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**An exploration of how life events and the social environment  
affect food behaviours among New Zealand women**

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## Abstract

**Background.** Food plays a major role in our health. A poor diet is a contributing factor to many diseases, including obesity and its co-morbidities. The literature suggests that the social environment including social relationships, the media and other features of the social context in which one is born, drive food choices and behaviours. However, there is limited research available explicitly investigating how significant life events and factors within the social environment affect food behaviours among New Zealand women. Given the high prevalence of obesity in New Zealand, there is a concerning gap in the literature attending to the development of food behaviours that may help understand the high obesity prevalence.

**Aim.** The aim of this study is to explore how life events and social environments impact the food behaviours of New Zealand women.

**Methods.** This study is informed by phenomenology and used semi-structured interviews for data collection. Nineteen interviews with older women, who resided in Wellington, were carried out. The interviews asked questions regarding the experiences of these women and the development of their food behaviours overtime.

**Results.** Four main themes were identified, the effect of social relationships; the changing role of the media; gender roles; and social osmosis. The results revealed that the participants were highly influenced by social relationships, with the most influential relationships being between the participants and their mothers'. The media was found to play a role in influencing the participants to change their food behaviours. However, the media also caused widespread confusion about the nutrition guidelines. Gender norms appeared to guide the participants in the type of food related skills they learnt over their lifetime. The final theme, social osmosis describes how participants accumulated food-related information from their social environment over their lifetime that contributed to their food and total nutrition knowledge.

**Discussion.** As mothers increasingly join the workforce, children may need additional guidance on food related skills from social environments outside of

the home to make up for the reduced time mothers spend in the home carrying out roles dedicated to being a homemaker. In addition, there may need to be restrictions on the type of information published in mainstream media to avoid confusion about how to maintain a healthy diet. Overall, the social environment plays a crucial role in the development of food behaviours and the present study gives an indication of how it is influential for New Zealand women.

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## Chapter One. Introduction

Food plays a major role in health and wellbeing. Poor diet accounts for 11 percent of health loss in New Zealanders and increases a person's risk of being overweight or obese (Ministry of Health, 2015a). In contrast, a healthy diet throughout life can help prevent nutritional deficiencies, help maintain a healthy body weight and reduce the risk of avoidable chronic disease.

Therefore a better understanding of the factors that influence eating behaviours should be a public health priority (Bruening et al., 2014; Thornton, Pearce & Kavanagh, 2013).

New Zealand has the third highest rates of obesity in the OECD (Organization for Economic and Cooperation Development) (Ministry of Health, 2015d).

Therefore, nutrition-related weight gain is a major concern for New Zealanders. Obesity or excessive weight, in both childhood and adulthood, is a prerequisite for a number of health conditions, including Type II Diabetes, cardiovascular and circulatory diseases, some common types of cancer, osteoarthritis, gout, sleep apnoea, reproductive disorders, gallstones and mental health conditions, especially depression (Ministry of Health, 2015c). Cardiovascular disease alone accounted for one third of deaths in 2012, with dietary factors accounting for 29 percent of the health loss from cardiovascular and circulatory disease. In New Zealand extreme obesity is expected to reduce life expectancy by up to 10 years (Ministry of Health, 2015c). In addition, childhood obesity is rising in New Zealand with rates in some areas above 20 percent (Ministry of Health, 2015a).

A concerning aspect of obesity in New Zealand is that obesity rates are rising for all ethnicities, birth cohorts and genders. In fact, obesity rates in New Zealand adults have tripled since the late 1970s (Ministry of Health, 2015a). The increasing rates of obesity, and its co-morbidities, prompted the Ministry of Health to invest additional resources to fight the obesity epidemic in New Zealand. The obesity action plan added to the previously released 'food and

beverage' guidelines to guide health practitioners on how to best manage and advise overweight and obese patients (Ministry of Health, 2015b). Adaptations of the food and beverage guidelines published through various sources of media gave the general public food and health related information in different forms about the amounts and types of foods that should be consumed to achieve and maintain a healthy body weight (Ministry of Health, 2015b). These included the 'healthy heart visual food guide' and '5+ a day' health promotions (Heart Foundation, 2016; 5+ a day, 2007).

While variations of the New Zealand food and beverage guidelines are available online and distributed in schools, work places, hospitals and medical centers their effectiveness at promoting healthy food behaviour is questionable. Only 41 percent of New Zealand adults meet the Ministry of Health's guidelines for vegetable and fruit intake. This percentage has decreased from 2011/12 where 44 percent of New Zealand adults met the MOH fruit and vegetables intake guideline. These results are similar to Australia where it is estimated that 48.3 percent of Australian adults are meeting the guideline for daily fruit intake and only 8.3 percent meet the guideline for daily vegetable intake (Australian Bureau of Statistics, 2012; Thornton et al., 2013). These intake patterns are likely to place many adults at risk of obesity and other chronic diseases and do not appear to be reflective of the messages that the government and Non-Government Organizations are trying to send out (World Health Organization, 2003; Thornton et al., 2013).

The reasonably low adherence to the New Zealand nutritional guidelines suggests there are barriers to the general public receiving or implementing said information into their daily lives. The literature suggests that this may be due to factors within the social and physical environment such as a low income, ever-changing social relationships and limited access to food stores that supply fruit and vegetables such as supermarkets and green grocers (James, 2004; Turrell et al., 2009; Worsley and Lea, 2010). However, there have been very few New Zealand based studies that explore the barriers to the general public receiving official nutrition related information (Green and Boyle, 2001).

In addition to the release of official guidelines to healthy eating, individuals also accumulate food related information and are exposed to other influences that shape or add to their knowledge and, subsequently, affect their food behaviours over their lifetime (Kraak and Pelletier, 1998; McKie, MacInnes, Hendry, Donald and Pearce, 2000). These influences include mainstream media, social relationships and societal norms (McKie et al., 2000). In particular, the increase in media attention to food post World War II (WWII) exposed women to alternative information and guidelines, which affected the foods they consumed and may have been a barrier to the implementation of the official nutrition guidelines (Simunaniemi, Sandberg, Andersson and Nydahl, 2011; Buttriss, 2011).

By focusing on women who grew up during and just after World War II, we can explore how food behaviours develop over a lifespan, including how life events, information sources, and environmental changes affect food behaviours. Throughout history women have been the primary purchasers and preparers of food for a typical household (Ilkay, 2013). Close family members often also rely on their mothers, wives, partners or daughters to prepare and cook their food, thereby relying on the information and skills possessed by these women (Lawrence and Barker, 2009). Food behaviours, which for the purpose of this study are defined as the skills and knowledge involved in the purchasing, planning, preparing and cooking of food. Therefore looking at the food behaviours of this group and investigating why these increases may be occurring is important.

This retrospective study reflects on a lifetime of experience and may add a different view to the existing knowledge of how the social environment could affect food behaviours and knowledge (Devine, Bove and Olson 2000; Devine, 2005). In addition, whilst research on the influences on food behaviours and sources of food information of women is widely studied, there is little research focusing on New Zealand women. The present study aims to gain information that will help us understand how New Zealand women acquire the knowledge and skills they have and what makes some information

more effective in achieving behaviour change. Gaining this information could help better support or provide regulation to common and popular information sources to ensure that more specific, reliable information is available to New Zealand women and this could potentially help to address the comparatively high rates of obesity in New Zealand.

## **Aims and Objectives**

### Aims

The aim of this study is to explore how life events and social environments impact the food behaviours of New Zealand women.

### Objectives

#### *Objective one*

To identify where women access their food-related information and whether the source of information changes over time.

#### *Objective two*

To investigate whether and how specific life events, such as marriage, childbirth and sickness, cause a change in food behaviours.

## **Chapter 2. Literature Review**

### **Introduction**

Given the complexity of food behaviours and their consequences for health, it is not surprising that the last few decades have produced a large amount of literature dedicated to furthering the understanding of the major influences on food behaviours. The literature on the influences on food behaviours comprises information on both the social and physical environment. This review of the literature will focus on the literature about the social environment.

The literature for this review was accessed from the Massey University online journal database, Discover. The use of 'Discover' required key words, which were developed through trial and error and discussion with supervisors. Examples of search terms included; mothers + food behaviours + childhood; friends + influence + food; Internet + nutrition information + women. The search terms Internet + influence + food behaviours led the researcher to discover the influence of social media on food behaviours which was subsequently explored. The inclusion criteria for the literature in this review was that research should be peer reviewed, published in English or with a translated English version, journal articles in scientific magazines or government based resources such as the World Health Organization (WHO) or the Ministry of Health (MoH). There were no specific inclusion criteria for the date of publishing as this research aims to look at changes over time and therefore research from many time frames was needed. Bibliographies of relevant published research supplied other relevant literature. These strategies were repeated a number of times and different keywords investigated until further searches did not add any more information. It was common for the search terms to lead to new ideas that had not previously been thought of.

Search results returned a large amount of literature on the influence of social relationships and the influence of the media on food behaviours, and also returned smaller amounts of literature on the effect of gender norms, social determinants of health and social settings. The literature from this review is mostly drawn from studies based in the United States of America (USA), Canada, United Kingdom (UK), Europe and a small number from Australia and New Zealand. There was some research from other countries but the listed countries contributed to a large portion of the research in this area.

The first section reviews the literature on social relationships. The next section reviews the literature that investigates how specific sources of media such as magazines, advertisements and the Internet affect food behaviours. The third section provides a review of the comparatively small amount of literature on the influence of different settings, including the workplace and home setting. Finally, the last section reviews the literature on how social determinants of health such as income and education, affect food behaviours.

### **Social Relationships and their effect on food behaviors**

Food is central to the human experience. Food goes beyond nutrient intake alone and, in many cultures, is seen as a way of communicating and relating to others (Neely, Walton, & Stephens, 2014). A large amount of literature finds a clear connection between close social relationships and how women choose to eat, the compromises they make to their own diet, and the role of food in their lives. Literature shows that the relationships that exert the most influence on women are those with parents, peers, partners and children. These relationships rarely remain stable over time and are affected by life transitions, such as leaving home, living with a partner or having children (Lawrence & Barker, 2009).

A significant amount of the literature focuses on how parental food behaviours can be a predictor of food behaviours in children (Kiefner-Burmeister, Hoffman, Meers, Koball & Musher-Eizenman, 2014; Chen, Moser & Nayga,

2015; Van Ansem, Schrijvers, Rodenburg & Van De Mheen, 2014). The literature often mentions both parents providing influence, but not in equal measure. There is significantly more research that shows that mothers specially play an important role in the development of food behaviours, while the role of the father is rarely mentioned in isolation of the maternal role (De Backer, 2013).

### Maternal influence

A common theme in the literature was the dominant influence of mothers on food behaviours. The development of food behaviours usually begins with maternal role modeling, where mothers carry out particular food behaviours, both intentionally and unintentionally, to promote certain food behaviours in their children (Chen et al., 2015).

Palfreyman, Haycraft and Meyer, (2013) found that mothers who were more concerned about their own eating habits were more likely to role model positive food behaviours and thus more likely to report that their children ate higher levels of healthier food items such as fruits, vegetables and salad, than mothers who were not so concerned with their own healthy eating habits. Van Ansem et al., (2014) reported similar results, and found that if parents increased their fruit consumption, their children would also increase their fruit consumption. The same rule applied for breakfast consumption (Van Ansem et al., 2014). Conversely, Kiefner-Burmeister et al., (2014) found that mothers might also encourage the intake of unhealthy foods, if they do not consciously restrain their own consumption of unhealthy foods in the presence of their children.

Weatherspoon, Venkatesh, Horodyski, Stommel and Brophy (2013) confirms the findings from Kiefner-Burmeister et al., (2014), by finding that the consumption of energy dense foods by toddlers was influenced by the consumption of energy dense food by mothers. The research that looks at the development of healthy and unhealthy food behaviours, as role modelled by mothers, suggests that these behaviours are not mutually exclusive and both

can exist at the same time, e.g. children may have a high consumption of both fruit and vegetables as well as sugar sweetened beverages (Kiefner-Burmeister et al., 2014). It appears that this occurs when mothers get caught up trying to promote healthy food behaviours and forget to address or restrict consumption of unhealthy foods (Kiefner-Burmeister et al., 2014).

It is not just food consumption behaviours that are passed from mother to child, a mother's attitude towards her body and attitudes about food can also be passed on. Bazillier, Verhiac, Mallet and Rouesse (2011) found that if a mother has a negative attitude towards healthy food, this could result in negative attitudes towards food and unhealthy food behaviours in her children. Lewis, Katasikitis and Mulgrew (2015) found that a mother's feeling of dissatisfaction towards her own body image and her tendency to overeat in reaction to stress would commonly be communicated to her daughter, causing similar consumption patterns.

While many studies find that mothers play an important role in the development of food behaviours in childhood there are few studies that investigate how mothers can influence food behaviours in their adult children. Wilson, Musham and McLellan (2004) explored the influence of mothers on adult women by asking adult women to recall their experiences with food growing up, and asking if any of these experiences still affected their food behaviours in present day. Wilson et al., (2004), like many other studies, found that in childhood the participants were highly influenced by their mothers. However, Wilson et al., (2004) also found that for those who grew up in poverty, the influence of their mother appeared to be strong in adulthood as well. Wilson et al., (2004) suggested the greater influence of mothers into adulthood was because women who had experienced poverty in childhood had more respect for the ways their mothers prepared, and served food due to the difficulty she experienced.

Another study suggested the greater effect was because despite insufficient income to meet food needs, low-income families were more likely to have a strict, structured food management plan with rules and routines (Sim,

Glanville & McIntyre, 2011). However these rules and routines may or may not improve the household diet quality as the routines may involve the use of cheaper and often less nutritious foods (Kendall, Olson & Frongillo, 1996).

Most of the studies in this review found that in order for mothers to influence their children's food behaviours, they must be able to be actively observed carrying out food related tasks. Hocking et al. (2002) found mothers could influence their children without needing to live in such close proximity and suggests that a mother's influence may be passed on through non-oral communication, in the form of recipes. Through this non-oral communication, Hocking et al., found a significant relationship between food behaviours and multiple generations of women in the same family using written rather than oral or observable means. In focus groups Hocking et al., discovered that mothers had passed on food knowledge and traditions through recipes to 33% of the participants. This particular study was important, as it is one of very few New Zealand based studies.

If mothers fail to provide their children with a positive role model, children may struggle to form healthy food behaviours. A lack of a role model for healthy food behaviours could have long-term detrimental affects on health. In addition, a lack of emphasis placed on the importance of a healthy diet in childhood could lead children and adolescences to become influenced by the food behaviours of others within their social environment (Palfreyman et al., 2013). Alternative role models may include other social relationships such as that of peers or friends (Palfreyman et al., 2013).

### Peer influence

The previous section describes how mothers have the most influence on the eating behaviours of women. However, Bazillier et al., (2011) contrasts this notion by finding that the influence of friends on eating behaviours was equal to that of a mother during adolescence. Bazillier et al., (2011) reported that wanting to conform to friends' eating norms was a significant predictor of eating intentions in girls. Bazillier et al., (2011) and Bruening et al., (2014)

found that while the influence of mothers often promotes the consumption of healthy foods, friends were more likely to increase unhealthy diet habits in children and adolescences.

Smith-Jackson and Reel (2012) suggested the reason friends were more likely to influence unhealthy diet habits was because peers could cause females to make body comparisons between themselves and their friends. Carey (2010) agrees, suggesting body comparisons often led to dieting or eating disorders in females if comparisons drawn led to weight concern or body dissatisfaction. Crandall (1988) adds to these findings, suggesting that dieting behaviours such as bulimia are more likely to occur in social groups that place great importance on physical attractiveness and slimness such as sports teams and dance groups - as these groups may encourage body comparisons.

Crandall (1988) suggests that the onset of disordered eating follows entrance into such a group, suggesting that social pressure from peers might be an influence to food behaviours. Social pressure may also influence eating behaviours if a member of the social group deviates from the group norm, to bring the particular member back in line with behaviours the group finds important. In addition, Crandall (1988) suggests that the more girls value a social group, the more they are influenced by it. This may be because social groups tell girls who they are, what they should look like, what to think and how to behave. Members of the same social group therefore tend to have similar attitudes and behaviours towards food (Crandall, 1988).

In contrast, it may be likely that in social groups where physical attractiveness and body shape are not so important, that these factors do not have the same association with dieting behaviours. However, the importance of physical appearance may be replaced by another value. For example if the group values the importance of vegetarianism, the correlation between social pressure and dieting may be nil but the correlation between social pressure and vegetarianism may be high. Therefore the size and direction of correlations may differ between groups (Crandall, 1988; Wouters, Larsen,

Kremers, Dagnelie & Geenen, 2010). Bazilier et al., (2011) also explored the fact that instead of friends influencing food behaviours, that perhaps girls selected friends who already had similar eating behaviours and the congregation of individuals with similar values encourages one to maintain said values.

While the relationship between girls and their peers appears to have a strong influence in adolescence, there is limited evidence to show that this influence translates into adulthood (Bruening, 2014; Neely et al., 2014). Trier (1960) and Lev-Ari, Baumgarten-Katz and Zohar, (2014) are two of a few studies that look at peer influences on adult women. Findings from the authors of Trier, a cross sectional study carried out in 1960, found that adult women most open to suggestions about food from their friends, were those who were more aware of their social responsibilities, and those who were well educated. Trier (1960) suggests that well-educated women were more active in their search for food information and were more likely to discuss trends and new knowledge with friends. In contrast, just as the children and adolescences in Crandall (1988), findings from Lev-Ari et al., (2014) suggests that adult women also compare themselves against their peers. Lev-Ari found that viewing a best friend as being thinner than themselves can result in a detrimental view on ones body image.

The influence of friends also may not last into adulthood as once women leave school these relationships are often overshadowed by the influence of a male partner or husband (Hartmann, Dohle & Siegrist 2014).

### Male Partners or Husbands

The influence of husbands and male partners appears to affect women's food behaviours regardless of era. The influence of a male partner appears to cause women to move away from her own desired diet towards one that is closer to his preference. The literature shows that often women claim their male partners are the greatest barriers to their own healthy eating (Beagan & Chapman, 2004; Salvy, Jarrin, Paluch, Irfan & Pliner, 2007).

Holm and Mohl, (2000) found that many women would be willing to stop eating meat had it not being for the fact that their male partners wanted to eat it. Hartmann et al., (2014) supported previous findings that male partners can cause detrimental changes to a healthy diet. Hartmann et al., (2014) interviewed women who lived on their own as well as women who lived with a male partner, and found that those who lived on their own ate less meat and processed meats than those who lived with a partner. While there may be other factors that affect the meat consumption of those who live alone versus those who live with a partner, both of the authors in Hartmann et al., (2014) and Beagan and Chapman (2004) found similar results.

Beagan and Chapman (2004) and Hartmann et al., (2014) suggest the reason women may adapt their eating habits to fit with their husband's preferences is because women tend to place a higher priority on maintaining social relationships, or wanting to please others through providing enjoyable meals rather than persisting in efforts to provide healthy food choices. This results in a shift towards the male partner's style of eating (Lawrence & Barker, 2009; Beagan & Chapman, 2004; Hartmann et al., 2014). Another suggestion from the literature was that this might also be due to the concerns women have about wastage and costs of introducing new foods that may be rejected by their families (Dye & Cason, 2005).

Beagan and Chapman (2004) carried out semi-structured interviews with breast cancer survivors and women who had not experienced a life-threatening disease and compared their answers. The results found that both groups of women had very different experiences with negotiating healthy eating. While husbands did tend to steer women away from healthy food behaviours, if a woman was to experience a serious health condition, their husbands would be willing to change to healthier food behaviours (Beagan and Chapman, 2004).

A large portion of the literature on the influence of husbands on women's food behaviours found that husbands have a negative effect on a woman's diet

while he is alive, by insisting women change their diet to suit their husband's preferences. However, the loss of a husband or male partner can also have a negative effect on a woman's diet. This was based on the idea that cooking is central to what women perceive to be their role in the family. The women in Gustafsson and Sidenvall (2002) enjoyed cooking for others, but, once they had lost their partners, most of the joy of cooking was lost as they no longer had anyone to cook for. Women no longer felt like making a fuss over what was cooked and women struggled to adapt to the smaller portions that were now needed, so large amounts of food were wasted. Widowed women would now just pick at food or not make what they considered to be proper meals (Gustafsson & Sidenvall, 2002).

The literature found that marriage or moving in with a male partner or husband is the beginning of a new life stage that often eventually leads to parenthood. Becoming a parent and the subsequent influence of looking after a child may override the influence that husbands have on their partners. This notion will be discussed in the following section (Pandey, 2011).

#### Pregnancy and children's influence

A significant amount of literature finds that pregnancy can cause a change in diet. For many women, pregnancy marks the beginning of a new life stage in which women are more motivated to take care, not only of their own nutritional needs, but also of those of the child (Del Bucchia & Penaloza, 2016; Hartmann et al., 2014; Olson, 2005). Both Beagan and Chapman (2004) and Olson (2005) analysed the effect of having children on a woman's food consumption habits and found that the transition to motherhood was linked to an increase in the healthiness of the diet. Mathur (2003) proposed that, when consumers experience life changes that also affect the roles one plays in the household, such as food related tasks, they may modify their consumption behaviours in an effort to cope with these life changes, new priorities and responsibilities, and new life circumstances (Johnstone & Todd, 2012; Mathur, 2003).

Del Bucchia and Penaloza (2016) found that having children inspired mothers to search for information from different sources such as health magazines and doctors on how to provide children with the best diet possible. Mothers often internalised the health discourse and advice from these sources into their daily diet. This made them feel like they were fulfilling their role of providing balanced meals for their children (Del Bucchia and Penaloza, 2016). Olson (2005) found that a healthier diet was often induced by the increase in support pregnant women and mothers received through ante and postnatal healthcare systems. This finding was particularly applicable to women of lower income who may not have had access to food and information sources prior to pregnancy (Olson, 2005). The influx of information brought the importance of a healthy diet to the attention of mothers who were not previously aware of its benefits. This newfound knowledge not only resulted in an increase in the healthiness of their children's diets, but also resulted in mothers increasing their nutrition knowledge (Olson, 2005; Lawrence & Barker, 2009). The majority of women in the literature reported ante and postnatal support mainly coming from medical practitioners, midwives, family, friends and other pregnant women (Charlick, McKellar, Fielder & Pincombe, 2015). In some cases the media increased a woman's nutrition knowledge both before and after the birth of a child.

On the contrary, Lucas and Coyle (2016) suggests that as information on the ideal diet for children has become so widely available, it allows mothers and their diet choices to be judged by others. Lucas and Coyle (2016) suggests that the influx of information post birth can make new mothers feel an overwhelming sense of pressure from family members and even perfect strangers if healthy diet norms are not followed. This is enough to influence new mothers to make changes to their diet. This can also have detrimental affects on mothers; including feelings of inadequacy and in some cases postnatal depression.

Van Ansem et al., (2014) suggests that in an attempt to get their children to consume healthy foods, some mothers intentionally role model behaviours they believe to be beneficial. This may bring about a change in diet for

mothers who are aware that their pre-birth eating behaviours are not positive examples. Mothers may therefore avoid engaging in less healthy food behaviours in the presence of their children, instead increasing their consumption of foods considered healthy. Thus, in an attempt to increase the healthiness of their child's diet, these particular mothers tend to have higher levels of healthier food intake themselves, given that one important element of modelling is for the child to see the parent eating the food that the parent is trying to encourage the child to eat.

As children grow older the association between bringing up children and a healthier diet in mothers appears to diminish (Pandey, 2011). One cross-sectional study found that women living in households with children were more likely to consume sweets. This was as a result of increased eating cues triggered by the availability of the children's sweets in the household as well as increased stress associated with the role of a mother (Hartmann et al., 2014). In addition, the refusal of children to eat certain foods as they grew older despite a mother's effort to provide healthy options, resulted in mothers having to revise their food ideals (Del Bucchia & Penaloza, 2016). Mothers often resorted to only cooking meals they knew their children would eat, thus compromising the whole family's diet. These mothers describe their children as being picky and feel as though they must base their food choices on prior knowledge of a child's preferences or risk their child not eating the meal at all (Pandey, 2011; Hartmann et al., 2014).

Mothers, who gave into only cooking food their children would eat, often reported a sense of guilt, knowing that they were not cooking the healthiest meals for their children (Del Bucchia & Penaloza, 2016). In addition, the mothers reported that they lost pleasure in eating because they were always cooking the same things and often neglected their own tastes (Del Bucchia & Penaloza, 2016).

Conversely, not all mothers let children affect their purchasing and cooking decisions. The literature describes types of 'mums' and how the type of 'mum' determines the health rating of foods purchased. Mothers, who refuse to

accommodate children's preferences, have been described as 'healthy food mums' (Ilkay, 2013). These mothers' are less inclined to let children influence food purchase decisions and mainly rely on the ingredient list to determine whether snacks are healthy. It is not known from Ilkay (2013) whether the purchasing behaviour of 'health mums' is a result of trying to keep their children healthy, or whether they had always purchased and cooked this way. Moreover, a major weakness of the study was that interview questions were answered on the Internet. Further improvements could be made if these questions were asked in person, giving the ability of the interviewer to prompt. This could offer insight into how future health interventions can facilitate and motivate other mothers to purchase food the same way.

Most studies that look at how social relationships affect food behaviours in women only look at a snapshot in time rather than how these influences affect food behaviours over a lifetime. These snapshots in time cannot address how different social relationships interact with other aspects of the social environment at different stages in life. Additionally, many of the studies reviewed show women are making purchasing decisions not based on their wants and needs, but on the wants and needs of others. This type of purchasing behaviour makes it hard to explore women's knowledge of nutrition and food by looking at purchasing decisions alone and without exploring more in-depth. In-depth interviews also allow the researcher to further understand how life events, such as the birth of a child can be a window of opportunity for individuals to change their nutritional strategies towards better food choices. However, the wide spread use of Internet based interviews or surveys suggest details on these experiences may have been missed. In addition, while much of the research attending to the affect of social relationships on food behaviours addresses differences among minority groups in their respective countries, few studies compared findings between different countries. Nor did many studies look specifically at New Zealand women, leaving a gap in the literature.

## **The media**

A common theme emerging from the literature on the social environment and its effects on food behaviours was the influence of the media. Media, as a vehicle for health and food related information, has been steadily increasing since WWII, but a concern arising from the literature was the quality and reliability of the information from the media. Literature on sources of media based information and the quality of such information will be reviewed in relation to food behaviours in the following sections.

A significant feature of the social environment since WWII has been the changes and access to the media. The literature revealed that popular sources of food related information since WWII included magazines and newspaper articles, television, food labels and advertising material (Worsley & Lea, 2003). The evolution of technology and the introduction of the Internet has meant media has played a more prominent role in the development of food behaviours in the past 30 years (Buttriss, 2011). The literature in this section investigates how these popular sources of media have varying abilities to influence the food behaviours of those who are exposed to it (Worsley & Lea, 2003).

### *Print media*

Print media, including articles and advertisements in magazines and newspapers, are frequently discussed in the literature as being used as a source of food-related information. A common theme is how advertisements containing ideal body images, regardless of their relevance to food, could affect food consumption patterns in women (Hesse-Biber, Leavy, Quinn & Zoino, 2006; Krahe, 2010; O'Mahony, 2007).

Both Krahe and Krause (2010) and Hesse-Biber et al., (2006)'s review of the literature found exposure to advertisements and articles in print media, containing images of very slim models, led to restrained eating or the avoidance of high fat foods immediately following exposure. Hesse-Biber et

al., (2006) reported that this may be because women perceived these media sources as telling them the preferred weight ideal was significantly less than what they currently weighed. It appears as though women may therefore attempt to reach the ideal physical image internalized by many women, despite the ideal being both unattainable for most, and unhealthy, through self-imposing controls such as dieting and starvation. This is worrying, considering the ideal physical appearance is continuing to shrink as the body sizes of the winners of the Miss America Pageant and the Playboy centrefolds are continually shrinking over time (Garner, Garfinkel, Schwartz & Thompson, 1980).

The connotations behind the ideal physical image is that those who achieve it have self-control and power while those who cannot achieve such body ideals are lazy, self-indulgent and lack control, representing moral failure (Hesse-Biber et al., 2006). It is these messages that have created an environment encouraging dieting with an estimated 50 million Americans dieting at one point in time (Chatzky, 2002; Hesse-Biber et al., 2006). Hesse-Biber et al., (2006)'s review of the literature also reveals that disordered eating, or obsession with food is a culturally acceptable or normal way for women to deal with body image issues and is often considered to be normal and therefore a non-issue from a clinical or social perspective.

A large amount of the literature on how the media can induce disordered eating thus far has focused on print media. However technological advances since WWII have changed how women receive food related information. In particular the advent of the mass media has meant food-related information has had an even wider reach than was ever possible with print media alone (Hesse-Biber et al., 2006).

### *The Internet*

The Internet emerged as an influence on food behaviours during the 1990's. It began as a tool for information dissemination and interaction between individuals, removing the barrier of geographical location. It began slowly but

has evolved into an era where a large portion of homes have family or personal computers which are used for information gathering, sharing and social networking (Guo-Qing, Guo-Qiang, Qing-Feng, Su-Qi & Tao, 2008).

The number of people using the Internet to search for health and food related information is increasing (McCully, Don & Updegraff, 2013). The Internet's increase in popularity has resulted in an increase in the amount of health and food information available online (McCully et al., 2013). However, a common theme among the literature is that not all of the information published online is completely reliable, meaning much of the food and nutrition information on the internet is not based on scientific evidence or published by those qualified sources.

McCully et al., (2013) conducted a US survey of 3500 participants and found that despite more people using the Internet for food and health related information in 2011 compared to 2007, use in 2011 was associated with lower adherence to healthy food behaviours. The authors suggest this may be because in 2007, only those who were truly motivated to make a diet change searched for food related information online. Another explanation for the Internet's lower affect on food behaviours in 2011 was that diet related Internet sites have become less effective and reliable at helping people adhere to a diet. Modave, Shokar, Penaranda and Nguyen, (2014) added to this theory by finding that less than a fifth of websites included accurate nutrition or weight loss information on more than 50% of the key information. Modave et al., (2014) also found that most of the information found by participants on websites used by participants, was inadequate, not because good information did not exist, but because it was harder to locate as most people use a basic search engine such as Google.

While the effect of unreliable information on food behaviours for the average person is annoying, from both the public's and a health professional's point of view, it is often harmless. However, this is not always the case Buttris (2011) found that 40% of respondents were prompted to seek health information from new sources, such as the Internet, in response to diagnoses of a life-

threatening condition (Buttris, 2011). Gustafsson, Ecblad and Sidenvall (2005) agreed, finding that older women living with the effects of a stroke and Parkinson's disease tried to improve their health by changing their food habits. Most of the information they took on board was from the media. As no professional diet advice was sought, many of the women misunderstood how the diets should be executed and this had the potential to cause harmful effects (Gustafsson et al., 2005).

To prevent unreliable information reaching vulnerable populations, identifying which groups of the population are using the Internet and how are they using it, could be important in designing education programmes and health campaigns highlighting the dangers of online information. Unfortunately, only a relatively small amount of available literature delves into who seeks information from where and what may cause them to seek information from specific sources. In addition, use of the Internet has branched into use of social media (Worsley & Lea, 2003). It appears as though the use of social media is widespread, making it a target for food related information, especially in the form of food advertising (Hesse-Biber et al., 2006).

### *Social media*

Since the early 2000s, the rise of the 'social web', has had an impact on users. The use of social networking by businesses and educational institutions to promote products has enabled the Internet to have greater influence on the population (Walter, 2013). Social media began as a space on the Internet where people could go to connect with friends, peers and role models and has evolved into a phenomenon where by almost anyone can connect with anyone else and share any information they chose to. Social media has become a place where individuals or groups can share information and see the lifestyles of their peers. Social media has become a powerful source of information with the ability to influence a large group of people (Walter, 2013).

The influence of social media on the population is growing. Users of social media tend to be younger and therefore have the potential to be more impressionable. While the purpose of social media is not usually a tool for the communication of health and food related information, it appears to have the ability to affect food behaviours in certain population groups (Chrisler, Fung, Lopez & Gorman, 2013).

Chrisler et al., (2013) monitored Twitter during a Victoria's Secret runway show and found that exposure to idealised images of female models caused the young women viewing the show to comment on their 'need' to reduce eating after viewing the show. These findings echo recent research by De Vries and Kuhne (2015) that found that the amount of time spent on Facebook was associated with more frequent comparison of one's appearance with that of others. De Vries and Kuhne (2015) findings suggest that social media sites such as Facebook provide opportunities to compare oneself with the appearance of one's friends, acquaintances, and celebrities. They found a potential correlation between time spent on Facebook and judging one's own appearance to be worse than that of close friends or peers, which, in turn, was associated with greater body image concerns (De Vries & Kuhne, 2015)

Results from Smith-Jackson and Reel (2012) suggests that young women will diet as a result of comparison between themselves and others, regardless of the presence of social media. However, the introduction of social media sites such as Facebook and as access to Facebook has the potential to be unlimited and therefore comparison can continue even when not in the physical presence of peers (De Vries, 2015).

The rise of the Internet and WWW has massively changed how we communicate, form new social connections, obtain education and engage in with others (Walter, 2013).

*Public Health Campaigns (PHC)*

PHCs are health related messages often funded by the government usually to help with a particular objective, and can have an impact on our social environment. Because of the governmental backing, the messages within PHCs are often the messages that are reinforced in schools and public medical centres or hospitals and therefore consumption of these messages may even be unintentional or unavoidable (Gray, 2015; Keogh & Osborne, 2014). They often become commonly accepted thought patterns and can be topics of conversation between individuals and their friends, family and health professionals making them a significant part of the social environment.

Payne, Capra and Hickman (2002) assessed the ability of potential public health campaigns to influence positive changes in food behaviour in school aged adolescents. One thousand six hundred (1,600) Australian girls aged 9-15 participated in a food education programme which lasted one week. After completion of the programme, of those surveyed, 77% felt they had learned something from the health promotion material 94% said they had changed their eating habits to include more core food groups during the camp, and more than 40% stating they had increased vegetable consumption compared with their usual intake (Payne et al., 2002). The success of such trials could result in implementation of a similar programme in schools, thus enhancing the school's ability to be a contributor in the development of food behaviours.

Dyck and Dossa (2007) found that children often share the nutritional information they acquire at school with their mothers, which often results in changes to the family's diet. One participant in a study by Dyck and Dossa (2007) said that when her children tell her what they learnt in school about what they should eat, the mother went and bought those foods. The women in the study also spoke of how they avoided food that their child had learnt were 'risky' through school (Dyck & Dossaa, 2007). It is, therefore important that public health messages taught in schools are both accurate and easily understood by children so they are able to pass on the correct information.

The importance of clarity and accuracy also apply to PHCs aimed at adults. A Canadian study evaluated how Canadian consumers reacted to conflicting

health messages about fish consumption in mainstream media. They found that too many conflicting messages, or messages that were too complex, caused a reduction in the likelihood of consumers adhering to diet advice. This particular study investigated the conflicting messages in mainstream media regarding fish consumption.

While Canadians were aware of the benefits of fish consumption, they became confused when Health Canada advised against frequent consumption of certain species of fish, which contain high mercury levels. The information on the mercury content of fish proved too complicated for lay consumers who, when tested, could not remember which fish species were high in mercury and which were not. Their confusion led to reductions in total fish consumption. In short, consumers had reacted more strongly to information about health risks than health benefits. Roosen, Marette, Blachemanch and Verger (2006), therefore, deemed warning about mercury in the general media to be ineffective due to its complexity.

Nickoloff, Saghaian and Reed (2008) suggest that consumers tend to change their purchasing habits more when faced with a novel finding that has not been widely discussed in the media. Therefore, concentrated periods of media coverage concerning a novel risk appear to have a greater effect on purchasing behaviour than do frequent coverage of common risk factors spread out over time. Another reason for the varying levels of concern about certain risks is that some risks are perceived to be more relevant, or dangerous, to individuals over others. Bocker and Hanf (2000) found that the most important elements of individual hazard judgments are the severity of and familiarity with the hazard. Because there was no coverage of any mercury-related fatalities during the duration of the study, the risk of mercury contamination may have been insufficient to evoke a change in consumer behaviour.

Nutrition information panels (NIP) are also a government led PHC aimed at increasing the knowledge of consumers at the point of purchase by displaying important nutrition information on foods (Kolodinsky, Green, Michahelles &

Harvey, 2008). A large number of literature looks at the effect of NIP on short-term food behaviours. Kolodinsky et al., (2008) reported that two thirds of college students reported changes in their purchases as a result of being exposed to nutrition information labels in a restaurant setting (Kolodinsky, et al., 2008). Many students switched to what they understood to be healthier purchases after exposure to the calorie count of foods they commonly consumed.

Conversely, a lack of negative nutrition information on NIP's at the point of purchase could cause consumers in to choose immediate gratification over long-term goals (Kolodinsky, 2008). This could suggest that there are no long-term effects of nutrition labels on food purchasing behaviours as the participants did not draw on, or ignored, previous exposure to labels, assuming there had been some. Instead they opted to give in to immediate gratification. Kolodinsky's (2008) use of focus groups gave an insight to how the NIPs affected food choice and food attitudes before and after exposure but provides no long-term follow up and therefore gives little insight to the effects of such labelling on participants long-term food behaviours.

While there is much literature on the effect NIP's have on purchasing behaviour, few studies research their effect on food knowledge. Elbon, Johnson, Fischer and Searcy (2014) found that, while displaying negative facts on NIP's help participants avoid foods or components of foods that have a negative health effects such as fats and sugars. NIP's fail when it comes to enticing consumers to purchase foods high in positive nutrients. In fact, displaying nutrients perceived positively, such as protein or calcium may be ignored altogether (Elbon et al., 2000; Rizk & Treat, 2014; Hassan, Shiu & Michaelidou, 2010). This could suggest a lack of knowledge or education of these beneficial nutrients within the general public as displaying these positive nutrients on NIP's does not entice consumption and so does not have any effect on consumer purchasing behaviours.

PHC's are a part of the social environment, as food related messages are often made on a government level and therefore affect all within the target

population, regardless of interest in food. However the plethora of public health messages about nutrition and food consumption that appear in a variety of media sources can complicate the relationship between food and health (Nickoloff et al., 2008). The theme from this literature is that messages within PHC's need to be carefully considered as these are often the messages that can cause a change in food behaviours.

### Reliability of the media

The question emerging from the literature was whether information in the media was reliable. Reliable information is information that can be backed by science and/or written by an appropriate person e.g. a Dietician. Ellison, White and McElhone (2011) suggest that unreliable information could be a rising phenomenon due to the rapidly increasing availability of food information in the media.

The International Food Information Council Foundation conducted a national content analysis of food and nutrition reporting in the media throughout 1995. They found that health claims or warnings of specific foods in media sources were rarely backed by science or qualified experts. In addition, most nutrition articles in the media failed to provide the contextual information necessary to judge the relevance of the results (Borra, Earl, & Hogan, 1998). Some of the contextual information left out in articles in mainstream media included dosage information or the populations to which this information was most relevant. Only 31% of statements about the harm and benefits of dietary choices mentioned the amount needed to be beneficial or harmful; only 17% mentioned any population as being more or less at risk; only 7% referred to the frequency of consumption need to affect benefits or harm, and only 1% dealt with any cumulative effects (Borra et al., 1998).

Not having sufficient knowledge to judge the relevance of nutrition articles, Gustafsson and Sidenvall (2002), reported that women often felt frustrated by different messages regarding food and health, and did not know whom to believe. In addition they found it difficult to understand conflicting information.

Some women gave up and continued cooking in their usual way (Gustafsson & Sidenvall, 2002). It is therefore, not surprising that Jessri, Jessri, Rashid, Khani and Zinn (2010) found that much of nutrition knowledge of participants came from sources that are not suitably qualified to give this information.

Other than individually focused policies such as nutrition labelling, or policy to protect children in schools from advertisement of unhealthy food and by ensuring all school foods meet “healthy” criteria there is little to safe guard from the plethora of false information in the media from becoming ingrained in the population.

## **Gender norms**

A common theme among the literature on the social environment was how gender norms underlie many social processes associated with food including the type of media aimed at different genders and the roles associated with the preparation of a meal.

Gender roles are a set of societal norms that dictate the types of behaviours that are considered appropriate or desirable for a person based on their gender. The prevailing ideology has been that cooking and food preparation were not only natural occupations for women, but deeply fulfilling (Kerstin Gustafsson & Sidenvall, 2002). However, in the past 40 years, the societal role of women has become less domesticated and it is acceptable for women to reject many traditional societal roles.

A rare New Zealand study uncovered gender norms among Pakeha women (Herda, 1991). The women in this study identified food-related behaviour such as purchasing, preparing and cooking a meal as central to being a woman and mother. Food was seen as a way to care for others and extended beyond the immediate family, with women frequently using food to maintain social connections and their place within society. Hocking et al., (2002) found women in this study identified with being able to offer hospitality to guests as

a strong cultural value that motivated them to always have something in the cake tins (Hocking et al., 2002). For the Pakeha women in Herda (1991) preparing food was an expression of competence and a matter of economic survival.

Gender norms underlie many processes associated with food preparation and food consumption. Many of these have been previously discussed in other sections, specifically sections covering social relationships and the media.

## **Influential social settings**

Social settings other than the home such as school and work, makes up a large portion of the literature and can play a significant role in the development of food behaviours at different times throughout ones life.

### Home Environment

The literature finds that the development of food behaviour starts very early in children's lives, thus the home environment plays an important role in that development. The home is where children receive repeated exposure to foods. Parents or caregivers dictate the food children are exposed to and provide role models for consumption practices (Dwyer, 2016).

Van Ansem et al., (2014) and Dwyer (2016) suggested that parents could promote healthy food behaviours in their children by creating an environment that encourages such behaviours. Van Ansem et al., (2014) found that children of parents who had rules around the consumption of fruit and vegetables were more likely to consume fruit and vegetables than children of parents who had no rules about consumption. In addition, children of parents who always had fruit and vegetables available at home were more likely to consume fruit than those of parents who did not have fruit available at home (Van Ansem et al., 2014). Conversely, the presence of high-sugar beverages and high-fat snacks, family norms for eating in front of the television, and a

high amount of 'take-out' meals have been associated with an obesogenic home food environment (Kegler et al., 2014).

The home setting that is not the only area that can affect food behaviours. Accessibility to a greengrocer or a large supermarket may make the purchase of fresh fruits and vegetables easier (Thornton, Lamb & Ball 2013), while greater accessibility to outlets selling fast food may encourage the consumption of fast food at levels that are damaging to health. A similar theory applies to the work place setting (Thornton et al., 2013).

### School environment

While the literature, on the impact of the influence of schools, in regards to friends and peers has already been reviewed, there are other aspects of the school environment, which can have an impact on food behaviours. The school environment can provide students with opportunities to learn about and practice healthy eating as students may have access to foods and beverages in school cafeterias, vending machines, schools stores, classroom, school celebrations, and fundraisers (D'Adamo et al., 2016).

Rowe, Stewart and Somerset (2010) and Neely et al., (2015) both suggest that a whole school approach could be most effective in establishing and maintaining healthy eating behaviours. All individuals in the school community can support a healthy school environment by promoting healthy foods options, implementing a nutrition education program, role-modelling healthy eating behaviours, and ensuring that students have access to free drinking water. Another study found that the impact of serving fruit smoothies during school breakfast significantly increases the total fruit consumption among middle school and high school students. The amount of students eating a full serving of whole fruit increased from 4.3% to 45.1% (Bates & Price, 2015). These actions are important as healthy eating has been linked to improved learning outcomes (Lewallen, Hunt, Potts-Daterna, Zaza & Giles, 2015).

Dwyer (2016) found that it is easier to increase consumption of fruit than it is to increase consumption of vegetables. While all of these studies show that putting an emphasis on providing nutrition in schools is important for the development of healthy food behaviours, all of these studies were carried out in the USA.

### Workplace

The workplace has been recognized by the World Health Organization (WHO) as a prime environment to influence dietary behaviours given that individuals can spend up to two-thirds of their waking hours at work (WHO, 2013; Geaney et al., 2016).

Just like in the home environment, the odds of eating at least two portions of fruit and vegetables per day was positively associated with having supermarkets within 0.8 km of the workplace (Thornton, 2013). However, time constraints and limited space to prepare and consume a proper meal lead employees to either skip lunch or snack at their desks. Given that the range of snacks available at work is often not healthy, there is an overwhelming push to eating poorer quality food (Pridgeon & Whitehead, 2013).

A majority (67%) purchase lunch at least once per week and almost 40% purchase lunch three or more times per week (Blanck, 2009). It is common for the foods that are available in work places to be limited in affordable, healthy choices (Pridgeon & Whitehead, 2013). The lack of healthy options means that even those who attempt to 'be good' and bring their own lunch or make healthy food choices, may be tempted by the external cues triggered when observing and smelling co-workers consuming palatable food. This may be enough to drive some individuals to purchase similar foods. Unless a work place is located near a supermarket, it is unlikely it will promote healthy food behaviours.

In some work places the lunchroom served as place for discussion and exposure to new foods. It was common to see colleagues from other countries offering pieces of their homemade food to their colleagues. This makes the lunch room an area for opportunities not only to get information and knowledge about where to buy food, but also testing new and different dishes (Lindén & Nyberg, 2009).

## **Social determinants**

Of all the social determinants to health, the literature found income to have the most influence on food behaviours. Income can affect many different aspects of food behaviours, such as purchasing behaviour. However it can also play an underlying role in other aspects of food behaviours. These social determinants will be discussed in the following section. The literature also includes a small amount of research on the effect of education on food behaviours. Education appeared to be an emerging theme in the literature as more women joined the workforce and refocused their attention to a career outside the home since WWII.

### *Income and socioeconomic status*

Income is often identified in the literature as having a significant influence on food purchasing behaviour in women. A large amount of the literature on income finds that among low income families in particular, their budget is the major barrier to healthy eating with cost of food, saving money and value for money important considerations when purchasing food (Inglis, Ball & Crawford, 2009; Henry et al., 2003; O'Mahoney & hall, 2007).

While the effect of income on food purchasing behaviour is well researched, the effect of income on food knowledge and skill is less known. Inglis, Ball and Crawford (2009) carried out an intervention study that attempted to remove income as a barrier to purchasing food in an attempt to identify whether budget affected food knowledge, by giving women of low income (LI) 25% extra and women of high income (HI) 25% less to spend on groceries. Inglis

et al., (2009) found that although LI women spent more money than they previously did on health foods after the increase in budget, overall they still purchased significantly more junk food than HI women. As the LI women continued to spend more money than HI women on junk food, this could infer LI women may not have known the negative health qualities of 'junk' food, and therefore suggesting income may have an effect on food knowledge.

Conversely, a study conducted in 1960 found income had no effect on cost-consciousness (Trier, 1960). Results showed HI women were just as likely to be cost conscious as LI women. Cost-conscious women, in this study, read newspapers to find specials and shifted their purchases accordingly (Trier, 1960). However, it must be noted that Trier was carried out a long time ago, in a time where it was a women's role in the household to carry out all tasks relating to food preparation and cooking. Therefore the women in Trier (1960) may have had the time to prioritise cost consciousness. In addition it was typically women of higher SES that were able to afford an education and therefore it may have been these same women that were more likely to read up on specials and calculate the savings (Trier, 1960). It is important for a study assessing the effect on income to also investigate food knowledge. Many studies only focus on purchasing behaviour and fail to address knowledge, which can result in misconceptions as to why certain foods are purchased. Cheaper or lower quality food may be purchased irrespective of the nutritional knowledge of those purchasing it (Inglis et al., 2009). Inglis et al., (2009) suggests that this may be because low-income women have little to no choice regarding foods they purchase. They simply purchase what they can afford, not necessarily what they want or know to be healthy (Inglis et al., 2009).

A common goal became clear amongst most women in each of the previously discussed studies and that was that regardless of income, women attempted to purchase what they believed to be the best quality food possible within their budget (Inglis et al., 2009). Another finding was that women would ensure their families are fed before they feed themselves (Lawrence and Barker, 2009; Dressler & Smith, 2013). Income can also directly and indirectly affect other

aspects of life. A large amount of literature finds that income can be associated with education levels, access to information and the area in which one resides (Turrell et al., 2009; Walters & Long, 2012; De Vriendt, Matthys, Verbeke, Pynaert & De Henauw, 2009).

Residents in low socioeconomic areas or those living in poverty were significantly less likely than their counterparts in advantaged areas, to purchase foods high in fiber and low in fat, salt and sugar. It may be that more deprived living spaces are in closer proximity to fast food places and dairy's where sugar sweetened beverages were sold, which also play a role in the development of food behaviours (Park, Choi, Wang, Colantuoni & Gitlesohn, 2013). There are clear socioeconomic disparities in extreme obesity. Adults living in the most socioeconomically deprived areas are four times as likely to be extremely obese as those living in the least deprived areas (Ministry of Health, 2015a and c). As previously stated this may not be because of a lack of knowledge but a lack of funds.

It appeared that childhood obesity rates are much higher in children living in the most socioeconomically deprived areas. Children living in the most deprived areas are 2.5 times as likely to be obese compared to children living in the least deprived areas. Obese children are at a higher risk of developing diabetes and cardiovascular disease (Ministry of Health, 2015a). Van Ansem et al., (2014) agrees that homes with low socioeconomic status (SES) were less supportive of healthy food behaviours. Van Ansem et al., (2014), found that children living in a household of low SES had the lowest fruit consumption, while children with a high SES had the highest fruit consumption. Adults living in the most socioeconomically deprived areas are also less likely to meet the Ministry guidelines, compared to those living in the least deprived areas (Turrell et al., 2009; Lawrence & Barker, 2009).

### *Education*

Just like households with a higher income, children of mothers with a high educational level consumed more pieces of fruit per day, more grammes of

vegetables per day and were more likely to have breakfast on a daily basis than children of mothers with a low educational level (Van Ansem et al., 2014). In addition, MacFarlane, Crawford, Ball, Savige and Worsley (2007) found that children who grew up in a home food environment with mothers with a low educational level had less support for a healthy diet than the home food environment of children of mothers with a high educational level. Adolescents of mothers with a low educational level were more likely to report that unhealthy foods were usually available for them to consume at home, while adolescents of mothers with a high educational level were more likely to report that fruit was always or usually available at home and that vegetables were always served at dinnertime (MacFarlane et al., 2007).

Frequent consumption of fruit and vegetables, restrictive rules, verbal praise, negotiation and restraint from negative modeling were all more common among mothers with a high educational level (Van Ansem et al., 2014). Trier (1960) also maintains that better educated women are more discriminating and intelligent in their use of health related information and are also more likely to search for relevant information and therefore make informed decisions when it comes to their diet.

The key difference between women of lower and higher educational attainment manifested itself in the way in which they spoke about cooking and eating (Jarman, 2012). Women of lower educational level spoke almost entirely about the importance of feeding others within their family such as their children and their husbands', whereas women of higher educational levels talked more frequently about their own eating and cooking habits than they did about feeding their families. Women of lower educational level, although none of higher, suggested it was the 'role of a mother' to provide food for everyone else first (Jarman et al., 2012).

## **Summary**

The social environment refers to the social setting in which people live, work and socialise. It includes family structure, culture, employment and level of

education. The social environment influences health literacy, social norms, ability to make healthy decisions and the value placed on health (Ministry of Health, 2015a). The literature reveals that all aspects of the social environment influence women's food behaviours, therefore there can be no single approach to ensuring women develops positive food behaviours. However, some aspects of the social environment are more influential than others and further research on these particular aspects and how they affect New Zealand women is needed. These particular aspects could then be targeted to help ensure healthy food behaviours are developed.

However, we need to address gaps in the literature, namely the gaps in the knowledge on New Zealand women. The literature within this review is mostly from studies based in the United States of America (USA), United Kingdom (UK), and a small amount from Australia and a little from New Zealand as this is what the search strategy returned. More research investigating New Zealand women, who may have been exposed to different influences and experienced different social environments to those of commonly researched populations, may help to understand more about how women make the decisions about food that they do.

Additionally, there are gaps in the knowledge assessing how changes to factors within the social environment, such as changes in social relationships and progresses in media and technology, can affect food behaviours over a lifetime. Most of the current literature focuses on short snapshots in time. Further information an exploration of media usage between WWII and the present day could help to identify the extent to which the media influences food behaviours and could assist in discovering the type of information women are frequently drawn to throughout their lifetime. Addressing these limitations and providing further investigation into the factors which influence the food behaviours of women could help in designing effective health promotion campaigns.

## **Chapter 3. Methodology and Research Methods**

This chapter outlines the methodology and methods used to inform and investigate how life events and the social environment influence food behaviours and knowledge of New Zealand women. It will explain the research methodology, including the philosophical worldview and the research methods used. It will also cover the procedures for data collection, analysis and interpretation and conclude with the ethical considerations and limitations for this research.

### **Epistemology**

This research uses an interpretivist epistemology. One principle of interpretative epistemology is that there is no single truth or reality (Hudson and Ozanne, 1988). Interpretativists believe that our knowledge, or experience, of a phenomenon is a result of viewing the world in a particular place and time and, therefore, there are many possible worldviews and versions of reality that exist simultaneously (Hudson and Ozanne, 1988). The findings from the present research therefore only represent the 'truths' of those within the sample and they cannot be generalised without careful consideration of the wider implications.

In order to understand and obtain information on the context in which the individuals in a particular sample experience a phenomenon, researchers must study the subjects through extensive engagement (Hudson and Ozanne, 1988). It is from this extensive engagement with participants that the individual 'truths' or meanings emerge. The interpretivist approach contrasts with a positivist approach, where only "objective factual" knowledge, gained through direct observation or measurement, is considered relevant (Neuman, Persson, Mattsson & Fjellstrom, 2000; Hudson and Ozanne, 1988).

The interpretive nature of this study requires the researcher to be involved in the interpretation of the data and acknowledges that it is impossible for the researcher to completely set aside their own views on the subject during analysis of the data.

## **Methodology**

This research was partially informed by phenomenology. Phenomenology is concerned with investigating the thoughts and meanings participants assign to a particular phenomena or experience by means of in-depth description (Creswell, 2007; Davidsen, 2013). The use of some of the principles of phenomenology allowed the researcher to examine the actual experiences of the participants within their social context to discover how their food behaviours developed using qualitative methods such as semi-structured interviews.

The use of semi-structured interviews allows extensive and prolonged engagement with the participants and helps the researcher develop patterns of meaning within the sample (Creswell 2009). Interviews also allow the researcher to further understand how life events, such as the birth of a child, can be a window of opportunity for individuals to changes their nutritional strategies.

The questions in the semi-structured interview schedule were underpinned by phenomenology. As the methodology dictates the type of questions that can be asked, questions were broad and open-ended to ensure they did not override the participants expressed interests and encouraged them to discuss their experiences as freely as they felt necessary (Thompson, 2008). The interview questions, however, had some structure to ensure the researcher was able to uncover influences on food behaviours by questioning who, where and how food and food knowledge was brought, prepared and obtained through different life stages.

It is acknowledged that direct access to the thoughts and experiences of others is not possible, which means there will be some interpretation involved during analysis (Eatough and Smith, 2008; Smith and Eatough, 2007; Smith and Osborn, 2003). Traditional phenomenology argues that the researcher should set aside their own views on the subject during analysis in order to find what is actually presented about the experience from the view of the participants (Creswell, 2007). However, an interpretative perspective, acknowledges that it is impossible for the researcher to completely set aside their own views on the subject. Therefore the researcher needs to be aware of their prior knowledge on the phenomena of interest and, instead of setting the prior knowledge of the researcher aside; it should be part of the analytical process (Creswell, 2007; Crotty, 1998; Guba & Lincoln, 1982).

*Researcher reflexivity.* Given the context of the present research, reflecting on my identity as the researcher is important as transparency and disclosure on the part of the researcher contributes to a fuller picture of the process of research and analysis. Human nutrition was my major in my undergraduate degree and I have worked in the field of nutrition since my graduation in 2012. I spend the majority of my working day working with individuals and their diet-related issues, which increased my interest in this area. However, I became frustrated after repeatedly hearing individuals I was working with, misunderstand nutrition advice in the media, practice nutrition myths that held little truth or being unaware of the New Zealand food and beverage guidelines.

During my work I have had the chance to explore or ask my clients where they sourced their information and why they were implementing some nutrition-related information in their lives and not others. This experience led me to want to take this very basic 'research' further - into a Masters research project. My professional experience has allowed me to gain insight into my participants that allowed for in-depth understanding of the data.

I am a 24-year-old female and, although I have not experienced the same gender norm expectations and restrictions as participants in the present study

may have been exposed to, I grew up as the only female sibling in a male dominant house. Therefore I have experienced some gender norm expectations related to food preparation. These experiences allowed me to empathise with participants when discussing aspects of food related tasks, which, throughout history, have fallen on the shoulder of females (Chen et al., 2015; Trier, 1960).

Engaging in this reflexivity was an important step in the research process and allowed me to acknowledge any prior thoughts on where individuals get their nutrition knowledge from while not letting them bias my results.

## **Methods**

In order to address the aims of this research, research methods that would allow the researcher to understand the effect of the social environment on food behaviours from the perspective of the participants, were required. Qualitative research methods were considered appropriate as they enable the researcher to achieve contextual understanding of the phenomenon of interest and aim to answer questions about the 'what', 'how' or 'why' of a phenomenon (McCusker & Gunaydin, 2015; Lyon and Coyle, 2007).

### Data collection

#### *Sampling approach*

The sampling strategy used was purposive sampling, a type of non-probability sampling (Etikan, Musa & Alkassim, 2016). The participants were selected based on those that were easy to contact and those, which fit an inclusion criteria, outlined in the information sheet (Appendix 1). The aim was to interview 20 participants. This number of participants was decided upon for two reasons. The first was that research, which uses extensive engagement to obtain information from their participant's calls for a relatively small sample size. In addition, due the nature of this research there were time constraints

that would only allow the researcher to interview 20 participants (Etikan et al., 2016). Inclusion criteria were not made very specific to facilitate the recruitment of the number of women that were needed for the research.

As the sample was a self-selected sample, it may not be representative of all people and their life experiences. These particular participants may have volunteered for this study because they had an interest in food and nutrition. Therefore, results may only reflect the portion of the population who are more active or knowledgeable in their search for food related information.

In order to receive the best possible information on life events and different influences within the social environment, women who had lived through most life stages and had been interacting with the social environment for a long time, were chosen as the study population. It was determined that interviewing a younger population would not return the information necessary to assess the influence of the social environment over the life course. In addition the birth cohort born in 1940 was particularly interesting to study as they have the highest obesity prevalence of any birth cohort in New Zealand (Ministry of Health, 2015a). In order to find participants within this particular population, rest homes and retirement villages were contacted.

People were defined as living in a retirement village if they lived inside the retirement village itself and any of its surrounding accommodation within the village walls. This included the villas and apartments, however did not include those living within the hospital ward or the assisted living facility of the retirement village as these individuals were considered to a vulnerable population and may have required specific ethical approval.

Wellington Retirement Village (WRV) was chosen through purposive convenience sampling due to the researcher's prior work with this particular retirement village. Alternative retirement homes in the Wellington Region were sought for participation in this research to increase diversity. The names of five retirement villages and rest homes and their contact information were found in an Internet search. Potential retirement villages

were called, or emailed if they could not be reached via telephone. Whilst there was some interest in participation in this research, interested potential participants never came to fruition. One of the rest homes contacted only had residents who required a high level of day-to-day care. Residents of this particular rest home were unable able to give consent to be interviewed themselves; consent had to be gained from a family member, and therefore no residents were suitable for inclusion. The other rest homes and retirement villages approached for potential participants did not return calls or emails or were not interested in having their residents included in the research.

Independent living participants were also included in the study population. People were defined as living independently if they lived in their own home, or in a rented home or apartment, either by themselves, with a partner or spouse, or with others of a similar age. Those who lived with younger people, including adult children or caregivers were classified as living in 'assisted living' and were not included in the present study.

Women from both living situations were chosen to ensure that the results were not affected by differences in characteristics of women who live in a retirement village and those who live independently. Women who were living independently were chosen through convenience sampling. Three elderly women known to the researcher were contacted and snowball sampling guided the inclusion of the remaining participants. Independent living participants lived in various areas around the wider Wellington region.

### *Recruitment of participants*

WRV assisted with the recruitment of participants in retirement villages. WRV is a retirement village which hosts a wide variety of housing options from independent living in a villa, apartment or townhouse, to serviced apartments as well as rest home and hospital level care. WRV is located in Wellington. Approval to interview residents at WRV was gained through the community administrator who advised ethical consideration was not needed to gain access to their residents.

### *Advertisement of research*

*Retirement village.* Advertisements were placed in the September 2015 WRV newsletter, which is distributed monthly via letterbox drop to all 211 residents in the retirement village (Appendix 2). The advertisements contained a brief description of the research and were aimed at potential participants within the village who grew up during World War II. No specific age or birth date was defined within the advertisement. The advertisement outlined the nature and purpose of the research and asked for interested parties to contact the Village Administrator by phone or in person. The administrator then contacted the researcher and provided telephone numbers of interested parties. These participants were contacted via telephone by the researcher in the following days. A total of ten contact telephone numbers were received by the researcher, but only nine could be contacted.

*Independent living.* In October 2015 the researcher met with a group of three women previously known to the researcher, aged in their 70s and above. These women were given the research information sheet (Appendix 1) and told to contact the researcher if they were interested. All three women agreed to participate in the research. These participants were then asked to talk to women whom they thought might be interested in participating in the research as well. These participants provided names and telephone numbers of seven additional women. All seven women were contacted via telephone and all seven agreed to participate. These participants all lived in the Wellington Region in suburban areas.

### *Screening of subjects*

The researcher contacted interested participants and they were screened to ensure eligibility. At this time the researcher also evaluated potential participant's ability to hear spoken questions and to respond in a way that could be understood by the researcher.

On the day of the interview, participants were given the information sheet (Appendix 1) to read prior to commencement of the interview and told they could pull out of the interview process at any time. A digital tape recorder was used to capture the interviews and the information sheet provided the explanation for this. The information sheet also explained that participants had the right to ask for the tape recorder to be turned off at any time and this was verbally repeated to each participant prior to the interview. None of the participants expressed any concern over the tape recorder. It was also explained that the recorded interview would be transcribed and participants had the right to edit the transcript of their interview. None of the respondents requested a copy of the transcript following the interviews and signed a form confirming this decision. The information sheet also included:

- The inclusion criteria
- The purpose of the research
- A brief explanation of what they would be asked
- Where and when the interview would happen
- How long the interview might take
- The rights of participants
- Confidentiality
- Who was carrying out the research and how participants could get more information about the research
- How participants could contact the researcher

All participants who put their name forward to be contacted by the researcher were suitable for the research and agreed to the terms of inclusion outlined in the information sheet. The only exception was one participant who could not be contacted, this particular participant was called twice, a message was left and no further contact was attempted. The recruitment and screening process resulted in a sample of 19 participants who were subsequently interviewed one-on-one.

### *The participants*

Of the participants recruited nine were from a retirement village and ten were living independently. All participants were New Zealand European. This was not intentional, but no criterion was set in place to ensure diversity of participants. A lack of diversity in the ethnicity of participants may be due to the cost of residing in this particular retirement village, which favours those of European ethnicity who on average earn more than Pacific Island or Maori counterparts (Carter, Lanumata, Kruse & Gorton, 2010). Additionally, as most independent living participants were from a similar social circle, participants were of similar ethnicity and socioeconomic status. Further research would aim to have a study population representative of the New Zealand population.

There were no inclusion criteria that ensured the selection of women of varying marital status, number of children or origin of birth. However, the participants provided a diversity of household compositions and education levels. Characteristics of the participants are summarised in Table 1 which can be found in Chapter 4.

The intention was to interview 20 participants however, only 19 participants were recruited. After 15-16 interviews had been completed it became apparent that further interviews with more participants would not likely generate further variation in the themes that were emerging and it appeared as though data saturation had been reached. The final three interviews confirmed this and the number of interviews remained at 19 (Thompson, 2008). However, had the researcher accounted for women of different ethnicities and ages in our inclusion criteria, more interviewees may have been needed to reach this point.

## Method

Semi-structured interviews were chosen as the method of data collection because it enabled each participant to tell her own story.

### *Semi-structured interviews*

A semi-structured interview schedule using open-ended questions (Appendix 3) was used to gather information in the respondent's own words about her life experiences and how these influenced their food behaviours. Participants were informed of the order in which the different question sections were to be asked. These included:

- General questions
- Present day
- Childhood
- Early adulthood, before children
- Adult hood, with children (if they had any, alternatively late adulthood)
- General food based questions

Each interview began with a set of general questions about the participant. The aim of these general questions was to get a general idea of each participant's background and some basic demographic questions. The purpose of these questions was also to build rapport with the participants.

After the general questions, the interview moved on to questions relevant to each life stage. Before heading straight into the questions, the life stage to be discussed was briefly described and followed up by a question to set the scene and ensure the participants could focus on the according life stage. For example, the first question in the 'childhood' section was "What was your favourite childhood meal?" These were followed by sub-questions about each life stage.

The first life stage to be discussed was 'the present'. This life stage went first as it was predicted that it would be the easiest to recall for the participants, some of whom may struggle with memory due to their age. This was followed by questions on childhood, early adulthood and adulthood, in chronological order to facilitate flow between sections. Participants were probed where necessary through the use of some predetermined and adlib prompts. In the interview schedule in Appendix 3, questions are indicated as bulleted by numbers and prompts are bulleted by letters. Final questions sought to attain who or what the participants believed to be their greatest influence on food behaviours for each life stage. It was expected that probing from these final

questions would elicit any uncovered aspects or influences about this life stage.

Similar questions were repeated throughout each life stage section of the interview in an attempt to identify patterns between life stages and respondents and to make the analysis of responses easier and results more reliable. Some questions were slightly adjusted according to answers given by the participants in previous sections. For example, in the first section of questions, it is asked how many children the participant had. One participant did not have any children so subsequent questions relating to children were not asked for this particular participant.

Use of the words 'good' or 'healthy foods' were avoided to prevent respondents from describing only healthy food behaviours. However, as the participants knew of the nature of the research, this may have been unavoidable. The aim was to elicit all experiences and overcome any tendency to only talk positively about their food behaviours and how they came about.

### *The interviews*

The semi-structured interviews were undertaken in the participants' homes to ensure comfort and minimal effort on the behalf of the participants. Interviews were carried out without the use of a laptop or computer as it was thought that this may be a barrier to engaging with the elderly participants who may not be comfortable with technology. A husband or partner was often present but did not contribute to the interview.

The interviews were designed to be short enough to avoid discomfort or fatigue for the participant. The semi-structured interviews took on average 50 minutes and ranged from 30-75 minutes. Participants were encouraged to talk as much as they wanted and prompts were used where necessary to facilitate discussion of all topics. The variation in length was due to a difference in the

amount each participant had to offer on each of the questions. Some participants talked at length while others required some prompting.

### Data Analysis

Thematic analysis was used to analyse the interviews. Thematic analysis is a method for identifying, analysing, and reporting patterns, also known as themes, within data. It organises and describes the data found from qualitative research, such as interviews, in rich detail (Braun and Clarke, 2006). Initial analysis began after each interview where notes were taken. Analysis then continued during transcription where repetitive and interesting themes began to emerge. Once the interviews had been taped and transcribed verbatim, preparation for further analysis began by repeatedly reading the transcripts. After rereading the transcripts, identification of the meanings within the text began as categories of text were identified and the text coded. After the initial coding, secondary coding took place to establish links between initial codes and grouping them together to create themes (Braun and Clarke, 2006). Supervisors also undertook coding, which was compared to the codes of those established by the researcher to increase the rigor of the analysis. The major themes that emerged are reported in the results section (Chapter 4) of this study and are displayed in Table 2 below. Table 2 also contains the subthemes that emerged within each theme. Any one segment of text could be coded to more than one category. Refinement of the categories continued until useful themes emerged (Thompson, 2008).

**Table 1. A summary of themes and different levels of subthemes**

<b>Theme</b>	<b>Subthemes</b>
Social relationships	Mothers <i>-Mothers as teachers</i> Fathers Siblings Friends and Peers Husband <i>-Wifely duties</i> <i>-“Food Police”</i> Children come first <i>-“Something everyone would eat”</i>
The changing social environment	Rationing and war <i>-“We can’t waste”</i> <i>-“Nobody talked about food”</i> Advancement of media and food trends <i>-Magazines</i> <i>-Television (TV)</i> <i>-Internet</i> “It’s in your face”
Gender roles	“Just like mum” “It was expected”
Social osmosis	“You just know”

Table 1 outlines the major themes and subthemes arising from the semi-structured interviews.

For this study, manual coding, as opposed to using an electronic coding system was used. For the number of interviews carried out, manual coding

was manageable. It is also important to note that the findings from the current research are only representative of participants in the current study. The worldviews expressed are a result of these particular participants viewing the world from a certain perspective and these may differ from other populations or participants not included.

### Validity

Issues of credibility, transferability and dependability, otherwise known as factors of trustworthiness, were addressed in the following ways (Lincoln and Guba 1985). Credibility was addressed by ensuring the researcher had prolonged engagement with each participant to ensure their understating of the important characteristics of the context and experiences that the participants were describing. In addition, after each interview, the researcher made reflection notes to increase their awareness of their personal views about the experience being described (Lincoln & Guba, 1981). To aid transferability, although not a goal of this interpretive study, the researcher provided 'thick' description of the context of the participants to help others to understand the participants' worldviews and facilitate judgments about whether the findings can be transferred to another population group. Dependability was addressed by cross checking codes and themes with the research supervisors (Guba, 1982).

### Ethical considerations

There were a number of ethical considerations that were important in the implementation of this study. These included issues of confidentiality, the vulnerability of elderly populations, safety precautions for interviews conducted in a private setting, and bicultural concerns.

All potential participants agreed to be participants in this research on a voluntary basis after each was fully informed of the requirements of the research. Participants were informed of the requirements of the research through an information sheet. Prior to beginning the interviews special care

was taken by the researcher to ensure all potential participants understood the information sheet. Though age alone does not confer vulnerability, there are aspects of aging that open individuals to risks related to research. Physical changes in hearing and eyesight may mean listening to or reading the description of research and its risks and its associated consent forms may not be effective forms of communication.

To ensure this was not an issue for participants the researcher screened participants for their ability to understand spoken language through the recruitment process. Additionally the researcher read the information sheet aloud, and gave the participants a copy of the information sheet to read before the commencement of the interview. The use of larger, clear type fonts was used to ensure information could be easily read. In addition, since complexity is inversely related to comprehension in the elderly, the information sheet contained simple language. Once the researcher was satisfied of the participants understanding, participants were asked to sign a consent form (Appendix 4) and a form agreeing to be voice recorded (Appendix 5).

Each participant was advised that they did not have to answer any questions they felt uncomfortable answering and they were reassured that this would not affect the progress of the research.

Privacy and confidentiality of the participants were upheld by allocating pseudonyms to both the participants, and the retirement home where participants were recruited. The pseudonyms were allocated at the transcription phase and were carried through analysis and write-up. Participants were made aware both through verbal communication and in the information sheet, that only the researcher and her supervisors would have access to the original recordings and transcripts containing identifiable information. This information would subsequently be stored securely at the Massey University Wellington campus or kept in electronic files on a laptop with password protection.

Interviews were conducted by the researcher, alone, within the private setting of participants' homes or apartments in the retirement village, therefore consideration had to be given to the researcher's safety. A relative of the researcher was made aware of the interview location, time and expected time of completion, and the researcher had a cell phone with her at all times. If the researcher felt unsafe at any time she had the ability to contact this relative. However, there was never a point during the interviews that the researcher felt unsafe.

The collection of ethnicity data was not necessary to achieving the research aims of the study, therefore no ethnic group was targeted or excluded based on ethnicity. The findings of the study were not intended to represent the experiences of any specific ethnic group.

Following clarification of these ethical considerations, 'low risk' ethical approval was sought and approved by Massey University in July 2015.

### **Limitations**

The qualitative nature of the research design was useful in understanding the meanings that these participants gave to life events and for the discussion of intimate topics such as the deaths of husbands or children or the diagnosis of life threatening diseases. It enabled participants to talk freely and feel comfortable that their stories were being heard and understood.

All data in this study are long-term retrospective recall data. As the interviews were carried out with elderly women and required participants to reflect on events that occurred many decades ago, memory may play a role in the findings (Gibson, 2010). However, measures were taken during interviews to attempt to trigger memories by asking specific questions, as it has been shown that the accuracy of early childhood memories is not bad when driven by emotions (Howes 1993). People tend to repress negative events and recall happy moments so that what they remember can be somewhat 'fictional' (Singer, 1993). Overall, memory may misrepresent what really happened.

Therefore the retrospective recall data is a limitation in the design of this study.

In addition, all participants in this study lived in Wellington, a region with a slightly higher income level than the New Zealand average (Statistics New Zealand, 2014). Another factor to take into consideration was that most participants were aware of the purpose of the research; and this may have led to limited disclosure of the participant's real food behaviours, should they have perceived them as unhealthy.

## Chapter 4. Results.

The findings from this study have been organised into four themes, each reflecting influences on food behaviours; such as, social relationships, the changing social environment, gender roles and social osmosis. There is naturally some overlap between the themes, but each one affects food behaviours in a unique way thus justifying a separate theme. Quotes have also been included to support findings from each theme. This chapter also includes a section on the demographics of the 19 participants who took part in the semi-structured interviews for the present study. These details can be found in Table 1.

The first theme to be described is **social relationships**, which were influential in the development of food behaviours for most participants. The most influential relationships were mothers, husbands, friends and children. Also described is how these social relationships differed and evolved in relation to each other over time. The second theme is, the **changing social environment** which describes the changing influence of knowledge, technology and media. There was a common agreement among the participants that food, and food-related information, had become a significant issue in the last few decades. The third theme of **gender norms** shows the influence of gender on the participants' food behaviours through time. It describes how it was common for the participants to continue to carry out, and expect others to carry out, gender specific tasks. Lastly, the fourth theme was **social osmosis**, which is the influence of the entire social environment and its effect on food behaviours. This theme reports on how, while the first three themes are the major contributors to food behaviours, there are other less noticeable, influences that contribute to the above themes, which are just as important in the development of food behaviours.

*Participants.*

**Table 2: Summary of characteristics of interview participants**

<b>Demographics</b>	<b>Retirement Village</b>	<b>Independent-Living</b>
Age (years):		
70-74	1	1
75-79	3	5
80-84	3	4
85-89	2	0
90+		
Marital Status:		
Never	0	1
Married	3	4
Widowed	5	3
Divorced	1	2
Number of Children:		
0	0	1
1	0	0
2	2	2
3	4	4
4	2	3
5	0	0
6	1	0
Birth Place:		
New Zealand	7	7
United Kingdom	2	2
Other	0	1

Table 2 shows the age distribution, marriage status and birth place of the participants in the sample. Nine of the 19 participants were living in a retirement village.

Social relationships

Social relationships are relationships between two or more individuals. The data suggest close personal social relationships such as those between family members can have a great effect on diet. Interviews with participants show

social relationships are one of the first sources of influence and knowledge, and are crucial in the development of lifelong food behaviours. The participants described their mothers instilling food behaviours, while their husbands and children had the potential to change the purpose of food in the participants' lives. Participants described these social relationships evolving over time to provide them with a continuous source of knowledge and influence over their lifetime. As relationships evolved, so did the food related behaviours, a phenomenon that continued into old age.

### *Mothers*

The results showed, that for these particular participants, mothers were the most influential of all relationships on food behaviours. Almost all participants, when asked to describe their biggest influence answered simply saying "my mother" or "definitely my mother".

The influence of mothers on the participants' food behaviours evolved over time. While the participants recalled their mothers influencing their food behaviours through all life stages, the influence seemed strongest in childhood. This influence appeared to be strengthened by the close proximity in which the participants and their mothers lived during childhood. The results showed that at this time, aside from school, mothers were the only ones the participants knew to go to for food-related information. This may have been because food was not a widely discussed topic during the participants' childhood period.

"In my childhood nobody talked about good food or bad food, everybody just accepted you ate what was there" (P1).

As food was not a topic of interest at the time, the participants were not encouraged or motivated to search for further sources of information. This absence of outside influence meant participants developed a very specific set of food behaviours that very closely resembled that of their mothers.

The participants' proximity and relationship with their mother changed during their lifetime. Simultaneously, the participants also became involved in new relationships and became influenced by the outside environment. In the absence of their mother's guidance, the outside environment had the potential to cause a change in food behaviours and a subsequent change in diet. Additionally, as new technology introduced time and energy saving kitchen appliances and information on food advanced, a few participants felt that, while they knew their mothers were providing them with the best information they could, this information had become outdated. Participants who mentioned this often repeated the sentiment of P2 who, when asked if they believed their mother still influenced them in present day, replied, "not anymore, I have learnt a lot since then".

In contrast, the data showed that despite the effect of advancing technology and knowledge about food over time, the majority of participants referred back to their mother's basic teachings from childhood. During interviews participants often described initially trying to keep up with the advancing knowledge, but, as more information became available, the participants believed it also became confusing and contradictory. Participants frequently described this information as "overwhelming" or "constantly changing".

In comparison with the media, the participants appeared to trust their mothers more and held the knowledge she passed on in high regard. Many participants thus believed that if they had no issues with their health then there was no need to seek further information or adopt any new food behaviours. Instead these participants described sticking to the basic food knowledge and skills their mother's had taught them. When P1 was asked if they still believed their mother had an influence on them today, they answered with "yes, because she instilled basic things".

#### *Mothers as teachers.*

Participants identified their mothers as the first person who taught them how to prepare and cook a meal. Different food behaviours and cooking methods could be attributed to the different teaching methods of the participants

mothers during their childhood. This ultimately led to a variety of cooking abilities once the participants left home.

When discussing their childhood, most participants recalled observing their mothers preparing meals, citing this observation as a major factor in the development of their cooking skills. About half of the participants recall their mothers providing additional support and guidance beyond observation alone. Participants who described this also remember being allowed to join their mothers in the kitchen and received step-by-step instruction on how to prepare and cook a meal. These particular participants knew they were learning to cook, which meant they were conscious of the skills they were learning and the additional guidance provided them with an exact method to follow when their turn to cook came. The data showed that this method of teaching appeared to pass on very similar food habits from one generation to another and participants discussed cooking foods similar to those of their mothers. P6 described this “I still do a lot of what mother did.”

Conversely, an equal number of participants spoke about their mothers not providing any additional guidance beyond observation. Participants, who experienced this, explained that they learnt to cook through observing their mothers carrying out food related tasks over a long period of time. In contrast, the participants who received additional guidance and lessons, often did not realise that they were in fact learning to cook at the time. This was described by one participant as:

“[I] don’t think we thought about it at all, we were told things...were taught things and that was it”. (P1)

Without such close guidance and step-by-step instruction these participants declared that they often had difficulty when it became time for them to cook a meal on their own. These participants described initially sticking to more basic food practices or resorting to trial and error when they began cooking for themselves.

“My mother would never show you how to do things but she suffered from migraines and I would have to take over which was trial and error... Mum would let you watch, but never let you have a go.” (P17)

As a result of not receiving such detailed instruction on cooking, a small number of participants adopted new food behaviours from other sources. These particular participants were more able to change food behaviours to fit modern guidelines due to a lack of ingrained food behaviours. This often resulted in food behaviours that differed slightly from those of their mothers.

“In the olden days they used to cook the death out of cabbage and they didn't have any idea of how to cook it, I think it's out there, it's in the media, our parents did what they thought was the right thing, but sort of now we've been educated.” (P16)

Regardless of teaching methods all participants were highly influenced by the mother/daughter relationship which was instrumental in creating food behaviours. The food behaviours of the participants appeared to be determined by the knowledge and food behaviours of their mothers.

### *Fathers*

The results show, that while the influence of mothers on the participants' food behaviours was clear, the influence of the participants' fathers was more indirect. For the participants in this particular study, the role their fathers played in food-related tasks was most often that of a financial contributor. During the interviews, almost all of the participants recalled their fathers providing their family with the money to purchase food in their childhood. Some of the participants also noted that their fathers were the ones who went to pick up the food from the supermarket or green grocer, albeit with a list written by their mother, as their family only had access to one vehicle and their mother often did not know how to drive or had to stay at home to look after the children.

Besides the participants fathers' role as financial provider, some of the participants recalled their fathers also playing the role of disciplinarian. These particular participants remembered their father as the person who forced them to eat a food they did not like at the dinner table.

“My father said ‘you’re going to eat that egg or else’ and I had to sit there and you jolly well ate it in the end whether you wanted it or not.”  
(P1)

Participants, who mentioned their fathers enforcing such strict eating rules, often admitted that they enforced the same rules on their own children. When these particular participants were asked if they had the same strict rules for their own children, P7 replied with “yes I did, because in the end [the rules] meant I ate what was on my plate...and now I’ll eat anything, I’m not fussy like so many [children] are today.”

Some of the participants also recalled their fathers being in charge of the family garden. These particular participants often mentioned that it was their father who taught them how to grow food, a skill many of the participants still used to present day.

“When we lived in Picton...we lived down the side of a hill and my dad gardened the whole of that hill and supplied three quarters of Picton with their vegetables...when we moved from Picton to Wellington the local green grocer told my aunt that he was never so happy because he knew he would make more money now that [my father] had gone.”  
(P8)

The participants, who recalled this type of influence on their food behaviours from their fathers, did not mention whether they learnt by observing their father carrying out the gardening, or if he provided one-on-one guidance. This influence appeared to be limited to participants who lived in rural or suburban areas that had grounds appropriate for gardening. One particular participant recalled her father starting a garden at their home, but after they moved closer

to the city, their backyard was made of clay and not suitable for growing vegetables and therefore he could no longer garden and she missed out on learning those particular skills.

“[Dad] tried to start a vegetable garden...they had scraped the top off the hill so there was no top soil left. It was rotten rock and the gales blew from the south and the north and the first thing we did was try to get shelter and start a vegetable garden but it was hard work. We brought in piles of seaweed and compost...we had moderate success.”  
(P7)

Between the roles the participants' father and mother typically carried out, the participants were exposed to the traditional gender roles of that era. These particular roles were almost always the roles the participants in the present study carried out themselves with their own families.

### *Siblings*

Very few participants mentioned their siblings influencing their food behaviours. However, when reflecting on their childhood there were a few participants who recalled an elder sister providing them with some guidance on how to carry out food related tasks, most often through role modelling the expected behaviours. In contrast a similar number of participants recalled that the presence of an elder sister meant they actually missed out on being taught some food related tasks. This was most often because the participant's mother had already taught their elder sister how to carry out certain tasks and thus their elder sister was expected to carry out those tasks, while the younger siblings took on other tasks around the household. However, the participants who were the eldest sister out of their siblings recall the burden of being expected to take on the responsibility of most of the kitchen related chores and therefore became very experienced in the kitchen.

“Mum looked after the two boys and my dad [who was sick] and I was sort of left to keep the house clean and to put food on the table...because I was a girl and I was the eldest.” (P6)

The one participant who lost her mother as a young child recalled her elder sister taking on a mother's traditional roles.

“I was 13 when my mother died and my older sister kept the house running.” (P11)

A few participants mentioned sharing recipes with their sisters in adulthood, but this was not frequently mentioned. When asked where they would go if they wanted more food related information P2 replied with “Probably my eldest sister.” None of the participants mentioned their brothers as having any influence on their food behaviours. However, some participants mentioned that the absence of a brother meant they were called on to carry out some of the traditionally male dominated tasks such as helping outside. This could result in these particular participants not spending that much time learning food related tasks.

“My father taught me to make rock walls, wall paper...learnt how to pour concrete foundations and to build...it didn't matter that I was a girl, if I wanted to do it, I was shown how.” (P7)

### *Friend and peers*

A few participants recalled their friends influencing their food behaviours at various times in their life. This influence was most dominant during childhood and in old age. During interviews, a few of the participants recalled comparing their school lunches to those of other children at school and noted it being the first time they were exposed to different food norms.

“When I spoke to other kids at school I would find their parents didn't boil the vegetables for 20 minutes, they only boiled them for 3 and I started thinking then that maybe [mother] was over cooking them.” (P5)

The comparison of food between the participants and their peers gave some participants a feeling of dissatisfaction or disappointment.

The influence of friends on the participant food behaviours became stronger as they grew older. At this time the participants became young adults and moved away from the family home. During interviews, some participants recalled food becoming a more social occasion, and meals were often had with friends. These meals with friends often resulted in the participants swapping recipes with their friends and expanded the participant's recipe repertoire.

“You talked to your friends and say ‘oh have you tried this’...I can remember going to one friends place [and thinking] ‘wow what a lovely thing to do, I’m going to do that’ and when you talk to other friends within your age group you think ‘oh I really like that I think I’ll make that’ so you are influenced by your friends.” (P2)

Young adulthood was the first time some of the participants recalled food becoming more than just eating for survival.

“And as you know, when you’re your sort of age you go out to dinner with people.” (P2)

Many of the participants pointed out that although food was beginning to be discussed in their young adulthood, this discussion was limited to recipes, swapping tips for the kitchen or experiences of new ingredients. There was no mention of the nutritional value or health of food before the participants had children.

“Friends, swap recipes with friends ‘oh that’s a good one’ and ‘oh that’s economical’ and [I think] I would like that, so you do [write the recipe down].” (P2)

For the participants in the present study, young adulthood was a time for socialising with friends. However, the influence of friends appeared to weaken after the arrival of a child. During interviews most of the participants in the

present study did not mention the influence of friends, particularly when their children were young. It appeared as though the influence of friends was enabled by the amount of spare time the participants had to socialise. The arrival of children drastically reduced the amount of time women had for their friends.

When the participants were asked about influences on food behaviours in present day (in the participants' elder years) the participants began to mention the influence of friends emerging again. The influence of friends was even greater among participants who had lost their husbands. Participants, who were influenced by their friends in present day, were also often the same participants who had lost their husbands. It appeared that the participants, who were widowed felt lonely and craved social interaction and therefore began to connect with friends more often than they had previously. A sentiment repeated by most of the participants in the present study who were widowed, was similar to P8, who when asked what the most important role of food in their life at present was answered, "it's a socialising thing." For some participants this meant trying new foods, sharing recipes and in some cases beginning to cook foods they "weren't allowed to when my husband was alive" and he did not like a specific type of food, a sentiment repeated by a few participants.

### *Husband*

When participants were asked whether they had a partner or husband, all participants, bar one, stated that they have or had a husband. Some participants had been married multiple times, and a few were now widowed. Regardless of their current marriage status the data found that the participants were highly influenced by their husbands both in the past and in the present day. Two significant events appeared to have had a dramatic impact on the diet of the participants. The first one was when the participants first moved in with their husbands. The second was when or if their husbands suffered a serious medical diagnosis.

### *Wifely duties.*

For many participants, when they moved in with their husbands, it was usually the first time they had lived without their parents. The interviews revealed that most participants were accustomed to the food practices and choices of their mothers up until this point. However, husbands had such an immense influence on the participants that they had the ability to motivate the participants to adapt to their husband's food preferences.

Participants whose diet was influenced by this relationship said that their husbands requested they cook certain meals early on in their marriage. The meals requested often contained ingredients they had never cooked or food they had not had while growing up. Despite the participants unfamiliarity with the foods their husbands requested they adjusted and adapted to their husband's preference, often at the expense of their own preferences.

“I tend to cook the sort of meals that [my husband] is used to and introduce, occasionally, what wouldn't be his favourite, but what I like.”  
(P11)

During interviews the participants explained that they often did this because they felt a need to fulfil their role as a wife. The participants often described how their husband had worked all day to provide for their family and they needed to contribute as well, and this was their way of doing it.

“John was from a family where the husband went off to work and the wife stayed home and tended the kitchen.” (P16)

However, not all participants fully adapted to their husbands preferences. These particular participants believed that as they did all the cooking, they could decide what was to be cooked. This appeared to cause some conflict between the couple in the early stages of marriage.

“You're trying to work out how his mother cooked and how your mother cooked and, of course, your mother doesn't do it the same as my

mother did so who's right and who's wrong and there can be some conflict.” (P16)

This often resulted in food behaviours that were a combination of both an individual's food preferences and their husband's. However, only a small number of participants considered their own food preferences being of concern when preparing food for the family. The majority of participants saw cooking their husband' food he would enjoy as their role in the household and were motivated to put their husbands' needs and preferences before their own. This concern for their husband's preference over their own led to a change in diet that could last decades and, in some cases, a lifetime.

*“Food police”.*

Several participants reported a husband's health scare initiating a long term change in diet. Participants who made this change in diet recalled doing so based on the information they sought after their husband was first diagnosed with a specific health condition. Participants sought this information in magazines, from health professionals and, in more recent times, the Internet.

“[My husband's] heart attack influenced me...we tried to cut back from butters and cholesterol things so it wouldn't put more pressure on him...it made me starkly aware that [they] could cause a heart attack or something not so nice.” (P18)

When P18 was asked where they got the information on reducing cholesterol they answered “well I suppose these women write in magazines...I suppose you can go online...I'm new at that.”

Use of the internet, appeared to be limited to those whose husbands experienced a health scare. Use of the internet was further driven by the participants' desperate situation and want to obtain the best possible information in order to keep their husband healthy. This was described by P14 who, when asked if they would change their diet if they saw an article online

that claimed to help their husband's health condition replied "yes I would, I would change to do what the article said"

On the other hand participants whose husbands were not experiencing similar threats to their health, were very sceptical of information on the Internet. These particular participants appeared to only trust information from doctors. Even when prompted to discuss other health professionals and sources of information, these participants said they would only take advice about diet from their doctor. This too caused a change in diet, but in contrast to participants who sought their information online, these particular participants were not likely to change their diet to reflect the latest food based 'cure'.

Despite it being their husband's health condition, the search for information on how diet could affect the health condition appeared to be carried out solely by the participants. Some participants even felt as though they had become the "food police" or that it was their job to make sure their husbands ate well.

"I did a bit of reading after David's health scare and put him onto things like Omega 3 and Vitamin C because at the time there was a book out about how I can help him...he thinks I'm the food police, but I'm only trying to do it for him. His health scare had a very big affect, especially in the early days." (P14)

While the participants did not mind searching for information on adapting their diet, for many, it also caused a great deal of stress. The interviews revealed that some participants saw this added responsibility as a stressful task, the success of which relied on their skills and knowledge, in which they had little confidence. Regardless of the stress these participants cared deeply for their husbands and made changes to the couple's diet, despite its effect on their workload. This experience was described by a few participants.

"If I could just focus on myself I think my figure would be beautiful. But you see, I get stressed and need energy to get the meal and you think oh well just chuck a bit of food in your mouth to get the strength...I think it's really

tough caring for others with food and keeping them healthy, I think it's another job and I'd give it away tomorrow, make my life much easier.”  
(P13)

It appears as though these participants had a desire to put others needs before their own and the participants were prepared to make drastic changes to their diet in the pursuit of the needs and health of their husbands.

### *Children come first.*

Children had an immense influence on their mother's food preparation and purchasing to the extent that they caused most participants to reconsider their priorities with many explaining that “food became a priority with the kids.” During interviews, the participants described changing their diets to ensure their children were well fed and healthy. The data found that even before birth, a child could assert its influence on the participants. Pre-pregnancy most participants had never considered eating to maintain good health and recalled their eating behaviours revolving around socialising, a tight budget and their husband's food preferences. Other participants recalled simply eating because they had to, with little thought being given to the health content of food. However during pregnancy it appeared that food, specifically healthy food, which was once a minor priority was becoming a major consideration with many echoing P10: “I ate healthiest during pregnancy and when the kids were little.” It was at this time that the needs of the participants' children caused a priority shift away from the participants' husbands. These participants began to cook food for the sole purpose of keeping their children healthy.

“[The main purpose of food is] to grow and have food that was healthy and kept them from getting sick.” (P16)

Pregnancy and the subsequent birth of a child motivated many participants to seek out information relating to food and health. It appeared that they began to read handouts given from doctors and Plunket or observe family members who already had children. However the participants did admit that there was a

lot of trial and error. They indicated that food-related information was still not widely discussed and they were simply doing what they believed was best at the time.

“The aim was to keep [the children] healthy, to keep them fed and full, growing children, well nourished.” (P19)

By putting an emphasis on improving the health of their children through a change in diet, they were also improving their own health. The presence of children encouraged new healthy food behaviours to be adopted.

“We adjusted our diet to give them good food so we ate well as well”  
(P6)

*“Something everyone would eat”.*

As the children of the participants grew older the parental priority became filling their children up and with minimum waste. While the participants still wanted to give their children healthy food, they also wanted to serve food their children would actually eat as money was still an important consideration - “money was the prime thing but healthy foods were important”. During interviews the participants stated that this became harder once their children developed tastes and opinions. Almost all participants mentioned having at least one child who was fussy about which foods they would and would not eat. However the extent to which this affected their diet was varied:

“I certainly made things I knew they liked, there is no point serving up something I know they won’t eat.” (P9)

About one third of the participants adjusted their diet to satisfy a child who would not tolerate many foods. Participants described removing or adding specific foods from their diet to ensure the child, or children, consumed meals. This caused another change to the participant’s diet, which in most cases involved switching to more basic foods and cooking practices.

“I had one child who rejected everything...he wouldn't eat meat, it was banana, apples and sandwiches and at night, chips and sausages.”

(P13)

In contrast, the remaining participants did not make changes to their diets according to the demands of their children. This was most commonly due to a tight budget or the participant's specific knowledge on health and nutrition overriding their child's requests. During interviews these participants said their children's likes and dislikes had a comparatively small effect on their diet.

“You eat what was on the table or go without, I couldn't afford to pander to tastes so if they didn't like it, they didn't have it.” (P12)

These participants were often the same participants who would not change their diets to suit their husband's preferences. It was common for these participants to mention that they had just been forced to eat what they were given growing up and therefore this would be the case for their children as well.

“I remember sitting there until everything was gone...I was there well after everyone else had got down [from the table]...that's all I knew.”

(P6)

As the participants' children became teenagers, their influence on their mothers weakened. By the time their children were teenagers, mothers knew of their child's dislikes, and attempted to avoid them, while the teenager had learnt to eat what was served. However, a few participants had teenage daughters whose body image issues continued to have an influence on their food behaviours. Those particular participants who were mothers of these teenaged daughters found themselves adapting their own diets to support their daughters through periods in which weight loss was a focus.

“When the girls were teenagers, they were always conscious of their figure and they would ask ‘how much butter you got in this mum?’”  
(P11)

In order for participants to find out how to best help their daughters maintain a healthy weight, they began to search for knowledge about the fat and sugar content of many foods. The participants were still using much of this knowledge in the present day.

“I’m partly conscious of [the nutrition industry] because of my two daughters losing weight...one's vegetarian and she’s been seeing a nutritionist and even though she’s lost a lot of weight she still thinks she fat...so I’m a bit over conscious and there are lots of good articles in the paper and I sort of read things.” (P10)

When the participants' children became adults, their influence weakened further. In the case of most participants, once their adult children had left home they reverted back to old food behaviours

“As the children left you bought less food and could perhaps afford something a little better.” (P9)

In some cases the participants returned to work, which meant the participant and their husband now had a double income and therefore more money to spend on food. Many participants described returning to cooking for their husband’s preferences, a testament to women always seeming to put other’s preferences before their own.

In contrast, a few participants mentioned their adult daughters attempting to keep them up to date with the latest food knowledge. This information was most commonly shared between mothers and daughters who shared a common health issue. However, while this information interested the participants it rarely affected the participants' diet. The participants felt that changing their diet in their old age was too much hassle. One participant

described how she struggled to keep up with and accommodate her two daughters who followed different diets

“I think of my children coming from overseas, one is Paleo and one is vegetarian...I have to buy a little do-dacky this and little do-dacky that...I have aspirations to continue making these meals, but then the little things [spices, sauces etc] expire and I have to throw them out.”  
(P13)

The findings show that children have an immense influence on the food behaviours of their mothers. The influence of children on the participants is preceded by a strong influence from their husbands. This suggests women are heavily influenced by close social relationships, often putting others needs before their own. The findings showed that while children caused a dramatic change in diet for participants which lasted until they left the participants' homes, their influence on diet change was relatively short lived. As children got older and left home their influence weakened and many of the participants went back to eating as they had pre-pregnancy.

### The changing social environment

Over the course of the participants' lifetime new knowledge around food emerged and technologies advanced. As technologies advanced the participants experienced the growth of media which increased exposure to different food trends and information which subsequently expanded the participants' knowledge of food. In addition, the influence of World War II, rationing and tight budgets also affected their priorities and food related behaviours.

### *Rationing and War*

“*We can't waste*” was a major theme emerging from the interviews as was the effect of World War II. All but few participants were alive during at least part of the war and ranged in age from babies to teenagers. Those old

enough to remember the war recalled having their food rationed. Even the participants, who could not remember the war itself, recalled the effect rationing and limited budgets had on their food purchasing and preparation while they were growing up. Waste reduction, using seasonal vegetables, wartime recipes and eating on a tight budget were therefore common food practices described by most participants during their childhood. The data revealed that even though the war only lasted for a short period of the participants' lives, the adaptations made by the participants' parents during an influential time in their lives, became ingrained behaviours. These behaviours were evident in present day food purchasing and preparation practices, according to P12:

“These days there’s no need to worry about waste because there’s plenty of food there I think it’s just a feeling that is inside us that we can’t waste I find it's still difficult.” (P12)

The effects of the war and limited budgets on the participants' food behaviours was so immense that even though most of the participants were currently in the most financially stable position they had ever been in, they still remained cautious of overspending on food. Many participants mentioned that they would not buy certain foods as they were too expensive or not in season.

“Pumpkins have been so expensive so we would choose something else, I mean we probably could afford it, but it just seems a crazy price.” (P14)

This was the case, not only among participants to whom food was of low priority, but also in participants who were very conscious of the food they purchased and its effect on health. The participants could not justify spending a lot of money on food, regardless of its benefits. When questioned about the reasoning for this, many participants revealed that it was a direct reflection of the habits ingrained in their childhood.

*"Nobody talked about food"*. Childhood contrasted with other life stages in participants' lives due to the lack of discussion and knowledge available around food both in social groups and in the media.

"In my childhood nobody talked about good food or bad food. Everybody just accepted you ate what was there." (P1)

During interviews the participants stated that the food knowledge that was available mainly focused on how to make rations go further or how to feed a family on a limited budget. Even as the participants described learning to cook during their childhood, this teaching process was often met with little discussion. It was simply something they knew they had to do. This may be a reflection of the times or a reflection of the participants' age at the time.

#### *Advancement in media and food trends.*

By comparison, when the participants reached adulthood, the amount of media-based food-related information had grown substantially. The data found that over the participants' lives, the media, a tool for the mass distribution of information, evolved from newspapers to magazines, radio, and televisions and eventually to the Internet. The media's evolution made the participants' access to food-related information easier. Participants mentioned that the amount of knowledge relating to food was increasing simultaneously, and different food trends emerged. This evolution influenced the role food played in participants' lives from one of survival to simply keeping the participants healthy. However, the variation in information also increased, adding confusion, which led to participants having differing views on the reliability of the information provided.

The media appeared to exert its influence on the participants from this time for two reasons. Firstly, as the participants approached adulthood, they became more interested in food related information and were more receptive to these messages in the media. Secondly, food-related information equally became more available in more media sources.

### *Magazines.*

Participants recalled that they began to notice food related information for the first time in magazines, newspapers and occasionally, the radio as they approached adulthood. The use of magazines and newspapers as vehicles for information appeared to make food-related information available in an easy to read and accessible form. The inclusion of food related information in women's magazines meant even participants, who were not interested in food related information, were exposed to it. It was around this time that the participants recalled obesity becoming an issue.

The participants stated that the focus of magazines and other available media at the time was on maintaining a desirable weight. This coincided with the Americanisation of New Zealand's media, which saw an increase in the use of celebrity, body image and fashion (NZ History, January 2016). A few participants revealed that at this time their own weight became a concern and they became interested in information related to maintaining a desirable weight, which they had not been concerned with previously.

“I felt I was overweight and that's when I started [thinking about food] and of course that's when your magazines start to come in...and the girls start talking about their weight too, so you start thinking you should worry about yours.” (P12)

Many participants described this time as the first time they had considered weight to be an issue, stating that “people were just not overweight growing up”. For some participants this coincided with the birth of a child. The added pregnancy weight, compounded by an increased media interest in weight, influenced some participants to seek additional information on how to maintain an ideal size. This social pressure from magazines had a great influence on the participants to the point where about half of the participants admitted that seeing pictures of women with slim figures in the media caused them to reconsider their current diet.

“I've tried Jenny Craig...I've tried just about everything.” (P15)

### *Television (TV).*

The increased availability of TV meant TV and subsequently food related programmes had an effect on food behaviours. The focus of the information from TV and food shows appeared to be the introduction of new foods. TV appeared to have such an influence that many participants recalled learning how to use certain foods for the first time from this media source.

“With the advent of the cooking that’s on TV, I invent stuff using the spices and stuff that they use these days. We never used them. I mean, we had spices around, but we didn’t know what to do with them.” (P12)

However, just like magazines the articles and food related information on TV was also a form of entertainment. This entertaining, easily accessible, and often celebrity filled form of media, made food related information easier to access, and presented it in a way that was easy to understand. Just as magazines had done, TV resulted in those, who had not previously shown interest in food, gaining food knowledge and inspiration to cook. However, the participants admitted that, although they may like to try the foods and methods they see being prepared on television, the foods and equipment used in today’s programmes were a barrier to them putting anything they saw into practice and it therefore did not have any real effect on diet.

“Like MKR (My Kitchen Rules) and Master Chef, I do watch and can be entertained by it, but I think it’s nonsense 'cause they are using exclusive foods and, no, I don't think it’s a reality for me, 'cause I have always been pressured when cooking, and to provide a meal, so I don't get much space to relax and buy a million ingredients.” (P13)

The data found that participants were more likely to use traditional media sources for information, such as newspapers and magazines, instead of TV.

### *Internet.*

When the participants discussed more recent sources of food related information, a few participants mentioned the Internet. It appeared to be that those who did use the Internet, were those who were threatened by a health condition and therefore had more motivation to search for information on how to improve their diet. The ability of the participants to access this information quickly from the comfort of home also meant the internet had the ability to be a strong influence on participants to the extent that they made serious food behaviour changes based on information from this source without further question. Participants affected by a health condition did not only use the internet, but also appeared to exhaust all avenues for additional information. This resulted in the participants making drastic changes to their diet based on the information they found.

“I had a gall stone attack...so went to Google and I cut out all red meat and went to a second hand book shop and got a second hand low fat cook book.” (P15)

In contrast to magazines and TV, the information sought was not as a form of entertainment.

Unlike those who had a serious health condition, healthy participants did not report using the internet as frequently, and many did not own a computer. This did not seem to mean that these participants were not interested in food and health, but rather they were less assertive in their search for food related information. Unlike during their childhood, keeping healthy and active were beginning to become priorities for all participants. Even the participants without health complications were beginning to mention health as the motivation behind how and what they cooked. During interviews participants, who didn't use the internet, still described reading food and health articles in newspapers, magazines and most commonly, using their own knowledge built up over their lifetime.

Interviewer: “How do you know what's healthy?”

P12: “Mainly by years of finding out what you can eat, what is good for you and what isn’t. You’re more worried about health when you’re older.”

*“It’s in your face”.*

During interviews almost all of the participants mentioned the amount of food related information in the media increasing substantially over their lifetime. The increase in media was welcomed by some, whereas others felt overwhelmed.

About half of the participants believed that the increase in information was a good thing. These participants were constantly trying to keep themselves up to date with the latest knowledge in order to eat the best they could for their goal, whether that was feeding a family, weight loss or health.

“It’s in your face a lot, and I’m very interested in it. I love reading about it. I’ll read any recipe around, look at these [motions to stack of recipe books, magazines, articles].” (P12)

The other participants were also interested in the new information, but they felt the focus of the new information was out of their reach. The participants felt as if they were unable to keep up with the theme of the current information.

“Like it’s an independent type of thinking now, and in magazines they are more focused on being healthy for the individual rather than the family, which is what it used to be like. It’s a selfish type of thing...I would definitely have a different approach if I only had to think about myself.” (P13)

However, an equal number of participants believed that there was simply too much information out there and the more information became available, the more it began to contradict itself. Some participants felt the recommendations changed too frequently and so gave up trying to follow them.

“For every site that I found that agreed with what you were thinking of doing, another site said it was a load of rubbish...[so I] go down the middle, I just eat very simply and I don't really deviate...which I don't know whether is good or bad.” (P9)

This caused some participants to become confused and suspicious of mainstream media which resulted in these participants having a very critical view of these sources of media.

“You have to take them with a grain of salt, 'cause people change their minds over the decades about what's good and what's not, so you listen to it and weigh it up with what you think and accept it or not.” (P3)

Other participants shut this information out completely saying that it was “a lot of gobbledy gook.”

“You can't eat this, you can't eat that...so I don't really take much notice of that, but it's become so important to people and it's wrong. It's totally wrong.” (P15)

The preconceived unreliability of these mainstream sources of media appeared to come as a surprise to most of the participants, who had not been exposed to this type of media in their early life. Participants explained how when more information began to come available in the media they trusted it completely.

“We went through the thing where you shouldn't have more than 2 eggs a week and the rest of it...that was just radio... you accepted it...you didn't question it...if you heard it, you thought you wouldn't hear this stuff on the radio unless it was true.” (P9)

However the constant influx of information from many sources caused the participants to question its reliability and trustworthiness.

“Yes, but there are a lot of advertisements about these kind of things, but I wouldn’t guarantee that all of them work. They're making a business of it rather than actually trying to help you.” (P17)

Up until that point, the participants never had any reason to disbelieve what they had read or heard through mainstream media, but the constant changing and advertising caused these particular participants to become suspicious.

The data found that, from the perspective of the participants, the advancement of easily accessible food knowledge alongside an increasing interest in food post war began to change what the participants knew about food, and therefore the food they prepared. Easily accessible information such as magazines, newspapers, TV and the Internet were collectively responsible for a mass of food knowledge for most participants. Through the media, the participants began to see how food could play a role in achieving what was important to them. This changed their perspective on food and made them consider changing their diets in order achieve a specific outcome.

### Gender Norms

Gender roles are the roles males and females are expected to carry out in a given society. These often extend into what is seen as typical male and female tasks. The data found that these roles can influence the information one is exposed to and the skills one is taught. Throughout the participants’ lives, gender norms evolved, but their early exposure to them ingrained their perspective on their expected duties and roles.

#### *“Just like mum”*

When the participants were reflecting on their childhood, they recalled gender roles adhering closely to traditional divisions of labour and therefore gender typical tasks were followed closely. This was especially true for the buying, preparing and cooking of food, which almost all participants described as tasks carried out solely by their mothers. When asked who was in charge of

the buying, preparing and cooking of food, otherwise known as food-related tasks, most of the participants answered with “Mother”.

“Mum was in charge, definitely. It was in an era where men were working and ladies were doing the kitchen thing.” (P19)

The participants believed that it was this observation of their mothers, over a long period of time, which prepared them for their future role in a household. As they became able, many participants were encouraged to help their mothers in the kitchen while their brothers helped their fathers.

“Did your mother teach you to cook at all? Yes she did, she taught my sisters, not really my brother.” (P17)

During the interviews some participants felt that they were only required to help their mothers during childhood, due to their gender and the current gender norms of that era. It appeared as though the societal norms at the time were passed onto the participants by their parents.

The participants' upbringing and their home environment was not the only time the participants were expected to adhere to gender norms during their childhood. During interviews, many participants recalled the schools they attended having classes aimed at females, which taught food related skills, while their male counterparts took other classes.

“I also did quite a lot of cooking at school and we did a little bit of those subjects at college, home science type subjects to make you a good homemaker, I suppose.” (P13)

Data from adolescence and young adulthood found these gender typical tasks were further reinforced with the increasing presence of media amongst participants. During interviews, most of the participants described noticing an increase in food related information in women’s magazines, advertisements and television throughout their lifetime. While some participants sought this

information out of interest, this was not true for all participants. The data found that, regardless of interest, all participants described flicking through women's magazines, and seeing food related articles. Even the participants, who claim they did not seek or were not particularly interested in food, still had knowledge of food trends throughout the years. This suggested they might have unintentionally absorbed information placed in media targeted at women throughout their lives. The data also suggested that seeing other women in newspapers or on television carrying out food-based tasks, such as cooking shows for food advertisements, could have led participants to believe that these were their roles in life.

*"It was expected"*

When the participants left home and moved in with their husbands, they were expected to take on all food related tasks.

"[I was in charge] because it was expected. The husband worked and the wife kept the house and did the shopping." (P5)

This expectation prompted the participants who had not learnt to cook while at home to learn to buy, prepare and cook food for the household. There were very few instances where the participants talked of roles crossing the "gender barrier". This was even the case in most retirement-aged participants where neither husband nor wife was working. For most participants the load of all food related tasks fell fully on their shoulders.

"I came from a time where the wife's job was in the kitchen." (P11)

It became clear in the interviews that even though not all of the participants enjoyed food-related tasks, most believed it was important that women had the skills to carry out these tasks to pass onto the next generation. For this reason, it bothered some of the participants that these gender roles were not being followed as closely by women today. During interviews, participants identified that it is a societal norm for women to have an education and career, as well as a family in the present day. Many of the participants did not

believe that splitting women's priorities between children, hobbies and a career was in the best interest of future generations. Many participants thought that as mothers had less time for traditional food preparation methods, children were being exposed to time-saving methods such as take-aways and pre-made food.

“But women and mothers of today have become very lazy and more often than not they are working and making the easiest meal they can find to work in with a cup of water and it's a meal.” (P17)

The participants worried that this was not setting a good example for children and they would miss out on learning important food preparation skills, as mothers today were not passing down the same food related skills that theirs had. They expressed concern for the health and wellbeing of future generations if this continues.

“I think there is more demand on mother and father to work these days which is very sad indeed. Children hardly know what family life is like except on weekends, [parents] don't have time to listen or teach.” (P17)

These results suggest that, for these participants, despite want, interest, talent or knowledge in the area of food, as women, they were expected to carry out food related tasks. Media and social relationships further ingrained these expectations. It was hard for the participants to escape this influence and they began to believe this was their role in life. This influenced them to learn and grow into the role of food related tasks. Even as society slowly began to loosen its once strict views on the roles of genders, these roles remained ingrained in the participants, many of who struggle with the changing roles to which modern women have adapted. This suggests that the time in which one is born, has an influence on what one believes is one's role and to a certain extent the knowledge and behaviours one obtains throughout one's lifetime.

## Social osmosis

### *“You just knew”*

Social osmosis is the indirect diffusion of social or cultural knowledge. When asked what influenced them at each life stage almost all of the participants gave a list of influences. Participants explained that while one particular source, such as their mothers, was very influential, there were numerous other influences, which also contributed to the food behaviours they have today. During the interviews, when the women were asked what influenced them or how they gained the information they did, a common answer across all life stages was "I just knew" or "It was almost like it was osmosis." (P17)

Women were frequently aware of past and present trends in food knowledge and practices, but could often not identify a specific source for this information. When prompted, they cited schools, teachers, parents, friends, neighbours, Organizations, media and health professionals as contributing to this knowledge they had built up over their lifetimes. However, they could not associate specific pieces of information with a specific source. As the participants went through life, the knowledge they accumulated from each source combined to give the participants the knowledge they had today.

“I suppose it's [food knowledge] something that's evolved over time.”  
(P8)

The accumulation of information began slowly during the participants' childhood.

“I don't know I think you do know...you probably always knew it anyway but how would you not know?” (P1)

During the participants' childhood, the participants were absorbing a lot of information without being consciously aware of it at the time. While most of this information came from the participants' mothers other, more indirect sources within the home environment included other female family members

such as aunties or grandmothers. These family members did not teach, nor were necessarily around the home for the participants to observe but they were still able to be a source of influence. During the interviews some participants recalled replicating recipes and certain cooking practices passed down by their aunties or grandmothers. These cooking practices generally revolved around special occasion meals such as Christmas or family get-togethers where their grandmother or aunt would prepare a special dish.

“My aunt use to always make this one dish, I will never forget how she whipped the cream by hand and knew, by memory, exactly how much sugar to add...I just thought everybody knew how to do that.” (P6)

Another influence on the participants' food behaviours was the self-imposed intake restrictions participants enforced upon themselves based on their view of the body shape of those in their family. Many participants mentioned that a larger body shape among family members, resulted in some participants taking measures to avoid the same fate. While this may have also been due to the influence of the observing body ideals through the media, the added influence from the home environment may have exacerbated the affect for these particular participants.

“I think part of the influence was the fact I come from a family that has got big genes and is bigger so I've always been aware of what I could and couldn't eat...so it's just something that's evolved over time.” (P8)

Once the participants left home they became susceptible to influence from other factors within the social environment. Specific pieces of information often became ingrained through the participants' repeated exposure to them in various sources of media and by hearing those around them repeating said information.

The participants also recalled advertisements influencing them to purchase certain products. When reflecting on how her cooking skills developed over her lifetime P19 recalled how new technologies such as microwaves and

blenders, had changed the way she cooked. When prompted to discuss why these changes occurred she remarked that she was not sure but suspected that the more she saw advertisements depicting kitchen life becoming easier if you purchased said equipment, the more convinced she was to purchase them.

“Sometimes I do take note of things and I do wonder about [new kitchen technology], like for instance these things that pulverise all the food.” (P11)

For some participants, this meant losing some of the skills their mother gave them, for example creaming sugar and butter by hand.

“it’s a shame really. A lot of what my mother taught me, I lost over time with the advent of all these new devices.” (P16)

The accumulation of information reached its peak for most participants during their early adulthood, as previously mentioned under the theme of ‘media’. The influx of information caused confusion and thus many women “shut off” from the media and ignored further incoming information.

## Chapter 5. Discussion

The aim of the present study was to explore the influences on food behaviours of New Zealand women. The findings showed that significant life events and factors within the social environment drove food choices and behaviours. In New Zealand, unhealthy food behaviours are the leading cause of health loss (Ministry of Health, 2015a). They account for 28 percent of health-loss related to cardiovascular and circulatory disease in particular and are a risk factor for excessive weight, which can reduce life expectancy by ten years (Ministry of Health, 2015c). While there is substantial literature on food behaviours, research on New Zealand women is minimal. This is a significant gap given that New Zealand is ranked third in the world for obesity prevalence. This chapter will discuss the results of this study within the context of the existing literature and the study aims. The substantial themes that arose will be discussed in more depth include the changing role of mothers, influential social environments, major life events, social expectations, the media and the invisible influence. These themes were chosen as they were mentioned repeatedly by the participants and help to answer the research aims.

### A mother's influence: The changing role of mothers

Interviews with participants in the current study revealed that mothers were the greatest influence in the development of food behaviours, a finding consistent with a large amount of literature (Ilkay, 2013; Hocking et al., 2002; De Backer, 2013; Chen et al., 2015; Palfreyman et al., 2013; Wilson, 2004). However, as the role of mothers has changed over the past 40 years, so has their influence on food behaviours. Participants in the present study grew up in an era where their mothers were not expected to have a career outside of the home. For the purpose of this discussion, mothers who did not have a career outside of the home will be referred to as 'stay at home mothers' (SAHM). The participants describe their SAHM as always being home, preparing food, tending to the house or teaching the participants and their siblings' skills to contribute to the household. Also, during this time period, the labour market enabled women to

stay at home to raise children, as a single income was able to support a family (Pool, Dharmalingam & Sceats, 2007). Few people born at this time deviated from these trends and most of the participants in the present study became SAHMs themselves once they had children. It was common for participants in the present study to closely imitate the role their own mothers took on in their own childhood home; a finding consistent with the literature (Bean, Softas-Nall, Eberle & Paul, 2016).

However, the labour market had in the meanwhile changed. The labour market grew and needed more workers, and women helped meet that demand. Mothers began to increasingly participate in the work force (Everingham, Stevenson & Warner-Smith, 2007; Pool et al., 2007). Solera (2009) suggests that the rise in mother's employment has had a negative effect on children in terms of their diet and is one of the greatest differences between children of different generations. Since the participation of women in the workforce has increased in industrialized countries, there is evidence that the time use patterns within the household have also changed. For example, an increase in women's work hours may change the amount of time mothers can spend eating with their children, which may then affect children's dietary and eating patterns (Chen et al., 2015).

Chen et al., (2015) found that despite mothers increasingly becoming part of the workforce, they still bear the bulk of responsibility for child feeding in Germany. This was also evident in Hartmann, Dohle and Seigrist (2013) who found even in 2014, approximately 71% of the women, but only 29% of their male counterparts, were responsible for meal preparations during the week. The competing demands of working and caring for their families has left many modern day mothers feeling overwhelmed and often resulted in either work, mental health or home life suffering to some degree (Palmberg et al., 2014; Allen, Herst, Bruck, & Sutton, 2000). However, with the cost of living increasing since 1940, a double income is often a necessity for many modern day families (Frone, Russell, & Barnes, 1996; Pool et al., 2007). Therefore, home life often suffers, not out of choice, but out of necessity.

The combination of a career and childcare has resulted in mothers having limited time for food preparation. The stress of having to prepare a meal for their children in a short amount of time, meant mothers resorted to time and energy saving cooking methods (Jabs, Devine, Bisogni, Farrell, Jastran & Wethington, 2007; Devine, Jastran, Jabs, Wethington, Farrell & Bisogni, 2006). Jabs et al., (2007) also found that mothers working full-time mentioned eating out more often, as they did not have the time or energy to cook. Children, both in the present study and in the literature, emulate parental dietary habits. It is hypothesised that if children frequently observe their mothers carrying out time and energy saving food preparation methods, these may be the skills they learn (Kiefner-Burmeister et al., 2014; Palfreyman et al., 2013). Both Palfreyman et al., (2013) and Weatherspoon et al., (2013) found that if mothers do not consciously refrain from unhealthy food behaviours in the presence of their children, they might encourage the intake of unhealthy foods.

In addition to mothers becoming busier, the literature shows that children also have more of their own 'commitments'. Kim (2008) found that the pressure on children for academic or athletic achievement was higher for children of the present generation than children of previous generations, and was associated with poor eating practices among children. Modern day children often go from school straight to a tutorial or sports practice, leaving them little time to eat good food (Kim, 2008; Jabs et al., 2007). In addition, it is possible that these particular children are not at home whilst their mother is cooking dinner and therefore are unable to observe these skills. This was in direct contrast to the childhood of participants in the present study, most of whom recalled observing their mothers preparing meals, citing this observation as a major factor in the development of their cooking skills. Also, participants in the present study rarely mentioned pressure on them for academic or athletic achievement. In fact, some of the participants recall the opposite occurring. They were often encouraged to abandon the pursuit of academic achievement in favour of helping around the home, resulting in the participants learning to cook.

The literature finds that it is possible that both children's and mothers' busy schedules contribute to a lack of food-related skill development in children. It was uncommon for participants in the present study to experience the same busy schedule, however there were still a few participants who did not learn food-related skills from their mothers for reasons such as their mother's sickness or death. In the absence of their mothers influence these particular participants declared that they often had difficulty when it came time for them to cook a meal on their own. This was a finding consistent with the literature which found that a lack of skill development in childhood may have long term effects to health. Melchior et al., (2012) found that those with poor cooking skills were more likely to have low nutrient intake, poorer health and an increased risk of obesity. Ministry of Health (2015a) found that poor cooking skills were linked to obesity, often due to the increased consumption of fast food that accompanied a lack of skill to cook a meal.

Whilst the literature finds that some mothers do not know the value of a healthy diet, many make food a priority and will encourage their children to learn to cook and develop healthy behaviours, regardless of their busy schedule (Jarman et al., 2012; Jabs et al., 2007). These mothers often have higher education levels and a higher income suggesting education and income could have an effect on healthy food behaviours (Jarman et al., 2012). However, even these mothers face challenges. Bellows, Spaeth, Lee and Anderson (2013) found that mothers indicated frustration and need for assistance in dealing with picky eating behaviors of their preschool-aged children, a sentiment participants from the present study also experienced.

It also appears that mothers who place a high priority on their children's food intake may have had to sacrifice their own interests or goals to accommodate the needs of the children (Devine et al, 2006; Bean et al., 2016). Participants in the present study maintained that they wanted to participate in the workforce and fulfil aspirations outside of the home, just as their male counterparts did. However, once the participants became mothers, this was often not an option due to the extra, assumed responsibilities of mothers. Bean et al., (2016) found this sacrifice to be common in present day women

with three out of seven participants specifically citing goals they had 'sacrificed' for the sake of trying to provide the best diet and opportunities for their children. Despite the great fulfilment women get from raising their children, sacrificing their own goals can lead to a reduction in mental health, such as anxiety or depression, both of which can be linked to unhealthy eating habits (Palfreyman et al., 2013; Beanet al., 2016; Devine et al., 2006).

To assist mothers in establishing healthy food behaviours, multi-setting interventions could help. A good place to start may be with a whole-school approach to nutrition education that could help establish healthy food behaviours in children, this will be discussed more later (Rowe, Stewart & Somerset, 2010; Neely, Walton, & Stephens, 2015).

### Influential social environments

#### *Schools*

Findings from the present research suggest that influences in early childhood are instrumental in the development of lifelong food behaviours. Therefore, along with the influence of mothers, schools provide a logical entry-point to teach children key skills on the preparation of food and enable them to make healthy decisions (Neely et al., 2015; Lewallen et al., 2015). In addition, as New Zealanders are becoming obese at a younger age, school may provide some assistance in the prevention of obesity in New Zealand children by providing them with an environment supportive of healthy food behaviours.

Participants in the present study recalled home economics classes (today's 'food and nutrition' or 'food technology' classes) as a good source of food-related skill development in childhood. However, nutrition education is far less common in present day than it was 60 years ago, during the period in which participants in the present research grew up. It appeared that overtime, the pursuit of a career and academic achievement, rather than the life of a homemaker, became more accepted. Thus, skills relating to traditional household tasks such as cooking became less important and slowly disappeared from the school curriculum (Street, 2006). This change may

mean modern day children miss out on some of the food-related education on offer to children of the participants' generation.

Evidence for the benefits of the reintroduction of nutrition education in schools, has been reported by Caraher, Seeley, Wu and Lloyd (2013) who found that the inability to follow a recipe dropped from 9% to 1% following school-based nutrition classes. Monlezun, Matamoros, Huggins, Michard, Sarris and Harlan (2015) found that present day university students with greater exposure to nutrition education, developed food-related behaviours supportive of good health by lowering their sodium and fat intake and increasing their fruit intake. Not only did school-based nutrition education affect the children themselves, Dyck and Dossa (2007) found that children often shared the nutritional information they acquired at school with their mothers. This sharing of information between children and their mother resulted in changes to the families' diet. One participant in Dyck and Dossa (2007) said that when her children told her about what they learnt at school regarding what they should eat, she purchased those foods.

The WHO has found that, despite new knowledge on the importance of health and nutrition literacy in child and teenage years, a major challenge to implementing nutrition education in schools is the competition with the schools' primary mission (Oliver, 2011). In addition, Kim (2008) found that in present day it is extremely challenging to teach nutrition lessons in a classroom setting due to a lack of time for teaching classes and a the lack of resources such as developed curricula and class equipment.

Therefore a whole school approach to nutrition education may be effective at promoting healthy food behaviours where instead of adding nutrition education to the curricula, schools provide healthy environments (Neely et al., 2015). This may mean promoting healthy food choices in school canteens and tuck shops and ensuring all children have access to healthy food at school. In addition, consideration for the area that surrounds the school environment could be important in promoting healthy food behaviours. It was common for participants in the present study to walk to and from school, therefore, the

types of food stores that surround the school environment have the potential to promote healthy or unhealthy food behaviours. Closer proximity and thus greater accessibility to fast food outlets may encourage the consumption of fast food, which, if sustained for a long period of time, may result in damages to health (Thornton et al., 2013).

### *Workplace*

As women grow older the environment in which they spend the majority of their time in changes. The participants in the present study spent most of their adult life in the home where they were SAHMs. However, a large portion of modern day women have joined the workforce and therefore spend a large portion of their day in the work environment. The home environment may not be as influential on food behaviours as it was for participants in the present study. Therefore, more consideration for the workplace environment could be important to support healthy food behaviours (WHO, 2013; Geaney et al., 2016).

It appears that time constraints and the availability of healthy foods are major factors that either support or oppose healthy food behaviours. In addition, Pridgeon and Whitehea (2013) found that time constraints and limited space to prepare and consume a proper meal led employees to either skip lunch or snack at their desks. Given that the work environment often provides limited affordable, healthy choices, there is an overwhelming push to eating poorer quality food (Pridgeon & Whitehead, 2013). This is in direct contrast to most participants in the present study who spent most of their waking day in the home and therefore was able to prepare their lunches from scratch.

### Major life events

The participants described specific life events affecting their food behaviours over their lifetime. Consistent with the literature, most participants described the influence of pregnancy and childbirth and its ability to cause participants to make a positive change to their diet (Olson, 2005; Hartmann, 2014). However,

this was not the case for all participants in the present study. Some participants, particularly those who describe living on a limited income, describe children having little to no effect on their food choices. These participants describe not having the “luxury” to choose food their children would like, as they could not afford it. In addition to budgetary constraints, some participants described not having the time to think about what each child liked and disliked, a potential result of larger families, which was common among participants in the present study.

Marriage was another life event that influenced the food behaviours of participants in the present study. Participants described marriage causing them to shift their consumption patterns to those that were preferred by their husband. The literature took this finding a step further suggesting that food preferred by male partners tended to be less healthy than those typically preferred by women, thus, increasing their consumption of unhealthy foods (Hartmann, 2014; Beagan & Chapman, 2004). However, in contrast to the literature, an interesting finding from the present study was that some participants reported their husbands having a positive effect on their food behaviours. This positive effect only occurred if their husband experienced a health scare or diagnosis. It appeared that the participants concern for the wellbeing of their husbands caused them to enforce strict food consumption rules, thus, increasing their consumption of healthy food and overriding any food preferences their husband may have for the sake of his health.

The influence of marriage, childbirth and the diagnosis of a major health disorder had relatively short-term effects on the participants’ food behaviours. Each of these influences was often eventually overshadowed by the impact of a subsequent life event. For example, the influence of a mother was sometimes overshadowed by marriage whereby the food preferences of a husband became more important. The influence of a husband was often overshadowed by the birth of a child and so on.

However, a life event, which affected the lifelong food behaviours of many participants, was WWII. The impact of WWII and the subsequent food scarcity

was an underlying influence through all life stages and had an impact on all life events, including present day. This is consistent with the literature, which suggests that major, and especially traumatic, events in childhood are significant in the development of food behaviours (Kesternich et al., 2015).

Morris and Maniam (2016), found that early life stress, such as the experience of war, could have an impact on weight fluctuations, which may be caused by children using food, or comfort eating, as a coping mechanism for the stress. Furthermore, Olson et al., (2007) argued that food scarcity could lead to binge eating. Olson, suggested that this was common in families where food was only available for short periods of time. When food was available, it would be common for those experiencing the food scarcity to gorge on food. This could lead to a distorted relationship with food, where over eating when food was in abundance, was considered normal. This type of eating can be directly related to obese tendencies (Olson et al., 2007). This contrasted with the findings from the present study where none of the participants mention binge eating, however there were similarities between our participants' experiences and those experienced in Olson et al., (2007) which will be explained in the next paragraph.

Olson et al., (2007) and Wilson (2004) both found that those who live in poverty learnt to prepare meals with limited resources, which often meant the removal of, or reluctance to buy more nutritious, more expensive, foods. Participants in the present study reported similar experiences with limited resources during their childhood. The participants revealed that even though the war only lasted for a short period of their lives, the adaptations made to their diet due to food shortages, during an influential time in their lives, became ingrained.

It appeared that even though most of the participants were now in the most financially stable position they had ever been in, those behaviours ingrained from wartime were evident in present day food purchasing and preparation practices. For some participants these ingrained behaviours led to a lack of variety in the diet in adulthood. This could be associated with an increased

likelihood of nutrient deficiencies and an increase in preventable diet-related health disorders (Ministry of Health, 2015c). Therefore, further research into interventions which focus on the food behaviours of children who experience early life trauma or food scarcity, might be useful for preventing future diet-related disorders in these populations (Kesternich et al., 2015).

An aspect of war mentioned in the literature as having a major influence on food behaviours was the effect of migration. Although most of the participants in the present study did not experience the extreme impact of migration on food behaviours, due to most participants being born in New Zealand, migration could become a significant issue with the state of political unrest and war in some parts of the world (Janowski, 2012).

Janowski (2012) noted that those who had to relocate due to WWII found that many of the foods that they regularly ate in their place of origin, were not available in their new home. Guarnaccia, Vivar, Bellows and Alcaraz (2012), adds that even when foods from home were available they were often more expensive due to importation taxes and could exceed many migrants' budgets, many of whom were on low incomes and had significant expenses associated with setting up a new home. While local food of the adoptive country was available, migrants often lacked knowledge on how to prepare them (Guarnaccia et al., 2012). As a result, there is a misconception that migrants lacked knowledge on a healthy diet, when in fact they may be perfectly aware of how to eat healthily in their home environment, but the cultural and language barriers of their new location may cause them to struggle to make healthy choices (Guarnaccia et al., 2012; Ministry of Health, 2015c). From the literature it appears that migrated populations need special attention to ensure they do not develop unhealthy food behaviours, as migrant children are at particularly high risk of developing obesity (Guarnaccia et al., 2012; Fernandez, Rolley, Rajaratnam, Everett & Davidson, 2015).

### Social expectations

#### *Gender norms*

Social expectations are expectations that are ingrained in cultural and social norms (Solera, 2009). Participants described these norms being enforced through the various sources of media such as advertisements, newspapers and magazine articles and eventually TV and the Internet (Worsley & Lea, 2003).

Women's magazines were reported to play a role in creating, or reinforcing, social roles and expectations by both the literature and the findings from the present research (Hesse-Biber et al., 2006; Ellison et al., 2011). This included social norms around gender and body image. Gender roles are societal norms that dictate the types of behaviours that are considered appropriate, or desirable for a person based on their gender. Our participants frequently mentioned that when they were growing up, articles in magazines frequently depicted women as the 'happy housewife' and articles targeted at women at this time often focused on to the preparation of food. In addition, advertisements aimed kitchen appliances towards women, all of which were perceived by the participants as reinforcing their role in society. The prevailing ideology at this time appeared to be that cooking and food preparation were not only natural occupations for women, but deeply fulfilling (Kerstin Gustafsson & Sidenvall, 2002).

However, in the past 30 years, the societal role of women has become less domesticated and it is a bit more acceptable for women to reject many traditional societal roles. These changing norms, were again, reinforced by the articles and advertisements in the media. The current media environment is full of images or stories of women who combine successful careers and motherhood. It appears it has gone the other way and mothers must now desire both professional success and motherhood (Orgad, 2016). As discussed under the theme of "Mothers", this can have negative outcomes for both mothers and children. It appeared that many of the participants in the present study rejected the new gender norms and continued to carry out the gender roles and norms that were expected of them in their youth.

An interesting finding was the opinion of the present participants on the changing gender norms. The participants expressed disappointment and concern that the changing norms would result in negative effects on food behaviours of future generations. As previously described, these concerns may not be unfounded, however further research comparing the influence of mothers on food behaviours from multiple generations would be interesting to explore these opinions further.

### *Body expectations*

Gender norms not only affected the tasks the participants carried out in the home, they also affected the type of media the participants were drawn to. As previously discussed women's magazines were instrumental in broadcasting body ideals. The literature describes how advertisements within women's magazines, and other forms of media aimed at women, containing ideal body images could affect food consumption patterns in women (Hefner, Woodward, Figge, Bevan, Santora & Baloch, 2014; Hesse-Biber et al., 2006; Krahe & Krause, 2010). Hesse-Biber et al., (2006) reported that women had internalised the messages from these articles and advertisements and perceived media sources as telling them the preferred weight ideal is significantly less than what they currently weighed. Both Krahe and Krause (2010) and Hefner et al., (2014) found exposure to sources of media containing images of slim models could lead to changes in eating habits and in some, an eating disorder.

Findings from Krahe and Krause (2010) and Hefner et al., (2014) contrasted findings from the present study, where none of the participants mentioned an eating disorder. While none of our participants describe exposure to these ideals resulting in an eating disorder, the participants in the present study recall becoming somewhat concerned about their weight in response to exposure to these images which for some participants result in weight loss attempts. There may be a number of reasons participants in the present study did not disclose an eating disorder, should they have had one. Hesse-Biber's review of the literature reveals that it may be because disordered eating is considered a normal, culturally acceptable way for women to deal with body

image issues and is therefore a non-issue from a clinical and social perspective. Also, participants may be embarrassed by their disordered eating habits and therefore chose not to disclose this information. Non-disclosure of disordered eating habits can lead to serious health effects including malnutrition and binge eating cycles, and can play a role in the development of obesity. Therefore family and friends should be aware of the warning signs and support females to resist the social pressures to be thin (Hesse-Biber et al., 2006).

The media showing images of very slim body ideals is not the only danger to health and healthy food behaviours. Hassan (2007) found that the amount of weight loss information in the media far outnumbered all other food-related issues. Hassan reported that, as, magazines failed to publish information about other aspects of nutrition; they implied that weight loss was the most important factor to health. For example, magazines with limited calcium and many weight-associated messages may inadvertently promote a diet that increases the risk for osteoporosis or other health issues. A similar pattern occurred in participants in the present study. It was interesting to hear participants mention similar food-related concerns as other participants in the study. These concerns primarily revolved around foods high in sugar or fat and their affect on their weight. This may suggest that Hassan et al., (2007) is correct in proposing that only certain information gets published in the media and therefore it is this information that becomes the widely accepted school of thought.

As the participants in the present study often cited magazines as a source of diet information through most life stages, the opportunity exists to provide important messages aimed at women of a certain age group through this source. Therefore awareness of information gaps within the media may help health professionals collaborate with the media and strategize in promoting nutrition messages to women (Hassan et al., 2007).

## Why the media?

In the present study, the effectiveness of popular magazines in changing food behaviours was facilitated by the use of 'plain English' in articles. This is consistent with Begley and Cardwell (1996), who finds that readability influences the comprehension of nutrition messages. There is evidence that much of the health education literature, which contains more reliable and scientific based information, is written at reading levels that are too high and this compromises the use of the information (Begley & Cardwell, 1996). Roosen et al., (2007) found similar results reporting that complicated health advisories might result in a loss of dietary benefits if consumers took little notice of the fine prints (Roosen et al., 2007). The 'easy to read' format of magazines was therefore important for our participants, many of who did not finish high school.

However, the negative effects of 'easy to read' and highly accessible sources of food related information was that they often lacked reliability. It appeared that by increasing readability, key information regarding the context of such diets and knowledge was left out. Steinberg, Paisley and Bandayrel (2011) found that fewer than 10% of media articles mention the context of such information. Of those that do publish the context in which the information applies, Moynihan (2003) reported that messages regarding health, specifically medications, in the media are often incomplete and do not disclose information about potential contraindications. Ellison et al., (2011) and Begley and Cardwell (1996), also found inaccuracies in magazine based 'diets' with seven out of nineteen diets published in Australian magazines not meeting Australian dietary recommendations. Inaccuracies published in magazines were likely the result of information in the media being published by people not qualified to do so (Jessri et al., 2010).

Long-term exposure to unreliable information can result in a lack of trust in the media. Many participants in the present study recall being constantly updated by new information throughout their lives. Participants found that the more

they tried to keep up with the constantly updated information in the media, the more they found it began to contradict itself, and the participants began to question its reliability. This finding was consistent with the literature, which found that unreliable information caused confusion and resulted in participants ignoring all further food related articles in the media, a position many participants carried into the present day (Buttriss, 2011). Not having sufficient knowledge to judge the relevance of nutrition articles Gustafsson and Sidenvall (2002), reported women often felt frustrated by different messages about food and health, and did not know whom to believe. In addition, they found it difficult to understand conflicting information.

Just like other sources in the media, information from the Internet is widely published by those unqualified to do so. A few bloggers even criticized the current official nutrition recommendations and regarded dieticians as out of date, and even unreliable (Simunaniemi et al., 2011). There does not seem to be any quality control for these sites. In fact, the literature actually finds that, as time has progressed, the quality of information on the Internet has diminished (Simunaniemi, 2011). Unfortunately, the ability to access the wide range of information available on the Internet from the comfort of your own home may exacerbate the negative effects of easily accessible information in the media. Buttriss (2011) found that the low cost and easy access to the Internet has meant some people, especially younger generations, are using the Internet for diet advice instead of visiting a doctor and other health professionals. This can be associated with both minor and dangerous health effects.

### The media, doctors and health

While the consumption of false information and avoidance of the doctor by the general public is a nuisance with minor consequences to health, it can have a dangerous effect on the health of those with pre-existing or newly diagnosed medical conditions. Findings from the present research suggest that for those with a health condition, their desperate situation and unfamiliarity with the Internet resulted in participants making drastic changes to their diet based on

information they found online without questioning its reliability. This was consistent with Buttris (2011) who found that 40% of older adults who search for information online were searching for information on a specific illness.

Gustafsson et al., (2005) agreed, finding older women recovering from a stroke or a diagnosis of Parkinson's disease tried to improve their health by changing their food habits with information from an Internet site. Without professional advice, the women misunderstood how such diets should be executed, causing potentially harmful effects. The risk of improper use of information was high among elderly participants' in the present study. These particular elderly women were unfamiliar with the Internet and used such information as a substitution for advice from a doctor. This could delay or hinder recovery or, in some cases, put the women at more risk of damage through improper treatment (Gustafsson, 2005).

In contrast, a surprising finding was that for participants who had not been affected by a health event, doctors were still perceived to be the most trusted source of diet and health related information. Even when prompted to discuss other health professionals and sources of information, these participants said they would only take advice about diet from their doctor. Our findings support those of Worsely and Lea (2003) who also found that older adults use orthodox sources of nutrition information, such as doctors, and occasionally dietitians, more than young people do.

Strict use of a doctor for diet-related advice could be an outdated practice due to the small amount of nutrition specific training doctors receive. Despite obesity being a modifiable risk factor for many diseases and the large cost to the government, only half of primary care physicians investigated in Monlezun et al., (2015) regularly tracked body mass index (BMI) or provided nutrition education for their patients. One potential cause of this is insufficient nutrition training at their respective medical schools. According to Monlezun, only two out of five American medical schools require the minimum 25 hours of nutrition education recommended by the National Academy of Sciences, which leaves

a large amount of medical practitioners with inadequate training in nutrition counselling (Monlezun, Leong, et al., 2015).

The impact of a lack of nutrition education in medical school have been investigated by Martin, Savige and Mitchell (2014), who found that while the majority of their participants indicated that their medical practitioners were the main source of health information, only 34.5% indicated being made aware of the importance of increasing iodine intake during pregnancy by their medical practitioner. The implications of these findings could be that those who visit a doctor for specific nutrition advice may not receive the best advice possible. However, further investigation into whether these findings apply to New Zealand medical schools and their medical graduates is needed.

Yet many may not always recognise sound science or sound sources when they stumble across them (Buttris, 2011). Private health information websites run by laypeople are more often visited than websites of official agencies (Simunaniemi et al., 2011). In order to empower people to make healthier choices, individuals need to understand nutrition information and know where to go to for nutrition specific advice (World Health Organization, 2015). Collaboration between the media, government, communities, families, individuals and health professionals could improve public understanding of food and health and attempt to remove dietary risk factors associated with obesity, cardiovascular disease and other preventable health complications. In addition, better advertisement of reliable sources of information may help direct consumers to better advice. From the answers given by participants in the present study, it appears that reliable government-based information is not currently effective in reaching its target audience, with only one of the nineteen participants mentioning government based health promotion material, such as the food pyramid, as a source of information. The MOH also found that only forty one percent of the New Zealand population met the MOH guidelines for vegetable and fruit intake, which suggests that there is a barrier between access to information or access to resources in order to implement these recommendations.

## The invisible influence

Not all of the influences on the food behaviours of women in the present study were so widely recognised. While mothers and significant life events are major influences on food behaviours, an interesting finding was that often participants could not allocate pieces of information to a certain source; rather the knowledge was accumulated through the participants' interactions with the social environment. This can be known as the 'passive accumulation of information', which describes how knowledge can be acquired without an individual's active involvement (Poon & Rubin, 1992.).

Participants in the present research called this passive accumulation of information "social osmosis" and used it to describe how the life course affects food-related knowledge and behaviours. It also highlights the notion that all information published in the media has the potential to affect the food behaviours of those who consume it, regardless of its trustworthiness.

It may be that the government needs to establish a regulatory system to protect the population from the cumulative effects of poor nutritional information over time and ensure individuals searching for diet related information in the media do not end up with false or unreliable information. Currently, other than individually focused policies, such as nutrition labelling, or a policy to protect children in schools from advertisement of unhealthy food, there is little safeguarding from the plethora of false information in the media becoming ingrained in the population.

The notion of social osmosis or the passive accumulation of information is not widely discussed in the literature. Further investigation could be beneficial in establishing this theory and the role it plays in the development of food behaviours.

## Future research

The present study was intended to be an exploration of the influence of the social environment on the food behaviours of New Zealand women and the findings present a starting point for further research.

Given that there was no attempt to interview participants from different socioeconomic positions future research could attend to older women from different socioeconomic groups, to observe whether this alters how the social environment affects food behaviours in New Zealand women. For instance, it would be interesting to explore how life events and the social environment influence the food behaviours of those in a lower socioeconomic group. As Inglis (2009) suggests a lack of financial security may mean, even when women want to make changes to improve their diet as a result of a life event such as childbirth, a lack of income may prevent this change. Different socioeconomic groups may have a different set of influences that operate in the context of particular socioeconomic limitations, and have alternative interactions with their social environment that influence their food behaviours.

Another future research direction could be to conduct a similar study with older New Zealand women from different cultural backgrounds. Attending to the role of culture as an influence on food behaviours was not a focus of the present research, but it would be interesting to develop in future research, especially attending to Māori cultural groups, which make up a significant portion of the New Zealand population. This calls for further research to be done with Māori and their interaction with the social environment to explore whether there is a cultural component to the development of food behaviours. In addition a more in-depth look at the theme of social osmosis would be really interesting.

### Conclusion

The aim of the present study is to explore how the social environment and life events influence the food behaviours of New Zealand women. The two main objectives were to identify where women access their food-related information and whether the source of information changes over time. The other objective

was to investigate whether and how specific life events, such as marriage, childbirth and retirement, cause a change in food behaviours.

Both the literature and findings from the present study found that women establish their food behaviours early in life. It was common for mothers to be the main source of food-related information and the major influence in the development of food behaviours. Mothers were a constant supply of information through all life stages, however they were most influential in childhood. Future interventions aimed at improving the health of children should consider targeting mothers as a channel for the communication of health information. In adulthood, other social relationships such as those with husbands and children, appear to cause women to move away from their food preferences and needs in favour of those which more closely resemble the preferences and needs of others.

The findings from the literature and the present study show that the environment in which one grows up has a large impact on long-term food behaviours and subsequently health. An underlying influence of all life events and information sources was gender norms. The gender of the participants in the present study dictated the skills they learnt and the tasks they were expected to carry out in the home. Gender norms also influenced where women found food-related information and often resulted in the participants finding a lot of food-related information within the pages of women's magazines. It was identified in the literature that because women's magazines are so widely accessible that they should be considered as a major source of food-related information and therefore they could be targeted as an effective vehicle for health information for women.

Consistent with the literature, another major source of influence is the media. Long-term exposure to messages aimed at women from sources of media such as TV, internet and magazines had the potential to influence the food choices the participants made. The media was particularly influential during young adulthood, where participants felt the media was telling them how to eat, even if they did not heed the advice of the media it affected how they felt

about their eating habits and body ideals. The media was also a source of information during pregnancy, after child birth and after the participants experienced a health scare. Information from the media may have been sought at this time due to the unfamiliarity of the situation the participants found themselves in.

The participant's use of the media during major life transitions and during influential times in the participants' lives has the potential to cause concern. According to the literature and participants in the present study the media did not always provide sound advice. Therefore information in the media had the potential to cause a reduction in health. Regulation of the information published in the media should therefore be a priority.

Finally, one of the most important findings was the influence of the whole social environment on food behaviours over the lifetime, these have previously been referred to as 'social osmosis' or the 'invisible influence'. The theme of social osmosis describes how there are many influences on the food behaviours of New Zealand women, many of which are not known or thought of as sources of influence. These influences are important to consider as they appear to cause confusion, frustration and often influence women towards less healthy food behaviours. Just like the influence of the media, the invisible influence of this social osmosis requires regulation of messages that are published in the media. This type of invisible influence also means individuals who are better equipped to deal with conflicting information and know which sources are more reliable will be more successful in establishing healthy food behaviours.

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## Appendix One



MASSEY UNIVERSITY

### Perspectives of food behaviours of Post-War era Women.

#### INFORMATION SHEET

##### Researcher Introduction

*Massey University Masters student, Jordan Crosbie, who is completing her Masters of Public Health, is carrying out this project. She has previously completed a Bachelor of Science, majoring in Human Nutrition, and a Post-Graduate Diploma in Public Health. She is supervised by Dr. Eva Neely & Dr. Anna Matheson.*

##### Project Summary

I would like to invite you to be a participant in this study, which aims to explore how life events and the social environment affect food behaviours in New Zealand women.

##### Participant Inclusion Criteria

- Participants must be female
- All participants must be above 70 years
- Participants must currently reside in the Wellington region either in a retirement village or independently living
- Participants must be able to give their consent to participate
- Participants must agree to being voice recorded during the interviews

##### Project Procedures

- The interview will consist of a series of questions about food and nutrition.
- You may bring along a friend, partner or family member to the interview.

- The length of the interview is flexible and you can stop or pause it at anytime.

### **Data Management**

- This data will be used to help with the completion of a Masters project.
- The researcher will not identify you by name in any reports using information obtained from this interview, and confidentiality as a participant in this study will remain secure. Subsequent uses of records and data will be subject to standard data use policies that protect anonymity.
- You may request to view your transcript and subsequent results.

### **Participant's Rights**

*You are under no obligation to accept this invitation. If you decide to participate, you have the right to:*

- decline to answer any question or to end the interview at any time without penalty or reason.
- ask any questions about the study at any time during participation;
- be given access to a summary of the project findings when it is concluded
- ask for the recorder to be turned off at any time during the interview.

## **1. LOW RISK NOTIFICATIONS**

“This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named above are responsible for the ethical conduct of this research.

If you have any concerns about the conduct of this research that you wish to raise with someone other than the researcher(s), please contact Dr Brian Finch, Director, Research Ethics, telephone 06 356 9099 x 86015, email [humanethics@massey.ac.nz](mailto:humanethics@massey.ac.nz)”.

### **Who do you Contact?**

For any questions or queries regarding the research project, please feel free to contact myself and/or my supervisor.

#### **Jordan Crosbie (Researcher)**

Email: [jordanecrosbie@hotmail.com](mailto:jordanecrosbie@hotmail.com)

Phone: 0274848780

#### **Dr. Anna Matheson (Supervisor)**

Email: [A.G.Matheson@massey.ac.nz](mailto:A.G.Matheson@massey.ac.nz)

#### **Dr. Eva Neely (Supervisor)**

Email: [E.M.Neely@massey.ac.nz](mailto:E.M.Neely@massey.ac.nz)

Phone: 04 801 5799 ext: 63371

## Appendix 2



**MASSEY UNIVERSITY**

### **Advertisement in Wellington Retirement Village September 2015 Newsletter**

Jordan Crosbie from Massey University is looking for participants for her research study. Jordan is studying towards her Masters and is looking for women who live in the retirement village who grew up before, during or shortly after World War II to interview about food and food behaviours in the next few weeks. If you would be interested in being part of this study please contact the [village administrator] as soon and possible.

\*Information for advertisement provided by Jordan Crosbie and written by Wellington Retirement Village administrator for inclusion in the September 2015 village newsletter.

## Appendix 3



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### Interview questions

#### Demographic questions:

1. D.O.B:
2. Where were you born?
3. Where were your parents from?
  - a. Did that have an influence on your eating habits?
4. What was your profession?
5. Do you, or have you, ever had a long-term partner or husband?
6. Do you have children?
7. Could you please give me a quick summary of your life?
  - a. Where did you go after you left home
  - b. At what age did you get married?
  - c. At what age did you have children?
8. Can you describe what had the biggest influence to your knowledge about food over your lifetime?

#### Present:

1. Where do you currently source the food you eat from?
  - a. Who is in charge of this?

2. At this time in your life what are the most important considerations when making food-purchasing decisions?
3. Do you feel you have enough income for food?
  - a. Does this affect how you eat?
4. What is the main role of food in your life now?
5. Are you happy with the foods you have?
6. What are the biggest influencers on your food knowledge today?
7. If you wanted more information on food where would you go to seek this information?

**Childhood: this is the time of your life when you were living with your parents and siblings, maybe a time when a parent, nanny or caregiver made many of your food-related decisions for you.**

1. Could you describe your favourite family meal at this time?
2. Where did you and your family source the food you ate?
  - a. Who was in charge of this?
3. What was most important consideration when making food choices as a child?
4. If you think back to when you were growing up, did you feel you had enough food?
5. As a child what was the role of food in your life?
6. What/who influenced your knowledge about food at this time?
  - a. Does this still have an influence on what you know about food today?
7. If you had questions about food where did you seek this information?

**Teen/young adult: this is the time when you moved out of home, started making some of your own food decisions, potentially met, married or moved in with a partner, but before children.**

1. Could you describe this time in your life?
  - a. Did you move straight out of home and in with a partner?
  - b. How old were you?
  - c. Who were you living with?

- d. What were your circumstances?
2. As a teenager or young adult (before children) where did you source the food you ate?
  - a. Who was in charge of this?
3. At this time of your life, what were some of the considerations when making food choices?
4. Did you feel you had enough income for food at this time?
  - a. Did this affect how you ate?
5. As a young adult, what was the role of food in your life?
6. What/who influenced your knowledge about food at this time?
  - a. Does this still influence your knowledge of food today?
7. If you wanted information on food where would you seek answers?

**Adult: this is the time when you are living with a partner + children and making decisions or having decisions made for a family or couple.**

1. Can you describe a meal you often made for your family?
2. When you were an adult (had own family), where did the food you ate come from?
  - a. Who was in charge of this?
3. At this time of your life, what were the most important considerations when making food-purchasing decisions?
4. Did you feel you had enough income for food?
  - a. Did this affect how you ate?
5. As an adult, what was the main role of food in your life?
  - a. Were you satisfied with the foods you had?
6. What/who were the biggest influencers on your knowledge about food as an adult?
7. If you wanted further information on food where would you look/ask for answers?

**General attitude questions:**

1. How have you seen the diet industry change over your lifetime?

- a. Did this affect your diet?
2. What is the most important reason for choosing foods?
3. Think back over your lifetime, what are some of the foods you ate regularly?
  - a. Explain.
4. Think over your lifetime, are there any foods you would not/will not eat?
  - a. Explain.
5. Can you think of times in your life when you ate most healthily?
  - a. Describe.
6. Where/who do you think is a reliable source of nutrition information?
  - a. Why do you think this?
7. How would you describe the change in the information given about food over your lifetime?
  - a. Can you describe what healthy food meant to you when you were younger vs today?
8. Do you still believe \_\_\_\_\_ was/is the biggest influence on your knowledge about food?

## Appendix 4



**MASSEY UNIVERSITY**

### ***An exploration of how life events and the social environment affect food behaviours in New Zealand women.***

#### **PARTICIPANT CONSENT FORM - INDIVIDUAL**

I have read the Information Sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I agree/do not agree to the interview being sound recorded.

I wish/do not wish to have my recordings returned to me.

I agree to participate in this study under the conditions set out in the Information Sheet.

**Signature:**

.....

**Date:**

.....

**Full Name - printed**

.....

**Appendix 5**



**MASSEY UNIVERSITY**

***An exploration of how life events and the social environment affect food behaviours in New Zealand women.***

**AUTHORITY FOR THE RELEASE OF TRANSCRIPTS**

I would like the opportunity to read and amend the transcript of the interview conducted with me. YES/NO

I agree that the transcript and extracts from this may be used in reports and publications arising from the research.

**Signature:**

**Date:**

**Full Name - printed**