable, that they are not required for a healthy diet but, under certain circumstances such as celebrations, they are acceptable. However, it is imperative that primary caregivers understand the likely effects of the introduction of such foods on young children’s food preferences and associated behavioural consequences. The current incorporation of ‘discretionary foods’ into modelling systems seems to validate the interpretation by primary caregivers that HFSS foods are, in fact, recommended as part of a healthy diet. Other education is also recommended to address the myth – confirmed in this research – that the intake of HFSS foods is acceptable if countered by the intake of core foods.

The National Medical Health and Medical Research Council website (2012b) announces the expected release of a suite of resources, including the revised Infant Feeding Guidelines and associated health professional and consumer resources. It is proposed that the three short-term objectives of ‘good caregiving’ and supportive education could be incorporated into these guidelines and resources as the target audience of this research is primary caregivers of young children, potential readers of these guidelines.

Who should receive this information is a point worthy of further discussion. Primary caregivers of young children (aged 1–2½ years), their partners and their parents (children’s grandparents) should all be key recipients of education. This research and its findings relate to primary caregivers of children aged 1–2½ years. Many, including primary caregivers themselves, believe that it is the primary caregiver’s responsibility to ensure that the child eats ‘enough’; often resulting in overfeeding and loss a self-regulatory ability. The introduction of HFSS foods to children of this age establishes a preference for them. This research highlights another difference between primary caregivers of younger and older children, that is the tendency for primary caregivers to implicate the child or external influences when it is themselves introducing or allowing the introduction of HFSS foods to
their young child. This conclusion is reached as in this research primary caregivers of children 1–5 years do not cite the desire for a happy home or desire for child approval to be motivations to provide them HFSS foods. The provision of such foods is initiated by the primary caregiver, not in response to peer pressure or the child’s demands as is often proposed by primary caregivers (for example Dwyer et al. 2008). All primary caregivers who had children in the 12–18-month age group, the youngest age group of the study, had introduced, or were regularly providing, cakes, muffins, chips, chocolate, lollies or soft drinks to their child.

As this proposed training is likely to involve education about when professional advice should be sought, it is considered essential that child health workers and medical practitioners also receive complementary training and consistently reinforce the messages contained in this comprehensive approach.

How advocacy occurs is also considered a major implication of this research. The value of advocacy by peers or community leaders has been discussed. To enhance the comprehensive nature of changes proposed it is recommended that the short-term objectives of ‘good caregiving’ and supportive education be consistent and complementary, but also readily accessible and ubiquitous. Although information pertinent to children’s nutritional development – such as recommendations to model and avoidance of HFSS foods – is available, this research has indicated that many primary caregivers do not demonstrate this knowledge. This research highlights the need for information to be made more mainstream and accessible to primary caregivers, for example through campaigns; accessible websites; brochures in medical clinics, infant health centres and child care centres; or social media.

The key themes from this research translate into research propositions and are integrated into the social marketing approach to improve the influence of primary caregivers on young children’s eating behaviours in obesogenic environments.

6.2 Discussion of key themes and proposition development

The literature review and Chapter 3 culminated in the development of the five research issues to examine how and why primary caregivers behave the way they do. Chapter 4 presented findings of this research based on the five research issues and the findings were compared and contrasted with evidence from the literature. This section focuses on the in-depth discussion of the key themes that have emerged in relation to primary caregivers’ influence on young children’s eating behaviours in our obesogenic environment.

Factors contributing to childhood eating behaviours are complex and interrelated; why and how primary caregivers influence their young children’s eating behaviours is also complex and
interrelated. Therefore, testing an isolated theory or proposition is unlikely to be conclusive. This research highlights the salience of short-term objectives and gaps in primary caregiver knowledge of children’s self-regulation of energy intake, neophobia and preference development. Analysis highlighted the salience of primary caregivers’ general long-term goals for their young children and the central role of modelling.

Each research issue is represented at least once in the significant themes from the research, which have been established for discussion and conceptual integration (See Table 6.1). These significant themes link the discussion to the integrated social marketing approach presented in Section 6.3. The significant themes are a) short-term objectives of ‘good caregiving’, b) primary caregivers’ feeding practices, c) primary caregivers’ modelling, d) long-term goals of caregiving, e) ‘significant others’ and f) eating behaviour messages.

**Table 6.1 Summary of research issues**

<table>
<thead>
<tr>
<th>Significant themes</th>
<th>Contribution from research issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short-term objectives of ‘good caregiving’</td>
<td>RI1 (short-term objectives), RI3 (environment), RI4 (personal)</td>
</tr>
<tr>
<td>Primary caregiver feeding practices</td>
<td>RI2 (knowledge)</td>
</tr>
<tr>
<td>Primary caregiver modelling</td>
<td>RI2 (knowledge), RI4 (personal)</td>
</tr>
<tr>
<td>Long-term goals of caregiving</td>
<td>RI2 (knowledge), RI5 (long-term goals)</td>
</tr>
<tr>
<td>‘Significant others’</td>
<td>RI3 (environment)</td>
</tr>
<tr>
<td>Eating behaviour messages</td>
<td>RI2 (knowledge), RI3 (environment)</td>
</tr>
</tbody>
</table>

*Source: Developed for this research.*

Each significant theme is discussed and is linked to one of seven propositions; these propositions are incorporated into the social marketing approach to improve the influence of primary caregivers on young children’s eating behaviours in obesogenic environments, thus fulfilling **Research Objective 2** (see Section 6.3).

**6.2.1 Proposition 1: Short-term objectives of ‘good caregiving’**

The research identified that a major short-term objective of primary caregivers is for young children to *eat* core foods. As a primary objective it can prompt behaviours such as pressure to eat and use of bribes and rewards, with adverse effects on young children’s foods preferences and self-regulation of energy intake. The research highlights the plethora of short-term challenges faced by primary caregivers and confirms Bandura’s position (1986, 2004) that proximal goals are more effective than...
distal goals. As well as emphasising the need for short-term objectives this research has made recommendations as to what these objectives should be:

- for primary caregivers to respond appropriately to child satiety
- for young children to prefer core foods
- for primary caregivers to model preference for core foods and an appropriate response to their own satiety.

Table 6.2 illustrates the key constructs of this theme and the resultant proposition.

### Table 6.2 Short-term objectives of ‘good caregiving’: Key constructs and proposition

<table>
<thead>
<tr>
<th>Significant theme</th>
<th>Constructs</th>
<th>Proposition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short-term objectives of ‘good caregiving’</td>
<td>Appropriate response to young child satiety</td>
<td>P1. Primary caregivers need short-term objectives of ‘good caregiving’</td>
</tr>
<tr>
<td></td>
<td>To teach young child to prefer core foods</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Modelling appropriate response to satiety and preference for core foods</td>
<td></td>
</tr>
</tbody>
</table>

*Source: Developed for this research.*

Importantly, this first proposition not only addresses the need for primary caregivers to have short-term objectives, it addresses the strong drive for primary caregivers to be ‘good caregivers’.

### 6.2.2 Proposition 2: Primary caregivers’ feeding practices

This research identified that primary caregivers of young children conduct feeding practices – in particular pressure to eat and use of bribes and rewards – to achieve their current short-term objective of the child to eat (preferably core foods). The literature identifies that these feeding practices have inadvertent detrimental effects on young children’s self-regulation of energy intake and preference for core foods. The research also identified that primary caregivers of young children are unaware of the natural phenomenon of neophobia and its differentiation from ‘fussy eating’.

Table 6.3 illustrates the key constructs of this theme and the resultant proposition.

It is proposed that primary caregivers be provided education regarding young children’s ability to self-regulate their energy intake, children’s preference development and neophobia vs. ‘fussy eating’
Table 6.3 Education regarding feeding practices: Key constructs and proposition

<table>
<thead>
<tr>
<th>Significant theme</th>
<th>Constructs</th>
<th>Proposition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary caregiver feeding practices</td>
<td>Self-regulation of energy intake</td>
<td>P2. Primary caregiver feeding practices are influenced by appreciation of young children’s ability to self-regulate intake, how preferences develop and neophobia and ‘fussy eating’</td>
</tr>
<tr>
<td></td>
<td>Preference development</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Neophobia vs. ‘fussy eating’</td>
<td></td>
</tr>
</tbody>
</table>

Source: Developed for this research.

and that, with a greater appreciation of such matters, primary caregivers will be less likely to conduct feeding practices which are detrimental to young children’s eating behaviours.

6.2.3 Proposition 3: Primary caregivers’ modelling

Despite a high level of awareness regarding modelling, the research identified that primary caregivers model eating of core foods to varying extents. As identified in the literature, this research highlighted the salience of the nature of primary caregivers’ eating behaviours.

Table 6.4 illustrates the key constructs of this theme and the resultant proposition.

Table 6.4 Primary caregiver modelling: Key constructs and proposition

<table>
<thead>
<tr>
<th>Significant theme</th>
<th>Constructs</th>
<th>Proposition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary caregiver modelling</td>
<td>The role of modelling in child eating behaviours</td>
<td>P3. Primary caregiver behaviour is influenced by appreciation of the role of modelling in child eating behaviours, opportunities for modelling and siblings as models</td>
</tr>
<tr>
<td></td>
<td>Opportunities for modelling (attitude, core and HFSS foods, satiety, eating together)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Siblings as models</td>
<td></td>
</tr>
</tbody>
</table>

Source: Developed for this research.

It is proposed that the behaviour of primary caregivers of young children is influenced by an appreciation of the role of modelled behaviours. Such an appreciation could be achieved through education addressing the role of modelling in young children’s growth and preference development; opportunities and modes of modelling (eating together, eating core foods as well as HFSS foods, attitudes expressed as well as eating behaviours, and modelling of preference and satiety); and raising awareness of siblings as models.
6.2.4 Propositions 4 and 5: Long-term goals of primary caregivers

Long-term goals of primary caregivers considered in this research were general goals of caregiving and goals regarding food. These goals are in contrast to findings addressing short-term objectives. Firstly, this research found a distinction between primary caregivers’ general long-term goals for their children; some had goals oriented more towards their children’s wellbeing whilst others had goals oriented more towards their children being socially accepted. A strong association was identified between primary caregivers with the general goal of social acceptance and their children’s and their eating behaviours being high in HFSS foods (see Section 5.4.5). Secondly, associations were identified between primary caregivers who reported an appreciation of their current actions having long-term effects and favourable attributes such as having the attitude that the child would not miss HFSS foods and those with children with low HFSS eating behaviours.

Table 6.5 illustrates the key constructs of these themes and resultant propositions.

Table 6:5 Long-term goals of primary caregivers: Key constructs and propositions

<table>
<thead>
<tr>
<th>Significant theme</th>
<th>Constructs</th>
<th>Propositions</th>
</tr>
</thead>
<tbody>
<tr>
<td>General long-term goals of primary caregivers</td>
<td>Wellbeing vs. social acceptance</td>
<td>P4. Primary caregiver behaviours are influenced by general long-term goals of caregiving</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food-related long-term goals of primary caregivers</td>
<td>Tracking of food preferences, eating habits and overweight and obesity from childhood to adulthood</td>
<td>P5. Primary caregiver behaviours are influenced by appreciation that child preference, eating habits and overweight and obesity track into adulthood</td>
</tr>
</tbody>
</table>

Source: Developed for this research.

For each of the significant themes a proposition arises. Firstly, it is proposed that primary caregivers’ behaviours are influenced by their general long-term goals for their children – wellbeing versus social acceptance; although it is acknowledged that primary caregivers may seek both goals or that these goals may occur over a continuum. It is proposed that primary caregivers of young children be challenged regarding the general long-term goals for their children – child health and wellbeing or assimilation into our obesogenic society? It is proposed that, with the additional knowledge that child food preferences, eating habits and overweight and obesity track into adulthood (Proposition 5), primary caregivers’ attitudes and behaviours will change. Ideally addressing these propositions will contribute to a society where attitudes and behaviours for wellbeing and health are genuinely and broadly synonymous with social acceptance.
6.2.5 Proposition 6: ‘Significant others’

The research highlighted the salient influence of ‘significant others’ on primary caregivers of young children. ‘Significant others’ are their partners, their parents (children’s grandparents), other primary caregivers and health care professionals. As well as the need for education regarding self-regulation of energy intake, preference development, feeding practices and modelling as is proposed to be provided to primary caregivers, the research proposes that particular knowledge would benefit certain ‘significant others’. Specifically, the research identified the salience of the presence of partners as a motivation for primary caregivers to prepare family meals; the influence of childhood experiences; and the lack of constructive feedback and support offered primary caregivers from other primary caregivers.

Table 6.6 illustrates the key constructs of this theme and the resultant proposition.

**Table 6:6 ‘Significant others’: Key constructs and proposition**

<table>
<thead>
<tr>
<th>Significant theme</th>
<th>Constructs</th>
<th>Proposition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influence of ‘significant others’ on primary caregivers</td>
<td>For partners, parents, other primary caregivers and health care professionals, educate about short-term objectives, feeding practices and modelling. For partners – promote presence. For parents – raise awareness of childhood experiences. For other primary caregivers – promote constructive feedback/support.</td>
<td>P6. ‘Significant others’ can support primary caregivers in achieving healthy child eating behaviours.</td>
</tr>
</tbody>
</table>

*Source: Developed for this research.*

It is proposed that ‘significant others’ have a salient role in supporting primary caregivers engendering health promoting eating behaviours in their young children. Constructs pertain to education as provided primary caregivers but with additional issues for specific groups.

6.2.6 Proposition 7: Eating behaviour messages

The research identified that primary caregivers have inappropriate short-term objectives and they also have motivations to perform opposing behaviours. The research also highlighted differing recommendations made by Australian and American infant feeding guidelines despite access to the same literature.
Table 6.7 illustrates the key constructs of this theme and the resultant proposition.

**Table 6.7 Eating behaviour messages: Key constructs and proposition**

<table>
<thead>
<tr>
<th>Significant theme</th>
<th>Constructs</th>
<th>Proposition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eating behaviour messages</td>
<td>Current knowledge</td>
<td>P7. Eating behaviour messages promoted by authorities should reflect current knowledge and complement education provided to primary caregivers and ‘significant others’</td>
</tr>
<tr>
<td></td>
<td>Comprehensive approach</td>
<td></td>
</tr>
</tbody>
</table>

*Source: Developed for this research.*

It is proposed that messages about eating behaviours promoted by authorities be consistent with current knowledge and that messages be promoted to all relevant stakeholders including primary caregivers, ‘significant others’ and health care professionals.

In summary the propositions are:

**P1.** Primary caregivers need short-term objectives of ‘good caregiving’

**P2.** Primary caregivers’ feeding practices are influenced by an appreciation of young children’s ability to self-regulate intake, how preferences develop and neophobia and ‘fussy eating’

**P3.** Primary caregivers’ behaviours are influenced by an appreciation of the role of modelling in child eating behaviours, opportunities for modelling and siblings as models

**P4.** Primary caregivers’ behaviours are influenced by long-term goals of caregiving

**P5.** Primary caregivers’ behaviours are influenced by an appreciation that child preference, eating habits and overweight and obesity track into adulthood

**P6.** ‘Significant others’ can support primary caregivers in achieving healthy child eating behaviours

**P7.** Eating behaviour messages promoted by authorities should reflect current knowledge and complement education provided by primary caregivers and ‘significant others’.

### 6.3 An integrated social marketing approach

This section indicates how **Research Objective 2.** To develop an integrated social marketing approach to improve the influence of primary caregivers’ on young children’s eating behaviours in obesogenic environments, is fulfilled. The findings and propositions of this research are presented as comprehensive and complementary. From a social marketing perspective as outlined in Section 2.1, the factors of influence on primary caregivers’ behaviours are ‘downstream’, but ‘midstream’ and ‘upstream’ factors also exist. Such an approach is considered necessary to address the current situation identified by this research and the extant literature (Pettigrew & Roberts 2007) where primary caregivers have conflicting motivations regarding their behaviours which influence children’s eating behaviours. Figure 6.8 depicts the integrated social marketing approach to improve the influence of primary caregivers on young children’s eating behaviours in obesogenic environments.
Figure 6:2 An integrated social marketing approach to improve the influence of primary caregivers on young children’s eating behaviours in obesogenic environments

Source: Developed for this research.

environments. Arrows indicate the direction of influence on primary caregivers; influence of authorities is directly on ‘significant others’ and primary caregivers, but the influence between primary caregivers and ‘significant others’ is reciprocal.
Each proposition of this research is represented in Figure 6.8 either directly or by its constructs. The research has highlighted the salience of primary caregivers having appropriate short-term objectives and a desire to be ‘good caregivers’ (P1). The three short-term objectives of ‘good caregiving’ specifically recommended for promotion to primary caregivers of young children are:

- for primary caregivers to respond appropriately to child satiety
- for young children to prefer core foods
- for primary caregivers to model preference for core foods and an appropriate response to their own satiety.

It is proposed that an appreciation of children’s ability to self-regulate intake, how preferences develop and neophobia and ‘fussy’ eating will have a direct effect on primary caregivers’ feeding practices (P2). Similarly, it is proposed that an appreciation of the role of modelling in child eating behaviours, opportunities for modelling and siblings as models will influence primary caregiver modelling behaviour with respect to themselves and siblings of young children (P3). The proposition regarding long-term goals involves challenging primary caregivers regarding their long-term caregiving goals (child social acceptance versus child wellbeing) (P4), and is complemented by the provision of education that food preferences, eating habits and overweight and obesity established early in life persist (P5).

Midstream factors are relevant to significant others – primary caregivers’ partners, parents of the primary caregiver and other primary caregivers (P6). In any social marketing campaign addressing children’s overweight and obesity risk it is proposed that partners and parents of primary caregivers should be recipients of the education previously detailed to support primary caregivers in achieving the three recommendations of ‘good caregiving’.

Additionally, it is proposed that, accompanying education provided to primary caregivers relating to self-regulation, preference development and other issues regarding their own child, should be information regarding their influence on other primary caregivers. Primary caregivers, rather than judging others, may be encouraged to ‘spread the word’ regarding issues such as self-regulation of energy intake and preference development. Primary caregivers may also be encouraged to support others by emphasising the variations between individual children regarding their growth and development. Comparison of children’s growth and development should be discouraged; instead, reference to growth charts and developmental milestones and guidance regarding seeking professional advice should be promoted.

In addition to partners, parents and other primary caregivers, the fourth group of people with midstream influence on primary caregivers is healthcare providers such as medical practitioners, child
health workers and nutrition advisors. It is proposed that healthcare providers should also be educated to support primary caregivers in changing their child-feeding objectives and behaviours.

This leads to the final, upstream level of influence in this comprehensive social marketing approach. It is recommended that, when revising the infant feeding guidelines, public educators and policy makers should access current knowledge and, in keeping with the American guidelines, place a greater emphasis on allowing children to self-regulate their energy intake whilst also discouraging the introduction of HFSS foods. This research has highlighted interactions amongst all the factors considered, therefore, an intervention that addresses all components of the integrated social marketing approach will be most successful.

This concludes the discussion regarding implications of the research. A discussion of its limitations of the study follows.

6.4 Limitations

As noted in Chapter 1, this research had some delimitations. The research was confined to primary caregivers of young children and, as explained during the course of this thesis, particular characteristics of the primary caregivers and their young children along with the case selection procedures varied for methodological reasons between the two stages of the research. For logistical convenience, the research was delimited to an Australian perspective and, specifically, the Sunshine Coast of Queensland, Australia. As presented in Chapter 5, the sample was considered representative of the Australian population with respect to its diversity in socioeconomic status, family configuration and employment status of the primary caregivers. The final delimitation of the research was its focus on influences of the primary caregiver or, through the primary caregiver, the young child. Influences other than these, such as direct influences of the partners of the primary caregiver or the child’s siblings or peers are recognised and are briefly discussed within the thesis; however, these influences are not the focus of this research.

The major achievement of this research was to fill a gap in the literature explaining how and why primary caregivers influence their young children’s eating behaviours in an obesogenic environment. The aim of the research was to build theory; hence, the use of a qualitative approach was deemed appropriate in this under-researched area.

Methodological limitations for this research were identified and justified in detail in Sections 3.2 and 4.7. These methodological limitations have been addressed within the research method and relate to the use of qualitative research methods. These limitations do not render this research or any of the
findings insignificant or unimportant. The limitations are highlighted to clarify the findings and highlight areas requiring further research.

While attempts were taken during this research to ensure that the findings were both reliable and valid, some limitations of the research are recognised. Firstly, although attempts were made to produce dissimilar results by accessing primary caregivers from a range of locations in Stage One, the self-selected participants were considered to be of higher socioeconomic status with a keen interest in their young children’s nutrition and wellbeing. As a result of this experience and being mindful of the high risk of interviewee bias, the case selection procedure for Stage Two used a slightly different strategy which involved an appeal to primary caregivers to share their difficulties and concerns regarding feeding their young child. Phase One provided an experience in research for the inexperienced researcher; this was considered an additional benefit of the two-phase approach as described by Perry (1998b). The limitation of the lack of cross-coding in analysis is acknowledged.

6.5 Implications for future research

The research described in this thesis has provided opportunities for further research in a number of areas.

Firstly, this research aimed to build theory and, thus, lent itself to a qualitative approach. Further research could be undertaken to satisfy the need for statistical generalisation. The most appropriate method to enable statistical generalisation of the findings from this research would be use of structural equation modelling to test the integrated social marketing approach and propositions derived from this research. Such a study could be conducted with primary caregivers of children aged 14 months and would incorporate other measures such as primary caregiver self-efficacy, child and primary caregiver BMI, child breastfeeding history and measures of child and primary caregiver eating behaviours. Such research would incorporate issues from the propositions of this thesis, such as knowledge and behaviour regarding 1) short-term objectives of ‘good caregiving’, 2) child development issues (self-regulation, preference development, neophobia, fussy eating), 3) modelling, 4) long-term goals, 5) effect of current actions, 6) influences of others (other primary caregivers, partners, parents), 7) presence of partner, and 8) sources of information, in addition to issues more specifically identified in the analysis i.e. 9) subjectivity to ‘socially accepted attitudes’ especially used to justify early introduction of HFSS foods and 10) experiences seen as benefits of i) favouring a goal of child wellbeing over social acceptance, ii) having an appreciation of child development issues such as allowing the child to determine quantity of core foods eaten, and iii) having eating behaviours low in HFSS foods, i.e. the young child’s eating behaviours being more likely to be low in
HFSS foods, less ‘power issues’ or problems associated with the child eating. Such research could provide valuable segmentation of primary caregivers regarding such issues.

Ideally, the research could be longitudinal and the same dyads be followed through early childhood, around age 4 years (examining persistence of primary caregiver influence), through later childhood, around age 9 years (examining peer pressure and primary caregiver emphasis on social acceptance), and adolescence, around age 17 years (examining incidence of disordered eating), and parenthood (examining influence of early childhood experiences). Such research into adolescence is particularly relevant as concern has been raised that policy changes to decrease overeating and inactivity may lead to an increase in the incidence of eating disorders (Schwartz & Henderson 2009), yet in an Australian community the prevalence of disordered eating behaviours has doubled over a ten year period (Hay et al. 2004) and the total social and economic cost of eating disorders in Australia in 2012 is estimated to be $69.7 billion (Deloitte Access Economics 2012).

Secondly, this research was delimited to the Australian perspective. Further research could be undertaken in other developed countries facing societal issues of overweight and obesity, such as New Zealand.

Thirdly, other areas for future research emerging from this work relate to:

- consideration of an age before which it is recommended that HFSS foods not be introduced to children
- the direct influence of primary caregivers’ partners and parents, perhaps in comparison with the influence of the primary caregiver
- qualitative research exploring attitudes and behaviours of grandparents regarding their role in young children’s eating behaviours
- the discrepancy between genders of young children and their eating behaviours (In this research in all cases where eating behaviours for both primary caregiver and the case child were high in HFSS foods, the case child was a girl. In contrast, in most cases where the primary caregiver and child both had eating behaviours low in HFSS foods, the case child was a boy).

6.6 Chapter summary

In this chapter the implications for social marketing were discussed and the three recommendations for promotion to primary caregivers of young children as short-term objectives of ‘good caregiving’ were presented. Significant themes emerging from the data analysis were developed into seven
propositions. These propositions were used in the final integrated social marketing approach. Implications of the research were discussed, as were the research limitations and implications for future research.

Overall, the research has been successful in answering the Research Question: How and why do primary caregivers influence the eating behaviours of young children in an obesogenic environment? The results of this research have improved our understanding of primary caregivers and can ultimately facilitate addressing the problem of overweight and obesity currently faced by many developed and developing societies.

This research highlights the interplay of antecedents to primary caregivers’ behaviours and, in turn, the influence of these behaviours on young children’s eating behaviours. The research culminates in an integrated social marketing approach to be used in the campaign against overweight and obesity and in providing practical support for well-intentioned parents facing the mounting impact of our obesogenic society.

**Finale**

A young mother, being observed by her daughter, was preparing a leg of lamb for cooking. She cut off the end of the leg of lamb before putting it in the roasting pan. Her daughter asked, ‘Why did you cut off the end?’

The mother responded, ‘Mm, I’m not sure. That’s how my mother taught me to do it’.

The next time the young mother was speaking to her mother she asked her why she cut off the end of the leg of lamb. Her mother said, ‘That’s how Nana taught me to do it’.

Shortly afterwards the family was visiting Nana. Her daughter asked her why she cut off the end of the leg of lamb before roasting it. Nana replied, ‘Because it didn’t fit in my roasting pan’.
APPENDIX 1A: ‘Caregivers’ and ‘Primary Caregivers’

The primary caregiver is the central point of reference of this study.

Whilst it is recognised that there are various types of caregivers, primary caregivers (usually mothers) have received the majority of attention in the literature. Female parents spent more than twice as much time each day caring for children aged 0–14 years than did male parents in both 1997 and 2006 (ABS 2012b).

Prolific and prominent researchers in this area such as Birch and colleagues, and Campbell and colleagues use the term ‘mothers’ or ‘parents’. However, the term ‘primary caregivers’ is more specific than ‘parents’; and the term implies a role of responsibility.

The ‘primary caregiver’ in this research was identified by answering the following questions:

- ‘Who is the person predominantly responsible for making decisions about foods purchased and provided to the child?’
- ‘Who is the person predominantly present with the child when s/he eats?’
APPENDIX 2A: Measuring overweight and obesity

The classification of adult weight according to Body Mass Index (BMI) is detailed further in Table 2A.1 where BMI thresholds reflect the increasing health risk of excess weight as BMI increases above an optimal range of 21–23 kg/m2, the recommended median goal for adult Caucasian populations (WHO 2000).

Table 2A.1 The World Health Organization international classification of adult underweight, overweight and obesity according to BMI

<table>
<thead>
<tr>
<th>Classification</th>
<th>BMI Kg/m²</th>
<th>Principal cut off points</th>
<th>Additional cut off points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underweight</td>
<td>&lt;18.50</td>
<td>&lt;18.50</td>
<td></td>
</tr>
<tr>
<td>Severe thinness</td>
<td>&lt;16.00</td>
<td>&lt;16.00</td>
<td></td>
</tr>
<tr>
<td>Moderate thinness</td>
<td>16.00 - 16.99</td>
<td>16.00 - 16.99</td>
<td></td>
</tr>
<tr>
<td>Mild thinness</td>
<td>17.00 - 18.49</td>
<td>17.00 - 18.49</td>
<td></td>
</tr>
<tr>
<td>Overweight</td>
<td>≥25.00</td>
<td>≥25.00</td>
<td></td>
</tr>
<tr>
<td>Pre-Obese</td>
<td>25.00 - 29.99</td>
<td>25.00 - 27.49, 27.50 - 29.99</td>
<td></td>
</tr>
<tr>
<td>Obese</td>
<td>≥30.00</td>
<td>≥30.00</td>
<td></td>
</tr>
<tr>
<td>Obese class I</td>
<td>30.00 - 34.99</td>
<td>30.00 - 32.49, 32.50 - 34.99</td>
<td></td>
</tr>
<tr>
<td>Obese class II</td>
<td>35.00 - 39.99</td>
<td>35.00 - 37.49, 37.50 - 39.99</td>
<td></td>
</tr>
<tr>
<td>Obese class III</td>
<td>≥40.00</td>
<td>≥40.00</td>
<td></td>
</tr>
</tbody>
</table>

Source: WHO website (http://www.who.int/bmi).

Benefits of using BMI are that it correlates with body fatness (Mei et al. 2002), and that the height and weight measurements needed to calculate BMI are non-invasive and are relatively easy to obtain. Whilst it is considered a useful measure for populations, it is less valuable as a guide for predicting risk in individuals. This is because the distribution and amount of body fat are also crucial determinants of some overweight and obesity-associated health risks particularly with type 2 diabetes and cardiovascular disease.
These standard definitions of overweight and obesity have been mainly derived from populations of European descent (WHO 2000). Variability between populations is recognised; in populations with large body frames, such as Polynesians, higher cut-off points have been used (Swinburn et al. 1999) and studies have been undertaken to evaluate appropriate cut-off points for a variety of Asian populations with smaller body frames (Deurenberg, Deurenberg-Yap & Guricci 2002). Body fat distribution (often assessed by the waist circumference or the waist:hip ratio) is acknowledged as an important independent predictor of morbidity (Sjostrom 1992; McKeigue 1996).

For children aged 2 to 18 years, to account for body composition changes during development, an internationally recognised set of age and gender specific BMI thresholds are used (which merge with the respective adult cut offs at age 18 years) (Cole et al. 2000; Cole et al. 2007). Children are thus defined as being overweight or obese if they have a BMI above given age- and sex-specific percentile cut offs. These cut-offs, which were set for a base population surveyed in the early 1970s before overweight and obesity began to increase, yield a specific, fixed BMI cut-off used to define overweight and obesity for boys and girls of each age. These percentile cut-offs are available at <www.cdc.gov/nchs/about/major/nhanes/growthcharts/clinical_charts.html#Clin%201> (viewed 26 September 2012). These cut-offs have been used to define overweight and obesity using the National Health and Nutrition Examination Surveys (NHANES), a nationally representative sample of US children who were consistently weighed and measured between 1971 and 2002. For more information on the National Health and Nutrition Examination Surveys, see the Centers for Disease Control website at <www.cdc.gov/nchs/nhanes.htm> (viewed 26 September 2012). The data will show an increase in measured overweight and obesity over time if more children in each of the NHANES surveys have a BMI above this fixed cut-off number (Anderson & Butcher 2006).

Although there are criticisms of the use of BMI in children associated with growth and, in particular, when international comparisons of overweight and obesity in children are made (Anderson & Butcher 2006), it requires non-invasive measurements and offers ‘a reasonable measure with which to assess fatness in children and adolescents’ (Dietz & Bellizzi 1999). BMI supports the growing body of literature examining specific populations concluding that overweight and obesity is increasing worldwide (Anderson & Butcher 2006).
APPENDIX 3A: Research paradigms

Each research paradigm can be described according to their three elements: ontology, epistemology and methodology. Essentially, ontology is ‘reality’, epistemology is the relationship between that reality and the researcher, and methodology is the technique used by the researcher to investigate that reality (Healy & Perry 2000). Table 3A.1 summarises the philosophical assumptions relating to ontology, epistemology and methodology for each of the four different paradigms of social science.

### Table 3A.1 Four research paradigms and their elements

<table>
<thead>
<tr>
<th></th>
<th>Positivism</th>
<th>Critical theory</th>
<th>Constructivism</th>
<th>Realism</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ontology</strong></td>
<td><em>naive realism:</em> reality is real, apprehensible and independent of the researcher</td>
<td><em>historical realism:</em> reality is shaped by various forces such as social, cultural, gender; the perception of the researcher is emancipated</td>
<td><em>relativism:</em> reality is constructed (by people and the researcher)</td>
<td><em>critical realism:</em> reality is real but only imperfectly and probabilistically apprehensible; human limitations and complexity requires that triangulation from many sources is required</td>
</tr>
<tr>
<td><strong>Epistemology</strong></td>
<td><em>objectivist:</em> true findings gathered through disinterested scientist</td>
<td><em>subjectivist:</em> value-mediated findings</td>
<td><em>subjectivist:</em> passionate participant creating the findings</td>
<td><em>modified objectivist:</em> researcher has some participation but maintains some objectivity and awareness of values; findings probably true</td>
</tr>
<tr>
<td><strong>Methodology</strong></td>
<td><em>experiments/surveys:</em> verification of hypotheses using mainly quantitative methods</td>
<td><em>dialogic/dialectical:</em> researcher is transformative using action research</td>
<td><em>hermeneutical/dialectical:</em> researcher is a passionate participant using action research and in-depth structured interviews</td>
<td><em>case studies/convergent interviews:</em> mainly qualitative techniques; triangulation; interpretation of issues</td>
</tr>
</tbody>
</table>

*Source: Based on Guba & Lincoln (1994); Perry, Alizadeh & Riege (1997); Healy & Perry (2000).*
Positivism: The objective of this research inquiry often includes the measurement and analysis of causal relationships between variables that are consistent across time and context; the primary model of the research inquiry being theory-testing or deduction (Perry, Alizadeh & Riege 1997). The data and its analysis are value-free and data do not change because they are being observed. In other words, the researcher does not intervene in data collection and views the world through a ‘one-way mirror’ (Guba & Lincoln 1994, p.110). The methodological implications of positivistic ontology are that objective quantitative techniques such as experiments and surveys are employed for theory testing enabling generalisations of the findings to the greater population (Guba & Lincoln 1994; Tsoukas 1989). Positivists separate themselves from the world they study while researchers within the other three paradigms acknowledge that they have to participate in real-world life to some extent to better understand and express its emergent properties and features (Healy & Perry 2000).

Positivism was not suitable for this research as this researcher was required to participate in real-world life to gain a deep understanding of people’s experiences and opinions. In addition, the theory related to the primary caregiver influences on young children’s eating behaviours is scant, making positivism inappropriate as positivism is more suited to theory testing than theory building (Deshpande 1983; Guba & Lincoln 1994). Consequently, the methodology of this paradigm such as use of survey techniques does not allow for in-depth questioning and probing.

Critical Theory: Critical theory researchers aim at critiquing and transforming social, political, cultural, economic, ethnic and gender values. Inquiries are often long-term ethnographic and historical studies or organisational processes and structures (Guba & Lincoln 1994). This critical theory paradigm is not appropriate for this research, as the researcher’s goal is not to be a ‘transformative intellectual’ who liberates people from historical mental, emotional and social structures (Guba & Lincoln 1994). Instead, this research seeks to understand and generate insights into primary caregiver behaviours regarding young children’s eating behaviours.

Constructivism: In this paradigm, truth is a construction that refers to a particular belief system held in a particular context. Meaning has more value than measurement, for perception itself is the most important reality (Perry 1998b). Constructivism considers reality a result of an individual’s beliefs or values and rejects the concept of objective reality, that is, reality is relative (Anderson 1986; Perry, Riege & Brown 1999). In other words truth is constructed by an individual and subjective bases leading to ‘multiple realities’ (Hirschman 1986; Perry, Riege & Brown 1999, p. 18; Teale 1999). Researching this created
knowledge depends on the interaction between interviewer and respondent, that is, the researcher has to be a ‘passionate participant’ during his or her field work (Guba & Lincoln 1994). Thus, the findings are created by the interactions between the researcher and other participants through a variety of methods including in-depth interviews, dialogue and action research (Batonda 1998; Guba & Lincoln 1994).

This constructivism approach may be suitable for some social science and consumer behaviour research like that about religion or prejudice but it is not appropriate for this research as the scope of this research extends beyond social subjective phenomena. This research is interested in understanding how primary caregivers influence young children’s eating behaviours thus requiring a degree of objectivity which is not addressed by constructivism. In addition, this research aimed to understand why primary caregivers’ attitudes and behaviours exist as well as exploring their perceptions.

*Realism* seeks to understand the common reality of the phenomena in which many people operate independently. Constructivists and critical theorists consider there are many realities while realists consider there is only one reality, although several perceptions of that reality must be triangulated to obtain a better picture of it (Perry, Alizadeh & Riege 1997) and refine fallible observations of that reality (Perry 1998b). Realism is the required paradigm for this research as it is the discovery of observations and non-observed structures and mechanisms that underlie events and experiences which is the goal of realism research (Tsoukas 1989). Realism is also the preferred paradigm for this research as the identified research problem is deficient in theory and lacking in well-established constructs and principles (Perry 1998b).
APPENDIX 3B: Recruitment Notice (Stage One)

WOULD YOU LIKE TO PARTICIPATE IN A

RESEARCH PROJECT REGARDING YOU,

YOUR CHILD AND YOUR CHILD’S EATING?

Ethics Approval No. HREC: [S/08/142]

**What’s the aim of the project?**
To explore how parents influence what their children eat.

**Who can participate?**
Men or women (>18 years of age), the ‘primary caregiver’ of a child aged between 1 and 5 years old.

**What’s involved?**
Simply, an interview for about one hour, at your convenience.

**What’s in it for you?**
The knowledge that your participation will help to increase understanding of parental attitudes and behaviours regarding nutrition issues for children, and ultimately reduce the nutrition problems being faced in our society. A short summary of the findings from the entire project will be made available to you.

Participation is entirely voluntary. Privacy and confidentiality are assured.

**Please contact:**
Julie Norton (Master by Research student, Uni. Sunshine Coast)
Email: soochi@iprimus.com.au
Phone: 0412544722
APPENDIX 3C: Research Information Sheet (Stage One)

**Research Project: Parental Influences on Children’s Food Consumption – Implications for Social Marketing**

Thank you for your interest in participating in this research project.

**Background**
The aim of the project is to explore and ultimately develop theories regarding parental influences on children’s food consumption. The research methodology for this project is grounded theory. This methodology involves allowing participants to respond to questions with minimal influence from the researcher. There are no right or wrong answers. The data collected are analysed and used to develop theories.

Data collection will involve an in-depth interview incorporating a projective technique. The projective technique involved describing a scenario represented by a drawing. The interview will be conducted for approximately one hour and will be tape recorded.

**Who can participate?**
Research participants will be men or women > 18 years of age who are primary caregivers of a child aged between 1 and 5 years of age. The child must not attend a child care facility, or have equivalent exposure to children outside of the family for more than one day per week.

**What’s the benefit to participants?**
Participants in this research project may benefit from a greater understanding and awareness of their own influence on their children’s food consumption. Participants will be offered access to the research report.

**What’s the benefit to others?**
The data collected from this project will increase knowledge and understanding regarding parental influence on children’s food consumption. The project will benefit researchers, health professionals and authorities dealing with nutrition problems being faced in our society.

**Voluntary participation**
Participation in this project is voluntary and there is no incentive or reward for participating in the project. Similarly, there will be no penalty for non-participation. Even after providing consent, participants may choose not to respond to any questions and participants may discontinue participation at any time without explanation. Any data provided to that point will remain in the analysis as it is not possible to identify data on an individual basis.

Participation requires providing consent of the participant by signing the Consent to Participate in Research form. Informed consent means that consent to participate in this research is given after a full explanation of what is required. This Research Information Sheet is provided regarding the research and to help potential participants decide if they would like to be involved.
**Privacy**
The privacy and wellbeing of all participants will be respected at all times of the project. Information used to describe the participants will be collected. All information provided by the participants will remain confidential.

**Further information**
Further information can be obtained from the Principal Researcher. If there are any complaints about the way the project is being conducted they can be either raised with the Principal Researcher or if an independent person is preferred, contact the Chairperson of the Human Research Ethics Committee at the University of the Sunshine Coast (c/- The Secretary, University of the Sunshine Coast, Maroochydore DC 4558; email humanethics@usc.edu.au; or phone (07) 5459 4574).

**Researchers involved in this project**

**Principal Researcher and Student**
Name: Julie Norton BSc (Hons. Nutrition) Grad. Dip. Diet
Position: Master of Research student, Faculty of Business, University of the Sunshine Coast
Phone: 0412544722
Email: soochi@iprimus.com.au

**Supervisors**
Name: Dr Michael Harker
Position: Associate Professor in Marketing, Faculty of Business, University of the Sunshine Coast
Phone: 07 5430 1234
Email: mharker@usc.edu.au

Name: Dr Debra Harker
Position: Associate Professor in Marketing, Faculty of Business, University of the Sunshine Coast
Phone: 07 5430 1234
Email: dharker@usc.edu.au

Your interest and participation in this research project are greatly appreciated.
APPENDIX 3D: Privacy Record (Stage One)

Research Project: Parental Influences on Children’s Food Consumption – Implications for Social Marketing

The nature of the records of personal information kept by the research team:

The personal information to be kept will include name, contact details, gender and age. Details of the child of whom the participant is the primary carer will also be obtained. These include age, gender, details of siblings and details of contact with peers.

This information will be used initially to establish eligibility of the participant for inclusion in the study. Data provided by the participant during the interview will be de-identified at all times.

The purpose for kept records:

Personal information as described above will be kept to describe the participants in the research project. Such information may also be used with data during theory development.

Retaining records:

Records will be kept for five years after publication of the final report of the research project. The scheduled destruction date of the records obtained from this research is February, 2014.

Access to records:

The persons who are entitled to have access to the personal information obtained are only the Principal Researcher and her Supervisors.
APPENDIX 3E: Consent to Participate in Research (Stage One)

Research Project: Parental Influences on Children’s Food Consumption – Implications for Social Marketing

Description and Aim of the Research Project
The aim of the project is to explore and ultimately develop theories regarding parental influences on children’s food consumption. The research methodology for this project is grounded theory. This methodology involves allowing participants to respond to questions with minimal influence from the researcher. There are no right or wrong answers. The data collected is analysed and used to develop theories.

Research participants will be men or women > 18 years of age who are primary care-givers of a child aged between 1 and 5 year of age. The child must not attend a child care facility, or have equivalent exposure to children outside of the family for more than one day per week.

Data collection will involve an in-depth interview incorporating a projective technique. The projective technique involved describing a scenario represented by a drawing. The interview will be conducted for approximately one hour and will be tape recorded.

Freedom of Consent
I have read and understand the Research Project Information Sheet, which outlines the research aim, method and privacy aspects of the project.

I understand that:-
- I do not have to participate in this project if I do not want to
- I do not have to respond to certain questions if I don’t want to
- I can withdraw from the study at any time and I do not have to give any reason for withdrawing
- I will not be penalised or treated less favourably or lose any benefit if I withdraw from the study
- If I choose to withdraw from the research study at any time, any information received from me or pertaining to me cannot be withdrawn

I agree to participate in this research project and give my consent freely. I understand that the project will be carried out as described in the Research Project Information Sheet, a copy of which I have kept. I realise that the decision to participate is mine. Any questions I had about the project have been answered to my satisfaction.

Please sign below to indicate your consent to participate in this study.

Participant’s name: ____________________ Researcher’s name ____________________

Participant’s signature: ____________________ Researcher’s signature ____________________

Date: __/__/___
APPENDIX 3F: Personal and Demographic Information (Stage One)

Research Project: Parental Influences on Children’s Food Consumption – Implications for Social Marketing

Participant

Name: ______________________________________________________________

Contact Nos: _______________________________________________________

Address (of interview): ________________________________________________

_________________________________________________________PC_________

Email: ______________________________________________________________

Gender: _____________________________________________________________

Age: _____________________________D.O.B__________________________________

Child

Gender: _____________________________________________________________

Age: ______________________________________________________________

Peer Contact: _______________________________________________________

Siblings:_____________________________________________________________
APPENDIX 3G: Interview Guide (Stage One)

Research Project: Parental Influences on Children’s Food Consumption – Implications for Social Marketing

Data Collection Personnel

Data resulting from in-depth interviews, incorporating a projective technique (‘interviews’) will be coded by the Principal Researcher.

Location

Interviews will be conducted at an appropriate location convenient to the participant.

Data Collection and Analysis Method

Each participant will meet with the Principal Researcher for approximately one hour. The interview will involve discussion of how the participant influences what their child eats. Discussion will be guided by a series of prompt questions if required:

- Tell me about your family (already obtained information re child aged 1-5 years, gender, exposure to peers, siblings/ages)
- Tell me about shopping, cooking and eating in the household
- Tell me about the foods that you provide or make available to your 1–5 year old child
- Tell me how or where you have obtained knowledge regarding nutrition for your child
- Tell me about your child, television and food
- Tell me what you think of your role as a parent regarding your child and his/her eating
- Do you have any expectations of your child regarding his/her eating?

The interview will be supplemented with a projective technique. This involves showing the interviewee drawings and asking the participant to describe the scenario. Prompts such as ‘What could the person be saying?’ or ‘What could have happened?’ or ‘What could happen next?’ The drawings (5) are provided and depict 1) child in high chair (turning head away or saying ‘I don’t want any more’) or at table with family saying ‘I don’t want any more’, 2) child in kitchen saying ‘I’m hungry’ and 3) mother and child in supermarket – child is wanting to put something in the trolley

- Summary of key points
- Thank you. Obtaining research report.

Data Analysis Method

The entire interview will be recorded. The Principal Researcher may make some notes during the interview. A written summary of the interview will be made immediately after the interview. The data generated will be coded and analysed. NVivo will be used to categorise and analyse the data.
APPENDIX 3H: Projective Technique Drawings x5 (Stage One)
I don't want anymore.
APPENDIX 3I:  Summary of themes (Stage One)

**COST**
- some foods are more expensive/better value
- packaging – keep fresh, less wastage
- convenient food expensive
- major factor in decision-making
- healthy can be more expensive
- won’t buy food if not eaten
- benefits of being organised/planning

**MODELLING**
-varying awareness of modelling (e.g. awareness in some situations, not others)
-parents hide what they eat/parents’ diets improve
-fathers/siblings/peers
-eating together

**MOTIVATORS**
-convenience
-health in adulthood (preferences, habit)
-short-term effect (type 1 diabetes, asthma, allergies, behaviour)
-father; ‘family’ offers/instigates support
-being ‘good’ parents
-child enjoying/accepting food

**BRIBES AND REWARDS**
-dessert if eaten dinner => overeating
-common, seems acceptable, unrecognised
-can be yoghurt, fruit, cheese

**CHILD CONTROL**
-via preference
-associations - food with events/circumstances/people
+-/-amount

**PARENTAL CONTROL**
-flexible or not with respect to meeting child’s food preference/offering alternative
-self-regulation (child or parent determine quantity)
-control when young/no control at some stage later (‘don’t give won’t know different’)
-difficult in social settings
-kids want attention (link to ‘in-tune’) / ‘hungry’ when bored
-parents see ‘not hungry’ as child wanting attention/controlling/power
-parents set rules to be adhered to/kids gain power via food

**PARENTAL ROLE**
-important
-to give experience; early introduction/exposure=>long-term
-modelling
-fun
-provision of ‘good’ food
- meet real needs (be in tune)
- can be too much emphasis on food
- involve child in food preparation

**PARENTAL ATTITUDE**
- limit choices to healthy
- that healthy food is boring (need strategies to disguise e.g. veges)
- their judgement better than child with respect to amount
- one good meal vs. balance over the day

**TREATS**
- delay introduction until old enough to understand are occasional
- frequency (range)
- if not allowed => obsession
- to break boredom of healthy foods
- OK in social settings
- if allowed, won’t want all the time
- for child care, guests
- allowed if eat well or enough

**STRESSES**
- about enough => use strategies to eat more
- comparisons with other children (progress/behaviour, growth, size)
- food refusal
- other things take priority (before kid’s food)
- competition between mothers
- being a good mother
- doing everything for child e.g. birthday party

**HINDERANCES**
- people (fathers, grandparents) trying to earn ‘brownie points’ with child
- child crying
- stubborn/persistent child

**MISC**
- discussion prompts greater awareness of role
- verbal teaching re food
- kids do what parents say / kids accept
- ‘real food’
- more relaxed as child ages and with second child
- social issues – difficult to criticise others even if affecting own child’, family OK to confront
- TV; to occupy child when preparing food and to give parents a break
- marketing/advertising – kids attracted to packaging; like playground at McDonalds
APPENDIX 3J: Theories considered for framework

There were three theories considered to provide a theoretical framework for this research. Social
Cognitive Theory (SCT) was considered to have the greatest synergy with the study and was deemed the
best framework as discussed in the content of the thesis. The other theories – Theory of Social Norms,
Harm Chain and Rational Choice Theory – and the reasons why they were not suitable are now presented.

The Theory of Social Norms proposes that an individual’s behaviour is influenced by incorrect
perceptions of how members of their reference group think and act (Berkowitz 2005). In other words, the
theory describes situations in which individuals incorrectly perceive the attitudes and/or behaviours of
peers and other community members to be different to their own when, in fact, they are not (Berkowitz
2005). Social norms theory predicts that interventions to correct misinterpretations by revealing the
actual, healthier norm will have a beneficial effect on most individuals who will either reduce their
participation in potentially problematic behaviour or be encouraged to engage in protective, healthy
behaviours (Berkowitz 2005).

Social norms theory can also be extended to situations in which individuals refrain from confronting the
problem behaviour of others (Berkowitz 2005). Individuals who underestimate the extent of peer
discomfort with problem behaviour may refrain from expressing their own discomfort with that
behaviour. If the actual discomfort level of peers is revealed these individuals may be more willing to
confront the perpetrator(s) of the behaviour. The term ‘social norms approach’ refers to the correction of
misperceptions of social norms in contrast to attempts to change social norms. Misperceptions have been
found among a variety of populations regarding various topics including alcohol, tobacco, illegal drug
use, homophobia, sexual assault and eating disorders (Berkowitz 2005) and misconceptions are positively
correlated with behaviour or predict behaviour regarding alcohol consumption (misperceptions predicted
alcohol use and/or problem use) (Perkins 1985, 1987; Thombs, Wolcott & Farkash 1997; Trockel,
Williams & Reis 2003).

This theory was considered for this research as several themes emerging from the convergent interviews
related to the theory. These themes were:

- the primary caregiver attitude that their child ate better than other children
- the reluctance of primary caregivers to confront others regarding their parenting behaviours, and
- that primary caregivers associate with others who are like-minded regarding their child eating
  behaviour attitudes.
However, the theory was considered unsuitable for this research for several reasons. Firstly, the theory is based on the notion that individuals *incorrectly* perceive the attitudes or behaviours of others. Although participants in this research were of the opinion that their child ate better than others, it was beyond the scope of the research to determine if this was correct or not. It is considered that use of social norms theory would be likely to require quantitative methodology. Secondly, although social pressures and social norm emerged as major influences on primary caregivers, the theory did not allow exploration into other influences.

The second theory considered to provide the theoretical framework for Stage Two of this research was *harm chain*. The concept of harm chain has been proposed as a mechanism to consider potential negative outcomes from marketing activities (Polonsky, Carlson & Fry 2003). The theory was considered for use in this research and would have involved recognition of harm, then determination of where the harm originated, how the harm can be prevented and who was being harmed (Polonsky, Carlson & Fry 2003).

Utilising this theory requires recognition of ‘harm’. In this research it would have been required to measure ‘harm’ by quantitative processes or to make an assumption of ‘harm’; it may have been primary caregivers providing their child HFSS foods, or allowing HFSS food too often or too liberally. ‘Harm’ may in fact be caused by primary caregivers *not* providing their children HFSS foods, as is the opinion of some participants. Once the ‘harm’ was recognised, determination of where the harm originated and how it might be prevented could be the focus of the research. The problem with this theory was, however, that the recognition of ‘harm’ in young children regarding their eating behaviours has not been established, and it is not the purpose of this research to be based on an assumption nor to incorporate quantitative processes. Rather, the purpose of the research is to explore primary caregiver influences on young children’s eating behaviours and particularly for Stage Two, to focus on the factors that influence primary caregivers’ attitudes and behaviour which in turn influence children’s intake.

*Rational choice theory* was also considered due to the issues of primary caregiver expediency and the divergence found regarding participants’ attitudes regarding their actions having a long-term effect. Rational choice theory uses a specific and narrow definition of ‘rationality’ simply to mean that an individual acts *as if* balancing costs against benefits to arrive at action that maximizes personal advantage (Arrow 1989).

Rational choice theorists, however, do not examine the origins, nature or validity of human motivations (why we want what we want) but instead restrict themselves to examining the expression of given and
inexplicable wants in specific social or economic environments (Arrow 1989). That is, they do not examine the biological, psychological, and sociological roots that make people see the benefits encouraging them to perform certain behaviours. This theory was not appropriate for research examining why primary caregivers behave the way they do.

Theories relating the primary caregiver experiences, expectations and confidence were sought as these were isolated themes that emerged from the literature and convergent interviews. All theories were considered inappropriate for this research, although each theory may contribute to the discussion of primary caregiver influences on children’s eating behaviours and factors influencing primary caregivers, none provides the comprehensive examination provided by SCT.

In summary, SCT was considered the most appropriate theory to provide the theoretical framework for this research.
APPENDIX 3K: Analyses of child behaviour and effect of ‘treats’ in childhood

a) Child Behaviour

Children were categorised into levels of demanding behaviour and other factors such as age, compliance with instruction and primary caregiver use of food for bribe/rewards.

Table 3K.1 Categorisation of case children

<table>
<thead>
<tr>
<th>Demand level (Interview No.)</th>
<th>Age of child</th>
<th>Use of ‘treats’</th>
<th>HFSS foods used as bribe/reward*</th>
<th>Child acceptance of instruction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compliant</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>2 yrs</td>
<td>Not given</td>
<td>NA</td>
<td>Compliant</td>
</tr>
<tr>
<td>12</td>
<td>2 8/12</td>
<td>Not given</td>
<td>NA</td>
<td>Compliant</td>
</tr>
<tr>
<td>Low</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>3 years</td>
<td>‘Not deprived but not readily available’</td>
<td>No</td>
<td>Compliant</td>
</tr>
<tr>
<td>7</td>
<td>2 ½ yrs</td>
<td>Given if asks (frequent)</td>
<td>No</td>
<td>Compliant/NA</td>
</tr>
<tr>
<td>15</td>
<td>2 ½ yrs</td>
<td>Occasional</td>
<td>No</td>
<td>Compliant</td>
</tr>
<tr>
<td>Moderate</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>3 years</td>
<td>Given if asks</td>
<td>Yes</td>
<td>Compliant/NA</td>
</tr>
<tr>
<td>10</td>
<td>18/12</td>
<td>Frequent</td>
<td>Yes</td>
<td>NA</td>
</tr>
<tr>
<td>14</td>
<td>3 10/12</td>
<td>Frequent</td>
<td>Yes</td>
<td>NA/Compliant if discussed</td>
</tr>
<tr>
<td>High</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>4 11/12</td>
<td>No sweets; but pastries</td>
<td>Yes</td>
<td>Poor#</td>
</tr>
<tr>
<td>9</td>
<td>2 years</td>
<td>Liberal</td>
<td>Not discussed</td>
<td>Compliant re adult Coke #</td>
</tr>
<tr>
<td>13</td>
<td>1 9/12</td>
<td>Intro at 12/12 (Occasionally)</td>
<td>Not discussed</td>
<td>Poor when food visible</td>
</tr>
<tr>
<td>16</td>
<td>14/12</td>
<td>Intro at 14/12 – daily for 1 month.</td>
<td>Not discussed</td>
<td>Poor, esp. after daily exposure</td>
</tr>
</tbody>
</table>

- Foods such as yoghurt, cheese, fruit may be used as bribes, rewards.
- # Child acceptance of instruction is generally poor as demonstrated by demanding behaviour

b) Effect of ‘treats’ in childhood

Participants reporting being forced to eat or having no control over eating as children either reacted against or carried on these patterns themselves as parents.

Participants given ‘no treats’ as children seemed likely to react against this when such foods became accessible but returned to their own parents’ style when they became parents themselves. As parents, they commented on their need to resist such foods, e.g. having a ‘sweet tooth’.
Two participants reported being allowed a diet as desired or a poor diet as children. This was associated with a childhood deprived of emotional attention. Both participants experienced eating disorders. As adults they allow ‘treats’ for their own children but are highly conscious of providing ‘healthy’ food and the notion that food can be given as a substitute for addressing children’s real needs.

Participants reporting being allowed ‘treats’ as a child, allowed ‘treats’ for their own child as parents. However, the range of circumstances, frequency and diet in general was broad.

Participants who control the type of food they provide their children but allow the child to determine the quantity of food eaten, have all had childhood experiences of very limited access to ‘treats’.

No relationship was evident between childhood experiences of primary caregivers and behaviours potentially contributing to overfeeding, primarily due to incomplete interviews regarding childhood experiences.
APPENDIX 3L: Social Cognitive Theory

The history of Social Cognitive Theory (SCT), human capabilities key to SCT and the use of SCT in public health will be discussed as will the human capabilities and sources of influence on human behaviour (personal factors, environment and behaviour) providing background to SCT.

History of SCT
During the 1980s, SCT has emerged as a predominant theory for understanding human behaviour, particularly in relation to public health (Bandura 2004; Sharma, Wagner & Wilkerson 2006). SCT had its origins in the discipline of psychology with its early foundation being laid by behavioural and social psychologists. SCT stemmed from Social Learning Theory (SLT) which evolved under the umbrella of behaviourism which is a cluster of psychological theories intended to explain why people and animals behave the way that they do. Strict ‘behaviourism’ supports a direct and uni-directional pathway between stimulus and response, representing human behaviour as a simple reaction to external stimuli, but SLT asserts that there is a mediator, that is, human cognition, between stimulus and response thus placing individual control over behavioural responses to stimuli. Although there are several versions of SLT to which researchers subscribe, they all share basic tenets (Crosbie-Brunett & Lewis 1993; Jones 1989; Perry, Baranowski & Parcel 1990; Thomas 1990; Woodward 1982), including:

- **Tenet 1**: Response consequences such as rewards or punishments influence the likelihood that person will perform a particular behaviour again in a given situation
- **Tenet 2**: Humans can learn by observing others, i.e. vicarious learning, and
- **Tenet 3**: Individuals are most likely to model behaviour observed by others they identify with.

Albert Bandura has led the efforts on development of cognitive SLT since the 1960s. Bandura’s theory focuses heavily on cognitive concepts. His theory focuses on social experiences influencing behaviour and development of adults and children. His theory was the first to incorporate the notion of modelling or vicarious learning. Bandura also introduced several other important concepts including reciprocal determinism, self-efficacy and the idea that there can be a significant temporal variation between cause and effect. In 1986 Bandura renamed his SLT to Social Cognitive Theory, it is assumed to further distance himself and his theory from the behaviourist approach.

Human Capabilities
Within the framework of SCT, the various influences are affected by five basic and unique human capabilities: a) symbolising capability, b) vicarious capability, c) forethought capability, d) self-regulatory
capability and e) self-reflective capability. It is these capabilities that provide humans with cognitive means by which to determine behaviour (Bandura 1986). Each will now be discussed.

Symbolising Capability: This is the capability of humans to form symbols such as images or words thus allowing humans to give meaning, form and contiguity to their experiences. This information is able to be stored and can be used to guide future behaviours and it is through this process that humans are able to model observed behaviour (Bandura 1986).

Vicarious Capability: Vicarious learning occurs from observation of others without actually performing the behaviour oneself (Bandura 1986). Observational learning is governed by i) attention span, ii) retention processes, iii) motor reproduction processes and iv) motivational processes. Attention span refers to a person’s ability to selectively observe actions and behaviours in his or her environment and it mediates the specific information that is extracted from each observation. The observer is most likely to selectively attend to, and model, behaviours of people that are most like themselves and with whom they associate the most. Observed behaviour or activities can only be modelled if they are retained in one's memory.

Retention processes refer to the storing of symbols from the observed behaviour in human memory (Bandura 1986).

Motor reproduction processes refer to the conversion of those stored symbols in memory into appropriate action, i.e. modelling (Bandura 1986). People who cognitively rehearse or actually perform modelled behaviour are less likely to forget Australian Guidelines for Healthy Eating it than those who neither think about it nor practice what they have seen (Bandura 1986).

The motivational process refers to the degree to which behaviour is seen to result in a valued outcome (expectancies) and will influence the likelihood of the modelled behaviour being adopted.

Forethought Capability: Forethought is a person’s capability to motivate them and guide their actions anticipatorily. Previous experiences create expectations of the outcome that will occur as a result of performing behaviour, before the behaviour is performed. Expectations of behavioural outcomes, more so than actual outcomes, influence the likelihood that behaviour will be performed again. There are three types of outcomes: physical outcomes such as the pleasurable and aversive effects of behaviour; social reactions such as the approval or disapproval the behaviour produces amongst one’s interpersonal
relationships; and self-evaluative reactions, whether it provides self-satisfaction, self-worth or dissatisfaction (Bandura 2004, 2005). Additionally, the personal goals established by the individual that are entangled within their value system provide further self-incentives and guides for the health habits (Bandura 2004). Long-term goals can set the course of personal change; however, there are too many competing influences at hand for distal goals to control current behaviour (Bandura 2004). Short-term attainable goals are more effective at helping people to succeed by enlisting effort and guiding action in the present (Bandura 1986, 2004).

**Self-Regulatory Capability:** Self-regulatory systems mediate external influences, allowing people to have personal control over their own thoughts, feelings, motivations and actions (Bandura 1989). Self-regulation is extremely important because it allows the gradual substitution of internal controls for external controls of behaviour. Self-regulation occurs through the interplay of self-produced and external sources of influence, including motivational standards and social and moral standards. Three factors determine the degree of self-motivation (Bandura 1986, 1989). These are self-efficacy (one’s perceived ability to complete a task and overcome any inhibitory factors), feedback (which allows control or adjustment of efforts and goals, and improves self-efficacy), and anticipated time to goal attainment (proximal goals are more effective than distal goals) (Bandura 1986).

Social and moral standards also regulate behaviour. Through evaluative self-reactions such as self-approval or self-reprimand, internalised morals and standards can regulate conduct (Bandura 1986). People develop moral standards from a variety of influences such as direct instruction, feedback on behaviours from significant others, and modelling of moral standards by significant others (Bandura 1986, 1989). Standards are also developed from institutions such as education, media, religion, and political and legal agencies. Bandura contends that observation of behaviour often outweighs verbal instruction as an influence on children’s internalisation of morals and standards; however, the fact that people often differ in the standards that they model (such as changing standards in different social settings) the impact of modelling on the development of personal standards is often reduced (Bandura 1989, 1991). People do not passively absorb all the standards of behaviour to which they are exposed, but the standards that are internalised are dependent on the degree to which the model is like oneself, the value of an activity and one’s perception of their degree of personal control over the behaviour ( locus of control) (Bandura 1989).

**Self-Reflective Capability:** Self-reflective capability enables people to analyse their experiences, think about their own thought processes and alter their thinking accordingly. Self-efficacy is one of the most
important types of self-reflection and it is a major determinant of self-reflection. Self-efficacy is considered to be central to the understanding of an individual’s translation of knowledge to behaviour as conceptualised in SCT (Bandura 1986). People develop perceptions about their own abilities and characteristics guide their behaviour by determining what a person tries to achieve and how much effort they will put into their performance (Bandura 1986, 1977a). A person's self-efficacy develops as a result of: observed or personally experienced successes and failures in a particular area; persuasion of others; comparison of performance amongst peers, siblings, and other members of social group; and from one's own physiological state (such as emotional arousal, nervousness, or anxiety) while performing a behaviour (Bandura 1977a). Social comparison of one’s own performance to the performance of others also serves as a strong source of self-efficacy. One’s belief in self-efficacy to exercise self-control is fundamental to each of the processes of personal change including; choosing to change their habits; mobilising the motivation and perseverance needed to succeed; their ability to recover from setbacks and relapses; and how well they maintain the habit changes they have achieved (Bandura 2004).

**SCT in Public Health**

Public health campaigns promote changes mainly in people with high perceived efficacy for self-management and positive expectation that the changes will improve their health. It is proposed that to help people reduce health-impairing habits, a change in emphasis is needed from trying to scare people into health to enabling them with self-management skills and self-belief (Bandura 2004).

Bandura (2004) highlights the notion that individuals are unlikely to produce lasting behavioural changes unless they develop the means to exercise control over their motivation and health-related behaviour. Depending on the individual’s self-management capabilities and motivational preparedness for behavioural change, Bandura (2004) indicates there are three differential levels of influence. The first level incorporates those with knowledge, a high sense of efficacy and positive outcome expectation for behaviour change (Bandura 2004, 2005). These individuals can evoke personal change with minimal guidance. Individuals at the second level have knowledge but have self-doubts about their efficacy and the likely benefits of their efforts and, therefore, make sub-standard efforts to change and are quick to give up when faced with impediments (Bandura 2004, 2005). Individuals at the third level believe that their health habits are beyond their personal control (Bandura 2004, 2005).

The comprehensiveness and complexity of SCT can make it difficult to operationalise with many applications of SCT focusing on just a few constructs, such as self-efficacy, while ignoring the others (Stone 1998). In health promotion and disease prevention, the key determinants of SCT are: knowledge of
health risks and benefits of different health practices; perceived self-efficacy, that is beliefs of exercising control over one’s health habits; outcome expectations about the expected costs and benefits for different health habits; the health goals people set for themselves and the concrete plans and strategies for realising them; and the perceived facilitators and social and structural impediments to the changes they seek (Bandura 2004).

SCT has been used in childhood nutrition research predominantly to provide a framework for interventions. A review of nutrition intervention literature identified that elements of effective interventions included theoretical basis, family involvement, participatory planning and implementation models, clear messages and adequate training and ongoing support for interveners (Sahay et al. 2006). SCT has been found to offer a practically useful framework for designing primary prevention interventions to reduce childhood overweight and obesity (e.g. Ball et al. 2009; Branscum & Sharma 2011; Sharma et al. 2005).

A nutrition education curriculum based on SCT had results indicating that parents in the intervention group increased their knowledge, allowed their children more independence when eating and had the television on less frequently than parents in the control group (Coleman et al. 2005).

A social cognitive model has also been used in relation to nutrition behaviour (purchase of fruit and vegetables, fat and fibre) among shoppers. The model explained 56 per cent of the variance observed in nutrition behaviour and self-efficacy, physical outcome expectations, age, socioeconomic status and number of children were found to be important predictors of nutrition behaviour among shoppers. Relationships within this model suggested that self-efficacy had the strongest total effect on nutrition behaviour, an effect which was largely mediated through physical outcome expectations. Physical outcome expectations, specifically regarding budget and satisfaction, had the strongest direct effect on nutrition behaviour. Interesting and relevant to this study, is the finding that shoppers with more children had less healthy nutrition behaviour and lower self-efficacy for healthy nutrition (Anderson, Winett & Wojcik 2000).

In summary, SCT has been presented as an established and proven theory for researching human behaviour. Specifically, for this research SCT offers a comprehensive a framework to explore primary caregiver behaviours which impact on their children’s eating behaviours.
APPENDIX 4A: Validity and reliability: Discussion and comparison

This appendix provides a more detailed discussion regarding issues of validity and reliability. Firstly, questions of validity, reliability and generalisability are presented depending on the philosophical viewpoint adopted (Table 4A.1).

**Table 4A.1: Questions of validity, reliability and generalisability**

<table>
<thead>
<tr>
<th></th>
<th>Positivist viewpoint</th>
<th>Phenomenological viewpoint</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Validity</strong></td>
<td>Does an instrument measure what it is supposed to measure?</td>
<td>Has the researcher gained full access to the knowledge and meanings of informants?</td>
</tr>
<tr>
<td><strong>Reliability</strong></td>
<td>Will the measure yield the same results on different occasions (assuming no real change in what is to be measured)?</td>
<td>Will similar observations be made by different researchers on different occasions?</td>
</tr>
<tr>
<td><strong>Generalisability</strong></td>
<td>What is the probability that patterns observed in a sample will also be present in the wider population from which the sample is drawn?</td>
<td>How likely is it that ideas and theories generated in one setting will also apply in other settings?</td>
</tr>
</tbody>
</table>

*Source: Easterby-Smith, Thorpe & Lowe (1991, p.41).*

Secondly, further discussion is provided relevant to Table 4.2 in the thesis text regarding measures taken to meet the criteria for validity and reliability for qualitative research within the realism paradigm as proposed by Healy and Perry (2000).

1. **Ontological level: Ontological appropriateness**

As Healy and Perry (2000) explain, the ontology of realism assumes that the research is dealing with complex social phenomena involving reflective people. The participants are reflecting on a world ‘... of ideas, art, science, language, ethics, institutions ...’ (Magee 1985). This is in contrast to the objective world of positivism and the subjective world of constructivism.

This research regarding primary caregiver influence on children’s eating behaviours meets this criterion.

2. **Ontological level: Contingent validity**

This criterion is comparable to internal validity, credibility and authenticity in qualitative research (Healy & Perry 2000). ‘Internal validity’ is a term used traditionally in quantitative research but which can also be applied to qualitative research as it refers to the extent that the research accurately encapsulates reality (Aaker, Kumar & Day 1998).

In the context of the realism paradigm and according to Healy and Perry (2000) and Riege (2003), the criterion of contingent validity relates to validity about generative mechanisms and the contexts that make them contingent. Within the realism paradigm, causal impacts are not fixed but are contingent upon their environment. Realism research discovers knowledge of the real world by naming and describing broad,
generative mechanisms (Perry, Riege & Brown 1999). Expressed in another way, realism aims to develop a ‘family of answers’ that cover several contingent contexts and different reflective participants, albeit imperfectly (Pawson & Tilley 1997, pg. 152). This contrasts with positivism research where direct cause and effect paths are described and with constructivism where, due to the existence of multiple realities, there is no ‘benchmark’ by which to judge the quality of the family of answers (Lincoln & Guba 1985, pg. 295).

Meeting this criterion can be achieved by use of theoretical and literal replication, in-depth questioning, emphasis on ‘why’ issues and providing description of the context of the cases (Healy & Perry 2000). This research met this criterion firstly by the focus of Stage Two on why primary caregivers behave the way they do in relation to their children’s eating behaviours, in contrast to simply describing their attitudes and behaviours. Secondly, the processes of theoretical and literal replication were used in the design stage of this research and are discussed in detail regarding case selection (Section 4.3.1). Thirdly, description of the research participants is provided. This concludes the ontological level, next the establishing of validity and reliability at the epistemological level is presented.

3. Epistemological level: Multiple perceptions of participants and of peer researchers

At the epistemological level, the criterion of multiple perceptions of participants and of peer researchers was also met within four categories. Firstly, the criterion of obtaining multiple perceptions of participants was provided by triangulation from multiple sources of evidence (direct observation, in-depth interviews and projective techniques) which are discussed in more detail in Section 4.4. Multiple interviews – which allow for replication logic - were required in the case research design as discussed in Section 4.3. Healy and Perry (2000) state that the publishing of reports for peer review is a measure which meets this criterion. In this research, peer-reviewed papers were accepted and presented at conferences during the course of the study as detailed in the preface of this thesis, Related Papers and Presentations. The preparation and presentation of the blind peer-reviewed conference papers focused the researcher’s skills but particularly enabled feedback from peers and more experienced researchers.

Secondly, respondent validation involves obtaining feedback from the people studied to lessen the misinterpretation of their self-reported behaviours and views (Yin 2009). This was achieved by providing transcripts of the interviews to the participants as recommended by Guba and Lincoln (1994) and also checking interpretations with participants during the course of the interview (Ezzy 2002). Others describe this as ‘clarification with participant’ or ‘member checking’ (e.g. Miles & Huberman 1994; Kvale 2007; Yin 2009).
Thirdly, researcher objectivity and craftsmanship enhances dealing with multiple perceptions about a single reality (Kvale 2007). Researcher self-description and awareness of her values (Healy & Perry 2000) are discussed further in Section 4.4. ‘Continual checking’ (Glaser & Strauss 1967) and use of additional techniques proposed by Miles and Huberman (1994) such as analysing the many sources of potential bias, checking for representativeness, checking the meaning of outliers and using extreme cases are techniques used in this research. As also occurred in this research, the researcher is recommended to play ‘the devil’s advocate towards his or her own findings’ (Glaser & Strauss 1967; Kvale 2007) and to use reflective practice (Denzin & Lincoln 2008). Healy and Perry (2000) recommend that additional techniques be employed to meet this criterion being supporting evidence and broad questions before probes. Supporting evidence is provided throughout the thesis and the interviewing process used broad, open-ended questions followed by probing questions as detailed in Section 4.4.

Fourthly, pragmatic validation is verification in the literal sense – ‘knowledge is action rather than observation; the effectiveness of our knowledge beliefs is demonstrated by the effectiveness of our action’ (Kvale 2007, p. 126). This technique was incorporated into the analysis process through the use of observation and actions of primary caregiver (reported) behaviours, e.g. combination of verbal reports of food suitable for a young child with reports of what the child eats.

4. Methodological level: Methodological trustworthiness

This criterion, the first of three relating to methodology, refers to the extent to which the research can be audited by developing a case-study database and by the use of quotations in the written report (Healy & Perry 2000). This criterion is similar to the concept of reliability within the positivism paradigm but reliability is concerned with estimates of the degree to which a measurement is free of random or unstable error (Cooper & Schindler 2001). In qualitative research, reliability is concerned with the extent to which similar findings would be achieved if the study was replicated using the same procedures (Yin 2009). Methodological trustworthiness is a broader criterion and is similar to consistency or dependability in constructivism (Lincoln & Guba 1985).

Dependability is achieved through a process of auditing and it is the researcher’s responsibility to ensure that the process is logical, traceable and clearly documented (Schwandt 2001). Dependability can be then demonstrated through an audit trail where others can examine the researcher’s documentation of data, methods, decisions and the end product (Tobin & Begley 2004).

Case study techniques that can be used within the realism paradigm to achieve methodological trustworthiness are use of a case study database, use of relevant quotations and matrices that summarise
data in the written report, and descriptions of procedures such as case selection and interview procedures (Healy & Perry 2000). Flexible and developing data collection and analysis methods were used in this research thus accommodating changes in data and theory. All records including transcripts from interviews and researcher notes are available and data analysis techniques and open and axial coding are explained to allow auditability of the research. Descriptions of procedures such as case selection (Section 4.3) and interview procedures (Section 4.4) are made and findings incorporate the use of relevant quotations and matrices that summarise the data (Chapter 5). Particular attention was given to appropriateness of inquiry decisions and methodological shifts; resistance of the researcher’s early closure, the extent to which all data have been accounted for and reasonably explored, and the effort to find positive and negative data.

5. Methodological level - Analytic generalisation

The next methodological criterion, analytic generalisation, is theory-building. Realism researchers do not propose that theory-testing should not occur but they advocate that theory has to be built, and confirmed or disconfirmed, before its generalisability to a population is tested. Transferability of constructivism is a similar concept (Riege 2003).

Transferability refers to the generalisability of inquiry and is comparable with external validity which, for qualitative research, aims to develop analytical generalisation (Hirschman 1986). Transferability is achieved when the research finds similar or different findings for similar and different respondents. However, in case research, differences can occur, even with similar groups, and the researcher must then decide if these differences are due to poor interpretation or reflection of reality (Gabriel 1990). Transferability was gained in this research by recording rich descriptions of data in the case study database, using cross-case analysis to look for similarities and differences, and the use of coding during the data analysis stage (Lincoln & Guba 1985; Miles & Huberman 1994; Neuman 1994; Yin 1994). Transferability is enhanced by triangulation (Jick 1979).

This criterion of analytic generalisation was met in this research by the development or building of a theory regarding influences on primary caregivers which, in turn impact, on their young children’s eating behaviours.

6. Methodological level - Construct validity

Healy and Perry (2000) describe construct validity as being similar to the construct validity of positivism research as it refers to how well the information about the constructs in the theory being built is measured.
in the research. This criterion is similar to the fifth criterion of theory-building but is more precise in its reference to constructs.

In case study research three activities are recommended to achieve operationalisation, thus ensuring that the research instruments measure what they purport to and achieving construct validity (Yin 2009). These activities are using multiple sources of data to establish triangulation, establishing a chain of evidence in data collection, and reviews of draft write up of data analysis and reports by key parties (Yin 2009).

Firstly, triangulation is also a requirement for meeting the quality criterion of multiple perceptions of participants and of peer researchers as previously discussed. Triangulation was used to verify data by using multiple sources of evidence provided in this research, and by the use of direct observation and in-depth interviews supplemented with projective techniques. These multiple data sources are discussed in more detail in Sections 4.4 and 4.5. Secondly, a chain of evidence was established in this research by keeping records of the data collection process including observations, by use of the interview Guide (Appendix 4G), and by verbatim transcription of the in-depth interviews (Hirschman 1986; Yin 2009). This chain of evidence facilitated the data analysis process by allowing cross-checking where required. Thirdly, the research supervisor reviewed draft copies of the data analysis, thus identifying any ambiguities and enabling clarification (Miles & Huberman 1994).

Case study techniques recommended for use within the realism paradigm to achieve the criterion of construct validity are identification of research issues before data collection and formulation of an interview protocol to provide data for confirming or disconfirming theory (Healy & Perry 2000). In this research, research issues were identified as described in Chapter 3 and the Interview Guide was formulated to provide data for confirming or disconfirming theory.
APPENDIX 4B: Recruitment Notice (Stage Two)

ARE YOU HAVING ANY PROBLEMS WITH ANYTHING TO DO WITH FEEDING YOUR CHILD?

MAYBE YOU AREN’T HAVING ANY PROBLEMS. I’D LOVE TO HEAR FROM YOU TOO….

Would you like to participate in a research project?
Ethics Approval No. HREC: [S/09/209]

What’s the aim of the project?
To explore parents’ attitudes and behaviours regarding their young child’s eating.

Who can participate?
Men or women (>18 years of age), the ‘primary caregiver’ of a child aged between 1 and 2 years old. The researchers are particularly seeking a range of caregivers regarding paid employment status (not working, part-time or full-time).

What’s involved?
Simply, an interview for about one hour, at your convenience.

What’s in it for you?
Your participation will increase the understanding of parents’ attitudes, concerns and difficulties about what children eat. This improved understanding will ultimately help reduce the nutrition problems being faced in our society. Also, a short summary of the findings from the project will be made available to you.

Participation is entirely voluntary. Privacy and confidentiality are assured.

Please contact:
Julie Norton (Master by Research student, Uni. Sunshine Coast)
Email: soochi@iprimus.com.au
Phone: 0412 544 722
APPENDIX 4C: Research Information Sheet (Stage Two)

Research Project: Parental Influences on Children’s Food Consumption – Implications for Social Marketing

Thank you for your interest in participating in this research project.

Background
The project involves exploring parents’ attitudes and behaviours regarding their young child’s eating. The researcher is particularly interested in discussing areas where parents are facing difficulties but also areas where they feel they are doing well. The research methodology for this project is grounded theory. This methodology involves allowing participants to respond to questions with minimal influence from the researcher. There are no right or wrong answers. The data collected is analysed and used to develop theories.

Data collection will involve an in-depth interview incorporating a projective technique. The projective technique involves describing a scenario represented by a drawing. The interview will be conducted for approximately one hour and will be tape recorded.

Who can participate?
Research participants will be men or women >18 years of age who are primary caregivers of a child aged between 1 and 2 years of age. The researchers are particularly seeking a range of caregivers regarding paid employment status (not working, part-time or full-time) and family configuration (single or two-parent families).

What’s the benefit to participants?
Participants in this research project may benefit from a greater understanding and awareness of their own influence on their children’s food consumption. Participants will be offered access to the research report.

What’s the benefit to others?
The data collected from this project will increase the understanding of parents’ attitudes and behaviours about what children’s food consumption. The project will benefit researchers, health professionals and authorities dealing with nutrition problems being faced in our society.

Voluntary participation
Participation in this project is voluntary and there is no incentive or reward for participating in the project. Similarly, there will be no penalty for non-participation. Even after providing consent, participants may choose not to respond to any questions and participants may discontinue participation at any time without explanation. Any data provided to that point will remain in the analysis as it is not possible to identify data on an individual basis.

Participation requires providing consent of the participant by signing the Consent to Participate in Research form. Informed consent means that consent to participate in this research is given after a full explanation of what is required. This Research Project Information Sheet is provided regarding the research and to help potential participants decide if they would like to be involved.
**Privacy**
The privacy and well-being of all participants will be respected at all times of the project. Information used to describe the participants will be collected. All information provided by the participants will remain confidential.

**Further information**
Further information can be obtained from the Principal Researcher. If there are any complaints about the way the project is being conducted they can be either raised with the Principal Researcher or if an independent person is preferred, contact the Chairperson of the Human Research Ethics Committee at the University of the Sunshine Coast (c/- The Secretary, University of the Sunshine Coast, Maroochydore DC 4558; email humanethics@usc.edu.au; or phone (07) 5459 4574).

**Researchers involved in this project**

Principal Researcher and Student  
Name: Julie Norton  
Position: Master of Research student, Faculty of Business, University of the Sunshine Coast  
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Supervisors  
Name: Dr Michael Harker  
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Name: Dr Debra Harker  
Position: Associate Professor in Marketing, Faculty of Business, University of the Sunshine Coast  
Phone: 07 5430 1234  
Email: dharker@usc.edu.au

Your interest and participation in this research project are greatly appreciated.
APPENDIX 4D: Privacy Record (Stage Two)

Research Project: Parental Influences on Children’s Food Consumption – Implications for Social Marketing

The nature of the records of personal information kept by the research team:

The personal information to be kept will include name, contact details, gender and age. Details of the child of whom the participant is the primary carer will also be obtained. These include age, gender, details of siblings and details of contact with peers.

This information will be used initially to establish eligibility of the participant for inclusion in the study. Data provided by the participant during the interview will be de-identified at all times.

The purpose for kept records:

Personal information as described above will be kept to describe the participants in the research project. Such information may also be used with data during theory development.

Retaining records:

Records will be kept for five years after publication of the final report of the research project. The scheduled destruction date of the records obtained from this research is February, 2014.

Access to records:

The persons who are entitled to have access to the personal information obtained are only the Principal Researcher and her Supervisors.
APPENDIX 4E: Consent to Participate in Research (Stage Two)

Research Project: Parental Influences on Children’s Food Consumption – Implications for Social Marketing

Description and Aim of the Research Project
The aim of the project is to explore and ultimately develop theories regarding parental influences on children’s food consumption. The research methodology for this project is grounded theory. This methodology involves allowing participants to respond to questions with minimal influence from the researcher. There are no right or wrong answers. The data collected is analysed and used to develop theories.

Research participants will be men or women > 18 years of age who are primary caregivers of a child aged between 1 and 2 year of age. The researchers are particularly seeking a range of caregivers regarding paid employment status (not working, part-time or full-time) and family configuration (single or two-parent families).

Data collection will involve an in-depth interview incorporating a projective technique. The projective technique involved describing a scenario represented by a drawing. The interview will be conducted for approximately one hour and will be tape recorded.

Freedom of Consent
I have read and understand the Research Project Information Sheet, which outlines the research aim, method and privacy aspects of the project.

I understand that:-
- I do not have to participate in this project if I do not want to
- I do not have to respond to certain questions if I don’t want to
- I can withdraw from the study at any time and I do not have to give any reason for withdrawing
- I will not be penalised or treated less favourably or lose any benefit if I withdraw from the study
- If I choose to withdraw from the research study at any time, any information received from me or pertaining to me cannot be withdrawn

I agree to participate in this research project and give my consent freely. I understand that the project will be carried out as described in the Research Project Information Sheet, a copy of which I have kept. I realise that the decision to participate is mine. Any questions I had about the project have been answered to my satisfaction.

Please sign below to indicate your consent to participate in this study.

Participant’s name: ___________________ Researcher’s name ___________________
Participant’s signature: ___________________ Researcher’s signature ___________________
Date: __/__/__
APPENDIX 4F:  Personal and Demographic Information (Stage Two)

Research Project: Parental Influences on Children’s Food Consumption – Implications for Social Marketing

Participant
Name: ______________________________________________________________

Contact Nos:__________________________________________________________

Address (of interview): ________________________________________________

____________________________________PC________

Email: _____________________________Gender: ________

Age: _____________________________D.O.B_____________________________

Highest level of Education______________________________________________

Child
Name: _____________________________Gender: ____________________________

Age: _____________________________D.O.B.________________________________

Peer Contact / Time at Child Care: ________________________________

_____________________________________________________________________

_____________________________________________________________________

Siblings: _____________________________________________________________

_____________________________________________________________________

Appendices
APPENDIX 4G: Interview Guide (Stage Two)

### Interview Guide         Interview ID            Date

**Research Project:** Parental Influences on Children’s Food Consumption – Implications for Social Marketing

**For Researcher before Interview**
- Be prepared to take notes, take research info, consent, interview guide

**For Researcher with Participant**
- Discuss receipt of research information, sign consent form
- Discuss aim of research, recorded, notes taken, speak freely (no right or wrong answers)
- Projective technique

**Commence Interview**
- Tell me a little about your family.

**At Interview Completion**
- Thanks.
- May contact for clarification.
- Shall receive report of findings.

<table>
<thead>
<tr>
<th>Interview Summary</th>
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<tr>
<td>-general impression</td>
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<tr>
<td>-key points</td>
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<td>-any non-verbal issues</td>
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<tr>
<td>-were there any possible times of misinterpretation between the researcher and participant i.e. on “different wavelengths?”</td>
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<td>-what new information emerged?</td>
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<tr>
<td>-how is it different from previous interviews or theory?</td>
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<td>-does it cause a change?</td>
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<td>-is it significant?</td>
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<td>Interview Guide: Questions</td>
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<td>----------------------------</td>
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<tr>
<td>1. Tell me about the history of the child’s eating..</td>
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<tr>
<td>2. Tell me what you think about food?</td>
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<td>3. Tell me about your experiences regarding food as a child?</td>
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<td>4. Generally, what are your objectives as a parent?</td>
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<tr>
<td>5. Regarding food, what are your objectives as a parent?</td>
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<td>6. What do you think are ways that parents influence their children about what they eat?</td>
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<tr>
<td>7. Are there any differences in your child’s diet when you’re working or not working (or busy vs. less busy)?</td>
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<tr>
<td>8. What about the amount a child should eat? Who determines that?</td>
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<tr>
<td>9. Tell me what you consider to be foods that should be provided to a child on an everyday basis.</td>
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<tr>
<td>10. Now let’s talk about the other foods.</td>
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<tr>
<td>11. Do you think there’s a conflict between what you’re trying to achieve and other needs?</td>
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<tr>
<td>- Child in trolley in supermarket – child crying, mother frustrated, stranger looking on</td>
</tr>
<tr>
<td>- man drinking – child reaching up</td>
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<tr>
<td>-mothers talking - toddlers playing</td>
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<td>-child in high-chair at table -making mess; man and woman at table</td>
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<tr>
<td>13. Tell me your thoughts about your own eating habits?</td>
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<tr>
<td>14. Do you eat meals together?</td>
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<td>15. Do you ever eat foods you consider unhealthy with or in front of your child?</td>
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<tr>
<td>16. Is there anything you’d like to add?</td>
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<tr>
<td>17. Summary of discussion</td>
</tr>
</tbody>
</table>
APPENDIX 4H: Projective Technique Drawings x4 (Stage Two)
APPENDIX 4I: Pilot Study Questions (Stage Two)

- Do you have any comments regarding the contact with the researcher before meeting i.e. information provided, rapport?
- Do you have any comments regarding the information provided before the interview?
- Do you have any comments regarding the interview itself? Clarity of the questions, number of questions. Should other questions have been asked? Any thoughts about the pictures?
- How did you feel at the end of the interview?
### APPENDIX 5A: Themes of initial coding

<table>
<thead>
<tr>
<th>Tree Nodes</th>
<th>Free Nodes</th>
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<tbody>
<tr>
<td>Effect of childhood experiences</td>
<td>About confronting others</td>
</tr>
<tr>
<td>- On child’s diet</td>
<td>Adapting own diet to fit with child’s</td>
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<tr>
<td>- On own diet</td>
<td>Effect of having children</td>
</tr>
<tr>
<td>Busy vs Not</td>
<td>Becoming obsessive</td>
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<tr>
<td>Caregiver attitude to food</td>
<td>Breastfeeding</td>
</tr>
<tr>
<td>Childhood experiences</td>
<td>Breastfeeding cessation</td>
</tr>
<tr>
<td>- Negative</td>
<td>Child and parent diets differ</td>
</tr>
<tr>
<td>- Positive</td>
<td>Child wants parent’s food</td>
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<tr>
<td>Conflict other forces and motivations</td>
<td>Child will change grow out of it vs affect now harder later aware for future</td>
</tr>
<tr>
<td>Different from adults</td>
<td>Compared to others – social differences</td>
</tr>
<tr>
<td>Dilemma something better than nothing</td>
<td>Concern about CHoMP* introduction</td>
</tr>
<tr>
<td>Eat together</td>
<td>Confidence</td>
</tr>
<tr>
<td>Eat unhealthy food w Child</td>
<td>Current intake</td>
</tr>
<tr>
<td>Everyday foods</td>
<td>Deprivation (or Jokes)</td>
</tr>
<tr>
<td>Mothers talk</td>
<td>Diet events</td>
</tr>
<tr>
<td>Objectives as parent</td>
<td>Exposure to CHoMPs *</td>
</tr>
<tr>
<td>Objectives with food</td>
<td>Exposure by...</td>
</tr>
<tr>
<td>Origin of Attitude (not type or quantity)</td>
<td>Exposure when…</td>
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<tr>
<td>Origin of attitude (quantity)</td>
<td>Fathers</td>
</tr>
<tr>
<td>Origin of attitude re type</td>
<td>Guidelines followed</td>
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<tr>
<td>Other parental influences</td>
<td>Guilt</td>
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<tr>
<td>Own eating habits kids come first</td>
<td>How food objectives are achieved successful or not</td>
</tr>
<tr>
<td>- Own diet differs from child’s</td>
<td>Introduction solids</td>
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<tr>
<td>Parents shouldn’t…</td>
<td>Lessons learnt</td>
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<tr>
<td>Social pressures</td>
<td>Losing control</td>
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<tr>
<td>Soft drink beer</td>
<td>Lucky</td>
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<tr>
<td>Supermarket</td>
<td>Modelling - Parental behaviour</td>
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<tr>
<td>Throwing food</td>
<td>More relaxed after 1st</td>
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<tr>
<td>What are not everyday foods</td>
<td>Parent exp effect on child</td>
</tr>
<tr>
<td>- Affect of bribes/rewards</td>
<td>Parent exp effect on parent</td>
</tr>
<tr>
<td>- Attitude re bribes/rewards</td>
<td>Parent reaction to CHoMP*</td>
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<tr>
<td>- Can’t miss what hasn’t had</td>
<td>Parental pressure</td>
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<tr>
<td>- How often</td>
<td>Parent's childhood experiences</td>
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<tr>
<td>- How to use treats</td>
<td>Power issues deception</td>
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<tr>
<td>- Should they be allowed</td>
<td>Quantity concerns</td>
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<tr>
<td>- Why shouldn’t be allowed / hyper</td>
<td>Reasons for other parents’ behaviour</td>
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<tr>
<td>Who determines quantity</td>
<td>Repeated introduction things will improve OK with parental word</td>
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<td></td>
<td>Routine meal times</td>
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<td>Self-feeding</td>
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<td>Single mother issues</td>
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<td></td>
<td>Social pressures Acceptability</td>
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<tr>
<td></td>
<td>Time became fussy display preference market</td>
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</table>

*At this stage of the analysis the acronym CHoMPs was used to describe foods Calorie (or kJ) High or Micronutrient Poor; later the term HFSS foods (high in fat, sugar and salt) was used.*
APPENDIX 5B: Summary of themes and example of theme (modelling) – Discussion and quotes

- Busy vs. not
- Confidence
- Everyday foods
- Not everyday foods
- Fathers (incorporated projective technique)
- Fussy eating
- Mothers concerns
- Objectives and how achieved
- Caregiver attitudes/obsession
- Readiness for solids
- Bribes and rewards
- Power/deception
- Single mother issues
- Social influencers
- Supermarket (incorporated projective technique)
- Messy exploration of food is normal (incorporated projective technique).

Issues around modelling

When asked about their own eating habits, most caregivers 16/23 reported to be happy with their own eating habits.

Raelene: Um, yep we eat pretty good … I don’t um, I just lack exercise probably because I don’t have time really but, um, at the moment but I’ve joined the gym and you know, to get on top of that, but eating-wise no, we eat – I don’t have any dramas with what we eat or how we eat. We don’t eat um, and if we have take-away it’s generally Chinese, we don’t have pizzas and McDonalds, KFC … we don’t have anything like that. I couldn’t tell you the last time I had something like that! (laughs)

The remaining seven caregivers stated that they felt that their own diet could be better.

Andrea: I don’t eat enough … I don’t eat appropriately. I don’t eat at the right times. So I’m hungry at 9 o'clock at night, and that’s when I eat foods that I shouldn’t eat … because I haven’t had a good breakfast or a good morning tea or a good lunch.
When discussing their own diet, four caregivers referred to the idea that they ’put their child first’.
For three of the four, this was associated/a partial explanation of why their own diet was not better.

Sally: “But you've got to eat your vegies”, and in saying that, I don't eat a lot of it because you know why? I’m feeding the girls all the time. I don’t feed myself. And if do, I feed myself something, five seconds, a handful biscuits or…

Although 16/23 caregivers reported to be happy with their own eating habits only eight of these were considered to have diets that there limited in CHoMPs* in contrast to liberal in CHoMPs*.
This discrepancy usually became evident when the caregiver was discussing their awareness of the effect of modelling and that they did not eat certain foods in front of their child:

Kate: I try not to drink soft drink in front of Linley. Bit of a Coke addict. Um, so I try not to let her see that. Um.

or when asked if their own diet differs from their child’s:

Jeannie: Um, oh, a little bit. Um, I try and eat more fruit, I have coffee, um, instead I probably, I would have more mineral water than water, and flavoured mineral water as well. Which I know is bad. I should really be drinking more water. Um, but I love my vegies, so I will always have those. Um, I suppose we don’t eat a lot of junk food or things like that, but um, I suppose with my pregnancy I’m finding now that just before I go to bed I get really hungry so I’m actually having probably a snack then, which is not really healthy, so. Something like a muesli bar or (laughs) chocolate or lollies or something like that! Which is not very good. But anyway.

When asked if their diet differs from their child’s diet, eight responded that the diets were similar but 10 indicated that their own diet included more CHoMPs* than their child's diet:

Helga: Well I don’t drink any soft drink except Coke. That’s all I drink. That’s my biggest weakness actually. But not for kids. I don’t think kids should have that. Cordial maybe. Like if you’re at a birthday party or something and I call that party drink. If we’re at a party or a kid’s party and they have green cordial or red cordial or something, that’s fine. But soft drinks I don’t think are great, like Fanta.

Jinny: Yeah, I’m not very good. Yeah, if I’m on my own and the kids are all at school, I’ll go and have Maccas! (laughs) If I’m out shopping or at the Plaza or whatever I’ll go to the Food Court, grab a magazine and eat whatever I want because there’s no one there that I can, um, I don’t have to justify it to anyone, I don’t have to, um … I’m terrible because I eat one way with my children and one way with myself.

Participants were asked what they thought were foods that should be provided to a child on an everyday basis. This was followed by the question ‘Are these foods different from what adults
should eat?’ There was a unanimous response of 'No'. Comments were made regarding children needing more calcium (n=3), more protein (n=1) and different ‘proportions’ of food (n=1).

This response was in contrast to the comments made by six participants who assumed that children would not like certain foods or commented on ‘kid-friendly’ foods:

Ned (Heather): We’ve haven’t really tried them on eating curries, or … Thai and chilli stuff … But kid-friendly foods are fish fingers, which they don’t like anyway, um, chips, cheerios, you know – sausages – they love sausages, they would eat sausages every day if we gave them to them, but, we don’t want to give them sausages, so we try to persevere in giving them the good stuff. No, kids shouldn’t eat chilli. Well I wouldn’t, I wouldn’t give them chilli because I think it will burn their bottoms, and it will upset their stomach.

Savanah: I like cooking, but the stuff I cook is more not for kids … sometimes I cook for us and then cook for them. But usually if we’re having something that the kids probably won’t eat … like we’ll give them some to see if they will eat it, um, but otherwise they’ll have pasta, like I’ll cook them sausages and they’ll have pasta or something like that. We had a stew the other night, a crock-pot stew, so they had sausages and pasta then. No, we didn’t try them on that, ‘cos there’s bones in it and everything, so …

with two participants specifically making comments about eating at restaurants:

Raven: The only thing that would be different would be, you know, if we were out at dinner. Where they would have something like spaghetti bolognese off the menu or pizza, because, well that’s it, they’re not going to want to sit down to a massive big steak and salad and chips, you know or ...

All participants were aware of parents as role models. Sixteen participants answered that modelling is a way that parents influence their child's food consumption. Others expressed their awareness of parents as role models by suggesting that other parents should not eat unhealthy foods in front of their children or by reporting their own efforts to avoid such behaviour.

Despite this awareness of themselves being role models, caregivers' actions were not in accordance. One participant reported eating 'unhealthy' foods in front of their child but not allowing their child any (Kate), 5 reported sharing such foods with their child but limiting quantity or frequency (Candice, Jeannie, Lillian, Nita, Regina):

Nita: I’ll only do it if I’m prepared for her to have some too and then, um, make sure it’s just a small amount.

Regina: Sometimes – yeah, sometimes we’ll wait until they’re asleep and then we’ll sit down and have a bit of chocolate, um other times, it will be after tea and they’ve had their shower and that, they can have a sweet or something … I mean we, and we don’t have it all the time,
it’s yeah. Um, you know, it will be if you’re still hungry then have a banana, or, um... Or yeah, you can go and have a chocolate, so ... it’s just, yeah. Usually on a Friday or a Saturday, um, we’ll say, right-o, it’s the weekend, go and have something, so ... yeah.

while five (Heather, Kerry, Raven, Teresa and Savana) indicated/suggested that such behaviour was more common.

Some participants (n=6) commented how their child wants to eat the food that the caregiver is having:

Lillian: And now, and it’s monkey see, monkey do with her – as soon as we’re at home, if we give her a plate of the same meal, she wants to eat it off our plate. Her plate is no fun unless she’s eating it off our plates.

with two mothers expressing frustration with this (Reanna and Raelene):

Reanna: And if we eat dinner later, he’ll then also go ‘I want some of what you’re eating as well’. He tries to eat ours. It drives me nuts. I hate that. He’s like a little crow! (laughs) Hanging around.

In one case the mother became aware of the child preferring her food at 11 months of age:

Jacki: Because Graham loves corn chips and until now, he’s been able to sit in front of the boys and eat corn chips. But now they want them too. (At) probably eleven months – they really started to actually notice that we had something different to what they had. And it started with me having lunch with them. Because if I was giving them steamed vegies for lunch, I’d still sit down and have a salad roll, or something like that. And then they would really be rejecting, at times, their vegies, until I removed my salad roll, or whatever. And Toby will point, he’ll point and even now, if there’s some pears or something in the fruit bowl that he can see, um, and he’s got an orange and he doesn’t feel like the orange, he’ll just point to the pear … that sort of thing.

Amongst the participants there was diversity in awareness of their language and behaviour surrounding modelling. One primary caregiver was very aware of her behaviour:

Lillian:- like she’s had a bit of chocolate cake here and there … We tried not to make it ‘really this is so exciting’ – just, ‘here have a go – see what you think about it’ and she didn’t really like it, to be honest ... She, ‘ooh that’s dirty’! So she’s like ‘dirty!’

whilst more commonly, primary caregivers revealed how their behaviour, tone of voice and their own preferences influenced their child (Regina, Heather, Karly, Kate):

Regina: Oh. Occasional foods, like chocolates (laughs), sugary food, things like that ... They don’t really have a use, they’re just yummy! (laughs)

Karly: I say ‘Do you want some lovely chocolate mousse now or custard?’
Kate: But not be, not be a complete food Nazi, saying ‘no, no, not ever are you having that’ – but um, yeah, we’ll have that on, you know, we’re going to go and do such and such on Thursday, we’ll have it then. But tonight, you know it’s just boring old vegies and … meat balls.

Fifteen of the 24 primary caregivers reported eating breakfast with their child. Some of these ate different foods to the child. The same number, but different individuals, reported eating lunch with their child when at home. Fourteen reported eating the evening meal together.

For those (n=6) who consistently ate all meals together (Don, Heather, Leslie, Reanna, Regina, Tania) there was no association with the child's age, working status of the caregiver or SES – although only one case child did not have older siblings. Another pattern emerging was of eating breakfast and lunch together but not the evening meal (n=5) (Candice, Helga, Kate, Sally, Teresa). Again, there was no association with the child's age, working status of the caregiver, SES, or presence of older siblings. Reasons for not eating the evening meal together were that the child needed to be fed early because it was too tired, the partner came home too late, or he parents could relax eating their meal.

Four primary caregivers commented that they adapt their own diet to suit the preferences of their child. Three of these caregivers (Helga, Heather, Lindy) were considered to have a diet liberal in CHoMP* foods:

Heather: Well, if it wasn’t for having kids, I’d be eating stir fried vegetables and Thai food, and um, like, Indonesian or Malaysian, and lots of curries and stuff like that. But we have to change what we eat because of the kids …

Lindy: Yes, but I think my diet’s sort of skewed to accommodate, because it’s just me and them, so that I tend to try to cook things that they’ll like and … There are probably things that I would prefer, but … I made a curry last night, and I would have put more chilli in it, but … just that sort of thing. I’d probably eat more sea food. I’d probably have more salad-y sort of things that are – a salad-based meal. I try to incorporate that a bit, but the kids aren’t that keen on it. And I think that um, I, in cooking for them, aim for wholesome, whereas if I was cooking just for me I’d probably be aiming for more low fat and sort of trying to lose some weight type things, which doesn’t really go down with feeding them as well. So, there are a few compromises there …

while the fourth (Karly) resisted consuming the sweet foods she regularly allows her child:

Karly: I don’t eat her sweet things she eats at dinner. I try to make things that if I ate things that maybe she’d like maybe she’d eat more … when I kept going to community child health centre, they were really like ‘You’ve just got to feed her. You’ve got to eat the same things’
and I always just sort of thought well she doesn’t eat stir fry or Thai food or soup, you know. It just seemed stupid.

Primary caregivers commented on a variety of effects of having children. Whilst some adapted their diets to be less tasty, as above, others commented that having children was the motivation to improve their diet (Kelsie, Teresa):

Kelsie: I think I’m more influenced by my children – the fact that I want them, um, to have a well-balanced diet and so I need to model that to them. So I think I was probably er, I didn’t eat a balanced diet before I had kids ... but I think that um, there’s probably more things that I push with them that I probably wouldn’t be serving up if I didn’t have kids.

or at least hide their "junk food" consumption from the children (Jinny, Candice):

JN: So it would be fair to say your diet’s improved since you’ve had children?

Jinny: No it has not! (laughs). So what’s good for them is, oh, I don’t know – so what’s good for me is not good for them. Like I’m allowed junk food but they’re not (laughs). That’s very bad double standards for me. (laughs) ... I take more care of my children than I do of myself ... because I’m not having it with the children so all of a sudden I’ll crave it. It’s just … convenient and easy and I don’t have to come home and prepare anything.

*At this stage of the analysis the acronym CHoMPs was used to describe foods Calorie (or kJ) High or Micronutrient Poor; later the term HFSS (high in fat, sugar and salt) was used.*
APPENDIX 5C: Examples of within-case analysis process

Fundamental to this research is the question of who determines the quantity of core foods the child eats (primary caregiver or child) and the nature of the eating behaviours of primary caregiver and the child. The following provides detailed examples of this analysis.

Who determines the quantity of core foods eaten

In some cases, the process of establishing who determined the quantity of food eaten was quite straightforward. Such a case was Kate’s. Reinforcing the conclusion that Kate allowed her child to determine the quantity of food eaten was the fact that Kate used a feeding technique called ‘Baby-Lead Weaning’.

… when they stop sticking their tongue out, I think they’re ready ... basically the babies tell you that they’re ready for food, that’s when you try it on … put the food in front of her, give her a range of food, like give her some vegetables or some cheese or some crackers and then let her decide what she wants to eat. Um, completely re-thinking the, you know, here comes the spoon full of food and you decide when and how much ...Give them a choice and they decide.

When asked who determines the quantity of food eaten her response was:

It’s just one of those given things that she knows when she’s had enough. (Kate)

Also, there were no references during the interview to circumstances where Kate encouraged the child to eat more.

Similarly, in some cases, such as Savanah’s, it was quite clear that the primary caregiver determined the quantity of core foods her child eat:

We’ve always said, ‘that’s not enough’. Um, if Jane comes to me with her sausages and potato and says ‘I’ve had enough’ and she’s only had two spoonfuls and I’ll say ‘No, you haven’t’. So she comes back and normally finishes it. (Savana)

These cases were in contrast to others; of the primary caregivers who were deemed to determine the quantity of core foods their child should eat (n=12), six made verbal responses that it is either ‘both’ or ‘don’t know’ or ‘the child’ but their reported behaviour suggested that overfeeding risk behaviours occur. Such behaviours included feeding a child who is able to self-feed and using food as bribes or rewards.

Such a case was Raven who clearly expressed the opinion that the child should determine the quantity eaten:
Well, I believe that children are like dogs, well they’re not, but they are. When they’re hungry, they will eat. If they don’t want to eat, usually generally in three days they will! (laughs). But that’s my concept, if they don’t want to eat it, ‘well, don’t eat it, off you go’.

But, at another stage of the interview, she revealed that she offered rewards after ‘adequate’ food was eaten:

… or after dinner, you know, ‘Oh you guys ate all your dinner, here’s four lollies each’ you know, or a bowl of ice cream with sprinkles.

Nature of eating behaviours

Similarly, in some cases the reported assessment of either the primary caregivers’ eating behaviours or those of their children were consistent with other comments throughout the interview. In Raelene’s case, however, there were inconsistencies regarding her eating behaviours. As a verbal response to the question about the nature of her eating behaviour she indicated that she included fewer HFSS foods than suggested when describing an alternative circumstance:

Um, yep we eat pretty good … yeah, probably, I don’t um, I just lack exercise probably because I don’t have time really but, um, at the moment but I’ve joined the gym and you know, to get on top of that, but eating-wise no, we eat – I don’t have any dramas with what we eat or how we eat. We don’t eat um, and if we have take-away it’s generally Chinese, we don’t have pizzas and McDonalds, KFC … we don’t have anything like that. I couldn’t tell you the last time I had something like that! (laughs)

In this quote she hesitates and has changes of direction in her expression, suggesting that she is reconsidering what she is saying. In addition to this, the fact that she was overweight and the content of the following quote all contributed to the conclusion that she has liberal HFSS eating behaviours:

JN: Do you ever eat foods you consider unhealthy with or in front of your child, what are the circumstances?
Raelene: She’s not interested. We don’t eat them. No. If I eat, I take biscuits to work for morning tea, and that’s why Pete has chocolate biscuits, he has them for morning tea, as do I, only when I work. At home I don’t eat them. So she doesn’t see me eat them.

More commonly, however, primary caregivers, such as Tania, created the impression that their children’s eating behaviours were lower in HFSS foods than alternatively indicated:

Say for breakfast she’ll sit down and have a plate of cereal. Now she prefers to have um ice cereal which is like the mixed muesli with cranberries and blueberries and that in it. And then not long after that she traditionally, um, before her sister wakes up she’ll still want something else. So whether it be, oh, it could be anything ranging from an apple all the way through to, she likes the popcorn, she’ll um … Morning tea she usually has a Poppa or juice and um
biscuit. Lunch, she’ll sit down but she doesn’t, she won’t eat a sandwich, but she has like the sandwich stuff on her plate – she has olives, cheese and ham … Um, in between that she’s still demanding feeds. One o’clock she usually has a feed and goes to sleep, and then in the arvo, she will graze if she can, and then um night-time, she sits down to five vegies and meat. And if there’s no vegies, she won’t eat … She loves her veggies. (Tania)

Again, the hesitation in expression, the admitted frequency of intake of HFSS foods in the following quote, and the presence of fairy floss in the home contributed to the conclusion that Tania’s child had liberal HFSS eating behaviours:

Tania: Yeah. Um, yeah, well I’m not really fond of soft drinks and that sort of stuff, like we do drink it occasionally, if we go to a party, or whatever. But we don’t drink it every day or cordial, I’m not really a fan of cordial.

JN: Yeah. So, how often do you think those sorts of things are OK to have for a child?

Tania: Um, I don’t know, I guess it depends on the environment and that, like, um, I don’t know, like I know a lot of kids take a bottle of cordial for their lunch boxes to school, but I don’t think I … I wouldn’t mind … Normally weekends is our splurge time because Dad’s home and the girls sort of tend to, you know, we do something, so they tend to eat like that.

JN: OK. Other than soft drinks and cordial, any other foods that come into that category of things that you don’t think are OK? Everyday …

Tania: I wouldn’t let them eat fried stuff and that sort of fatty stuff every day.

JN: OK. So what about things like lollies and choc … I mean you’re saying, I think, the girls don’t like that sort of stuff.

T: Yeah. I wouldn’t like them to eat lollies every day but if it was like a one or a two or a treat thing, like we have a lolly jar and it’s like a treat sort of thing but it just sits there. Oh Michaela will eat them … but I don’t know, I wouldn’t like them to be eating chocolates and lollies and that all the time – I’d be, yeah ,or even the potato chips and stuff, I think they’re just too full of just rubbish.

JN: So how often do you think that chips are OK? Chips and Cheezels, those sorts of things?

T: Um. I don’t know – every couple of days, maybe? Like, I wouldn’t, yeah … Um, I suppose when they start school maybe in their lunch boxes once or twice a week or something like that.
### APPENDIX 5D: Table of key attributes

**Eating behaviours vs. PCG^ attitudes and behaviours – Child development issues**

<table>
<thead>
<tr>
<th>Child development issues</th>
<th>Throwing food normal</th>
<th>Power issues</th>
<th>Parental word effective</th>
<th>Will become obsessive</th>
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### Eating behaviours vs. PCG^ attitude and behaviours – Child development issues (continued)

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<th>Actions – Long-term effects</th>
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Eating behaviours vs. PCG^ attitudes and behaviours – Social issues

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<tr>
<th>Social issues</th>
<th>Pressure for good behaviour</th>
<th>NEFs OK to control behaviour</th>
<th>Pressure to give NEFs</th>
<th>Objective – wellbeing</th>
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### Eating behaviours vs. PCG^\# attitudes and behaviours – Home behaviours

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<th>Case Child determines quantity</th>
<th>Use food to eat more</th>
<th>Eat together</th>
<th>Adapt to suit child</th>
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<th>CG language encourage NEFs</th>
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Notes:  
*Names of participants have been changed to protect their identity  
*PCG eating behaviours high in NEFs (Not everyday foods)  
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Bold – PCG eating behaviours high in NEFs and Child’s eating behaviours high (not regular) in NEFs
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Notes:  
*Names of participants have been changed to protect their identity  
*PCG eating behaviours high in NEFs (Not everyday foods)  
# Child eating behaviours high or regular in NEFs  
Bold – PCG eating behaviours high in NEFs and Child’s eating behaviours high (not regular) in NEFs
### Eating Behaviours vs. demographics (PCG^ and child)

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**Notes:**  
*Names of participants have been changed to protect their identity  
*PCG eating behaviours high in NEFs (Not everyday foods)  
# Child eating behaviours high or regular in NEFs  
Bold – PCG eating behaviours high in NEFs and Child’s eating behaviours high (not regular) in NEFs
### PCG Eating Behaviours vs. Demographics

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- # Child eating behaviours high or regular in NEFs
- Bold – PCG eating behaviours high in NEFs and Child’s eating behaviours high (not regular) in NEFs

*Appendices* 310
Appendix 5E: Associations of key attributes with primary caregiver attitudes and behaviours

Appendix 5E.1: Primary caregiver and child eating behaviours

The cases were categorised by eating behaviours of primary caregiver and case child. The resultant categories are:

- Primary caregiver (low HFSS eating behaviours); Case child (low HFSS eating behaviours)
- Primary caregiver (low HFSS eating behaviours); Case child (regular or high HFSS eating behaviours)
- Primary caregiver (high HFSS eating behaviours); Case child (low HFSS eating behaviours)
- Primary caregiver (high HFSS eating behaviours); Case child (regular HFSS eating behaviours)
- Primary caregiver (high HFSS eating behaviours); case child (high HFSS eating behaviours).

At times the analysis involved sub-categories, for example, primary caregivers with low HFSS eating behaviours.

There were no associations between the eating behaviour categories above and:

- those who commented that messy food exploration is normal
- those who commented on ‘power issues’, attention seeking or manipulation by the child
- those who commented on the child’s obliging response to their instruction
- those commenting on child involvement with food preparation
- those commenting that there is social pressure for children to be well behaved in public
- those whose goals indicated a focus on the child’s wellbeing (in contrast to being socially accepted)
- those who commented on manners or the avoidance of ‘gorging’
- those commenting to the effect that ‘my child eats better than other children’
- those determining the quantity of everyday foods the child eats
- those eating meals with the child
- those carrying on influence from own childhood to caregiving practice
- primary caregivers reporting that their partner is supportive or more strict.

However, some major associations were found which provided direction for more targeted analysis. Firstly, several associations were found which were considered to relate to child development. Comments being made regarding messy exploration of food being normal were considered representative of an
appreciation of child development, thus prompting further examination of these nine primary caregivers and other caregiver attributes (see Section 5.5 and Appendix 5I):

- Of the six primary caregivers who believed that a child will become ‘obsessed’ about HFSS foods, only one did not have high HFSS eating behaviours.

- All primary caregivers who reported that children do not miss HFSS foods, had children whose eating behaviours were considered either low or regular in HFSS foods (not high).

- Three of the four primary caregivers who expressed concern regarding their child being ‘deprived’ of HFSS foods, had high HFSS eating behaviours.

- Regarding reasons why HFSS foods should not be given:
  - Two of three primary caregivers who believed that the child would develop a taste preference for high fat/sugar foods over healthier choices had low HFSS eating behaviours, as did their child.
  - The children of the two primary caregivers who commented that giving HFSS foods would reduce hunger for other foods had eating behaviours regular or high in HFSS foods, and both primary caregivers had had experience of being concerned regarding intake of either the case child or an older sibling.
  - Four of the five primary caregivers who associate HFSS foods with hyperactive behaviour had high HFSS eating behaviours.

- Of the seven primary caregivers commenting that they ‘have no problems yet’ controlling their child’s eating behaviours, five were from the group of both primary caregiver and child’s eating behaviours being low in HFSS foods. An association was found between primary caregivers who recognised that their current actions have a longer-term impact and comments regarding ‘no difficulties yet’. This association added greater impetus to the need for thorough analysis of the nine primary caregivers who appreciated that their current actions have longer-term consequences.

- Primary caregivers whose long-term goals reflected a focus on the child being socially accepted all had high HFSS eating behaviours and six of these seven had children with eating behaviours regular or high in HFSS foods. This prompted a thorough examination of the data seeking associations with these seven primary caregivers and other caregiver attributes.

Other associations – or lack of association – were:

- There was no association between the eating behaviour categories and those reporting to be organised regarding food preparation when time-poor, or those using foods for convenience when time-poor; however, three primary caregivers reported both behaviours – all were deemed to have high HFSS eating behaviours.
• Of those eleven primary caregivers who considered it acceptable to provide a child HFSS foods to control behaviour, only one had low HFSS eating behaviours.

• All three primary caregivers who were concerned about waste had high HFSS eating behaviours, as did the two primary caregivers who commented about food refusal.

• The four primary caregivers commenting about sibling influence on the younger child had high HFSS eating behaviours and their children’s eating behaviours were regular or high in HFSS foods.

• Three of the four primary caregivers who used positive language when discussing HFSS foods had high HFSS eating behaviours.

• Four primary caregivers commented that they adapted their own eating behaviours to suit the child; the four were spread across four of the five eating behaviour categories, with three of these being high HFSS eating behaviours of primary caregivers.

• Three of the four primary caregivers commenting that they ‘put their child first’ were from the group where primary caregiver and child eating behaviours were high in HFSS foods.

The following associations are considered to support accuracy in the determination of eating behaviour categories:

• Pressure to provide HFSS foods was not reported by any primary caregivers who had a child with high HFSS eating behaviours (presumably because they were already being provided!).

• Primary caregivers commenting that their partners were less strict than themselves (n=2) had high HFSS eating behaviours (there were no eating behaviour category associations with primary caregivers reporting that the partner was supportive or more strict).
Appendix 5E.2: Child determines quantity of core foods eaten

Of the twelve primary caregivers in this category three were still breastfeeding the case child.

Associations found between this group and primary caregivers with other attributes were:

- Seven from this group had the long-term caregiving goal oriented towards the child's wellbeing, in contrast to only one whose goal was towards social acceptability.
- One primary caregiver who reported 'power issues' (of five caregivers) let the child determine the quantity of core foods eaten.
- Four of five primary caregivers who had the attitude that children will not miss HFSS foods were in this group.
- Three of four who were concerned about deprivation also allowed the child to determine quantity of core foods eaten.
- Four of six who valued child involvement were from this group.
- Six of nine who believed their current actions have long-term effect on their child were from this group.
- Four of 11 who considered it acceptable to give HFSS foods for behaviour control were from this group (and two of these were still breastfeeding).
- Six of seven who expressed pressure from others to give HFSS foods were from this group of 12.
- Two of three commenting on manners were in this group.
- When the primary caregivers who were still breastfeeding were excluded, nine primary caregivers remained who let the child determine the quantity of core foods eaten; of these nine, six reported 'no problems yet' (of seven).
- Those four who reported putting their child first were not in this group except one who was still breastfeeding.
- Three of four who inadvertently used language to encourage HFSS foods were in this group.
- Nine from this group of 12 also reported being organised (of 15) and three used food for convenience.
- Three had concern re waste and only one of these was from this group (also breastfeeding).
- Both who were concerned regarding food refusal were not in this group.
- All except one in this group had a tertiary education.

There was no association with the primary caregivers in this group and:
• those considering that messy exploration of food is normal
• those commenting on the child following primary caregivers’ instruction
• those believing that a child will become obsessed with certain foods if they are not provided
• those who believe that HFSS foods affect taste preference
• those eating meals together
• those adapting their eating behaviours to suit the preferences of the child
• those carrying on an aspect from their own childhood experiences into their caregiving practices
• those claiming sibling influence
• those commenting on a supportive partner
• working status of the primary caregiver
• primary caregivers ‘priority’ given to food and eating behaviours
• age of child
• gender of child
• duration of breastfeeding
• presence of siblings
• peer contact
• reasons given for not providing HFSS foods.
Appendix 5E.3: Messy food exploration is normal

Associations with the nine primary caregivers making this comment are as follows:

- Six of the nine were living in the lower socioeconomic region.
- One was younger than 30 years.
- Only one of four who were concerned about the child being deprived was from this group.
- Only one of five reporting ‘power issues’ were from this group.
- Only one of six who held the opinion that the child will become obsessed with certain foods if not provided them, was from this group.
- Six of the nine who commented that messy exploration of food is normal were also six of nine whose long-term caregiving goal was towards personal well-being (in contrast to social acceptance).
- Six of the nine who commented that messy exploration of food is normal were also six of nine who allowed the child to determine quantity of core foods eaten.
- Five of the nine who commented that messy exploration of food is normal also commented on the notion that their own current actions affect the child in the long-term (n also = 9).

There was no association with this group and:

- the eating behaviours of the primary caregivers or case children
- those commenting on the primary caregiver’s instructions being followed
- those commenting that the child would not miss HFSS foods
- those advocating child involvement in food preparation
- those believing that a child’s palate / food preference will develop with time
- education level, working status or child age or gender
- those who believed that HFSS foods should not be provided because the child would develop a preference for those foods, nor with those believing that providing such foods would reduce a child’s hunger for other foods. Five primary caregivers stated that a reason not to give a child HFSS foods is that the foods affect their children’s behaviour (become hyperactive), but only one of these five also thought that throwing food was normal.
Appendix 5E.4: Awareness of long-term effects

During the course of the interviews, nine primary caregivers expressed the opinion that their current actions have an effect on their child in the longer term. Associations identified between this group and primary caregivers with other attributes were:

- All who indicated that HFSS foods influence a child’s food preference were in this group of appreciating their actions have longer term effects.
- Two of the nine in this group breastfed for less than 12 months.
- Six of the nine also reported being organised (out of 15).
- None from this group expressed concern re food refusal or concern regarding food waste.
- Three of nine from this group used HFSS foods for convenience when time-poor (from a group of 10).
- Two of the nine considered HFSS foods acceptable to use to control behaviour (from a total of 11).
- Two primary caregivers, excluded from this group, believed that a child will develop a preference for healthier foods with time.
- None who encouraged HFSS foods inadvertently via their language were in this group.
- All case children from this group were aged less than two years (eight of the 24 case children were older than two years).
- Two from this group reported pressure to provide HFSS foods (from a total of seven).
- One from this group had a long-term caregiving goal associated with being socially accepted (five had caregiving goals associated with wellbeing).
- Six of nine from this group allowed the child to determine quantity of core food eaten (of a total of 12).
- None who adapted their own eating behaviours to suit the child’s preference (n=4) was in this group.
- Five from the group of nine also carried a factor from their own childhood to their caregiving practices (from total of 13).

There was no association between this group of nine and:
- the eating behaviour categories
- socioeconomic region, primary caregiver age, education, working status of priority placed on eating behaviours
- presence of older siblings
- those believing that their child eats better than others
• those commenting on manners or avoidance of ‘gorging’
• those reporting having ‘no problems yet’
• those eating meals together
• those advocating child involvement in food preparation
• those stating reasons not to give HFSS foods due to reduced hunger for other foods or effects on the child’s behaviour.
Appendix 5E.5: Primary caregivers’ goal of social acceptance

Associations identified between this group of seven and primary caregivers with other attributes were:

- Primary caregivers whose goals reflected a focus on the child being socially accepted all had eating behaviours liberal in HFSS foods and six of these seven had children with eating behaviours regular or high in HFSS foods.
- None reported pressure to give HFSS foods.
- There was no overlap between those seven and expression of ‘no problems yet’.
- Three of seven also reported that there is pressure for children to be well behaved (n=12) and five of seven in this group also considered it acceptable to use HFSS foods for control of behaviour (of a total of 11).
- One from this group of seven also commented that messy exploration of food is normal (of nine).
- All primary caregivers in this group breastfed for less than 12 months.
- The education level of the primary caregivers from this group was diverse but three of the seven had no tertiary education.
- One of the seven commented about primary caregiver instructions being followed (of five).
- Three of seven in this group also expressed concern about the child becoming obsessive with HFSS foods if not provided them (from total of six).
- One from this group also commented about not missing HFSS foods, but one also expressed concern re deprivation (of four).
- Of all reasons given not to give HFSS foods, i.e. change of preference, reduction in hunger for healthier foods and triggering hyperactive behaviour, only one primary caregiver from this group whose goal was towards social acceptance stated any of these reasons not to give HFSS foods.
- Two of seven supported child involvement (of six).
- Only one of seven from this group expressed the awareness of primary caregiver action having long-term effects, but the two who believed that a child will develop preference for healthier foods in time were in this group.
- All except two case children from primary caregivers in this group were female.
- One from this group allows the child to determine quantity of core foods eaten (of 12).
- One of four who use food to encourage the child to eat more is from this group of seven.
- Three of seven eat meals together (from total of 11 - either all meals or just breakfast and lunch).
- None who adapted their own eating behaviours to suit the child are from this group.
- One of four who ‘put the child first’ is from this group.
- Six of seven from this group have carried an aspect from their own childhood experiences to their
caregiving practices (total 13).

- Five of seven from this group report being organised (of 15), although three of seven use HFSS foods for convenience.
- Two of four who report a sibling influence are from this group.
- The two who report an issue with food refusal are in this group.
- Only one from the group of seven commented on an influence from their partner (being less strict).

There was no association with this group of seven and:

- those reporting that ‘my child eats better than others’
- those reporting ‘power issues’
- those advocating manners or avoidance of ‘gorging’
- those inadvertently using language that encourages preference for HFSS foods
- socioeconomic region, primary caregiver age, working status, priority of eating behaviours, child age, presence of older siblings or peer contact.
APPENDIX 5F: Short-term challenges faced by primary caregivers

Short-term challenges faced by primary caregivers are:

- concern that the child is eating enough (possibly prompting use of food as a bribe or reward or simply justifying introduction of HFSS foods)
- introduction of HFSS foods as ‘family foods’ reflecting the food preferences and eating behaviours of the primary caregiver and other household members
- the presence of older siblings prompting the use and early introduction of HFSS foods to younger siblings
- the primary caregiver’s partner (positive and negative influence)
- the practice, not only considered acceptable but appropriate, that primary caregiver action is for children, in contrast to a focus on their own eating behaviours
- the most common reason given why HFSS foods should be limited was that the child’s behaviour would be affected thus having a detrimental, short-term impact on the primary caregiver
- provision of HFSS foods may occur, justified by socially held attitudes and behaviours i) that HFSS foods should be provided and there is pressure to do so, ii) that primary caregivers should not be ‘too strict’, iii) that young children should not be deprived of HFSS foods, iv) that young children will become obsessed with HFSS foods if not provided them, v) that provision of HFSS foods is acceptable for primary caregiver convenience, vi) that provision of HFSS foods is acceptable to control children’s behaviour, and vii) that provision of HFSS foods is recommended as part of a healthy diet
- after exposure to HFSS foods or when a preference for HFSS foods develops, primary caregivers are likely to continue providing a child poorer food choices when confronted by financial factors such as food costs, food refusal and concern about food wastage
- other factors contributing to primary caregivers providing foods they know the child will eat relate to expedience (time, energy/motivation, desire for happy home and child approval).

Other findings highlight the influence of short-term factors:

- After the personal experience of the first child, primary caregivers often become more confident and more relaxed regarding their younger child’s eating behaviours.
- Despite some primary caregivers having an awareness of the risks of overweight and obesity (n=9), this group did not include those who were considered to be achieving low HFSS eating behaviours for both themselves and their young children (n=5), suggesting that the risk of overweight and obesity is not an effective motivation for primary caregivers to avoid providing HFSS food to their
young children. Some comments from primary caregivers highlighted their focus on overweight and obesity-related but shorter-term goals; one primary caregiver stated that she would be stricter if her child was currently overweight; another became motivated to improve the family eating behaviours only when an older sibling of the case child became overweight.

- The comparative lack of negative feedback that primary caregivers receive regarding provision of HFSS foods from peers and significant others.
- Children are compared regarding their size and developmental milestones (having a smaller child or one who eats less than another may prompt a primary caregiver to encourage greater food intake).
APPENDIX 5G: Previous experiences

The research has highlighted the potent influence of previous experience and ‘significant others’, in corroboration with findings regarding primary caregivers being sceptical of advice from authorities, making judgements through comparison with other children and lacking feedback.

The extant literature identifies that ‘familiarity is one factor which influences people’s dietary choices’ (Steptoe, Pollard & Wardle 1995); that eating habits develop in childhood and persist into adulthood (Braddon, Rodgers & Wadsworth 1986; Dietz 2001; Freedman et al. 2005) and that parental health practices and beliefs are predictors of their children’s beliefs (Branen & Fletcher 1999; Lau, Quadrel & Hartman 1990). However, there is no research examining the real or perceived influence of previous experiences on primary caregivers and their young children’s diets as examined in this research.

In Stage One of this research, the divergence in effect of childhood experiences and the emergence that other primary caregiver experiences have major influence on primary caregivers prompted a more directed examination of experiences influencing primary caregivers in Stage Two. In Stage Two, participants were asked about their childhood experiences and the impact they had on their own eating behaviours and those of their young children. One theme reported by primary caregivers interviewed was that some aspect of their childhood experience with food was carried into their own practice as a primary caregiver, such as providing the same foods as their parents had provided; home baking; being very strict regarding provision of ‘treats’; having rules about ‘three meals’, ‘no alternatives offered’ or ‘eat or go to bed’; or being strongly influenced by concern about waste.

In contrast, other primary caregivers reported that their childhood experiences caused them to react against their own parents’ behaviour. For one, this related to cooking; another was consciously more liberal and relaxed with her own children, while others wanted a better diet for their children than they had had as children.

A common difference expressed between their childhood experiences and their own eating behaviours was an increase in the diversity of foods.

I think our generation – we’ve been exposed to a lot more influences of Asia and things like that, so, I suppose going out to restaurants and things like that …’ (Jeannie).

The influence of other primary caregivers o their young children’s eating behaviours was not so much from their own childhood experiences but from personal health experiences leading to improvements in
their own eating behaviours. Yet other primary caregivers noted that the greatest influences on them were due to changes in common knowledge and awareness regarding being models or other personal experiences such as observing others’ children. For one primary caregiver, the motivation to improve the eating behaviour of her young child came with the experience that an older child was becoming overweight. For others, the experience of having the first child emerged as being particularly influential and was seemingly associated with primary caregivers being more relaxed in an emotional sense but also being more relaxed regarding the children’s eating behaviours:

I wasn’t as fussy with Amity. I don’t know whether it’s a bad or a good thing, like we go somewhere and I get Chelsea hot chips, she’d say “Oh can I give Amity one?” and I’d say “Yes”. So she’d give Amity a hot chip. I don’t think Chelsea had a hot chip until she was like two. So, you know, it’s that, that – because the older one’s got it, she sees it, she wants it, and you’re like, “Well OK, yeah. There you go, you can have it as well”, but I mean it doesn’t seem to have harmed her ... I wish that it had been more like that with the first one ... (Sally)

A summary of these findings and their relation to the extant literature is provided in Table 5G.1. Both findings relevant to previous experiences augment the extant literature.

**Table 5G.1 Summary of findings relevant to previous experiences**

<table>
<thead>
<tr>
<th>Findings from this research</th>
<th>Confirms</th>
<th>Augments</th>
<th>Contributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Childhood experiences can be continued or opposed</td>
<td></td>
<td>√</td>
<td></td>
</tr>
<tr>
<td>Previous experiences occur over a continuum of time</td>
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<td>√</td>
<td></td>
</tr>
</tbody>
</table>

*Source: Developed for this research.*
APPENDIX 5H: More modelling themes

Presented in this appendix are a) evidence demonstrating the divergence in behaviours and attitudes towards primary caregivers as role models for healthy eating; and b) other findings relevant to primary caregiver modelling which were not considered key to the research outcomes. These findings relate to i) primary caregiver acceptance of own poor eating behaviours and ii) eating together. Part c) presents the supportive analysis of the theme of primary caregiver priority given to food.

a) Primary caregivers as role models

Most participants answered that modelling is a way in which primary caregivers influence their children's eating behaviours. Others expressed their awareness of primary caregivers as role models indirectly by suggesting that other primary caregivers should not eat HFSS foods in front of their children or by reporting their own efforts to avoid such behaviour.

Despite this awareness of themselves as role models, primary caregivers' actions were not always in accordance. Comments were made regarding eating ‘unhealthy’ foods in front of their child but not allowing their child to have any; five reported sharing such foods with their child but limiting quantity or frequency, whilst an equal number suggested that such behaviour was more common.

Sometimes – yeah, sometimes we’ll wait until they’re asleep and then we’ll sit down and have a bit of chocolate, um other times, it will be after tea and they’ve had their shower and that, they can have a sweet or something … I mean we, and we don’t have it all the time, it’s yeah. Um, you know, it will be if you’re still hungry then have a banana, or, um. Or yeah, you can go and have a chocolate, so … it’s just, yeah. Usually on a Friday or a Saturday, um, we’ll say, right-o, it’s the weekend, go and have something, so yeah. (Regina)

Some participants commented how their young child wants to eat the food that they are eating with two primary caregivers expressing frustration with this:

And if we eat dinner later, he’ll then also go “I want some of what you’re eating as well”. He tries to eat ours. It drives me nuts. I hate that. He’s like a little crow! (laughs) Hanging around … (Reanna)

In one case the primary caregiver became aware of the child preferring her food at 11 months of age.

b) Other themes emerged which related to modelling eating behaviours

i) Primary caregivers’ acceptance of their own high HFSS eating behaviours
Although about two thirds of the primary caregivers reported being happy with their own eating behaviours, only half of these were considered to have low HFSS eating behaviours. This discrepancy usually became evident when the primary caregiver was asked if their own eating behaviours differ from those of their young child or when they were discussing their awareness of the effect of modelling and their not eating certain foods in front of their young child.

Participants were asked which foods they thought should be provided to a child on everyday basis. This was followed by the question ‘Are these foods different from what adults should eat?’ The unanimous response was ‘No’, although comments were made regarding young children needing more calcium, more protein or different ‘proportions’ of food. When asked if their eating behaviours were different from those of their young child, several responded that they were similar but, in equal numbers, others indicated that their own eating behaviours included more HFSS foods. Supporting the theme of primary caregivers self-assuredly ‘putting the child first’ was the relaxed manner in which some primary caregivers discussed their own high HFSS eating behaviours whilst maintaining a high level of effort towards their children’s eating behaviours:

Andrea: I don’t eat enough ... I don’t eat appropriately. I don’t eat at the right times. So I’m hungry at 9 o’clock at night, and that’s when I eat foods that I shouldn’t eat ... because I haven’t had a good breakfast, or a good morning tea, or a good lunch ... So my eating habits are really very bad. Um, yeah, I, yeah, I don’t think, I definitely don’t eat enough. I have wondered why I don’t eat enough, but I don’t.

JN: Um, so it sounds like your child’s diet is quite different from yours?
Andrea: Yeah, you’d hope it was! (laughs)

Seven primary caregivers expressed pressure from others to give HFSS foods, suggesting that they do not give HFSS foods. All children of these primary caregivers were considered to have eating behaviours either low or regular (but not high) in HFSS foods. The finding that there was no association with primary caregivers commenting on pressure to give HFSS foods and their own eating behaviours further supports the concept that at least some primary caregivers act ‘for’ children as opposed to being role models. It is also another example of supporting evidence of accuracy of the within-case analysis.

ii) Eating together
The frequency of the family eating meals together, often a proxy for modelling, is associated with health promoting eating behaviours (Stanek, Abbott & Cramer 1990), negatively associated with both soft drink consumption (Neumark-Sztainer et al. 2003) and a reduced risk of overweight especially in younger children i.e. 9-year-olds compared with 14-year-olds (Gillman et al. 2000).
The majority of the 24 primary caregivers (n=15) reported eating breakfast with their young child. Some of these ate different foods than the child. Different individuals reported eating lunch with their young child when at home. Fourteen reported eating the evening meal together.

For those (n=6) who consistently ate all meals together, there was no association with the child's age, employment status of the primary caregiver or SES, although only one case child did not have older siblings. Another pattern emerging was of eating breakfast and lunch together but not the evening meal. Again, there was no association with the child's age, employment status of the primary caregiver, SES, nor presence of older siblings. Reasons given for not eating the evening meal together were that the young child needed to be fed early either as the child was too tired, the partner came home too late, or to enable the adults relax eating their meal. Equal numbers of primary caregivers valued ‘eating together’ for modelling eating behaviours as for only teaching manners and social interaction.

c) Analysis of ‘priority’

First, the extant literature demonstrates an association between primary caregivers’ concern for disease prevention and healthy eating behaviours in children (Contento et al. 1993; Dowler & Calvert 1995; Gibson, Wardle & Watts 1998). Primary caregivers are reported to want to provide their children with a healthy diet (Pettigrew & Roberts 2007; Sherry et al. 2004) but more commonly reported are the barriers that primary caregivers face in attaining these desired positive outcomes (e.g. Jebb, Steer & Holmes 2007; Pettigrew & Roberts 2007).

Second, it emerged from Stage One that the priority that primary caregivers give to food in general may be an overarching factor influencing frequently reported barriers such as time, energy and motivation. In Stage Two, the question was asked ‘Tell me what you think about food?’ often with prompts such as ‘For some people food is very important and they love cooking; some people just eat because they have to … how do you see yourself?’ The predominant response was that food was a high priority for the primary caregivers although some clarified that the priority was associated with the pleasure they gain from food:

Yeah, we live to eat (laughs) … Oh, we’re pretty, I try to be, I’m always conscious to try and eat healthily, like I want to have lots of fibre and I want to eat good cereals and have lots of fruit. But when I, when it gets to morning tea, like I try to be good – by the time I get to morning tea I’m hanging out for some form of treat! (Heather)

For some, food was not a high priority though they maintain they ensure low HFSS eating behaviours in their young child, thus reiterating the theme of ‘putting the child first’.
I would have to say that, it’s not that I don’t like eating, but it is very low on my list of priorities. Very low on a job list. I don’t make time to eat ... So when the kids are eating, because they’re all quiet, I would take that time to do something else rather than eat. (Andrea)

Often for those who reported that healthy eating behaviour for them is not a high priority, either for them or within the household, the comment was not made guiltily. For some, as for Andrea, caring for their children was considered the priority over their own diet; for others it was a justification for their high HFSS eating behaviours:

“But you’ve got to eat your vegies", and ... in saying that, I don’t eat a lot of it because you know why? I’m feeding the girls all the time. I don’t feed myself. And if do, I feed myself something, five seconds, a handful biscuits ...(Sally)

Related to the finding by Hart et al. (2003), that primary caregivers feel widespread scepticism of current information provided by the media, food manufacturers and the government – all were named as sources of potentially biased or scare mongering information – was the theme from this research that too much emphasis is given to food, particularly regarding food for children:

When mums get together they’re constantly talking about what the kids are eating and it gets very boring after a while – about their, you know, little Jimmy won’t eat this, and you know, everyone’s talking about their kids and ...Yeah they do all the time, and ... you sort of get over it after a while … (Heather)

The theme of ‘putting the child first’ is further reiterated by the analysis between ‘priority’ and primary caregivers’ eating behaviours. Analysis of ‘priority of food’ was further categorised to those who valued food for pleasure and enjoyment versus those who valued food for health. As seen in Table 5H.1, of the primary caregivers who describe giving food a high priority for health, almost equal numbers have been deemed to have high HFSS eating behaviours as have low HFSS eating behaviours.

Table 5H.1 Primary caregivers’ priority to food and eating behaviours

<table>
<thead>
<tr>
<th>Priority</th>
<th>Primary Caregiver eating behaviours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low HFSS</td>
</tr>
<tr>
<td>High Priority: Health (n=12)</td>
<td>7</td>
</tr>
<tr>
<td>High Priority: Pleasure (n=4)</td>
<td>0</td>
</tr>
<tr>
<td>Low Priority (n=8)</td>
<td>0</td>
</tr>
</tbody>
</table>

Source: Field data.

The results displayed in Table 5H.2 below suggest that amongst primary caregivers who report giving food a high priority, without being role models for low HFSS eating behaviours, their efforts in achieving
Low HFSS eating behaviours in their young children are unsuccessful. Other factors are contributing to their young children’s eating behaviours being regular or high in HFSS foods. Comparison of the data supplied in tables 5H.1 and 5H.2 supports the extant literature (Campbell et al. 2007; St John Alderson & Ogden 1999), in that primary caregivers own dietary knowledge and practice do not translate into low HFSS eating behaviours for their children. That is, primary caregivers may tend to feed their young children in a less healthy way than they feed themselves.

Table 5H.2 Primary caregivers’ priority to food and children’s eating behaviours

<table>
<thead>
<tr>
<th>Priority</th>
<th>Young child eating behaviours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low HFSS</td>
</tr>
<tr>
<td>High Priority: Health n=12</td>
<td>6</td>
</tr>
<tr>
<td>High Priority: Pleasure (n=4)</td>
<td>2</td>
</tr>
<tr>
<td>Low Priority (n=8)</td>
<td>2</td>
</tr>
</tbody>
</table>

Source: Field data

In summary, these findings further substantiate the theme of primary caregivers acting in a self-assured fashion in ‘putting the child first’. The discussion of this theme in the context of ‘priority’ further emphasises the motivation of primary caregivers to appropriately care for their child but without necessarily acting as models to achieve this outcome.
APPENDIX 5I: Development of schema explaining how and why primary caregivers influence young children’s eating behaviours in an obesogenic environment

The purpose of this appendix is to demonstrate how the research data were used to develop the schema explaining how and why primary caregivers influence young children’s eating behaviours in an obesogenic environment. The development of the schema involved five steps and, for each step, associations between primary caregiver and/or young child attributes were presented as the rationale of the analysis process. For each step, a representative figure evolves as the development of the schema progresses.

**Step 1: Influence of primary caregiver eating behaviours**

Intake of HFSS foods by young children is used in this research to reflect the nature of their eating behaviours and how primary caregivers influence young children’s eating behaviours. During the course of the cross-case analysis, the salient impact of primary caregivers’ eating behaviours on children’s eating behaviours emerged.

The nature of the eating behaviours of primary caregivers was highly associated with that of the young children:

- seven primary caregivers whose eating behaviours were considered high in HFSS foods had children whose eating behaviours were considered high in HFSS foods
- an additional five primary caregivers whose eating behaviours were considered liberal in HFSS foods had children whose eating behaviours were considered regular in HFSS foods
- five primary caregivers whose eating behaviours were considered low in HFSS foods had children whose eating behaviours were also considered to be low in HFSS foods.

Primary caregivers expressed awareness of their role as models to their children but their reported actions did not always support this knowledge. The theme emerged that primary caregivers act ‘for’ the child. The finding that five primary caregivers whose eating behaviours were considered to be liberal in HFSS foods had children whose eating behaviours were considered low in HFSS foods further substantiated this finding.
Determining the quantity a child should eat is considered to be an extension of the drive for the child to eat. Along with ‘putting the child first’, this attitude results in behaviour conducted, self-assuredly - that it is the right thing to do. Primary caregivers determining the quantity that a child eats were found to be more likely to have eating behaviours high in HFSS foods, as did their children. Twelve primary caregivers in this research were deemed to determine the quantity of core foods a child eats. Specifically, of these twelve cases, one primary caregiver had low HFSS eating behaviours as did her child; seven had eating behaviours high in HFSS foods, as did their children. Two primary caregivers who determined the quantity of their child’s core food intake and had eating behaviours high in HFSS food appeared successful in establishing low HFSS eating behaviours for their children. The remaining two primary caregivers who determined the amount of core foods a child should eat were considered to have eating behaviours low in HFSS foods while their children’s eating behaviours were considered regular or high in HFSS foods.

The data thus support an association between primary caregivers’ eating behaviours and eating behaviours of their children. Primary caregivers are motivated to act ‘for’ their children; basically for the children to eat and, beyond that, for the children to eat certain types of foods and in certain quantities. Acting ‘for’ the child has been seen to be a justification for primary caregivers’ own eating behaviours being liberal in HFSS foods and, in other cases, primary caregivers were found to adapt their own eating behaviours to suit the preferences of their child to achieve these objectives.

A reminder that the drive of some primary caregivers for the child to eat according to their expectation is pervasive is relevant. This salient, although not ubiquitous, attitude and the associations between primary caregiver and children’s eating behaviours are considered to be strong, (depicted by bold lines in Figure 5I.1). Note that the relationships between Primary Caregiver eating behaviours – High HFSS and Child eating behaviours – High HFSS and regular/high HFSS are reciprocal. In this figure, line thickness is an indication of salience and magnitude of association as in the following figures in this section.
Figure 5.1 Analysis: Influence of primary caregivers’ eating behaviours

Young Child – Low HFSS eating behaviours

Young Child – Low HFSS eating behaviours

Young Child – High HFSS eating behaviours

Young Child-Regular/High HFSS eating behaviours

PCG – Low HFSS eating behaviours

PCG – High HFSS eating behaviours

PCG – High HFSS eating behaviours

Salient Social Attitude: Child should eat to PCG expectation

Notes: 
Categories of primary caregivers and young children:width of lines (arrows and boxes) reflects salience of attribute or association. 
Primary caregivers’ attributes Source: developed for this research
Step 2: Child development issues

The next step in building the schema involved child development issues. These issues are i) allowing the child to determine quantity of core foods eaten, ii) that messy exploration of food is normal, iii) recognition of primary caregiver actions having long-term effect, iv) that a child does not miss HFSS foods, v) that a child is likely to develop a preference for HFSS foods when provided them, and vi) breastfeeding duration.

Firstly, associations were identified between primary caregivers having an appreciation of child development issues and their eating behaviours and/or their children’s eating behaviours. The following associations reflect the link between primary caregivers having an appreciation of child development issues and primary caregivers’ with low HFSS eating behaviours:

- all primary caregivers who reported that children do not miss HFSS foods (n=5), had children whose eating behaviours were considered either low or regular in HFSS foods (not high in HFSS foods)
- regarding reasons why HFSS foods should not be given, two of three primary caregivers who believed that the child would develop a taste preference for high fat/sugar foods over healthier choices, had eating behaviours low in HFSS foods, as did their child.

Other associations were found between eating behaviours and other attributes which were considered to relate to child development:

- of the six primary caregivers who believed that a child will become ‘obsessed’ about HFSS foods, only one did not have eating behaviours considered high in HFSS foods
- all primary caregivers who reported that children do not miss HFSS foods, had children whose eating behaviours were considered either low or regular in HFSS foods (not high in HFSS foods)
- three of the four primary caregivers who expressed concern regarding their child being ‘deprived’ of HFSS foods, had eating behaviours high in HFSS foods
- regarding reasons why HFSS foods should not be given:
  - two of three primary caregivers who believed that the child would develop a taste preference for high fat/sugar foods over healthier choices had eating behaviours low in HFSS foods, as did their child
  - the children of the two primary caregivers who commented that giving HFSS foods would reduce hunger for other foods had eating behaviours regular or high in HFSS foods, and both primary caregivers had had concerns either with the case child or an older sibling regarding
intake

- four of the five primary caregivers who associate HFSS foods with ‘hyper’ behaviour, had eating behaviours liberal in HFSS foods
- of the seven primary caregivers commenting that they ‘have no problems yet’ controlling their child’s eating behaviours, five were from the group of both primary caregiver and child’s eating behaviours being low in HFSS foods. An association was found between primary caregivers who recognised that their current actions have a longer-term impact and comments regarding ‘no difficulties yet’. This association between primary caregivers commenting about ‘no problems yet’ and primary caregiver and child eating behaviours being low in HFSS foods, added greater impetus to the need for thorough analysis of the nine primary caregivers who appreciated that their current actions have longer-term consequences (see Appendix 5E.4).

Secondly, there were associations among primary caregivers with attributes considered to reflect an appreciation of child development. These attributes are a) the child determines quantity of core foods eaten, ii) commenting that messy exploration of food is normal, and iii) primary caregiver awareness that their current actions have long-term effects.

a) Child determines quantity of core foods eaten

Twelve primary caregivers, including three still breastfeeding, allowed the child to determine the quantity of core foods eaten:

- four of five primary caregivers who had the attitude that children will not miss HFSS foods were in this group of allowing the child to determine the quantity of core foods eaten
- six of nine who believed their current actions have long term effect on their child were from this group
- six of seven who expressed pressure from others to give HFSS foods (suggesting that they don’t give HFSS foods) were from the group of 12 allowing the child to determine quantity of core foods eaten.

b) Messy exploration of food is normal

When presented with a drawing depicting a child sitting at a table in a mess with food, nine of the 24 participants commented that it was normal behaviour for a child:

- six of the nine who considered messy exploration of food to be normal were also six of nine who allowed the child to determine quantity of core foods eaten
- five of the nine who considered messy exploration of food to be normal also commented on the notion that their own current actions affect the child in the long-term (n = 9).
c) Primary caregiver aware that current actions have long-term effects

Nine primary caregivers indicated an appreciation of their current actions having long-term effects:

- two of the nine breastfed for less than 12 months
- all who indicated that HFSS foods influence a child’s food preference (n=3), were in the group who appreciated their actions have longer-term effects.

Inverse associations found in the data also served to support the connections between factors reflecting an appreciation of child development:

- two of the nine who reported an appreciation of their current actions in the long term considered the use of HFSS foods acceptable in controlling behaviour (from a total of 11)
- four primary caregivers adapted their own eating behaviours to suit the preferences of the child and most of these primary caregivers had eating behaviours liberal in HFSS foods. None who adapted their own eating behaviours to suit the child’s preference was in the group of having awareness of their current actions having long-term effect.

Refer to Figure 5.2 for a representation of this step in the analysis.
Figure 51.2: Analysis: Child development issues

Notes: Categories of primary caregivers and young children: width of lines (arrows and boxes) reflects salience of attribute or association

Source: developed for this research
Step 3: Primary caregiver long-term goals – Child wellbeing vs social acceptance

Next, the association between the appreciation of child development issues and the primary caregiver long-term goal of child wellbeing is presented. The data also further established the chasm between primary caregiver long-term goals of child wellbeing and social acceptance. Primary caregivers whose long-term goals reflected a focus on the child being socially accepted all had eating behaviours liberal in HFSS foods and six of these seven had children whose eating behaviours were regular or high in HFSS foods.

Seven primary caregivers indicated a goal for their child with a focus on social acceptance. This was in contrast to nine primary caregivers whose goal for their child was oriented towards wellbeing:

- one primary caregiver with a goal of social acceptance allowed the child to determine quantity of core foods eaten (of 12). Seven from the group who allowed the child to determine quantity of core foods eaten had a goal oriented towards the children’s wellbeing (n=9).
- one from this group of seven (with the goal of social acceptance) expressed the awareness of their current actions having long-term effects, but the two who believed that a child will develop a preference for healthier foods in time were in the group (with a goal of social acceptance)
- one from the group of nine who stated an awareness of the long-term effects of their current actions had a goal associated with being socially accepted (five had goals of wellbeing).

The following provides further support for the divide between such an appreciation of child development and goal of social acceptance:

- one from the group of seven with goal of social acceptance also commented that messy food exploration is normal (of nine)
- all primary caregivers in this group of seven (with goal of social acceptance) breastfed for less than 12 months
- six of the nine who commented that messy food exploration is normal were also six of nine whose goal was towards personal wellbeing (in contrast to social acceptance)
- one primary caregiver of those whose goal was social acceptability, in contrast with three whose goal was child wellbeing, stated any of the reasons not to give HFSS foods i.e. change of preference, reduction in hunger for healthier foods or triggering hyperactive behaviour.

Interestingly, all except two case children of primary caregivers indicating a goal of social acceptance were female. Also, of the three participants who commented about manners and ‘gorging’, only one had a
goal of social acceptance. This is not a strong association but may suggest that manners and avoidance of gorging may not be considered important for social acceptance.

Refer to Figure 5.1.3 for incorporation into the schema of the association between appreciation of child development and long-term primary caregiver goal of child wellbeing. The diagram shows that the nature of primary caregiver goals is a fundamental influence on young children’s eating behaviours, as demonstrated in particular by the strong association between primary caregivers’ goal of social acceptance and primary caregiver, thus children’s eating behaviours.
Figure 5I.3  Analysis: Primary caregivers’ long-term goals – Child wellbeing vs social acceptance

Notes:  
- Categories of primary caregivers and young children  
- Width of lines (arrows and boxes) reflects salience of attribute or association  

Source: developed for this research
Step 4: Social influences

The next step of analysis incorporated the influences of socially accepted attitudes and practices promoting provision of HFSS foods and primary caregiver convenience.

When considering the factors influencing primary caregivers of young children it is useful again to be mindful of the overarching drive for the child to eat to the primary caregiver’s expectations. Primary caregivers experience the inherent drive for children to eat to ensure their survival; however, to meet the social and personal expectations currently considered part of successful caregiving, overfeeding a child may occur. Primary caregivers implement a variety of strategies including having a routine, involving the child and the introduction or use of HFSS foods as bribes and rewards.

In addition to the salient attitude of wanting a child to eat more is another; all primary caregivers agreed that HFSS foods should be included in their child’s diet. The degree to which this attitude pervaded their thinking varied, but, for many, it was considered socially unacceptable to be ‘too strict’.

Other attitudes support the provision of HFSS foods and in some cases override primary caregivers’ goal of child wellbeing and awareness of factors associated with child development:

- With reference to reasons why HFSS foods should not be given, the children of the two primary caregivers who commented that giving HFSS foods would reduce hunger for other foods had eating behaviours regular or high in HFSS foods. Both primary caregivers had had experience either with the case child or an older sibling regarding eating behaviours. This suggests that, despite some awareness of child function/development, the drive for the child to eat can be associated with eating behaviours liberal in HFSS foods.

- A justification for providing HFSS foods was that the child would be deprived, supporting the widespread opinion that primary caregivers should not be too strict. For those who commented about deprivation, there were inconsistent associations with issues of child development; three of four who commented about deprivation also allowed the child to determine quantity of core foods eaten, yet one of four commented that messy food exploration is normal. Three of four primary caregivers who commented about deprivation also had eating behaviours liberal in HFSS foods and children with eating behaviours regular (not high) in HFSS foods. This suggests that, despite some awareness of child development issues, primary caregiver eating behaviours and concern regarding ‘deprivation’ are greater influences on child’s eating behaviours.

(See A. Social Influences on Figure 5I.4)
Similarly, diversity in primary caregiver attitudes regarding expediency contributes to the diversity in the nature of primary caregivers’ eating behaviours, despite a common appreciation of child development issues and a goal of child wellbeing:

- There was no association with those thinking that messy food exploration is normal and those who believed that HFSS foods should not be provided because the child would develop a preference for those foods, or with those believing that providing such foods would reduce a child’s hunger for core foods. In contrast, five primary caregivers stated that a reason not to give a child HFSS foods is that these foods affect their behaviour (become hyperactive), but only one of these five also commented that messy exploration of food was normal. This suggests that the impact (of children’s ‘hyperactive’ behaviour) on primary caregivers may be at least as great an influence on primary caregiver attitudes and behaviour as their appreciation of child development. Four of the five primary caregivers who associate HFSS foods with hyperactive behaviour, had eating behaviours liberal in HFSS foods. The high reporting of hyperactivity being a reason not to give HFSS foods indicates the potency of short-term effects on primary caregivers compared to concern regarding child wellbeing.

- There was no association between the categories of eating behaviours and primary caregivers reporting to be organised regarding food preparation when time-poor, or those using foods for convenience when time-poor; however, three primary caregivers reported both behaviours. These three were all deemed to have eating behaviours high in HFSS foods, suggesting an association between use of convenience foods and primary caregiver eating behaviours high in HFSS foods.

(See B. PCG Expediency on Figure 5I.4)

The data revealed a strong link between primary caregivers having a goal of social acceptance and eating behaviours of primary caregivers and children (all primary caregivers whose goals indicated a focus on the child being socially accepted had eating behaviours liberal in HFSS foods and six of these seven had children with eating behaviours regular or high in HFSS foods). Other attitudes – either socially accepted opinion or primary caregiver concerns – have been found to reinforce this link between primary caregiver goals and eating behaviours:

- of the six primary caregivers who commented that a child will become ‘obsessed’ about HFSS foods if not provided them, only one did not have eating behaviours considered high in HFSS foods. One of these six commented that messy food exploration is normal.

- the majority of primary caregivers with a goal of social acceptance considered it acceptable to provide a child HFSS foods to control their behaviour. Of those eleven primary caregivers who considered it acceptable to provide a child HFSS foods to control behaviour, one had low HFSS eating behaviours.
• five of seven primary caregivers who indicated a goal of social acceptance also considered it acceptable to use HFSS foods for control of behaviour (from total of 11).

• three primary caregivers had concern regarding waste but only one, who was also breastfeeding, allowed the child to determine quantity of core foods eaten. This suggested that concern about waste may be a motive or supporting factor for overfeeding. The three primary caregivers with concern about waste had eating behaviours considered liberal in HFSS foods as did the two primary caregivers who commented about food refusal. (None from the group who had awareness of their actions long-term, expressed concern about food refusal or food waste).

(See C. Supporting Factors to Give HFSS on Figure 5I.4)
Figure 5I.4  Analysis: Social influences

Notes:  Categories of primary caregivers and young children  Primary caregivers’ attributes
:width of lines (arrows and boxes) reflects salience of attribute or association  Source: developed for this research

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In addition to these supporting factors found in primary caregiver attitudes and concerns, are factors in the home which reinforce the reciprocal relationship between primary caregiver and child eating behaviours high in HFSS foods:

- There was no eating behaviour category association with primary caregivers reporting that their partner is supportive or stricter, but the two primary caregivers commenting that their partners were less strict than themselves, had eating behaviours liberal in HFSS foods. The four primary caregivers commenting about sibling influence on the younger child had eating behaviours liberal in HFSS foods and their children’s eating behaviours were regular or high in HFSS foods. For both these attributes – partner being less strict, and presence of siblings – the only association with a primary caregiver goal was with that of social acceptance.

(See D. Older siblings; Partner less strict on Figure 5I.4)

The influence of the primary caregiver’s eating behaviours is seen to be greater than the appreciation of child development issues:

- None who used language which would inadvertently encourage HFSS foods (n=4) was in the group of having awareness of the long-term effects of their current actions. Three of these four were in the group who allowed the child to determine quantity of intake of core foods but these three primary caregivers also had eating behaviours liberal in HFSS foods (and for two of their children’s eating behaviours were also regular or high in HFSS foods). This suggests that, despite a possible awareness of self-regulation, the eating behaviours and preferences of primary caregivers are greater influences on the child. None who inadvertently encouraged HFSS foods indicated goals of social acceptance or wellbeing, therefore, no direct associations can be made.

(See E. PCG preference expressed on Figure 5I.4)

The association found in the data between primary caregivers with goals of child wellbeing and appreciation of child development issues has been presented. The analysis at this stage proposes, however, that it is socially accepted attitudes and behaviours which may override well-intentioned primary caregivers, leading to the reciprocating relationship between primary caregivers and children having eating behaviours high in HFSS foods. Specifically, the salient social influences – that the child must eat to primary caregivers’ expectations and that a child should not be deprived – in conjunction with primary caregivers’ own food preferences and expediency, take predominance over the goal of child wellbeing. On the other hand, primary caregivers with the goal for their child to be socially accepted are even further inclined to have eating behaviours high in HFSS foods by factors of expediency and convenience and socially accepted attitudes and practices. These socially accepted attitudes and practices
are that a child will become obsessed if not provided HFSS foods and that HFSS foods are acceptable to be used to control a child’s behaviour.
(See C. Supporting Factors on Figure 5I.4)

Step 5: Benefits of primary caregivers’ eating behaviours being low in HFSS foods

The final step of analysis resulting in the schema explaining how and why primary caregivers influence young children’s eating behaviours in an obesogenic environment reflects the benefits to primary caregivers of i) favouring a goal of child wellbeing over social acceptance, ii) having an appreciation of child development issues such as allowing the child to determine quantity of core foods eaten, and iii) having eating behaviours low in HFSS foods. In addition to the favourable outcome of a young child’s eating behaviours being more likely to be low in HFSS foods, the following associations highlight other benefits to primary caregivers:

- one primary caregiver who reported ‘power issues’ (of five) let the child determine the quantity of core foods eaten
- of the seven primary caregivers commenting that they ‘have no problems yet’ controlling their child’s eating behaviours, five were from the group of both primary caregiver and child’s eating behaviours being low in HFSS foods
- there was no overlap between those seven with the goal of social acceptance and those commenting that they have ‘no problems yet’
- one of the seven primary caregivers with the goal of social acceptance commented about the child following their instructions being followed (of five)
- one of five reporting ‘power issues’ commented that messy exploration of food is normal.

These findings support findings in Stage One where the analysis suggested that use of ‘treats’ (including HFSS foods) per se may not be associated with a child’s demanding behaviour; however, foods being used as a bribe or reward may be associated with demanding behaviour in young children.

See Figure 5I.5 for the final, complex schema explaining how and why primary caregivers influence young children’s eating behaviours in an obesogenic environment, incorporating these benefits to primary caregivers. Finally, a simplified version of the schema, accentuating strong associations, is presented in Figure 5I.6.
Figure 51.5  Analysis: Schema explaining how and why primary caregivers influence young children’s eating behaviours in an obesogenic environment – incorporating benefits to primary caregivers

Notes:  
- Categories of primary caregivers and young children  
- width of lines (arrows and boxes) reflects salience of attribute or association  

Source: developed for this research
Figure 51.6  Analysis: Simplified schema explaining how and why primary caregivers influence young children’s eating behaviours in an obesogenic environment

Notes:

- : width of lines (arrows and boxes) reflects salience of attribute or association
- How primary caregivers influence young children
- Why primary caregivers influence young children
- Primary caregivers’ attributes
- Categories of primary caregivers and young children

Source: developed for this research

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Acronyms

ABS  Australian Bureau of Statistics
AIHW  Australian Institute of Health and Welfare
AMA  American Marketing Association
BMI  Body mass index
CHoMPs  descriptor of foods High in calories (or kJ) or Micronutrient Poor
FFP  family food preparer
HFSS  descriptor of foods with High fat, sugar and salt
IOTF  International Obesity Task Force
IPD  individual patient data
NEFs  Not everyday foods
NHANES  US National Health and Nutrition Examination Surveys
NHFA  National Heart Foundation of Australia
NVR  Nutrient Reference Value
OECD  Organisation for Economic Co-operation and Development
PCG  Primary caregiver
PMA  prospective meta-analyses
QALYs  quality-adjusted life years
RCT  randomised controlled trials
SE  socioeconomic
SEIFA  Socio-Economic Indexes for Areas
SEP  socioeconomic position
UN  United Nations
WHO  World Health Organisation
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