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Adding Life to Years:
Understanding Barriers to Healthy
Eating in a Group of Older Single-Living
New Zealand Men

A thesis presented in partial fulfilment of the requirement for the degree of

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Abstract

New Zealand's population, like the global population, is ageing. An important element of successful ageing is the maintenance of optimal nutritional status, which is linked to general health and quality of life. The purpose of this mixed methods study, guided by qualitative descriptive methods, was to identify barriers to healthy eating in a group of older single-living New Zealand men. Understanding the men's perspectives on meal procurement and preparation, in essence walking in their shoes, was a key part of identifying barriers to healthy eating.

A cohort of 12 men participated, each completing a semi-structured interview as well as a nutrition knowledge and nutritional risk assessment questionnaire. Data from the semi-structured interviews was analysed using a general inductive approach. The results of the questionnaire were used to enrich description in this mixed methods study. Three core themes emerged from the data which were 'Individual Circumstances'; 'Nutrition Knowledge and Skills'; and 'Food-Related Values'.

Potential barriers to healthy eating, in terms of individual circumstances, were limited finances, limited mobility and a lack of personal transport. These barriers were partially ameliorated by effective, reliable social and support networks. A diverse range of shopping, cooking and gardening skills, as well as nutrition knowledge, existed amongst the men. Poor nutrition knowledge and limited cooking skills were possible barriers to healthy eating. Strong beliefs the men held about how food procurement and preparation should occur, termed food-related values, were also potential barriers to healthy eating. Values identified were 'the importance of healthy eating'; 'structure in food-related activities'; 'convenience'; and 'like it or not, it has to be done – shopping and cooking'. Depending on the prioritisation of values by the individual, they could develop into barriers. For example, prioritising 'convenience' over 'the importance of healthy eating' led to decisions that negatively impacted dietary intake.

This study highlighted the diversity of experiences, circumstances, skills and priorities of older single-living men. Interventions aimed at improving the dietary behaviours of older single-living New Zealand men must recognise the heterogeneity of this population and support the values they hold in regards to food-related activities.

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This thesis is dedicated to my grandfather Ralph Frizzell. Granddad not only planted the seed for my university education, but also provided the inspiration for this research. Sadly, he is not with us to celebrate this milestone, but as a consummate ‘academic’ I know he would have been very proud of this achievement.

1 Chapter One: Introduction

‘Adding life to years, rather than years to life’ is a well known motto for the older population (Kerschner & Pegues 1998). This quote affirms that *length* of life is not the only indicator of successful ageing and that the *quality* of life an individual has is an equally important aspect of ageing (Kerschner & Pegues 1998). Understanding what successful ageing is, and how to support older adults to achieve this, is an increasingly relevant objective given the anticipated growth of the older population.

In order to successfully age, consideration must be given to maintaining health. One key preventative health measure is the maintenance of optimal nutritional status (American Dietetic Association 2000). However, age brings with it a number of changes that can impact on food intake and consequently nutritional status (de Castro 2002; Morley 1997). Furthermore, living alone in older age is associated with poorer health outcomes (Statistics New Zealand 2004), economic disadvantage and generally greater challenges in daily life (Lyon & Colquhoun 1999). Research suggests that older men who live alone are a particularly vulnerable group, with poorer dietary behaviours relative to older women living alone (Baker & Wardle 2003; Donkin et al. 1998; Johnson et al. 1998).

There is currently minimal information identifying barriers to healthy eating in older single-living New Zealand men. The present study therefore focussed on identifying what the barriers are to healthy eating for these men. Specifically, the research looked at barriers related to meal procurement and preparation, tasks that men have not traditionally been responsible for. This chapter provides an overview of the researcher’s interest in the research topic along with the background, presents the research aim and objectives and a general overview of the thesis.

1.1 Researchers Interest

Researchers are affected by a range of personal and environmental factors. Many qualitative researchers believe it is impossible to be entirely objective (Minichiello, Fulton & Sullivan 1999). Rather, researchers should endeavour to reduce this bias by reflexivity. Reflexivity involves, amongst other things, exposing assumptions and biases that the researcher may hold (Holloway 1997). Assumptions and biases are bound to personal experiences, thus a researcher’s background is of relevance to the research they

undertake. This section provides an overview of my experiences, as they pertain to the present study.

My interest in preventative health measures was what initially led me to the field of nutrition. After completing my Bachelor of Science degree programme, majoring in Human Nutrition, I elected to complete my Honours degree immediately. Although my Honours research revolved around laboratory based work, I was drawn to the behavioural aspects of nutritional science. This interest stemmed from a final year undergraduate degree paper on nutritional behaviour. A key point from this paper resounded with me, that nutrition knowledge does not automatically translate into action.

This point resonated with my personal experience whilst working in a corporate environment, prior to my nutrition studies. Even though I had a basic understanding of what healthy eating was, I still did not do it. While living alone and working full-time, I had wanted to prepare main meals as quickly and easily as possible, with relatively less regard for how nutritious the meal was. I had conversations with peers who were also living alone, about the challenges of food shopping and cooking for one. A friend and I even initiated a once per week meal sharing routine, as a way of socialising and to help us through the routine of cooking for one. I also had discussions with my grandfather about the challenges of cooking for one.

However, with the knowledge I gained in my nutrition studies, I was able to improve my cooking skills and eating habits with minimal effort. I was intrigued as to how others coped with this situation. My grandfather's story had highlighted the challenges that older men face, in terms of preparing meals when living alone. I was interested in hearing the stories of other older New Zealand men who were living alone, in order to understand what barriers to healthy eating they faced. I hoped that this study would identify barriers to healthy eating for older single-living New Zealand men. More importantly, I hoped that ways to reduce or remove these barriers would be identified and in this manner future assistance given to men to achieve a healthier diet and consequently a better quality of life.

1.2 Background

In order to place the present research study in context it is necessary to consider the background to the topic. This section presents a discussion of population ageing in New Zealand and the Ministry of Health initiative to support ‘ageing in place’. The characteristics of the ageing population are considered in relation to eating. Specifically, the increased nutritional risk that is associated with ageing. The importance of healthy eating, in order to attain quality of life, is highlighted. Finally, consideration is given to further research needs.

New Zealand’s population is ageing, a change that is often wrongly attributed to the post-war ‘baby boom’. In fact, the demographic transition causing population ageing began in the 1800s (Statistics New Zealand 2006). Up until now, the main effects of population ageing have been seen amongst those under 65 years of age. However, this is set to change. As population ageing continues its transition through the age groups, it is projected that there will be dramatic changes in the proportion of adults aged 65 years and over (Statistics New Zealand 2006). Whereas, the 65+ age group made up 12 per cent of the New Zealand population in 2005, this is projected to increase to over 25 per cent from the late 2030s (Statistics New Zealand 2006). This change in demographics is not unique to New Zealand, or even to western countries. Population ageing is a worldwide phenomenon (Statistics New Zealand 2006).

Population ageing obviously has impacts on the community. In particular, consideration must be given to the increased demand for ageing-related services that will occur. In New Zealand, the government largely has responsibility for the provision of these services. Consequently, the Ministry of Health has launched a strategy to support positive ageing for future generations of older New Zealanders (Ministry of Health 2002). A key objective of this strategy is to provide care and support that allows older adults to ‘age in place’ (Ministry of Health 2002). To ‘age in place’ refers to “the ability to make choices in later life about where to live and to receive the support needed to do so” (Ministry of Health 2002, p. 78). In order to provide the necessary support for older adults to ‘age in place’, the community must understand the needs of older people.

There is a tendency to classify older adults as a homogeneous group, in terms of their needs and characteristics (Bytheway 1995). They are, in fact, an increasingly diverse

group with varying backgrounds and current situations (Statistics New Zealand 2006). Although, one common need that all older adults have is the maintenance of a good health-related quality of life. Nutritional well-being is vital to quality of life (refer to Figure 1.1 below), which in turn is a necessary aspect of successful ageing (American Dietetic Association 2000; Kerschner & Pegues 1998). Thus, maintaining optimal nutritional status is essential for successful ageing and therein is the challenge for older adults.

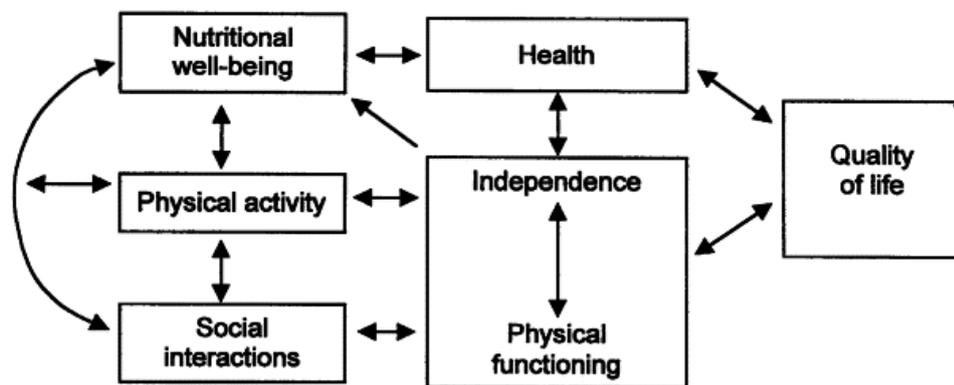


Figure 1.1: “Simplified model of the relationship of nutrition, physical activity, and social interactions on quality of life” (American Dietetic Association 2000, p. 586).

Less than optimal nutrition states, such as malnutrition, are a considerable problem in older adults (European Nutrition for Health Alliance 2006; Visvanathan 2003). Malnutrition is defined as the “state of being poorly nourished” (Hickson 2006, p. 4). The prevalence of malnutrition amongst sick and older adults is significant (Corish & Kennedy 2000; Edington, Kon & Martyn 1996). Insufficient intake of one or more nutrients, known as under-nutrition, is a form of malnutrition. A recent study in the United Kingdom, estimated that 14 per cent of community-dwelling adults, aged 65 years and over, were at medium or high risk of under-nutrition (Margetts et al. 2003). In addition, malnutrition can also take the form of over-nutrition.

Malnutrition results in a deterioration of both physical and psychological function, as well as general wellbeing (Elia 2001). Malnutrition increases the risk of illness (Elia 2001). There is also a direct relationship between malnutrition and both the duration and success of any resulting hospital stays (Hickson 2006). Moreover, risk indicators for

malnutrition are negatively associated with quality of life (Vailas et al. 1998). Consideration must therefore be given to understanding the aetiology of malnutrition.

A number of changes that occur with ageing can precipitate malnutrition, though it is not an inevitable result of ageing (Hickson 2006). A decline in food intake is possibly the major cause of malnutrition (Hickson 2006) and research suggests food intake declines with age (Morley & Thomas 1999). Part of the decline in energy intake with age, is explained by the decreased energy expenditure associated with ageing (Morley 1997). But in some cases the decline in energy intake exceeds the decline in energy expenditure and weight loss results (Morley 2001a). Unintentional weight loss in older adults is independently associated with an increased risk of morbidity and mortality (Bales & Ritchie 2002). Weight loss in addition to a decline in food intake, may predispose to malnutrition (MacIntosh, Morley & Chapman 2000). Hence, both weight loss and a decline in food intake with age are changes associated with poorer nutritional status.

Malnourishment may also take the form of over-nutrition and individuals may present as overweight (European Nutrition for Health Alliance 2006). Poor health outcomes are also associated with overweight in older adults (Bannerman et al. 2002). Indeed, any unintentional weight change in older adults is associated with an increased nutritional risk (Keller, Goy & Kane 2005). In older adults, it is more common for malnourished individuals to be underweight (European Nutrition for Health Alliance 2006) and this is generally considered the major nutritional problem in old age (Bannerman et al. 2002). Thus, whilst recognising the potential impact of over-nutrition and overweight on the health of older adults, the present study primarily focussed on under-nutrition and weight loss.

Significant gender differences exist in terms of dietary problems in older adults. For instance, the decline in food intake seen with age is relatively greater in men than women (Morley 2001a). Gender differences in nutrient intakes with age have also been observed. Kant and Schatzkin (1999) found an increased risk of inadequate intake of several nutrients with age in free-living independent men, but not women. Poor dietary patterns in older men are more strongly associated with living alone than those of older women (Davis et al. 1985). It has been suggested, that older men who live alone may be at high risk for an overall poor diet (Charlton 2002; Horwath 2002).

In New Zealand, older single-living men will continue to be outnumbered by older single-living women for the foreseeable future. However, the proportion of men aged 65 years or older and living alone, is projected to increase. It is estimated that there will be double the number of older men living alone in 2021 as compared to 2001 (Statistics New Zealand 2006).

For older men, living alone means taking responsibility for household management tasks such as food procurement and preparation, something they may not traditionally have been responsible for. Women have had, and continue to take, major responsibility for household management (Bennett 1998; Loudon & Della Bitta 1993). The majority of older men only take responsibility for these tasks when they are living alone following a marital transition, such as bereavement or divorce. Studies have shown that older women use prior experience in food procurement and preparation, in order to cope with these tasks in later years (Howarth 1993; Sidenvall, Nydahl & Fjellstrom 2001). Which begs the question, ‘how do older men cope with household management in later years?’

Relatively little research to date has investigated how older men deal with living alone (Bennett, Hughes & Smith 2003; Hughes, Bennett & Hetherington 2004). As a minority group these men may be particularly vulnerable. Consequently, it is important to understand the specific experiences of older men, in terms of achieving a healthy diet. Understanding their perspectives about food procurement and preparation may help to highlight barriers to healthy eating for this population group. Efforts can then be made to overcome any barriers to attaining optimal nutritional status. The following section presents the research aim that the present study endeavoured to answer in relation to these issues. It also details the specific study objectives.

1.3 Research Aim and Objectives of the Study

It is important that we understand the difficulties that older men living alone face, in terms of meal procurement and preparation. The following research aim was addressed in the present study:

To describe the barriers that a group of older single-living New Zealand men face, when procuring and preparing meals as part of a healthy diet.

More specifically, with the above research aim in mind, the following objectives directed the study:

1. To describe the nutritional risk status of a group of older single-living New Zealand men;
2. To describe the level of understanding and importance of a healthy* diet to a group of older single-living New Zealand men;
3. To describe the personal perspectives of a group of older single-living New Zealand men in relation to procuring and preparing meals;
4. To use the findings to describe a range of practical recommendations for health practitioners to assist older single-living New Zealand men to eat a healthy diet.

The following section provides an overview of the thesis.

1.4 Overview of the Thesis

Chapter One: Introduction

Chapter One provides an introduction to the research study. The researcher's interest in the research topic has been revealed. The background to the research topic has been provided, along with the research aim and specific objectives for the study.

Chapter Two: A Review Of The Literature

A critical review of the literature pertinent to the research topic is presented in Chapter Two. The review focuses primarily on literature published in the last decade. In particular, literature was sought that investigated factors affecting the nutritional status of older single-living men. The review highlights the impact of psycho-social factors on the nutritional status of older adults.

Chapter Three: The Research Process

Chapter Three provides an overview of the methodology and methods employed in the present study. A mixed methods approach, guided by qualitative descriptive methods, was utilised along with general inductive data analysis. The theory and rationale for the

*A 'healthy diet' is defined as one that meets the guidelines for older New Zealand adults (Ministry of Health 1996).

approach, is provided in the first part of the chapter. The actual execution of the study is discussed in the second part of the chapter, along with a review of the rigor of the study.

Chapter Four: Preface To The Findings

The fourth chapter provides an introduction to the study findings. The characteristics of the participants are provided and their nutritional risk status and knowledge is revealed. An outline of the structure utilised to present the findings is provided, highlighting the thematic presentation of the following three findings chapters.

Chapter Five: Individual Circumstances

Chapter Five is the first of three findings chapters. Each of these chapters describes one of the three themes that emerged during analysis of the data. Chapter Five introduces the theme of ‘individual circumstances’, which refers to the personal situation of the individual. The three categories that emerged from this theme were:

- Comfortable or careful – older men’s finances;
- I’m not as mobile as I used to be – mobility and transport;
- Social networks and support.

Chapter Six: Nutrition Knowledge & Skills

‘Nutrition knowledge and skills’, the second theme, is presented in Chapter Six. Two categories are contained within this theme:

- Nutrition knowledge;
- Experience and skills.

Both qualitative and quantitative data are combined to enrich description of the participants’ nutrition knowledge.

Chapter Seven: Food-Related Values

Chapter Seven presents ‘food-related values’, the third and final theme that was developed from the data. Four categories emerged from within this theme, namely:

- The importance of healthy eating;
- Structure in food-related activities;
- Convenience;

- Like it or not, it has to be done – cooking and shopping.

Chapter Eight: Discussion

Chapter Eight provides an overview of the key findings and a discussion of these in light of the original research objectives. The implications of these findings are highlighted, recommendations for future research are provided and the limitations of the study are presented.

1.5 Summary

The number of older single-living New Zealand men is projected to increase as part of New Zealand's changing population demographics. Understanding how to support older single-living men within the wider community is an important part of planning for this demographic change. These men may be a particularly vulnerable group and hence their health and nutritional status is of concern. The purpose of the present research study was to identify the barriers that a group of older single-living New Zealand men faced when procuring and preparing meals as part of a healthy diet.

The current chapter has provided an introduction to the research study. The following chapter presents a critical review of the literature pertinent to the research topic. In particular, it focuses on the diverse range of factors that may impact the eating behaviours of older single-living New Zealand men.

2 Chapter Two: A Review Of The Literature

A variety of inter-related factors may affect the nutritional status of older adults (American Dietetic Association 2000). The following review discusses the literature relating to nutrition issues such as weight loss and poor dietary intake in older adults, with a specific focus on older single-living men. Both weight loss and declining food intake are of particular concern, as these predispose older adults to malnutrition (Hickson 2006; MacIntosh, Morley & Chapman 2000). The review begins with an examination of the age-associated decline in energy intake. This is followed by a discussion of those inter-related factors linked to nutritional status, specifically in free-living older men. The literature review concludes with a brief discussion of a number of theoretical models commonly used to describe food behaviours, in order to highlight the myriad of factors that may impact on dietary behaviours. Understanding the influences on dietary behaviours is the first step in understanding how to minimise the risks of malnutrition and other sub-optimal nutrition states in older adults.

2.1 Age-Associated Decline In Energy Intake

A decline in energy intake has been implicated in the aetiology of malnutrition in older adults (Morley 1997; Visvanathan 2003). A number of longitudinal studies investigating dietary intake in older adults have found a decrease in energy intake with ageing (Koehler 1994; Sjogren, Osterberg & Steen 1994; Vellas et al. 1997). The Baltimore longitudinal study, in particular, observed a decrease in energy intake of up to 25 per cent over a 30 year period in free-living men (Hallfrisch et al. 1990). Thus, it is widely considered that there is an age-associated decline in energy intake that may contribute to malnutrition risk (Morley 1997).

In contrast to this, a longitudinal study involving an older population group in Mosgiel, New Zealand (Fernyhough et al. 1999) observed no age-effect on nutrient intakes, although they observed a significant mean weight loss in both men and women. In the men, this weight loss was associated with a corresponding decrease in energy intake. However, there was no change in the energy intake per kilogram body weight for either the men or the women over the six year period of the study. The absence of an age-effect on energy intake is contrary to the results of longitudinal studies in the United

States of America (USA) and Sweden (Hallfrisch et al. 1990; Koehler 1994; Sjogren, Osterberg & Steen 1994; Vellas et al. 1997).

One possible reason for the contradictory result of Fernyhough et al. (1999) may have been the design of the New Zealand study. A food frequency questionnaire (FFQ) was used to determine food intake, with nutrient intakes calculated from standard age- and sex- specific portion sizes. It has been suggested, that the use of standard portion sizes may have led to the overestimation of follow-up energy intake in the women (Fernyhough et al. 1999). It could also be contended that the same overestimation of energy intake may have occurred with the men, possibly obscuring any age-effect on energy intake.

Portion size has been identified as a key factor in the decreased intake of food associated with age (de Castro 1993). That is, de Castro (1993) observed that lower intakes associated with age were the result of smaller meals, which were eaten relatively slowly. Researchers also found that declining food intake in older rats was caused by the consumption of significantly smaller meals, rather than a declining frequency of meal consumption with age (Blanton et al. 1998). The relationship between decreasing portion or meal size and declining food intake with age is now widely supported in the literature (MacIntosh, Morley & Chapman 2000; Morley & Thomas 1999; Parker & Chapman 2004; Roberts & Rosenberg 2006).

Importantly, all of the longitudinal studies which found an age associated decline in energy intake, determined portion size as part of dietary intake assessment. For instance, diet records with estimated portion sizes were utilised in a number of studies (Elahi et al. 1983; Hallfrisch et al. 1990; Koehler 1994; Koehler, Hunt & Garry 1992; Vellas et al. 1997) and FFQs with a means of estimating the participant's typical portion size were employed in the other studies (de Groot, van den Broek & van Staveren 1999; Sjogren, Osterberg & Steen 1994). In contrast, the New Zealand study, which did not find an age associated decline in energy intake, utilised standard portion sizes to calculate nutrient intake levels from an FFQ (Fernyhough et al. 1999).

The use by Fernyhough et al. (1999) of an FFQ that did not attempt to estimate actual portion size was a significant design flaw, given that portion size is widely thought to reduce with age (de Castro 1993). Given these design limitations, the findings from the

New Zealand study are not considered satisfactory evidence that there is no age-related decline in energy intake in New Zealanders. It is widely agreed that energy intake falls with age (Horwath 2002; Koehler 1994; Sjogren, Osterberg & Steen 1994; Vellas et al. 1997) and it is on this basis that the remainder of the literature review is presented.

2.2 Factors Affecting Nutritional Status of Older Adults

A variety of different factors may affect the nutritional status of older adults and may result in weight loss or malnutrition. Morley (1997), in his seminal work on the ‘anorexia of ageing’, separated the causes of weight loss in older adults into two categories that he termed: ‘physiological’ and ‘non-physiological’ factors. This approach has been applied to the following review of the literature about impacts on the nutritional status of older adults. Firstly, a brief discussion of the nature of the ‘physiological’ and ‘non-physiological’ changes associated with ageing and weight loss is presented. This is followed by a review of the ‘non-physiological’ factors that may impact the nutritional status of older adults, the specific area of interest for the present study.

The ‘physiological’ factors that affect nutritional status in older adults are not yet clearly elucidated (Chapman et al. 2002). Preliminary evidence suggests that the physiological changes related to weight loss, arise through normal ageing of the regulatory system that controls food intake and through alterations to the perceived hedonic qualities of food (Morley 1997). It is important to note that these physiological changes are a normal part of healthy ageing (MacIntosh, Morley & Chapman 2000).

In basic terms, food intake is controlled by a central feeding drive which is linked to a peripheral satiation system. This system also receives feedback from peripheral signals and absorbed nutrients (Morley 1997). It is theorised that ageing results in changes to multiple levels of this food regulatory system. The changes in activity include a decline in the central feeding drive and an increase in the peripheral satiating system (Morley 2001a). In other words, the changes to the food regulatory system impact both hunger and satiation, resulting in a declined food intake (Roberts & Rosenberg 2006).

Ageing may also result in changes to the chemosensory systems, thereby reducing the hedonic qualities of food and further impacting food intake (Morley 1997). Evidence supports a decline in olfaction with age, although alterations to taste sensation with age

are less obvious (Morley 2001b; Rolls 1999). Thus, there continues to be debate about the impact of chemosensory changes on the food intake of older adults (Horwitz, Blanton & McDonald 2002; Rolls 1999).

A decline in taste and smell with age (MacIntosh, Morley & Chapman 2000) may contribute to the decline in sensory specific satiety observed in older adults (Rolls & McDermott 1991). Sensory specific satiety is the progressive decline in pleasantness of a food as it is consumed (MacIntosh, Morley & Chapman 2000). There are conflicting views on the effect this decline in sensory specific satiety has on the dietary variety of older adults (Drewnowski et al. 1997; Morley 2001b; Rolls & McDermott 1991). Drewnowski (1997) poses perhaps a more pertinent question: ‘how important an influence is taste on food intake, in comparison to the variety of other factors that impact food choices?’

Although these ‘physiological’ changes of ageing predispose older adults to weight loss, it is the presence of the ‘non-physiological’ factors in the lives of older adults that is associated with the more harmful anorectic effects (MacIntosh, Morley & Chapman 2000). The ‘non-physiological’ changes of ageing that may impact nutritional status in older adults include a variety of social, psychological and medical factors. Morley (1997) provided the core of these factors. Since then, other researchers have added to this compilation (American Dietetic Association 2000; Hays & Roberts 2006).

Social factors highlighted by Morley (1997) were poverty, functional impairment that limits daily activities, social isolation, elder abuse and poor nutritional knowledge. Psychological factors included depression, dementia, bereavement, alcoholism and a range of other mental disorders (Morley 1997). In addition, a number of medical conditions common to older adults may also impact on nutritional status. For instance, anorexia resulting from illness, oral and swallowing problems, increased metabolism, malabsorption issues, chronic diseases such as cancer and Parkinsonism, and certain drugs that decrease the appetite or increase metabolism (Morley 1997).

The American Dietetic Association (2000) identified residence in particular geographic regions, polypharmacy, dependency and living alone as nutrition-related risk factors. Other identified impacts on an older adult’s nutritional status were culture, transportation, exercise levels, shopping and cooking skills. All of these ‘non-

physiological' factors, along with the 'physiological' factors, impact the nutritional status of older adults in an inter-related manner (refer to Figure 2.1 below) (American Dietetic Association 2000).

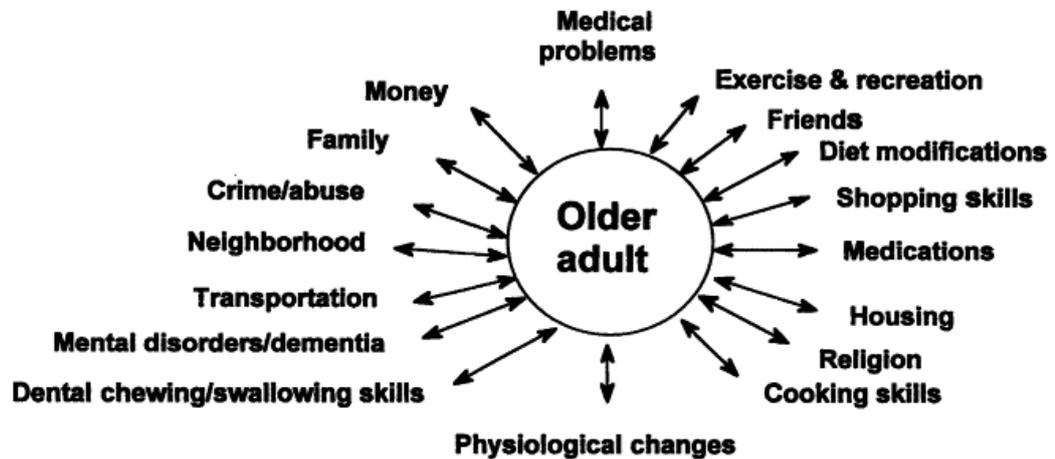


Figure 2.1: “Multiple interrelated factors affecting nutritional status for older adults” (American Dietetic Association 2000, p. 587).

The majority of the ‘non-physiological’ factors, which typically arise with age, are amenable to modification (MacIntosh, Morley & Chapman 2000). To improve the nutritional status of older adults the nature of these social, psychological and medical factors needs to be identified. Then, consideration should be given as to how these factors can be ameliorated (Visvanathan 2003). Underlying diseases can be treated, medications can be modified, environmental and behavioural changes can be instigated. To this degree, an important opportunity exists for reducing nutritional risk in older adults.

Any strategy to improve dietary habits must consider the role of meals in an older adult’s life. Food is a pleasure in itself and research suggests that the enjoyment of food is linked to quality of life (Vailas et al. 1998; Wahlqvist & Savage 2000). Eating is a social occasion (Sydner & Fjellstrom 2005) and for older adults in particular, meals may also add other important dimensions to their lives. Amarantos, Martinez and Dwyer (2001), in their discussion of nutrition and quality of life, suggest that “meals may also add a sense of security, meaning, order, and structure to an elderly person’s day,” and thereby, “imbue that person with feelings of independence, control and sense

of mastery over his or her environment” (Amarantos, Martinez & Dwyer 2001, p. 55). Thus, food and meals are much more than a composition of macro- and micro-nutrients that impact on nutritional status.

Bearing this in mind, a review of the social, psychological and medical factors that may negatively impact nutritional status in community-living older adults follows. Accordingly, factors related to residence in an institution, such as dementia and more severe mental disorders, are not relevant to the research topic and are not included. The following discussion enables an understanding to be gained as to what factors may affect nutritional status in older single-living New Zealand men. Firstly, social factors will be considered, followed by psychological and then medical factors.

2.3 Social Factors Affecting Nutritional Status

2.3.1 Living Alone and Social Isolation

Living alone and social isolation are both factors associated with increased nutritional risk (American Dietetic Association 2000). In New Zealand, the number of older men who live alone is estimated to increase substantially in coming years (Statistics New Zealand 2006). Although there are nutritional risks associated with this living arrangement, the decision to live alone in older age is a personal one and communities must endeavour to support this decision. Understanding how living alone increases nutritional risk is the logical first step towards reducing potential issues.

Living alone is likely to result in more meals being eaten alone. Meals are a social occasion and the presence of other people at meal-times increases the size of the consumed meal (de Castro & de Castro 1989). Moreover, the more people present the greater the size of the meal consumed (de Castro & Brewer 1992), with the presence of family and friends having an even greater impact on food intake (de Castro 1994). This phenomenon is known as social facilitation and older adults are as amenable to the influence of social facilitation as younger adults (de Castro 2002; McAlpine et al. 2003). The reduced opportunities for social facilitation of intake, as a result of living alone, may in part be responsible for a reduction in food intake in older adults (de Castro & Stroebele 2002).

The quality of food consumed may also be impacted by living alone. Food interaction within a family, particularly between marital partners, is positively associated with a more healthful diet (Schafer et al. 1999). Further to this, wives have a substantial role to play in contributing to the quality of husband's diets (Schafer et al. 1999). The first National Health and Nutrition Epidemiological Survey (NHANES) (Davis et al. 1985) in the USA, found more favourable dietary patterns in those living with a spouse and stronger associations between living arrangements and dietary patterns in men than women. A British study also found dietary quality was linked to living status in older men but not women, with older single-living men consuming fewer portions of fruit and vegetables than their peers (Donkin et al. 1998). The presence of a woman in a household appears to have an important influence on the dietary quality of household members (Donkin et al. 1998). Thus, evidence suggests that older men are worse off alone, in terms of dietary quality, than older women (Davis et al. 1985; Donkin et al. 1998).

Not all research supports the view that living alone impacts nutritional status. Living alone was not found to adversely affect nutrient intake in the Survey in Europe on Nutrition and the Elderly: a Concerted Action (SENECA) study (Pearson et al. 1998). Whilst the intake of some nutrients, such as vitamin C, was lower in men living alone; the intake of other nutrients, such as vitamin A and calcium, was higher in these men. There are a number of possible reasons for the positive eating patterns observed in single-living men in Europe. Of particular consideration, is the impact of the support structures and culture surrounding food and meals in the small European towns the SENECA participants resided in, as compared with the NHANES participants in the USA (Pearson et al. 1998).

Living alone may also lead to older adults becoming socially isolated. Social isolation is associated with weight loss (McIntosh, Shifflett & Picou 1989) and generally poorer health outcomes (Locher et al. 2005). Increased nutritional risk in older adults has been associated with social isolation factors such as lack of transport and limited movement within and outside the home (Locher et al. 2005).

Social outings that include shared meals may play an important part in the dietary intake of older men. When older adults dine out at restaurants or consume fast food, they increase their food intake (de Castro & Stroebele 2002). However, men's social

participation appears to decline with age, as a result of the loss of friends with age and more particularly following bereavement (Bennett 1998). Research suggests that it is wives who primarily initiate social engagement (Wilson 1995).

This view is in part supported by the Survey of Older People in New Zealand (Statistics New Zealand 2004). New Zealand men aged 65 years and over had less daily contact with friends and family, not residing in the same household, than women of the same age. Additionally, men aged 75 to 84 years who lived alone had less contact with friends and family than those who lived with others (Statistics New Zealand 2004). Interestingly though, this pattern was reversed in men aged 85 years and over, with those living alone having more contact. Nevertheless, the reduced social participation of single-living men may be partially explained by these gender roles. A further discussion of bereavement and social interaction is continued in a later section (refer to Section 2.4.2 Bereavement).

2.3.2 Poverty and Food Insecurity

The definition of 'quality of life' is subjective, but one factor which appears consistently across cultures is the need for socio-economic security, which impacts food security (Wahlqvist & Savige 2000). Poverty is possibly the most important social factor associated with decreased food intake (Morley & Morley 1995). Further to this, past research has suggested that low income in men who live alone is also associated with a high risk of poor dietary intake (Davis et al. 1985). This social factor is of particular concern with regards to older single-living New Zealand men, as the income of older New Zealand adults is, on average, significantly less than that of younger adults (Statistics New Zealand 2004).

In New Zealand the median gross income for adults aged 65 years and over was significantly less than that for people aged 15 to 64 years at the 2001 Census: \$13,100 per annum versus \$21,200. The situation is typically worse for women than men, with the median gross income for women aged 65 years and over \$12,800 versus \$13,600 for men in the same age group. In terms of non-partnered individuals (defined as those without a partner, though they may be living with other family members or non-relatives) their gross median income was \$14,800 per annum or around 62 per cent of the income for a couple. However, over 50 per cent of non-partnered individuals aged 65 and over had an income between \$10,001 and \$15,000. For 17 per cent of non-

partnered individuals, the New Zealand superannuation was their only income and this situation was increasingly common in those aged 70 years and over (Statistics New Zealand 2004).

Living on a fixed income, such as the New Zealand superannuation, may impact on the food-related lifestyle of older adults (American Dietetic Association 1996). As expenses increase, older adults may choose to reduce their food intake in order to reduce food costs. For example, increases in physical and mental impairments with age may impact on activities such as grocery shopping and food preparation resulting in an increase to food-related costs due to the need to utilise home delivery services, convenience foods or special meals. Additionally, an increased requirement for medication comes at a cost. Hence, older adults may choose to reduce the amount of money spent on food, by reducing the frequency of meals and the amount of food consumed, in order to live within their means (American Dietetic Association 1996).

The Survey of Older People in New Zealand (Statistics New Zealand 2004) found that income levels in 12 per cent of older non-partnered New Zealanders were “not enough to meet their everyday needs, such as accommodation, food, clothing and other necessities” (Statistics New Zealand 2004, p. 39). A further 38 per cent of older non-partnered adults reported having just enough to meet their needs. Economising behaviours were reported by older non-partnered individuals, with over 10 per cent cutting down on visits to the shops and over 30 per cent buying less meat or cheaper cuts of meat, in order to help keep costs down (Statistics New Zealand 2004). Although this survey identifies the living situation of participants, data is not presented by gender and it is well recognised that women are typically worse off financially, suggesting that the percentage of older non-partnered New Zealand men in this situation may be slightly less.

Poverty is a major social cause of food insecurity (Morley & Morley 1995). Food insecurity is defined as “limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways” (American Dietetic Association 1998, p. 337). Key aspects to food security include: economic access, which refers to having the money or resources to purchase food; physical access, that is people being able to access shops with the foods they require; appropriate food access, which refers to food which is socially and

culturally appropriate as well as safe; and sustainable food access that is perceived as such (Booth & Smith 2001).

The 1997 New Zealand National Nutrition Survey (NZ NNS) reported that inadequate finances, one aspect of food insecurity, impacted the food supply of men aged 75 years and over (Russell, Parnell & Wilson 1999). Lack of money for these men resulted in one per cent of respondents eating less; four per cent having a limited variety of food; one per cent using food banks; and two per cent often being stressed about a lack of food for social occasions. Unfortunately, the available data does not highlight the living situations of these men.

The consequences of food insecurity include a negative impact on dietary quality (Booth & Smith 2001). In Australia, food-insecure men consumed significantly less fruit and vegetables than food-secure men (Quine & Morrell 2006). Typically, food insecurity results in under-nutrition (American Dietetic Association 1998). Food insecurity may also lead to distorted eating behaviours (Booth & Smith 2001). Consequently, food insecurity impacts the individual's mental, physical and spiritual well-being (Booth & Smith 2001).

In Australia, an investigation of inadequate finances and food insecurity found that older adults who experienced food insecurity were almost twice as likely to be living alone; almost four times more likely to be renters than home-owners; and four times more likely to report needing household or personal help (Quine & Morrell 2006). This highlights a possible link between living status and food insecurity that is pertinent to any discussion on older single-living men.

Economic factors are not the only cause of food insecurity. Physical access factors such as transport and mobility can also result in food insecurity (Booth & Smith 2001). These factors become increasingly relevant with age, as changes such as loss of a drivers license or vehicle and limited personal mobility increase (Wolfe, Frongillo & Valois 2003). Additionally, health related problems such as physical and cognitive impairment are important causes of food insecurity in older adults (Frongillo & Horan 2004). For older adults these problems may not only impact physical access to food but also the utilisation of food, resulting in food insecurity (Frongillo & Horan 2004).

The 1997 NZ NNS investigated food insecurity in terms of economic constraints, but did not investigate the types of physical access issues that could be expected with older populations (Parnell et al. 2001). Nor did they investigate the impact of the various health related problems, which typically occur with age, on food security. It is possible, therefore, that the proportion of older New Zealanders experiencing food insecurity is greater than that indicated by the NZ NNS (Russell, Parnell & Wilson 1999). Research in older US populations suggests that older men who live alone are at greater risk of food insecurity (Frongillo & Horan 2004). The impact of functional impairments and transport on food security is discussed in more detail in the following section.

2.3.3 Functional Impairment and Transportation

Functional impairment or physical disability in older adults may be defined as limitations to ‘activities of daily living’ (ADLs) or ‘instrumental activities of daily living’ (IADLs) (Guralnik & Simonsick 1993). ADLs include basic activities such as bathing, dressing, using the toilet and eating. IADLs are tasks that are necessary for independent living and so include activities such as shopping, food preparation, house-keeping, using transportation and handling finances (Guralnik & Simonsick 1993). The impact of functional impairments, such as these, on dietary intake has been the subject of a number of studies.

Limited functioning in older adults in the USA impacted food access, preparation and consumption (Lee & Frongillo 2001). That is, even if food was available in the home, the altered ability to use it due to functional impairment could result in food insecurity (Lee & Frongillo 2001). As previously highlighted, food insecurity can negatively impact on dietary quality (Booth & Smith 2001). Lee and Frongillo (2001) did not find an association between social support and functional impairment. Whereas, another study based in the USA, found that social support could alleviate functional impairment issues (Newsom & Schulz 1996). For those living alone, the immediate access to social support for activities of daily living is likely to be more limited.

Functional impairments have also been linked with other dietary-related issues. A study based in the USA, found an association between functional impairment and weight loss (Ritchie et al. 2000). In community-dwelling older Italian adults, the presence of three or more reported difficulties with food-related activities was associated with inadequate intake of energy and vitamin C (Bartali et al. 2003). Reported problems included

difficulty carrying a shopping bag, cooking a warm meal and using fingers to grasp or handle items. In a study of older French adults, decreased physical ability was correlated with decreased food intake (Ferry et al. 2005). Reported physical limitations included difficulties in moving around, carrying even light weights and a fear of falling (Ferry et al. 2005). All of which could limit the older adult's ability to shop and prepare meals.

Older adults have reported being unable to shop for food, due to an inability to stand or walk for long periods of time (Wolfe et al. 1996). Restricted mobility limits the ability of older adults to use all possible strategies to cope with their limited economic resources. Those assisting older adults with food procurement may not be as willing to employ money-stretching strategies such as visiting less expensive stores, using coupons and extensively comparing prices (Wolfe et al. 1996).

Both functional impairments and a lack of appropriate transportation may limit the ability of older adults to participate in 'third place' gatherings with other older adults. 'Third place' gatherings are the informal, voluntary, regular gatherings that occur amongst adults outside of work and home (Cheang 2002). These gatherings are happily anticipated by adults and may be particularly important social occasions for older adults who live alone. They provide an opportunity for pleasurable social interaction with peers and consequently form an important aspect of some older adults' lives and support healthy aging (Cheang 2002).

Lack of access to appropriate transportation may also impact ability to procure food. Older adults report an inability to drive, as an obstacle to completing food shopping (Wolfe et al. 1996). Evidently then, transportation also impacts food insecurity in older adults (Wolfe et al. 1996; Wolfe, Frongillo & Valois 2003) and thus transportation services within the community are a part of the framework of food insecurity (Wolfe et al. 1996).

In New Zealand, a survey was recently conducted to determine how older New Zealanders cope without private transport (Davey 2004). Food shopping was highlighted as one of a number of activities that were likely to generate transport needs. Lack of transport for older New Zealand adults reportedly resulted in missed shopping opportunities, such as sales; seasonal fruit and vegetables; and leisurely shopping

excursions. All of the respondents reported using lifts in other people's cars as a means of transport, but felt they were imposing on others by doing this. Less than half of the respondents utilised public transport. The predominant issue with using public transport was the difficulties encountered in getting on and off a bus. Over 80 per cent of respondents used taxis, although cost was an issue.

It has been suggested that the traditional dimensions of food insecurity (Booth & Smith 2001) be readdressed, to take account of the specific experiences of older adults (Wolfe, Frongillo & Valois 2003). Older adults may have sufficient money to pay for food, but be unable to access or prepare nutritious meals due to functional impairments or lack of transportation (Wolfe, Frongillo & Valois 2003). Thus, food insecurity includes the situation of having the required money for food but not being able to purchase it or prepare meals due to either functional limitations or transport constraints (Morley & Morley 1995; Wolfe, Frongillo & Valois 2003). Consequently, functional impairments and transport constraints may negatively impact older adults' dietary quality.

2.3.4 Cooking and Shopping Skills

Both cooking skills and shopping skills are social factors that may affect nutritional status in older adults (American Dietetic Association 2000). These are two tasks that are generally performed by women (Bennett 1998; Loudon & Della Bitta 1993). Studies suggest that older women rely on their experience and familiar routines in terms of managing food shopping and cooking in their later years (Sidenvall, Nydahl & Fjellstrom 2001). Older men also aim for continuity, but may encounter difficulties in achieving this due to a lack of food experiences (Howarth 1993).

Shopping takes on a role more significant than simply purchasing food items in older adults. In later years adults may become socially isolated and consequently look at shopping excursions as a form of social interaction. These older adults may form social relationships with fellow shoppers or more particularly desire to interact with the retail employees. In addition, the meaning derived from shopping changes substantially throughout the lifetime (Griffith 2003). Suggesting that the shopping scripts that older adults use to direct their food purchases are not only dependent on the shopping skills they have attained but also the meanings and values they attribute to this activity.

A substantial gender difference in cooking skills has been found. In England, only one in five men cooked every day as compared to four out of five women (Caraher et al. 1999). Nearly a quarter of men did not cook or did not feel confident enough to cook a meal from basic ingredients, as compared to seven per cent of women. Age-related changes in confidence were found, still women's confidence levels were higher than men's at all ages. Further to this, twice the proportion of men reported that not knowing how to cook a food was a limiting factor in food choice.

A lack of cooking skills was identified as a barrier to healthy eating in older men living on their own in England (Hughes, Bennett & Hetherington 2004). Researchers found that good self-reported cooking skills were associated with consumption of more vegetables and better physical health. Although cooking skills were negatively correlated with energy intake, possibly due to the higher intake of low energy dense vegetables.

Having cooking skills not only enables individuals to prepare meals but may also provide a degree of knowledge about ready-prepared meals (Caraher et al. 1999). Lack of practical cooking skills or the confidence to use them, may be a barrier to widening food choices and improving dietary behaviours (Caraher et al. 1999). This factor is particularly pertinent to any discussion about older single-living men.

2.3.5 Nutrition Knowledge

There has been much debate over the years about the role that nutrition knowledge plays in dietary behaviour, with some researchers finding a significant association, whilst others have not (Axelson, Federline & Brinberg 1985). A recent substantive study by Wardle, Parmenter and Waller (2000) highlighted a number of issues with past research on nutrition knowledge and dietary behaviour. These included ad hoc measures of knowledge, issues of power to detect small effects and a focus on knowledge about dietary fat. Considerable information has been disseminated in the past about dietary fat. It was suggested that the reason for not complying with low-fat diet messages is unlikely to be lack of knowledge (Wardle, Parmenter & Waller 2000).

Using a validated measure of general nutrition knowledge (Parmenter & Wardle 1999), a small but significant association between knowledge and intake of fruit, vegetables and fat was observed among a random sample of 1040 adult participants in England

(Wardle, Parmenter & Waller 2000). Poor knowledge of recommended fruit and vegetable consumption was also associated with low intake, of these food groups, in adults from a low-income community in England (Steptoe et al. 2003). It has been estimated that nutrition knowledge may actually account for between four and 33 per cent of the variation in dietary intake (Wardle, Parmenter & Waller 2000). A view supported by Worsley (2002) in his discussion of nutrition knowledge and food consumption.

Nutrition knowledge may vary with demographics. A recent English study found that knowledge was lower in men, older adults and those who were single (Parmenter, Waller & Wardle 2000). Consequently, it has been suggested that men's lower intake of fruit and vegetables is in part due to their lower nutrition knowledge (Baker & Wardle 2003). A discussion of impacts on the food behaviour of older single-living men, understandably must consider the impact of nutrition knowledge.

2.3.6 Exercise

Exercise is another social factor that may affect the nutritional status of older adults (American Dietetic Association 2000). In particular, there is a tendency for exercise and leisure time to decline with age (Drewnowski & Evans 2001). It is from this viewpoint that the relationship between exercise and nutritional status in older adults is considered.

Increasing exercise in older adults may increase their resting metabolic rate due to, "an increase in the metabolic activity of lean tissue" (Campbell et al. 1994, p. 174). The net result is that energy intake requirements in older adults will consequently be increased. Micro-nutrient deficiencies tend to increase with lower energy intake (de Groot, van den Broek & van Staveren 1999). Thus, an increase in energy requirements may reduce the risk of micro-nutrient deficiencies in older adults.

Furthermore, limitations in personal mobility, which may result in functional limitations, can be reduced by physical activity (Westerterp & Meijer 2001). Exercise intervention trials have found that training has a positive effect on muscle strength (Westerterp & Meijer 2001). Hence, exercise programmes may allow the older adult to continue performing daily activities that they might otherwise be unable to execute.

2.3.7 Elder Abuse

Elder abuse is defined as occurring when, “a person aged 65 years or more experiences harmful physical, psychological, sexual, material/financial and/or social effects caused by the behaviour of another person with whom they have a relationship implying trust” (Age Concern New Zealand 2005, p. 20). Overseas based studies suggest that between three to five per cent of community-dwelling adults aged 65 years and over suffer elder abuse (Kurrle 2004). Unfortunately, no population based studies on prevalence have been conducted in New Zealand (Age Concern New Zealand 2005).

Elder abuse can result in weight loss through the intentional withholding of food (Lachs & Fulmer 1993; Lachs & Pillemer 2004). Alternatively, weight loss can arise as a result of depression (refer to Section 2.4.1 Depression), a natural response to abuse (Lachs & Fulmer 1993; Lachs & Pillemer 2004). Consequently, malnutrition may result from elder abuse (Collins 2006).

Research suggests that elder abuse is more common in those who are dependent on others, either due to mental or physical impairments (Collins 2006; Kurrle 2004), and those who are socially isolated (Lachs & Pillemer 2004). Victims are also more likely to be women and to be European (Collins 2006). These findings appear to be supported by the incidence of the above characteristics in New Zealand elder abuse victims (Age Concern New Zealand 2005). Interestingly, nearly half of the New Zealand elder abuse clients were single-living (Age Concern New Zealand 2005).

2.3.8 Summary of Social Factors

A variety of social factors may affect the nutritional status of older single-living adults, potentially resulting in weight loss or malnutrition (American Dietetic Association 2000; Morley 1997). Factors with increased risk associated include: living alone; social isolation; poverty and limited incomes; functional impairments and lack of transport; poor nutritional knowledge; lack of cooking and shopping skills; and elder abuse. These factors are inter-related and may ultimately impact the individual at the food procurement, preparation or consumption stage.

This concludes the discussion of social factors that may affect nutritional status in older single-living men. A number of psychological factors may also affect nutritional status.

The following section discusses those psychological factors applicable to older single-living men.

2.4 Psychological Factors Affecting Nutritional Status

2.4.1 Depression

The psychological state of an individual can affect food intake (de Castro & Elmore 1988). Depression, a psychological condition, has been associated with weight loss (Morley 1997), unsurprising given that depressive symptoms include a decrease in appetite (Blazer 2003). Depression was identified as the most prevalent cause of weight loss in a study of elderly out-patients (Thompson & Morris 1991). However, successful treatment of depression can result in reversal of weight loss (Morley & Kraenzle 1995).

It is estimated that clinically significant depressive symptoms are experienced by between eight and 16 per cent of community-dwelling older adults, though the prevalence of major depression is considerably lower (Blazer 2003). In New Zealand, the Mental Health Survey found that 1.7 per cent of adults aged 65 years and over had suffered major depression, as determined by the Ministry of Health, in the previous 12 months (Oakley Browne, Wells & Scott 2006). In New Zealand, the prevalence of major depression was lower in older age groups and men (Oakley Browne, Wells & Scott 2006); findings that are in line with those of international research (Blazer 2003).

Factors associated with depression include: widowhood, particularly for men; functional impairment; cognitive impairment; chronic illness; and a lack of close social contacts (Djernes 2006). Impaired social support has long been associated with late-life depression (Blazer 2003) and is also associated with poorer outcomes in older men (George et al. 1989). A recent New Zealand study found an association between loneliness and depression in older men (Alpass & Neville 2003). The researchers suggest that loneliness may mediate the relationship between social support and depression (Alpass & Neville 2003). This may be particularly pertinent to the circumstances of older single-living New Zealand men.

2.4.2 Bereavement

Marital transitions such as bereavement are more commonplace in older adults. In New Zealand, for instance, the vast majority of un-partnered adults aged 65 years and over

are widowed (Statistics New Zealand 2004). Although bereavement is common amongst older adults, it is no easier to cope with. The loss of a spouse is perhaps one of the most stressful situations that older people face. Not only must the individual cope with the actual grief of the bereavement itself, but they must also cope with the transition from married to single status (Bennett 1998). A widow or widower has less time to acquire the skills required to live alone and cope, as opposed to a person who has never been married and all of this occurs at a time when the person is vulnerable following the bereavement (Arber & Ginn 1991).

Considerable research suggests that a number of negative health outcomes may result from bereavement. For instance, reduced morale and social engagement (Bennett 2005); depression (Bennett, Smith & Hughes 2005); mental and physical illness (Stroebe & Stroebe 1987) have all been linked to widowhood. Further to this, these are all associated with weight loss in older adults (McIntosh, Shifflett & Picou 1989; Sandman et al. 1987; Thompson & Morris 1991).

A recent US study, investigating bereavement and weight loss, found a greater weight loss in widowed versus married adults over a one year period (Shahar et al. 2001). The widows and widowers consumed significantly more meals alone, more commercial meals, less homemade meals and enjoyed their food less (Shahar et al. 2001). The loss of a partner evidently resulted in changes to the social environment, loneliness and a lack of interest in food-related activities such as grocery shopping and meal preparation (Shahar et al. 2001). These findings are in line with a previous US study by Rosenbloom and Whittington (1993). Unfortunately, men were significantly underrepresented in both these studies (Rosenbloom & Whittington 1993; Shahar et al. 2001).

The impact of bereavement may be quite different for each of the genders. Opinion is divided, although it is suggested that men are probably worse off (Stroebe, Stroebe & Schut 2001). A view supported by bereaved men and women (Bennett, Hughes & Smith 2003). Traumatic grief may have a stronger influence on the physical and mental health of men (Chen et al. 1999). Hence, although widowhood may be a more difficult experience for women in terms of financial strain, men appear to experience poorer health, to sustain greater social losses and have more difficulty in dealing with these losses (Lee, Willetts & Seccombe 1998).

There are a number of possible reasons for the poorer health outcomes seen in men following widowhood (Lee et al. 2001). Widowhood is on the whole, more unexpected for men than it is for women (Lee, Willetts & Seccombe 1998). Men may have more to lose, as marriage may be more beneficial for men than women (Bernard 1982). Dietary habits of men appear to be influenced by their wives more so than the inverse (Schafer et al. 1999). Men appear to partake more frequently in unhealthy behaviours, such as smoking and drinking, following bereavement (Zisook, Shuchter & Mulvihill 1990). Widowed men may also be distressed by the need to assume household tasks they have not traditionally been responsible for (Arber & Ginn 1991; Umberson, Wortman & Kessler 1992). Indeed, household management may be the primary mechanism linking widowhood to depression in older men (Umberson, Wortman & Kessler 1992).

Finally, widowed men may interact less with family and friends (Wilson 1995) and receive less support. Although Bennett, Hughes and Smith (2003) found that men received more support than women in widowhood. Possible reasons for a decline in social participation, following bereavement, are that social engagement among elderly couples may be primarily initiated by women (Wilson 1995). Added to this is the need, post-bereavement, to possibly initiate or acquire new household management skills, such as shopping and cooking, which have less social impact and decrease the amount of time available to engage in social activities (Bennett & Morgan 1993). Additionally, social participation may simply decline as a function of mood (Bennett 1998). As already discussed, social participation provides opportunities for shared meals and consequently may improve dietary intake (de Castro 2002; de Castro & Stroebele 2002).

2.4.3 Alcoholism

Alcoholism is a psychological disorder that has multiple negative impacts on health. Alcoholism is associated with weight loss in older adults (Morley & Morley 1995). Alcohol use also interferes with the absorption and metabolism of a number of micronutrients, thus resulting in malnutrition (Marshall, Peters & Preedy 2000). Alcohol abuse may also contribute to accidents, falls and diseases (Mackel, Sheehy & Badger 1994). These in turn may affect the independence of older adults, by impacting on their ability to purchase and prepare nutritious meals.

In New Zealand, nine per cent of men aged 65 years and over were classified as hazardous drinkers in the 1996/97 New Zealand Health Survey (Ministry of Health

1999). Hazardous drinking is defined as “an established pattern of drinking that carries with it a high risk of future damage to physical or mental health, but has not yet resulted in significant medical or psychiatric effects” (Ministry of Health 1999, p. 70). Hazardous drinkers are more likely to attend accident and emergency clinics, be hospitalised and experience alcohol-related social and medical problems (Ministry of Health 1999).

A US study found that at the end of the first year of widowhood, over 34 per cent of widows and widowers had increased the quantity of alcohol they consumed (Zisook, Shuchter & Mulvihill 1990). The factor most significantly associated with this increase was gender, irrespective of age. That is, men were at greater risk of increasing both the frequency and quantity of alcohol they consumed following bereavement. Episodes of depression prior to bereavement and post bereavement were also significantly associated with increased alcohol consumption (Zisook, Shuchter & Mulvihill 1990). For men, alcohol use may be a form of self-medication for depression, as men are reluctant to admit to, or seek treatment for, depression (Weissman & Klerman 1977).

It must also be considered that denial of an alcohol problem is equally as prevalent in older adults as younger adults (Mackel, Sheehy & Badger 1994). Thus, the true proportion of older adults with an alcohol problem is possibly greater than the statistics indicate. Alcohol problems may negatively influence the nutritional status of a number of older single-living New Zealand men.

2.4.4 Summary of Psychological Factors

A variety of psychological factors may affect the nutritional status of community-dwelling older adults, potentially resulting in weight loss or malnutrition (American Dietetic Association 2000; Morley 1997). Key factors include depression; bereavement; and alcoholism. Again, as with the social factors, these factors may impact nutritional status in an inter-related manner through the food procurement, preparation or consumption stages.

This concludes the summary of psychological factors that may affect nutritional status in older single-living men. A number of medical factors may also affect nutritional status. The following section discusses these in relation to older single-living men.

2.5 Medical Factors Affecting Nutritional Status

2.5.1 Oral and Swallowing Problems

A variety of oral health and swallowing problems have been associated with negative nutritional behaviours or weight loss in community-dwelling older adults (Bailey et al. 2004; Ritchie et al. 2002). A widely acknowledged risk factor, such that determining oral health status is now a facet of a number of nutritional risk screening tools for older adults (Green & Watson 2006). Following is a discussion of some of the evidence for these relationships.

Dental status is significantly correlated with dietary intake, in particular micronutrient intake (Appollonio et al. 1997; Ritchie et al. 2002; Sheiham et al. 2001). A lack of teeth, known as edentulousness, may also be a risk factor for significant weight loss in older adults (Ritchie et al. 2000; Ritchie et al. 2002; Weyant et al. 2004). The loss of teeth, irrespective of use of dentures, is associated with reported difficulty chewing (Hildebrandt et al. 1997) and decreased masticatory ability (Krall, Hayes & Garcia 1998). Individuals with reduced numbers of functional units (defined as any opposing natural or prosthetic tooth pair) avoid stringy foods (including meat), crunchy foods (including vegetables) and dry solid foods (including breads) (Hildebrandt et al. 1997). It is possible that the avoidance of these foods may be the mechanism by which inadequate dental status is linked to poorer dietary intake (Appollonio et al. 1997) and weight loss (Hildebrandt et al. 1997; Ritchie et al. 2000).

The food preparation techniques employed for individuals with poor dental status may also impact nutritional well-being. Fruits and vegetables, the predominant source of vitamin C, are often prepared in a well-cooked and softened state, for easy consumption by the edentulous (Sheiham et al. 2001). These extended cooking processes cause greater losses of vitamin C due to denaturing of the vitamin (Sheiham et al. 2001). This may result in lower vitamin C status in edentulous individuals (Sheiham et al. 2001).

The use of dentures appears to partially mediate the negative effects of tooth loss on diet (Appollonio et al. 1997; Ritchie et al. 2000). Unfortunately, many older adults with ill-fitting dentures do not correct these problems by replacing or relining the dentures (Ritchie et al. 2000). Given that diet is partially improved by dentures, there is merit in considering denture use to resolve dietary issues in older edentulous adults.

Other oral health problems may also adversely impact dietary intake. Periodontal status is significantly associated with weight loss in community-dwelling older adults (Weyant et al. 2004). Swallowing problems may impact dietary intake, again through food avoidance practices (Hildebrandt et al. 1997). Low numbers of functional teeth units are associated with difficulty swallowing. This is likely due to chewing inefficiencies resulting in a “poorly prepared bolus that will be difficult to swallow” (Hildebrandt et al. 1997, p. 593). Persistent chewing, swallowing and mouth pain, have been associated with impaired intake of foods and nutrients in rural living adults aged 65 years and over (Bailey et al. 2004). Finally, xerostomia, a dry mouth due to decreased saliva, has also been linked to food avoidance practices (Ritchie et al. 2002).

2.5.2 Medical Conditions

A number of other medical conditions can potentially impact on nutritional status. Most importantly, the side effects of drugs may cause weight loss (Morley 1997). Drug effects include decreased appetite, malabsorption, increased metabolism or a combination of these effects (Morley 1997). Polypharmacy, the use of multiple medications, is also associated with weight loss in older adults (American Dietetic Association 2000). In fact, polypharmacy may be a major nutritional risk factor (Jensen et al. 1997). A thorough review of specific drugs connected to weight loss, in older adults, is provided by Morley (1997).

A range of medical disorders common to older adults also have the potential to impact nutritional status or result in weight loss. For instance, both anorexia and weight loss are associated with dyspepsia (Lee, Kindt & Tack 2004; Thumshirn 2002), a common condition in older adults. Additionally, small bowel bacterial overgrowth, another common condition in older adults, is the most prevalent cause of malabsorption in this group (Elphick, Elphick & Sanders 2006). Numerous other medical conditions such as cardiac cachexia, chronic obstructive pulmonary disease, Parkinson’s disease, cancer, gallstones and hypercalcemia have also been implicated in weight loss in older adults (Morley 1997). Additionally, pain, infections and wound healing may further contribute to weight loss (Hays & Roberts 2006).

2.5.3 Summary of Medical Factors

A number of medical conditions common to older adults may cause weight loss or malnutrition (American Dietetic Association 2000; Morley 1997). The use of certain medications may also affect nutritional status (Morley 1997), with polypharmacy in older adults a particular concern (Jensen et al. 1997). Other medical factors that place older adults at increased nutritional risk include: dental status; periodontal status; swallowing and chewing problems; mouth pain; and xerostomia. Food avoidance practices appear to be the likely mechanism for a number of these oral health issues.

This completes the review of all ‘non-physiological’ factors that may affect the nutritional status of older single-living men. Consideration is now given to other aspects of dietary behaviour. The following section presents a number of different conceptual models that help to clarify the various other influences on dietary behaviours.

2.6 Understanding Dietary Behaviour

A number of theoretical models have been developed to describe or predict the relationship between psychosocial factors and dietary behaviour outcomes. Dietary behaviour is a term used to cover a number of activities such as: food shopping, food preparation and decision-making (Worsley 2002). The most commonly used models in dietary behaviour studies (Achterberg & Miller 2004; Baranowski, Cullen & Baranowski 1999) include the stages of change model (Prochaska & Norcross 2001), the theory of planned behaviour (Ajzen 1991), social cognitive theory (Baranowski, Perry & Parcel 2002) and the health belief model (Janz & Becker 1984). No particular model dominates the nutrition field. They all have a similarly low ability to predict dietary behaviour; in the order of 30 per cent (Baranowski, Cullen & Baranowski 1999).

Whilst recognising that a number of different models have been developed to describe and predict dietary behaviour, only three of the models and theories most commonly employed in dietary behaviour research are reviewed in the present study. In addition, a review of a recently developed conceptual model of food choice capacity (Bisogni et al. 2005) is also provided. These four models provide a cumulative overview of the possible influences on the dietary behaviour of adults and indicate how intervention programmes might best be designed to modify dietary behaviour. Nutrition education interventions in older adults are more likely to produce positive outcomes if they

employ appropriate theoretical models to modify behaviour (Sahyoun, Pratt & Anderson 2004).

2.6.1 The Theory of Planned Behaviour

The theory of planned behaviour (TPB) describes the proximal influences on a person's behaviour in specific contexts (Ajzen 1991). The TPB asserts that the likely performance of a particular behaviour is predicted by the individual's *intention* to perform that behaviour and their *perceived behavioural control (PBC)* (refer to Figure 2.2 below). *Intentions* are the amount of effort, or degree of motivation an individual has to perform a particular behaviour. *PBC* is the individual's confidence in their ability to perform the behaviour (Ajzen 1991). In theory, the greater the *intention* to perform a particular behaviour, the greater the likelihood it will be performed; although this is balanced by the individual's *PBC* (Ajzen 1991).

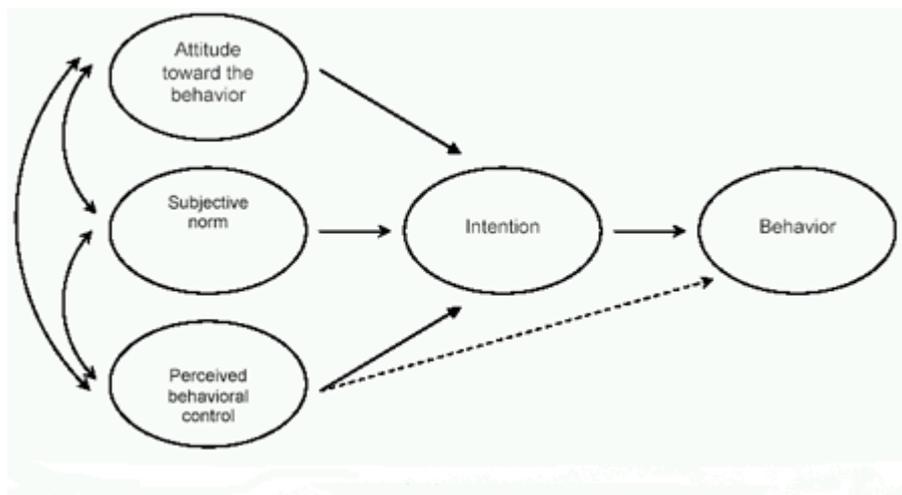


Figure 2.2: The theory of planned behaviour (Ajzen 1991).

Theoretically, the *intention* to perform a particular behaviour is formed by *attitudes towards that behaviour*, *subjective norms* and also *PBC* (Ajzen 1991). *Attitudes* encompass the individual's favourable or un-favourable attitude towards the behaviour. This is formed by an evaluation of beliefs held about the behaviour and the likely consequences. *Subjective norm* refers to the perceived social pressure to perform the behaviour and this is formed by normative beliefs and the individual's motivation to comply. Normative beliefs are the probability that individuals or groups who are important to the individual, approve or disapprove of the behaviour (Ajzen 1991).

Conner, Norman and Bell (2002) applied the TPB to predict long-term healthy eating intentions among patients attending an English health promotion clinic. The researchers found that future healthy eating behaviour was predicted by *intentions* six years prior and that past behaviour had little effect in comparison to intentions. Both *attitudes* and *PBC* were the *intentions* that most strongly predicted future healthy eating behaviour. Thus, the researchers suggest that *attitudes* and *PBC* should be targeted in interventions to improve healthy eating.

The TPB has been criticised for its variable predictiveness in behavioural studies. A key point to note, though, is that *intention* refers to future behaviour. Thus, the relationship between *intention* and a particular behaviour needs to be tested prospectively, rather than cross-sectionally (Baranowski, Cullen & Baranowski 1999).

2.6.2 Social Cognitive Theory

Social cognitive theory (SCT) is a model of interpersonal health behaviour. Behaviour is theorised to be part of a triadic relationship, with personal factors (including cognitions) and environmental factors all interacting dynamically (Baranowski, Perry & Parcel 2002). A key construct of SCT is that of *reciprocal determinism*, which is the simultaneous interaction of behaviours and both personal and environmental influences (Baranowski, Perry & Parcel 2002).

Of particular interest is the role of environmental factors in this inter-personal model. The current study aims to identify barriers to healthy eating and consideration must therefore be given to the environment as a source of barriers. SCT constructs that reflect this angle are *environment*, which includes factors external to the individual, and *situation*, which refers to the individual's perception of the environment. A number of other SCT constructs reflecting personal factors and health behaviour are reviewed elsewhere (Baranowski, Perry & Parcel 2002).

The most salient point highlighted by SCT, in terms of the current study, is that health behaviour, personal and environmental influences form a triadic relationship. That is, all three of these dimensions simultaneously interact with the others to produce an outcome. Intervention programmes aimed at improving healthy eating in older single-living men, must recognise the influence of both personal and environmental factors on health behaviour. Various intervention programmes have provided support for the

effectiveness of SCT (Perry, Baranowski & Parcel 1990). Although there are a number of problematic issues with the SCT, these mainly arise from the diverse definitions of the various constructs (Baranowski, Cullen & Baranowski 1999; Baranowski et al. 2003).

2.6.3 Health Belief Model

The health belief model (HBM) was originally developed by social psychologists, in the 1950s, to explain the failure of people to participate in widely available screening programmes, aimed at preventing or detecting disease. Since that time, its use has extended beyond screening behaviours to a number of different preventative, illness and sick-role behaviours (Janz, Champion & Strecher 2002).

The HBM contains six key variables (refer to Figure 2.3 below). *Perceived susceptibility* is the individual's perceived risk of contracting a particular health condition. *Perceived severity* is the individual's perception of the likely consequences of that condition. This would include medical, clinical and possibly social consequences. When combined with *cues to action* and the individual's *demographic and psychosocial variables*, the *perceived threat* of the specific health condition results (Janz & Becker 1984).

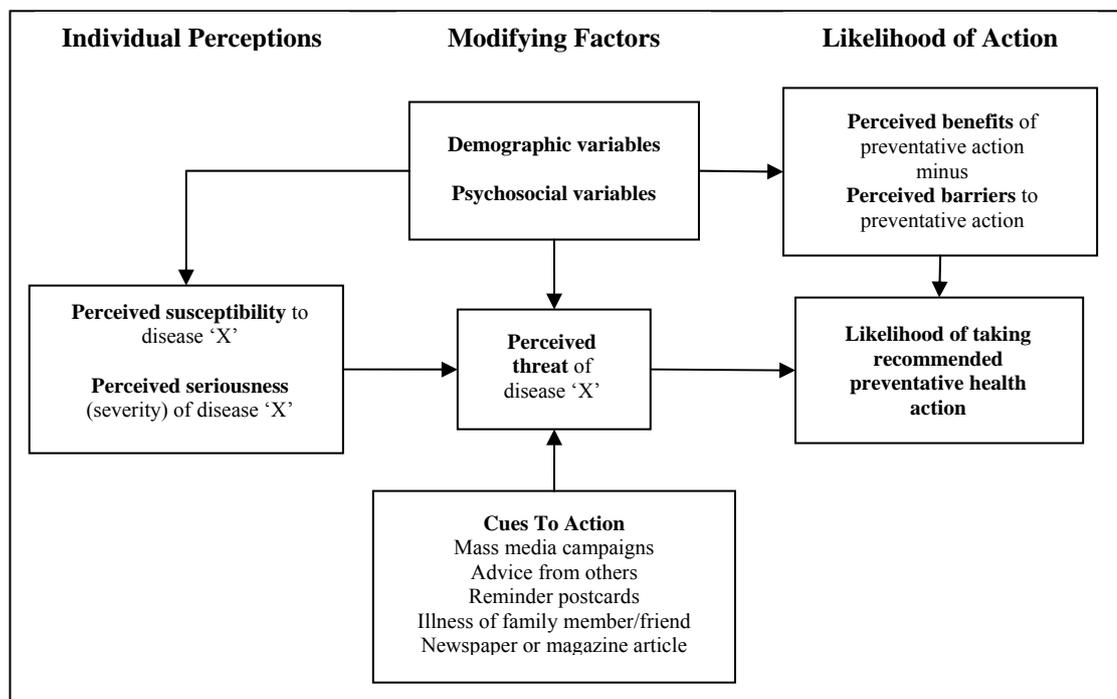


Figure 2.3: The health belief model (Janz & Becker 1984).

The likelihood of an individual taking a *recommended preventative health action* depends not only on their *perceived threat* of that health condition, but also the *perceived benefits* of the preventative health action and the *perceived barriers* to that action (Janz & Becker 1984). In effect, an individual undertakes a form of cost-benefit analysis to decide whether the path of action is worth the effort, given the perceived threat of the health condition.

Health conditions of concern in older adults, in terms of the present study, are sub-optimal nutritional states such as malnutrition. Healthy eating is one *preventative health action* for reducing the risk of this health condition. Based on the HBM, the *likelihood of taking a recommended preventative health action*, such as healthy eating, is dependent on both the *perceived threat* of malnutrition and also the *perceived benefits* and *barriers* to healthy eating. The aim of the current research study, in relation to the HBM, is to identify the *perceived barriers* to healthy eating.

Janz and Becker's (1984) review of the HBM found substantial support for the constructs. However, it has since been suggested that self-efficacy be added to the HBM constructs (Janz, Champion & Strecher 2002). More research is required in terms of experimental interventions aimed at modifying health behaviours (Janz, Champion & Strecher 2002). Interestingly though, 'perceived barriers' was the most powerful predictor of behaviour across the studies reviewed by Janz and Becker (1984). Identifying the perceived barriers to healthy eating, for older single-living men, may therefore enhance understanding of their dietary behaviour.

2.6.4 Food Choice Capacity

The recently developed conceptual model of food choice capacity (Bisogni et al. 2005), provides another view of the possible influences on food management and eating. *Food choice capacity* is an individual's "abilities to meet their standards given their circumstances and food management skills and the extent to which they were actively trying new strategies to achieve their standards" (Bisogni et al. 2005, p. 286). The three core themes in this model, all influenced by *life course events and experiences*, come together to influence *food choice capacity* (refer to Figure 2.4 overleaf).

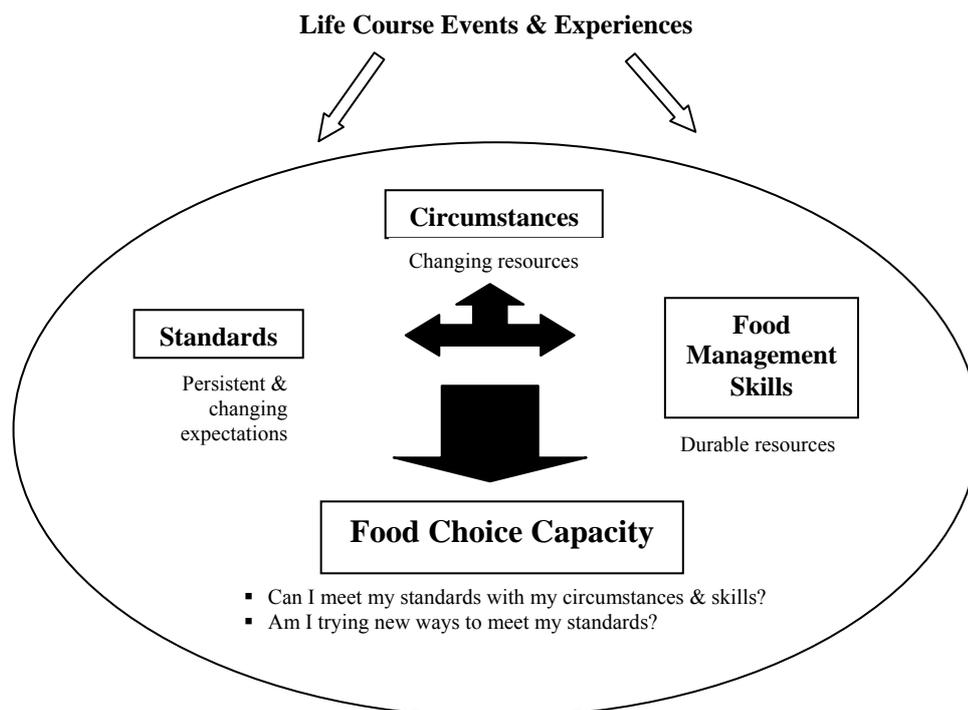


Figure 2.4: “A conceptual model for the influence of standards, circumstances, and food management skills on food choice capacity” (Bisogni et al. 2005, p. 286).

The three core themes influencing *food choice capacity* are *circumstances*, *food management skills* and *standards*. *Circumstances* are the personal, social and environmental circumstances of the individual that influence their food choice behaviour. *Food management skills* include knowledge and abilities that individual’s have to procure and prepare meals. *Standards* are the range of expectations that individuals have about food. Whereas, *circumstances* can change over a life-time, both *food management skills* and *standards* tend to accumulate over time. The three themes work together in an inter-related manner to create an individual *food choice capacity* (Bisogni et al. 2005).

This conceptual model reinforces a core dimension of dietary behaviour; the standards that people hold about food. The model also recognises the importance of circumstances and skills to food choice capacity. In terms of the current research study, consideration must be given not only to circumstances and skills but also to the standards that older single-living New Zealand men hold about food. The researchers suggest that “recognizing people’s experiences and perspectives in food choice is important”

(Bisogni et al. 2005, p. 284). People's standards may differ and this must be recognised when designing interventions to improve food-related behaviours (Bisogni et al. 2005). By understanding the standards and perspectives that older single-living New Zealand men hold in terms of food-related activities, more appropriate programs can be developed to improve their behaviours.

2.6.5 Summary of Understanding Dietary Behaviour

These theoretical models, though relatively low in predictiveness (Baranowski, Cullen & Baranowski 1999), provide an insight into the nature of the influences on dietary behaviour. The models have a number of key components in common, such as: consequences; attitudes and beliefs; skills; confidence; environmental factors; and motivators (Worsley 2002). It has been suggested, that a better understanding of dietary behaviour may be gained by combining variables from several of the existing models (Achterberg & Miller 2004; Baranowski, Cullen & Baranowski 1999).

By considering the variables highlighted by each of these theoretical models, a more thorough understanding of dietary behaviour is gained. The theoretical models emphasise the role that personal factors, such as beliefs, attitudes and standards have to play in food choice decisions. They also highlight the important part that the environment plays. It is logical, therefore, to consider these influences in the current study and how they may act as barriers to healthy eating. Understanding how dietary behaviour is influenced will also assist in the development of effective dietary intervention programmes (Baranowski, Cullen & Baranowski 1999).

2.7 Summary - What Is Currently Known?

The nutritional status of older single-living men is impacted by a number of factors. Firstly, the normal 'physiological' changes of ageing result in declining energy intake (Morley 1997). Secondly, a number of 'non-physiological' changes of ageing may exacerbate these normal changes and critically impact nutritional status (Morley 1997). The risk factors for poor nutritional status include a range of social, psychological and medical factors. The inter-related nature of these factors has been highlighted, along with various other possible influences on dietary behaviour, as suggested by dietary behaviour models.

Relatively little information has been published on nutritional risk factors for older single-living New Zealand men. Thus, the relative importance of each of these risk factors, with regards to successful meal procurement and preparation, is unknown. How influences such as beliefs and attitudes, affect food-related activities in these men is also unknown. The present study sought to identify the barriers that a group of older single-living New Zealand men faced, in procuring and preparing meals as part of a healthy diet. The following chapter presents the research process followed for the study. It begins with a discussion of the theory and rationale for the study design, followed by a review of the actual methods that were executed.

3 Chapter Three: The Research Process

A mixed methods approach guided by qualitative descriptive methods was employed for the present study. Semi-structured interviews were the key data collection method, with a nutrition knowledge questionnaire and nutritional risk assessment questionnaire utilised to enrich description. The qualitative data were analysed using a general inductive data analysis approach; the quantitative data were used for descriptive purposes. The theory and rationale for the study design are discussed in the first part of this chapter. The second part of the chapter describes the methods used in the execution of the study.

3.1 Theory and Rationale – A Background to the Study Design

3.1.1 Mixed Methods Approach

The purpose of research is to “validate and/or refine existing knowledge and to generate new knowledge” (Axford et al. 2004, p.4). Research is based on differing principles, philosophies and assumptions that are referred to as the research methodology (Holloway 1997). In the past, research in the field of nutritional science has tended towards the quantitative angle (Fadé 2003). This is beginning to change, with researchers recognising the contribution that qualitative research approaches offer to understanding human behaviour and nutrition (Draper 2004). This current section details the background to the selection of a mixed methods approach guided by qualitative descriptive methods.

Mixed method studies “use qualitative and quantitative data collection and analysis techniques in either parallel or sequential phases” (Teddlie & Tashakkori 2003, p. 11). Mixed methods studies can take many forms but one approach is concurrent mixed analysis for complementarity and completeness (Happ et al. 2006). In this manner, more than one research method is used to gain a better understanding of the various aspects of the phenomenon being investigated, rather like the pieces of a jigsaw puzzle producing a full picture (Erzberger & Kelle 2003).

Understanding what approach to take for a research topic requires serious consideration of the research aim. The research question that guided the present study was: ‘what are the barriers that older, single-living, New Zealand men face when procuring and preparing meals as part of a healthy diet?’ The research question was a ‘what’ question

that sought to understand the viewpoint of older single-living New Zealand men. The fundamental way to determine whether a study is qualitative or quantitative is to check whether the aim is to answer 'what', 'how' or 'why', rather than 'how many' or 'how much' (Green & Thorogood 2004). A qualitative methodology appeared to be the most relevant approach for addressing the research question. Qualitative approaches are also considered particularly pertinent when the aim of the research is to understand the viewpoint of participants (Green & Thorogood 2004).

When reviewing the specific research objectives of the present study, it was apparent that the decision was not so straight-forward. Two of the research objectives, were searching for information not typically the domain of qualitative research. Specifically, the first objective was to describe the individual's nutritional risk status and the third objective was to describe each individual's understanding of a 'healthy' diet. These two objectives were seeking answers in the form of quantitative information. That is, they were seeking to determine 'how much' nutritional risk and 'how much' nutrition knowledge each individual had.

Mixed methods studies are a way of combining both qualitative and quantitative data to answer a research question. In concurrent mixed analysis, a priority method is paired with a contrasting method, to enrich description and in the process provide completeness (Happ et al. 2006). In the present study, the priority method was qualitative and the complementary method it was paired with was quantitative. In this way, quantitative data were used to enrich the description of the participants (Morse 1991). The two different methods conferred different strengths to the study and thereby enhanced the completeness (Happ et al. 2006).

Describing the participants in their world, as it existed for them, was a key feature of the research objectives of the present study. Descriptive studies are typically considered the first level of research (Axford et al. 2004). They involve describing or characterising phenomena and sometimes relationships between phenomena (Axford et al. 2004). Descriptions should accurately convey events and the meanings that study participants ascribe to those events (Sandelowski 2000).

All description requires interpretation to some degree. Fundamental qualitative description involves a degree of interpretation that is low, as compared to other

qualitative descriptive approaches (Sandelowski 2000). In fundamental qualitative description the researcher is not required to describe an event through a model or framework (Sandelowski 2000). Rather, “qualitative descriptive studies offer a comprehensive summary of events in the everyday terms of those events” (Sandelowski 2000, p. 336).

This statement by Sandelowski (2000) encapsulated the approach required. Hence, the mixed methods approach of the present study was guided by qualitative descriptive methods. The qualitative descriptive methods, as the priority method, guided all decisions such as sampling. The quantitative methods were used to enhance the description of the participant’s world. The background and rationale for the specific methods employed in the study are considered next. Beginning with a discussion of the two quantitative methods employed to describe nutritional risk and nutrition knowledge.

3.1.2 Nutritional Risk – SCREEN II Tool

The first objective of the research study was to describe the nutritional risk status of the participants. Nutritional risk screening is “the process of identifying characteristics known to be associated with nutrition problems” (Council on Practice Quality Management Committee 1994, p. 838). Screening for nutritional risk in community dwelling older adults is an important preventative health measure (Green & Watson 2006). Those individuals who are at risk nutritionally or malnourished, can be identified and measures taken to deal with those concerns (Council on Practice Quality Management Committee 1994). Nutritional risk assessment was performed in the present study, to enhance the description of the study participants and also to place their perspectives on nutrition in context.

Nutritional risk is determined by evaluating a range of nutrition related parameters in an individual. Tools for nutritional risk screening may take different forms and may require administration by a trained health professional such as a doctor, dietitian or nurse. They may have a purely questionnaire based structure or they may also involve biochemical measures (Green & Watson 2006). It was imperative for the present study, that the nutritional risk screening tool employed had the capacity to be used by the researcher in the community. This removed from consideration all tools involving biochemical measures and all tools that must be administered by a nurse, dietitian or doctor.

Seniors in the Community: Risk Evaluation for Eating and Nutrition - Version II (SCREEN II) a tool for identifying nutritional risk and designed for use in the community was employed. SCREEN II is a 14-item questionnaire designed to identify those community-dwelling older adults who are at risk for impaired nutritional states (Keller, Goy & Kane 2005). The three core attributes assessed by SCREEN II were weight change, food intake and risk factors for inappropriate food intake. Food intake assessment involved determining the typical daily consumption of various food groups such as: fruit and vegetables; meat, eggs, fish, poultry and meat alternatives; milk products; and fluid. Risk factors for inappropriate food intake included: skipping meals; limiting or avoiding foods; appetite; oral and swallowing problems; number of meals eaten alone; feelings about meal preparation; and problems with food procurement. Thus, SCREEN II provided a snapshot of some of the nutrition-related barriers each individual was currently facing, revealed any weight changes and provided a basic assessment of current eating habits.

The validity and reliability of SCREEN II was established within an older Canadian population (Keller, Goy & Kane 2005). Construct validation was determined by comparing SCREEN II results to a dietitian's rating of nutritional risk based on anthropometric, dietary, biochemical and medical information of the individuals. There was a significant correlation between the dietitian's rating and the SCREEN II score ($\rho=-0.62$, $P=0.01$). Test-retest reliability was adequate (intra-class correlation (ICC)=0.83, 95% confidence interval (CI) (0.75, 0.88)), as was inter-rater (ICC=0.83, 95% CI 0.74, 0.89) and intra-rater (ICC=0.90, 95% CI 0.80, 0.95) reliability (Keller, Goy & Kane 2005).

The SCREEN II tool (Keller, Goy & Kane 2005) was employed to describe the nutritional risk status of the participants recognising its limitations (refer to Section 8.8). SCREEN II provided a means of identifying characteristics that were of nutritional concern, in terms of weight change or barriers to healthy eating. This information provided an enhanced understanding of the participant's life and enabled their perspectives on nutrition to be placed in context.

3.1.3 Nutrition Knowledge

The second research objective of the present study was to describe the understanding and importance of a healthy diet to the participants. There were two components to this

statement. Firstly, describing the understanding and secondly, the importance of a healthy diet. Whereas, the importance of a healthy diet was addressed through qualitative methods, in particular the semi-structured interview, it was necessary to employ an alternative method to describe the participant's understanding of a healthy diet. Nutrition knowledge plays a part in food choice decisions (Wardle, Parmenter & Waller 2000). Thus, lack of nutrition knowledge may be a barrier to healthy eating.

Hughes, Bennett and Hetherington (2004) highlighted the discrepancy between men's self-assessed knowledge of a healthy diet and their knowledge as assessed by other means. It was therefore decided to employ a relatively more objective means of assessing the participant's knowledge of healthy eating than the participant's opinion. It was imperative that any tool employed to describe the men's nutrition knowledge could be administered in the community. A review of the scientific literature produced a number of questionnaire based tools. Many of these were designed for adolescents, specific medical conditions or limited food groups and were therefore unsuitable for the task. A general nutrition knowledge questionnaire designed for adults was employed for this research (Parmenter & Wardle 1999).

The general nutrition knowledge questionnaire consisted of 50 items separated into four basic sections (Parmenter & Wardle 1999):

- Knowledge about dietary recommendations;
- Sources of nutrients;
- Choosing everyday foods;
- Diet-disease relationships.

The questionnaire met psychometric criteria for reliability and construct validity. Construct validity was demonstrated, by a group of dietetic students consistently scoring higher than a group of computer science students. From a possible score of 110, the dietetic students had a mean score of 98.8 (SD 8.1), versus a mean of 60.1 (SD 16.1) for the computer science students. In addition, the internal consistency of each section was high (Parmenter & Wardle 1999). The questionnaire terminology reflected the original target audience, British adults. Minor changes to questionnaires to reflect cultural differences are considered acceptable, as long as these changes do not alter the meaning of the item (Schaller & James 2005).

Thus, the general nutrition knowledge questionnaire (Parmenter & Wardle 1999) was employed to describe the knowledge levels of the participants recognising its limitations (refer to Section 8.8). The questionnaire provided insights into the participant's understanding of four key areas of general nutrition and enabled the participants' perspectives on nutrition to be placed in context. It was not expected to provide a valid measure of the participant's nutrition knowledge nor to provide a detailed, in-depth analysis of the men's nutrition knowledge.

3.1.4 Understanding Their World – Semi-Structured Interviews

The overall aim of the research study was to describe the barriers that a group of older single-living New Zealand men faced in procuring and preparing meals as part of a healthy diet. This research aim required an understanding of the world of the participants, in effect to 'walk in their shoes'. Interviews provide an opportunity not simply to get answers to questions, but rather to understand both the experiences (Seidman 2006) and perspectives of other people (Patton 2002). Hence, interviews were deemed the most appropriate data collection method to answer the research aim, with the assistance of the quantitative methods.

The use of interviews, typically in a semi-structured format, is common in qualitative descriptive studies (Sandelowski 2000). Semi-structured interviews generally follow an interview guide, that contains a set of broad questions or themes which the interviewer wishes to cover (Sheppard 2004). There is flexibility in terms of the sequencing and asking of the questions (Minichiello et al. 2004) and the development of further unscripted questions during interviews, through the use of probing or general conversation, is acceptable and in fact encouraged (Sheppard 2004).

The opportunity for probing, by the interviewer, is an important strength of interviews (Johnson & Turner 2003). They can also provide in-depth information to the researcher (Johnson & Turner 2003). However, care must be taken with probing as this can introduce bias through leading questions (Rapley 2004). When conducted in a semi-structured format, utilising an interview guide, the interview is somewhat more systematic and increases the comprehensiveness of the data collected (Johnson & Christensen 2004).

The relationship between the interviewer and the participant is an important aspect of interviews. A number of social forces such as class, ethnicity, race, gender and age can affect this relationship (Seidman 2006). Particular consideration was given to social forces, given the gender and age differences between the researcher, a thirty-four year old woman, and the participating men, who were seventy-five years of age or older. Being conscious of the gender and age differences, is the first step towards minimising their effects (Seidman 2006). By then displaying sensitivity in interviewing and systematically reviewing transcripts after each interview, issues can be highlighted and addressed prior to subsequent interviews (Seidman 2006).

Conducting in-person interviews and analysing the data produced from open-ended questions can be time-consuming (Johnson & Turner 2003). Open-ended questions, in particular, can result in a lot of irrelevant information that is referred to as ‘dross’ (Field & Morse 1985). The production of dross can be reduced if the interviewer engages in active listening and directs the interview appropriately (Field & Morse 1985). Thus, these limitations were not major issues for the present research study.

3.1.5 Qualitative Data Analysis – A General Inductive Approach

A general inductive approach was utilised in order to analyse the raw data produced from the interviews (Thomas 2003). The main purpose of the general inductive approach is “to allow research findings to emerge from the frequent, dominant or significant themes inherent in raw data, without the restraints imposed by structured methodologies” (Thomas 2003, p. 2). The general inductive approach provides a straightforward set of procedures for researchers unfamiliar with the process of analysing qualitative data, removing the need to learn and understand the technical language associated with other traditional approaches to qualitative analysis (Thomas 2003).

The basic process that analysis takes in the general inductive approach is to form categories from the raw data. Upper level categories or themes are generally based on the research aims. Lower level or more specific categories emerge from close reading of the text. The ultimate goal is to derive between three to eight categories that concisely present the themes of the raw data. These can then be used in or with a theory or model, to describe the research findings if desired (Thomas 2003).

This concludes the review of the background to the study design. The remaining sections of Chapter Three explain the actual execution of the research study. Commencing with a discussion of the ethics process and concluding with the data analysis phase.

3.2 Ethics

Researchers have a responsibility to conduct all research involving human participants in an ethical manner. Massey University has a code of ethical conduct that outlines the ethical principles that student researchers must adhere to when conducting research with human participants (Massey University 2005). This study conformed to the ethical standards of the Massey University Human Ethics Committee (Albany) and was granted approval to proceed (refer to Appendix I).

Participation in the study was voluntary. All participants were provided with an information sheet and consent form (both written in a larger 14pt font to assist with readability) for their independent review (refer to Appendix II and III). These documents outlined the study procedures, the likely time commitment and the participant's rights. The participant's rights were also verbally highlighted at the start of the meeting. The consent forms were signed at the start of the meeting and an anonymous identity code was assigned to the participant, as part of the process of ensuring confidentiality of the collected information. Care was taken in the execution of the questionnaires and interviews, in order to minimise any discomfort the participant may have felt when discussing their personal life. The researcher also developed a standard routine for meeting the participants in their homes, in order to ensure her own personal safety. This included notifying a third party of the appointment details and the safe completion of these.

Any individuals identified as having an increased nutritional risk were offered support services to rectify this, although they were not required to accept these services. All hard copies of study documents were, and are, accessible only to the researcher and the research supervisors. All electronic data are protected by password. Arrangements have been made for the safekeeping of the hard copies of data for five years and then its subsequent disposal by the research supervisor.

3.3 Sampling Process

In qualitative research a purposive sampling technique is often employed, whereby participants are specifically selected in order to generate the most appropriate data (Green & Thorogood 2004). The overall objective of purposive sampling is to gain “information-rich cases for study in depth” (Patton 2002, p. 230). This differs from quantitative studies, which typically aim to find a sample representative of the population (Llewellyn, Sullivan & Minichiello 2004). The mixed methods approach utilised for the present study and all other methodological decisions were guided by the qualitative descriptive methods. Theoretically then, a purposive sampling technique was the logical choice.

However, whilst bearing this sampling technique in mind, a convenience sampling approach was employed for the present study. As implied by the name, convenience samples are selected on the basis of convenience rather than in an attempt to represent the population (Gliner & Morgan 2000). Participant recruitment for the present study was performed through Age Concern North Shore and their associated clubs. Age Concern North Shore is part of the national network of Age Concern, a charitable, non-profit organisation focussed on promoting quality of life for older people. Recruiting participants through Age Concern North Shore ensured that participants of the desired demographic criteria were more readily accessible. The limitations of this sampling technique are discussed in a later section (refer to Section 8.8).

The demographic criteria for selection of participants were also developed in consultation with Age Concern North Shore. The criteria were designed to limit participation to those individuals who were actively involved in food procurement and preparation. Sampling focussed on the following basic criteria, namely participants were:

- Men aged 75 years or older;
- Who had lived alone for a period of at least three months;
- Residing in the wider community (i.e. not within an institution, hospital, nursing-home or rest-home);
- Living relatively independently (i.e. preparing some or all of their own main meals);
- Proficient in the English language.

Although in New Zealand the age of 65 years plus is widely used as a definition of older adults, this was considered relatively young for the objectives of the present study. In order to focus on the ‘older’ old, the age of 75 years plus was set. Generally statistics are presented in three decade based brackets for older New Zealanders, namely 65-74 years, 75-84 years and 85 years plus (Statistics New Zealand 2004). This age limit assisted with comparison of most statistical information on older New Zealanders.

3.4 Accessing Participants

In order to target potential participants of the desired demographics, Age Concern North Shore was approached for assistance with recruitment and other project support. Age Concern North Shore had connections to a number of clubs and associations patronised by older adults, as well as the infrastructure to support participants following the study completion. Age Concern North Shore agreed to provide assistance with recruitment and also support for the participants post-study.

Once ethics approval was received, a recruitment advertisement was published in Age Concern North Shore’s monthly newsletter. The researcher also attended a Prescott Club luncheon, a club aimed at lonely older adults, to highlight the study and hand out recruitment flyers. Finally, the researcher contacted various North Shore organisations such as ‘Senior Citizens’ and ‘60s Up’ and if the club organiser was amenable to assisting, they were supplied with recruitment flyers to distribute to their members.

Individuals interested in participating contacted the researcher either by telephone, email or post. Following this, the researcher arranged a suitable time to discuss the study, via the telephone, with the individual. An overview of the study was provided and eligibility to participate was ascertained. If the individual was eligible and still interested, the information sheet and consent form were posted out for their independent review (refer to Appendix II and III). Individuals who were not eligible or not interested were thanked for their time and consideration.

A follow-up call was conducted one week later with each of the individuals who had received the information sheet and consent form. The researcher sought and responded to any further queries the individual had. If the individual still wished to participate in the study, an appointment was made to visit them at their home. The individuals were

advised to retain their consent form for that meeting. If the individual did not wish to participate, they were thanked for their time and consideration.

3.5 Sample Size and Data Saturation

There are no specific guidelines for sample size of qualitative studies (Llewellyn, Sullivan & Minichiello 2004) however there are two basic criteria for what constitutes sufficient participant numbers (Seidman 2006). Firstly, there must be adequate numbers to reflect the range of different participants in the population being studied. Secondly, the study should aim to reach a point where there is a saturation of information. Saturation is the point at which the interviewer is not hearing any new information.

Practically, it may be possible to determine the range of participants required for sufficiency. However, it is rather difficult to determine at what point information saturation will be reached. An estimate of the number of participants required to reach information saturation was required. Green and Thorogood (2004) suggest that the simple answer to the question of how many people to interview is, “however many will be credible to the users of your research” (Green & Thorogood 2004, p. 102). Other researchers suggest that anywhere from five to 25 data sources may be required (Crabtree & Miller 1999; Kvale 1996; Lincoln & Guba 1985). Bearing this information in mind, a sample size of about 10 participants was anticipated for the study. In practice, 12 participants were recruited and completed all the study procedures.

3.6 Data Collection

3.6.1 Meeting With The Participants

Data collection was undertaken during one meeting with the participant at their home. A meeting schedule was used to ensure all the necessary processes were followed ethically and appropriately at each participant meeting (refer to Appendix IV). The meeting with the participant was structured to consist of four main parts. The following sections describe the procedures that were followed.

3.6.2 Introduction And Rights Of The Participant

The meeting commenced with an introduction of the study and a review of both the information sheet and consent form. The participant was given the opportunity to ask questions and their rights were reiterated. In particular, the right to refuse to answer any

questions at any time; the right to take a break during the process; the right to withdraw from the study up until the time of the interview and the right to confidentiality. Once these steps were complete, the consent form was signed and an anonymous identity code allocated to the participant, the questionnaire was then commenced.

3.6.3 Completing The Questionnaire

The SCREEN II tool and the nutrition knowledge questionnaire were combined with the demographic questions into one questionnaire (refer to Appendix V). This three part questionnaire was loaded onto the researcher's laptop computer in the form of an excel spreadsheet and answers were recorded directly into it. The questionnaire was administered by the researcher and took between 30 to 60 minutes to complete. After completing the questionnaire the participant was given a short break. During this time the researcher set-up the audio equipment for the following semi-structured interview.

3.6.4 The Semi-Structured Interview

An important step in conducting successful interviews is the development of rapport with the participant (Seidman 2006). The interview was purposely positioned as the last procedure of the meeting, in order to allow the participant and researcher to develop some rapport. Whilst encouraging conversation, a relatively formal relationship was maintained with the participants in the present study; as too much rapport can create problems, by possibly altering or distorting what the participant reports during the interview (Seidman 2006). The semi-structured interview was conducted and audio-taped, using a standard mini-tape recorder as well as a digital recorder for back-up.

An interview guide was used to direct the semi-structured interview (refer to Appendix VI). The questions in the guide were based on the key findings from the literature pertaining to the aim of the research study; to describe the barriers that the participants faced when procuring and preparing meals as part of a healthy diet. The questions were grouped into eight different sections:

- Sources of their food/meals;
- Shopping;
- Cooking;
- Nutrition knowledge;
- Motivation for healthy eating;

- Health;
- Financial situation;
- Advice/assistance.

The participant was firstly invited to describe the ‘source of their meals’ for a typical week. After this standard opening question, the remainder of the interview was flexible. Further topic areas were introduced as appropriate. The interview generally concluded with the ‘advice/assistance’ section of questions.

3.6.5 Meeting Closure

The final part of the meeting involved thanking the participant for their time and ensuring they had all of the relevant contact details for the researcher and her supervisor. Finally, they were advised when to expect feedback on the study outcomes.

3.7 Qualitative Data Analysis

In qualitative research studies, an alternating process of data collection and data analysis exists. This cyclical or repetitive process is known as interim analysis (Johnson & Christensen 2004). In the present mixed methods study, interviews were performed as opportunities arose over a number of weeks. As time permitted, the audio-tapes from each completed interview were transcribed and reviewed. A deeper understanding of the data was gained during the review and transcription process and this guided the ongoing data collection process. The following sections describe more fully the process of inductive coding that was employed.

3.7.1 The Process of Inductive Coding

A general inductive approach was utilised to analyse the raw data produced from the interviews (Thomas 2003). This approach begins with the transcription of the audio tapes and ends with the continued revision of a category system. Both the research objectives and the raw data guide the data analysis (Thomas 2003). The research objectives for the present study were based around the research aim; to describe the barriers that a group of older single-living New Zealand men face, when procuring and preparing meals as part of a healthy diet. With the research objectives in mind, the data was repeatedly reviewed and categories developed. Following is an explanation of the general inductive analysis process that was conducted.

3.7.1.1 Preparation of Raw Data Files

The first step in analysing the qualitative data was the preparation of the raw data files in a common format. This involved transcription of the audio-tapes into written form. All the interviews were recorded on both a tape recorder and a back-up digital recorder. Each participant's audio-tape was reviewed multiple times and the transcript prepared during this process. When the transcript was fundamentally complete, it was verified against the digital recorded version and modifications made as necessary. All 12 participant interviews were transcribed by the researcher in this manner.

Care was taken to ensure the transcripts reliably reproduced the words that were used in the interview. A standard set of transcript conventions were used in the production of the transcripts (Green & Thorogood 2004). Consideration was given to the appropriate use of punctuation, to indicate how sentences were structured by the speaker. Stutters, pauses, interruptions, stresses placed on particular words and the use of slang were all recorded in the transcripts. Unclear words were recorded in round brackets or if completely undecipherable, they were noted as such. Any additional information required to understand the context of the discussion, such as a visual action, was noted in square brackets in the transcript. The anonymised identity code was used as a reference on the transcript and any references to the participant's name within the transcript were replaced with an agreed pseudonym.

Each completed transcript was printed out on A4 paper with the transcript conventions appended to the top. The transcript was posted to the participant for their review. A letter included with the transcript explained the transcript review process the participant should undertake. When the transcript was returned it was checked for comments by the participant and their sign-off. Any participant advice on unclear material was rechecked against the audio-tapes and altered if the researcher concurred.

Having conducted the interviews, transcribed the audio-tapes and reviewed the transcripts at completion, the researcher was well familiar with their content. Conducting this process with each of the participant's interviews enabled the researcher to gain an overall view of the raw data. The following section describes how the raw data were analysed.

3.7.1.2 Creation of Categories

The creation of categories or themes typically involves the development of upper level categories from the research objectives, as well as lower level or more specific categories derived from the raw data itself (Thomas 2003). The process of developing the lower level or more specific categories begins with multiple, close readings of the raw data.

After closely reading the raw data from the present study multiple times, with the research objectives in mind, sections of text that were of interest were highlighted. These sections of text were then summarised on a separate sheet of paper with references to the transcript line number. The summarised text sections from each participant were then reviewed and placed into categories created from the meaning of the text or actual phrases used (Thomas 2003).

The collections of categories from each of the 12 participants were then cross-compared and common categories formed for all 12 of the transcripts. At this point, a total of 26 lower level categories were identified. Through a process of continual review these were reduced to nine lower level categories. These nine categories were:

- Comfortable or careful – older men’s finances;
- I’m not as mobile as I used to be – personal mobility and transport;
- Social networks and support;
- Nutrition knowledge;
- Experience and skills;
- Importance of healthy eating;
- Structure in food related activities;
- Convenience;
- Like it or not, it has to be done – shopping and cooking.

The following table (refer to Table 3.1 overleaf) presents two examples of these categories, defines the categories and provides examples of the type of text associated with each category.

Table 3.1: Examples of Categories

Category Label	Comfortable or careful – older men’s finances	Convenience
Category Description	The financial situation of the participants and how this impacted their food-related activities.	A goal of time- and/or effort-efficiency sought by the participants, in regards to food-related activities.
Category Text Examples	<p>“I’m ... comfortable ... I mean I don’t have to worry about ... the cost of food, the price of food doesn’t affect me at all”</p> <p>“when you’re on a fixed pension, you’ve got to be careful you know I mean ... I try to save what I can”</p>	<p>“No I just like simple things that’s easy to prepare.”</p> <p>“I mean speed’s of the essence with me ... I don’t want to spend too much time cooking and eating.”</p>

Closer investigation of the categories revealed similarities amongst them. Each category was grouped together with other similar categories. Thus, the nine categories that emerged from the data were arranged into three themes, namely:

- Individual circumstances;
- Nutrition knowledge and skills;
- Food-related values.

Each of these three themes was supplemented with the quantitative data. The results of this data combination are presented in Chapters Five, Six and Seven.

3.8 Quantitative Data Analysis

The quantitative data produced from the questionnaire, following basic analysis, was utilised to enhance the description of the study participants. The questionnaire contained three main parts: nutritional risk status, nutrition knowledge description and demographic information about the participants. Following is an overview of the quantitative data analysis process.

In terms of the nutritional risk assessment, the total SCREEN II score was used as an indication of the participants current nutritional risk status (refer to Appendix V for a guide to scores). The maximum score for SCREEN II is 64; the lower the total score, the greater the nutritional risk. The SCREEN II Toolkit scoring guide states that a score <54 indicates some nutritional risk and a score <50 indicates high risk, the point at which individuals should be referred for further nutritional assessment with a dietitian or physician. For the purposes of the present study, the high risk score of <50 was used as the point at which participants were offered post-study support, through Age Concern North Shore, to improve their nutritional status.

In regards to the nutrition knowledge questionnaire, a sub-total for each of the four sub-sections was calculated as well as a total score for the nutrition knowledge questionnaire (refer to Appendix VII for questionnaire answers and a guide to scores). Descriptive statistics in the form of means and standard deviations for each of these scores were determined using Microsoft Office Excel 2003. In addition, the demographic part of the questionnaire was coded and the information used purely to describe the sample of participants.

3.9 Writing up the Findings

Each of the three core themes that were developed, along with their associated categories, are presented in a separate findings chapter. Participant's quotes have been used to enrich the description of each category and to enable a fuller understanding of the participant's perspectives. In order to improve the readability of the quotes, appropriate editing of dross has occurred. Following is an example of a participant quote in its original form and then its edited version.

Original quote:

“I’ve got a I’ve got a navy, I’ve got a, a ehm, a navy pension and I’ve also got a, ehm, a war disability pension, which um, um, wh-both of which help me out quite a lot mm.” (Bill, p. 7).

Quote following editing:

“I’ve got a ... navy pension and I’ve also got a ... war disability pension ... both of which help me out quite a lot ...” (Bill, p. 7).

All efforts have been made to ensure the editing does not alter the apparent meaning of the participant. Punctuation is used to highlight how the participant phrased the words, rather than how the words would ideally be punctuated. Pseudonyms are used at all times to protect the confidentiality of the participants.

3.10 Rigorousness of the Study

Rigor refers to the process followed to ensure a research study demonstrates acceptable standards of validity. Rigor is essential in order to achieve validity in research (Whittemore, Chase & Mandle 2001). Standards of validity are necessary in order for research to be of value to the wider community.

A range of different terms have been used to assess quality in research, with particular differences between the qualitative and quantitative research fields (Fade 2003). Whilst the present research study employed both qualitative and quantitative methods, the priority methods were qualitative. While acknowledging that quantitative research is typically judged on the issues of validity, reliability and reproducibility (Fade 2003), the quality strategy for this research study was guided by the issues typical of qualitative research. Hereafter, qualitative validity is discussed with reference to the criteria of *credibility, authenticity, criticality and integrity* (Whittemore, Chase & Mandle 2001). These four criteria represent a synthesis of many viewpoints on qualitative validity, with particular emphasis given to influential viewpoints such as that of Lincoln and Guba (1985). Moreover, these criteria have been recommended for use within the human nutrition and dietetics field (Fade 2003).

Credibility refers to the goal of ensuring the meanings attributed to data are accurate (Whittemore, Chase & Mandle 2001). This was achieved by reflexivity, that is, the researcher provided an overview of her background and interest in the research topic. In this manner any biases and personal perspectives were exposed. Credibility was enhanced by use of triangulation during coding of the data. Coding decisions were discussed and agreed with a research supervisor, who was experienced in this field. Member checking was also utilised to enhance credibility. Member checking involved transcripts being returned to participants, who then had the opportunity to check the transcript for accuracy before authorising its use in the study.

Credibility was also enhanced by the researcher preparing all of the transcripts from the audio-tapes. This adds to the depth of detail that can be infused into the transcription process. The significance of a pause or raised voice is more likely to be recognised by the researcher during transcription, than a third party. All audio-tapes from the interviews were retained. Furthermore, the selection of a well recognised qualitative framework, methodological approach, sampling strategy and data analysis procedure, add to the credibility of the study. All of these have been openly discussed, referenced and reasons given for their selection. Finally, it is anticipated that credibility will be further enhanced when the results are disseminated.

Authenticity is the “extent to which the research reflects the experiences of the respondents as they lived them and perceived them” (Fade 2003, p. 144). Authenticity is closely linked to credibility and so it was also enhanced by the previously discussed member checking. Authenticity was also enhanced by the use of ‘thick description’ in the findings of the research study. ‘Thick description’ refers to quoting of significant blocks of raw data (Fade 2003). Authenticity is further augmented by the semi-structured approach that was taken to interviewing. Semi-structured, as opposed to structured, interviewing allows the participants to talk about issues that are of importance to them, rather than those that are important to the researcher.

The final two qualitative validity criteria that required consideration were criticality and integrity. *Criticality* was contributed to by way of reflexivity and the triangulation process utilised in the coding of the data, as previously discussed. *Integrity* was demonstrated by the ethical approach taken to the study. It was also demonstrated by the achievement of credibility, authenticity and criticality (Fade 2003).

3.11 Summary

In summary, this chapter has provided an overview of the methodology and methods employed in the study. A mixed methods approach guided by qualitative descriptive methods was utilised. Ethics approval was granted by the Massey University Human Ethics Committee (Albany). A convenience sample of 12 participants was recruited. Semi-structured interviews, a nutrition knowledge questionnaire and nutritional risk assessment questionnaire were completed by each of the participants. The collected qualitative data were analysed using a general inductive data analysis approach, whilst

the quantitative data were analysed to produce descriptive statistics. The theory and rationale for these approaches was provided in the first part of the chapter. The actual execution of the study was discussed in the second part of the chapter.

Three core themes encompassing nine categories emerged from the collected data. The following chapter introduces the participants and the overall findings. This is then followed by three chapters that present the themed findings.

4 Chapter Four: Preface To The Findings

This chapter provides an introduction to the findings of the present study. The demographic characteristics of the participants, their nutritional risk status and knowledge levels are provided. An outline of the findings is also presented, highlighting the thematic presentation of the following three findings chapters.

4.1 *The Participants*

In total, 12 men who were residing in the North Shore City region participated in the study. These men, all of whom were over 75 years of age, had a variety of educational backgrounds, family situations and marital statuses (refer to Table 4.1 below). Of those men who were widowed, three had experienced this marital transition within the past five years. Also, four of the men reported moving homes within the past five years. One of the participants reported being on a special diet; a low cholesterol diet.

Table 4.1: Characteristics of Study Participants (n=12)

Characteristics	Participants (n)
Age (yr)	
75-79	2
80-84	9
85-89	1
Race/ethnicity	
New Zealand European	9
British	2
South African	1
Marital Status	
Never married	1
Separated	1
Divorced	2
Widowed	8
Children	
None	2
One	2
Two or more	8
Highest Education	
No qualifications	2
High school qualifications	3
Technical or trade certification	5
University qualification	2

4.1.1 Nutritional Risk Assessment

An assessment of the participant's nutritional risk was performed, in order to place in context the perspectives of the men that participated in the study. Nutritional risk screening identifies characteristics that are associated with nutrition problems, including malnourishment (Council on Practice Quality Management Committee 1994). SCREEN II was used for this purpose (Keller, Goy & Kane 2005).

A range of different characteristics were identified as contributing to the nutritional risk of the participants. The more common nutritional risk characteristics amongst the participants were: eating alone frequently (100 per cent); a low meat/alternative intake (58.3 per cent); meal preparation not enjoyable (50 per cent); and weight considered too high/low (50 per cent). Other nutritional risk characteristics were present, but less common amongst the participants (refer to Table 4.2 below). There were no reports of unintentional weight change, limiting or avoiding foods, difficulty swallowing, difficulty chewing, or frequent use of meal replacements amongst the participants.

Table 4.2: SCREEN II Item Scores – Characteristics Contributing To Nutritional Risk

SCREEN II Item ^a	Proportion (%) of Participants with Scores ≤ 2 ^b
Weight change (gain/loss) or weight unknown	8.3
Weight considered too high/low	50.0
Skips meals	8.3
Poor appetite	8.3
Low fruit and vegetable intake	33.3
Low meat/alternative intake	58.3
Low milk product intake	41.7
Low fluid intake	8.3
Eat alone frequently	100.0
Meal preparation not enjoyable	50.0
Difficulty grocery shopping	8.3
Nutritional risk (<50)	50.0

^aSCREEN II items are the questions from SCREEN II. ^bSCREEN II items with scores less than or equal to two, out of a maximum score of four, potentially lead to 'nutritional risk' (Keller et al. 2006).

Scores from all of the SCREEN II individual items were added together to produce a total nutritional risk score for each participant (refer to Appendix V, Section A). The total possible SCREEN II score was 64, with lower scores indicating increased risk and scores below 50 indicating a high nutritional risk. The participants were graded as having either a low to moderate nutritional risk (low NR) or a high nutritional risk (high NR) based on the total SCREEN II score (refer to Table 4.3 overleaf).

Table 4.3: Participant Nutritional Risk Assessment Using SCREEN II Score

Low to Moderate Nutritional Risk (Low NR)		High Nutritional Risk (High NR)	
Participant Pseudonym	Score \geq 50	Participant Pseudonym	Score < 50
Jim	56	Laurie	48
Bill	54	Frank	48
John	52	Jack	47
George	51	Bob	47
Fred	50	Paul	45
Arthur	50	Harry	44

In total, 50 per cent of the men were identified as having a low NR and 50 per cent a high NR. These overall nutritional risk assessments have been used in the description of the participants throughout the findings chapters. The nutrition knowledge of the men will now be considered.

4.1.2 General Nutrition Knowledge

A general nutrition knowledge questionnaire was completed by all 12 participants. Scores were calculated for the overall questionnaire and each of the four sections (refer to Appendix VII), along with means and standard deviations. Unfortunately, no nutrition knowledge assessment of an adult New Zealand population was available for comparison. However, the same nutrition knowledge questionnaire was utilised to assess demographic variation in knowledge amongst British adults. Hence, a comparison of the results from the present study with those of the British adults is provided (refer to Table 4.4 below) (Parmenter, Waller & Wardle 2000).

Table 4.4: General Nutrition Knowledge – Comparison of Older Single-Living New Zealand Men to British Adults (Parmenter, Waller & Wardle 2000)*

Knowledge Section (max score)	Older New Zealand Men (n=12)		British Adults* (n=1040)	
	Mean	SD	Mean	SD
Dietary recommendations (11)	7.9	1.8	8.1	1.8
Sources of nutrients (69)	38.2	9.8	45.6	11.63
Choosing everyday foods (10)	5.6	2.0	7.4	1.83
Diet-disease relationships (20)	6.7	2.0	7.35	3.41
Total Score (110)	58.3	12.7	68.5	-

Dietary recommendations appeared to be reasonably well understood by the participants with an average score of 72 per cent for this section of the questionnaire. However, the participants were not as conversant with identifying sources of nutrients (55 per cent) or choosing everyday foods that met specific dietary requirements (56 per cent). By far the weakest area for these men, in terms of nutrition knowledge, was that of diet-disease relationships with an average score of 34 per cent.

4.2 Outline Of The Findings

The purpose of the present descriptive study was to understand the barriers that a group of older single-living New Zealand men faced, in procuring and preparing meals as part of a healthy diet. Three core themes were developed from the produced data. These themes were:

- Individual circumstances;
- Nutrition knowledge and skills;
- Food-related values.

Contained within these three themes were nine categories (refer to Figure 4.1 below). These inter-related themes and categories influenced the food-related activities of the group of older single-living New Zealand men who participated in the study.

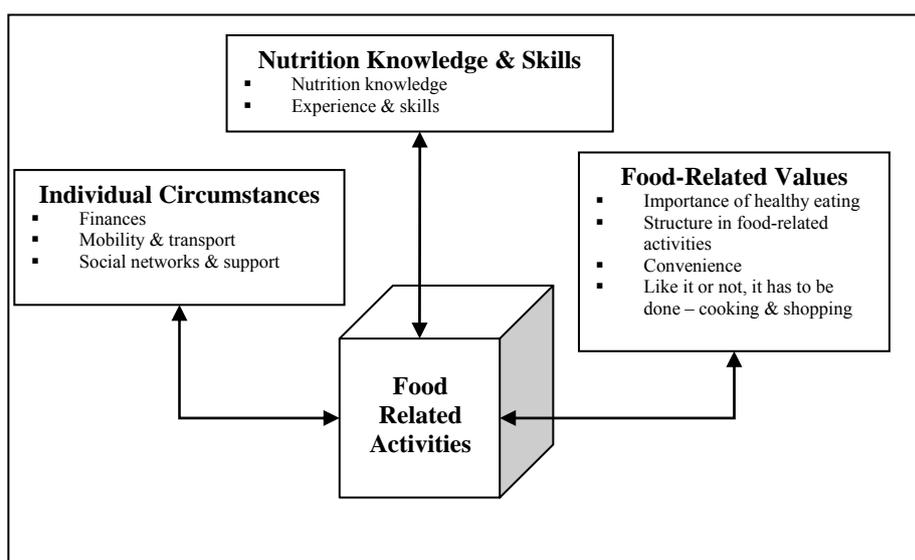


Figure 4.1: Influences on older single-living New Zealand men's food-related activities.

Similarities were noted, between the themes that emerged from the present study and those highlighted by Bisogni et al. (2005) in their food choice capacity conceptual model. ‘Food choice capacity’ represents the individual’s “confidence in meeting their standards for food and eating given their food management skills and circumstances” (Bisogni et al. 2005, p. 284). A comparison of the themes from the two studies is provided (refer to Table 4.5 below).

*Table 4.5: Comparison of Themes from the Present Study to the Food Choice Capacity Model (Bisogni et al. 2005)**

Present Study – Core Themes	Food Choice Capacity Model* - Core Themes
Individual Circumstances	Circumstances
Nutrition Knowledge and Skills	Food Management Skills
Food-Related Values	Standards

The similarities between the themes that emerged from the present study and those of Bisogni et al. (2005) bear further consideration. Thus, throughout the findings chapters, the food choice capacity conceptual model of Bisogni et al. (2005) is referred to, in order to identify any common features or key differences. The following three chapters present the findings of the present research study. Each chapter introduces one of the three themes that were developed, along with the associated categories that are related to each of the themes. The first of these findings chapters introduces the theme of ‘individual circumstances’ and its related categories.

5 Chapter Five: Individual Circumstances

Older adults are often considered to be a homogeneous group (Bytheway 1995). In reality, older New Zealand adults are a diverse group with diverse backgrounds, experiences and personal circumstances (Statistics New Zealand 2006). The theme *individual circumstances*, reflects the diversity of the study participants. It exposes the varying personal, social and environmental circumstances of the participant's lives. The importance of understanding this point was highlighted by the men themselves.

... the circumstances are so important ... (Paul, p. 8).

So ... he's on top of it. But in a different set of circumstances to myself. (Jim, p. 8).

You can't ... make hard and fast rules, you've just got [to] each live our own ... life according to ... the circumstances. (Jim, p. 8).

This first findings chapter introduces the theme of *individual circumstances*, a theme that contains three core categories, namely:

- Comfortable or careful – older men's finances;
- I'm not as mobile as I used to be – mobility and transport;
- Social networks and support.

Parallels are drawn between the theme *individual circumstances* and that of *circumstances* in the food choice capacity model of Bisogni et al. (2005) (refer to Section 2.6.4). Factors such as an individual's employment, income, family situation and health condition are examples of factors that are considered cumulatively as *circumstances* by Bisogni et al. (2005). Consideration will now be given to the nature of the *individual circumstances* highlighted in the present study of older single-living New Zealand men.

5.1 *Comfortable or Careful - Older Men's Finances*

'Comfortable' and 'careful' were words used by the men to describe their financial situation and approach to food procurement. The financial situation of the men was one characteristic of their individual circumstances. Whilst some participants described themselves as comfortable, others expressed a need to be careful with their money, in

regards to food purchases. The individual's life course and personal circumstances impacted their financial situation. Following is a presentation of these findings.

A number of the men in the study described themselves as comfortable and stated that finances did not affect their food choices.

... I can live quite comfortably ... and some to spare as well. (Fred, p. 9).

... I wouldn't describe myself as well off, but I'm ... comfortable ... I mean I don't have to worry about ... the cost of food, the price of food doesn't affect me at all ... (Bill, p. 6).

... I don't have to worry about what I spend ... but others do. (Harry, p. 8).

Well no it doesn't worry me, I've got a few investments ... I know some people have a bit of a struggle you know, 'specially if they're paying rent. (George, p. 9).

Receiving personal superannuation income, in addition to the government superannuation, was a component of having a more comfortable state of finances.

... I often wonder how some of them manage to live on ... the pension. I've got two pensions so I've got a teacher's pension as well as ... the national superannuation. (Fred, p. 9).

I've got a ... navy pension and I've also got a ... war disability pension ... both of which help me out quite a lot ... (Bill, p. 7).

Look, I'm fortunate ... through, alright ... the amount of work that my wife and I did enabled us to ... own the house ... [and] my naval service, was superannuated ... I don't have to go in, and for example, look at the cheapest cuts of meat ... yes it just means that ... I don't have to sort-of, scrimp. (John, p. 18).

The loss of a partner sometimes resulted in changes to the men's financial situation. For those with personal superannuation schemes, this meant greater disposable incomes. Conversely, for those surviving solely on the government superannuation, their

available income was halved with the loss of a partner and consequently the income available for food purchases was decreased.

... I don't have any problem buying food necessary food. Ah I have adequate income, thank goodness. Well it was designed for two people and I'm only one. (Arthur, p. 7).

Of course when I ... lost my wife, my income got cut in half ... you know so I had a bit more ... I used to keep a record of, how much I was spending on shopping but now ... I only get ... two sixty a week really ... yeah, that's got to pay for everything, power everything you know ... I've just got to watch myself, like over, food. (Frank, p. 5).

One participant had emigrated from England eleven years earlier. He reported that he did not receive either a New Zealand or a British pension. Consequently, his only income was a small private pension fund. This impacted on his food purchasing habits.

... I get a very small pension from British Telecom, which is about well ah works out at about, depending on the rate ... if the, dollar goes up my pension goes down ... if it goes down my pension goes up, right. I think I get about ... nearly four hundred a month, dollars ... British Telecom pension. (Laurie, p. 11).

... [I] just get the bare necessities what I need. (Laurie, p. 12).

In addition, to the impact of widowhood and emigration, other life experiences such as separation and divorce impacted on the financial situation of some men. One participant had cashed in his personal superannuation scheme in order to fund an unsuccessful custody battle for his two younger children. He now found himself living in a council flat on a limited income. For those participants living on a fixed single pension, as a result of varying life courses, the need to be careful with finances was reported.

... I'm careful with what I do you know. (Jack, p. 10).

... I've found that a lot of the stuff in New World is cheaper than Countdown, and when you're on a fixed pension, you've got to be careful you know I mean ... I try to save what I can ... (Laurie, p. 2).

I've got a little bit behind me but I've got to watch, I don't spend too much otherwise I'll be, you know scratching. (Frank, p. 6).

For most of the men, looking after the finances or being careful, involved shopping for bargains, buying items on sale and even selecting supermarkets based on the budget ranges of products they stocked.

I shop where the bargains are where I can. (Fred, p. 3).

... these items [large cuts of meat] are usually bought when they're on ... special, and then they're stuck in ... a spare freezer down below ... (John, p. 2).

... I go to the one [supermarket] where the cheapest is. (Laurie, p. 12).

... you know Pams stuff? ... well that's a lot cheaper than the stuff that's in Countdown. So if ... there's something specific I need I go into New World, which I know is going to be cheaper than it is in Countdown. (Laurie, p. 2).

Although supermarkets were generally well liked, there was a concern about the price of fruit and vegetables in these stores. A number of the men talked about regularly purchasing their fruit and vegetables from specialist green grocers who were cheaper.

... I quite like supermarket shopping ... except the vegetables which I think always they're over-priced ... (John, p. 5).

... my vegetables as a rule I'll either buy ... in a shop in Devonport which is just a fruit and veg shop or there's another one, in at Hauraki where exactly the same thing applies ... (John, p. 2).

... any vegetables you want you should never buy or fruit you should never buy in, supermarkets they're a lot lot dearer than the proper shops, you know like the vegetable shops. (Laurie, p. 3).

I get my vegetables from a Chinese ah greengrocer down in Browns Bays here. (Fred, p. 3).

In the case of Fred though, the drive to save money was not as strong as the desire for convenience. He stated that if he was already in the supermarket and he needed fruit and vegetables, then he would purchase them at the supermarket rather than make the extra effort of visiting his Chinese greengrocer. Fred described himself as comfortable financially, with “some to spare as well” (Fred, p. 9). Being careful with finances may not have been as necessary for Fred as it was for others, such as Laurie who was living on a limited British Telecom pension. For some participants, balancing a limited income with increasing expenses negatively impacted food choice decisions.

All depends what price bananas are, if they're reasonable I'll get bananas put it on top of me, cornflakes ... (Laurie, p. 14).

... they put the prices up though they [frozen meals] used to ... be three fifty, and they put the prices up and [it] was getting ... warmer so I thought oh, I'll cut down a bit, you know an', save me, in the hot weather, so I went on to the smaller meals ... (Frank, p. 9).

Those individuals without transport or who had limited personal mobility had added financial pressures to balance in relation to food procurement. Harry, who no longer had a driver's license or a car, spoke about the difficulties of getting to the supermarket. Sometimes Harry couldn't get an appointment with his children for a lift to the supermarket and this ultimately affected his choice of shopping venue and thus the cost of food purchases.

... [I] make do yes, yeah. [I] might go along to the local corner store. To buy a few essentials ... it's ... very expensive compared to the supermarkets but ah, needs must ... you better have something rather than nothing. (Harry, p. 3).

Jack's financial situation was further complicated, by both a lack of personal transport and personal mobility issues. Problems with his hips prevented him from carrying heavy loads of food any substantial distance. So he continued to ponder the balancing act he faced between transport costs and food prices.

... I have no problems with the food shopping what-so-ever except that what is perfectly true the local dairy shop ... probably by the

time you spend your money and your transport to the supermarket and back from the supermarket, you[re] just probably not really gaining anything very much ... there. (Jack, p. 4).

5.2 I'm Not as Mobile as I Used to Be – Mobility and Transport

The men's mobility, in terms of personal 'mobility and access to transport', was another factor of individual circumstances. The majority of the men still had a valid driving license and a car. For a small proportion of the men, problems with mobility and/or transport were already impacting their ability to procure food. Concerns were also reported by those with personal transport, about how they would cope in future when their driving days were over.

Access to personal transport provided a greater freedom of choice, in regards to food procurement. These individuals were able to shop at different locations as they desired, purchase food in large quantities if they wished and also co-ordinate shopping trips with other activities such as lunch or visits to other facilities such as the post office or library.

In both of my trips out ... and this means that I do need the car ... I don't have to carry my shopping, anywhere. (John, p. 6).

I've got the best of both worlds I can use the car, to get me to Hauraki Corner ... supermarket carpark ... so I can then go for my walk, knowing that no matter ... what I've got, library books I'm not going to have to carry them any further than Hauraki Corner ... and I can buy spuds and anything else that I want, particularly things like milk cos I always buy milk in two litres ... (John, p. 6).

But that, visit to a supermarket I'll make that an opportunity to do other, minor bits of business that I might have and also to have lunch. So ... I run it into that period very often. So I'll have ... a change from eating at home. (Paul, p. 2).

Hence, there were a number of shopping benefits to those individuals with personal transport. For instance, the ability to include a meal outside the home with the shopping

trip was a positive experience for these men. The ability to buy food in larger quantities and the ability to choose where to shop may also have provided cost savings.

A number of negative impacts on food procurement, as a result of transport dependency or limited personal mobility, were highlighted. As previously discussed, Harry was dependent on his son and daughter-in-law to get to the supermarket to do his shopping. On some occasions he was unable to get an appointment to be taken to the supermarket and thus he would occasionally run out of essential items. For Harry, this transport dependency was the biggest issue he faced in terms of food procurement.

... Fitting in yes. Everybody fitting with everybody yeah ... that is the main problem ... because they both work. (Harry, p. 2).

The net result for Harry was that he sometimes had to walk to the local corner store to purchase essential items if he couldn't get an appointment to be transported to the supermarket. Harry was faced with an increased cost if he purchased goods from the local corner store.

Even when Harry was transported to a supermarket by his family, he still had problems with the shopping process. Harry had recently moved from a flat attached to his daughter's house, to a council flat in a different suburb. As he was dependent on transport from his family, he was taken to the local supermarket by them. Harry was not familiar with this supermarket's layout and so finding the items he required was an ongoing challenge, as was pushing the cart around.

... the supermarkets I go to now I, don't know particularly well and ah, I struggle to find things at times ... whereas I was used to the other supermarkets and ah knew my way around. But oh ... we'll get there with this one. (Harry, p. 2).

... knowing the supermarket ... is a great thing, as far as shopping's concerned. And I can't get to the supermarkets now where I, know the layouts, that's the thing. (Harry, p. 3).

... as you get older it's harder pushing around the cart ... it's good to lean on [laughs]. (Harry, p. 2).

Jack also reported challenges with food procurement, as a result of limited personal mobility and a lack of personal transport. Jack typically used a bus for transport to get his food shopping. This limited the amount of food he could purchase at the supermarket, as he was unable to carry heavy loads due to problems with his hips. Consequently, Jack would purchase fruit at the local corner shop as it was easier to carry back from this closer location. Alternatively, if a large load was absolutely necessary from the supermarket, he would sometimes use a taxi.

Well it's a matter of ah carrying it's easier to get ... what fruit I need just up at the corner. (Jack, p. 4).

... I come back in the bus, but otherwise my well yesterday I had let's say I've got a little load on ... I'll come back in a taxi I have to like yesterday. You can't carry all that in the bus. (Jack, p. 5).

For Jack there were costs associated with the use of a taxi to transport food home. In addition, Jack's choice of shop was somewhat dictated by his personal mobility and lack of personal transport.

The potential disadvantage of having no personal transport and limited mobility was minimised for Bob, by an effective family support network. Bob had two daughters who regularly helped him with food procurement, house-keeping and other activities.

... my daughters come regularly and make sure that I've got stuff in my cupboards like, ah they wanna take me to Foodtown and buy, stock up with stuff you know my daughter will buy me these ah, little food packages you know, that you put them in the microwave oven ... (Bob, p. 1).

Other problems also resulted from having limited transport options. Although Laurie could use his car during the day for shopping trips and socialising, he could not drive at night-time due to a problem with his eyes. He found himself lonely at night-times, due to his lack of transport.

Well it's ... lonely night-times, you know, ah it'd be nice if, someone just popped in and had a natter or whatever ... (Laurie, p. 23).

For Jim and Fred, declining mobility was beginning to impact some activities.

... I'm managing ah but I've gotta be careful about bending down. Ah, I can only do about an hour at a time out in the garden and ah when I feel I've done enough I just ... come inside and sit down. (Jim, p. 10).

I'm not as mobile as I used to be, but ah I can get around if I want to go out and have a meal well I can. (Fred, p. 8).

The topic of life without a car was brought up by some of the men. Paul felt that the ability to drive was crucial for those living alone in order to procure food. Paul also suggested that personal transport was a very necessary part of socialising for older single-living adults. He couldn't contemplate life without the freedom of driving. Conversely, Arthur was already planning for the possibility of life without a car.

... driving and having a car and a license is ... vital for live alone people. (Paul, p. 8).

I just can't contemplate ... life without, being able to get around where I want to go, when I want to go ... so it would be quite a different ... world without that yeah independence that a car offers you. (Paul, p. 8).

... I can see the end of m' driving. I can see I can't drive forever ... I'm planning now ... but I can walk down to the nearest ... supermarket so ... I'm not going to be stuck. (Arthur, p. 7).

5.3 Social Networks and Support

'Social networks and support' was the third category that emerged from within the theme of individual circumstances. Social networks and support were inter-related. Family, friends and other contacts provided both social opportunities and support to the men. The challenges of living alone, having a positive attitude and feelings about receiving support were all topics that emerged during the interviews. Following is a presentation of these findings.

Living alone was highlighted as a particular challenge due to the isolation that existed. For the majority of the participants, it was not an ideal situation. Specific issues that arose as a result of living alone included the changed role of food and meals in their lives, the routine of day to day living and the lack of company.

I don't recommend living on your own I know I've been doing that for eleven or twelve years now. But ah, I don't recommend it ... I don't think it's healthy ... (Arthur, p. 8).

But ah it's my biggest reservation about living alone is this preparing the meals. (Paul, p. 10).

... it's probably the exception, ah to really enjoy something that I've prepared myself, which is something to do with the business of eating and living alone. (Paul, p. 4).

Well the whole thing is ... we don't have interests in our days like we used to, that's one of the problems. One day rolls on into the next one and then the next one and ah, they're all the same day after day whether it's holidays, weekends or anything else you don't have any difference. (Harry, p. 7).

I still enjoy my food, but, there isn't that same interest, you know what I mean? And ... of course with you know ... there's no company ... that's natural. On the other hand ... I don't want to share, with anybody else so ... that's it ... I'm contented as I am. (John, p. 9).

Living alone was a familiar routine for some of the men. For instance, Bill had lived alone until getting married in his forties. Bill had no major problems with his current situation, he had simply slipped back into the lifestyle he had when younger and single. The importance of the individual's attitude to the situation was stressed by a number of the men. In particular Fred and Bill, both of whom had low NR, spoke of the importance of getting on with things. Their approach was, that no matter how difficult living alone might be, you just need to get on with it.

You have to have a change of attitude. You're on your own, you've got to fend for yourself so get on with it. (Fred, p. 6).

Well, it's just a case of living and learning. You know I mean ...
you've got to face up to things ... (Bill, p. 7).

... life goes on you get used to being on your own. (Fred, p. 5).

Harry highlighted the importance of getting an interest in life. For him, this was a computer that his son had given him. Bill always had something to do, particularly around his quarter acre section. John enjoyed reading and music and would happily read until two o'clock in the morning if he so desired. Arthur described himself as a busy person. He had lots of interests, books to read and was a member of several clubs. Paul also got involved in outside activities, though he noted this was dependent on having transport. Something which he did have access to, but he conceded might be more difficult for those without transport. Laurie felt even more strongly about the importance of socialising for men in his situation.

... my philosophy is get out as much as you can ... (Laurie, p. 21).

... Get out don't sit indoors, get out as much as you can, join as
many clubs as you can ... (Laurie, p. 22).

For the majority of the men, membership of multiple clubs and associations was common. Membership of these clubs typically involved social occasions and often shared meals with other club members. For instance, Fred was a member of the Widows & Widowers Association, who every second Sunday of the month went out for a meal together. For Laurie, membership with Sixties Up and Senior Citizens meant he typically went on an outing once a month, that involved a meal somewhere. He was also a member of an indoor bowling club who had twice-yearly excursions to Valentines restaurant for a meal, as part of their membership fee. Other clubs the men were involved with were the Stroke Club, Lions Club, Returned Servicemen's Association and outdoor bowling clubs.

For those men without personal transport, the situation was somewhat different. Harry and Jack, both of whom had high NR, had more limited involvement in clubs and associations. They were both members of the Prescott Club, a luncheon club that meets weekly during school-term time and provides transport to and from the venue, a meal and entertainment. For Jack, the Prescott Club and his home-helper were his only

regular contact. Jack noted that it would be a rare occasion if he were to eat out. For Harry, the Prescott Club was a “great change” (Harry, p. 2) to his weekly routine.

A lack of transport seemed to be balanced by a strong family network in the case of Bob, who also had high NR. He had regular twice-weekly meals with his daughters and their families. Socialising with family was an integral part of most of the men’s lives. Shared meals with children were widely enjoyed. For some men, this socialising involved visiting their children’s home for a meal. For others, socialising might also include the children joining their father at his home for a shared meal. In addition to the company these occasions presented, other highlights included the quality of the food itself and the change of routine that these meals and outings presented.

Sometimes ... they invite me down there to, ‘we’re having a roast tonight come on down’ you know. So I go down there and he’s got a roast on real roast potatoes an’ ... real slap-up meal you know. (Frank, p. 11).

... I might be invited to have the evening meal with ... my eldest son ... in Glenfield ... or I might have ... a feed at ... my daughters place ... in Bayswater and ... these kids of mine put on a good feed [laughs]. (Jim, p. 3).

Again for both Jack and Harry the situation was somewhat different. Jack hardly ever saw his children and perceived that their only contact was due to a feeling of obligation. For Harry, meals with his family were a rare occasion as they were apparently very busy.

I feel as if they’re doing a duty. [Laughs] Oh poor old fellah we better go and visit him. (Jack, p. 13).

I, go to my sons or m’ daughters for a meal ... occasionally they come an’ pick me up. But busy busy as al[ways] yeah. (Harry, p. 2).

Friendships were also an integral part of food-related activities. Harry had a regular visit from an out of town friend once a month. This catch-up involved dining out and generally stretched out over two or three hours. Harry enjoyed both the time chatting with his friend and the night off from cooking a meal. Fred also had a regular routine of

sharing a Saturday morning brunch with a friend at a local café. For Fred, this was a real highlight. He also had widowed friends who he regularly shared evening meals with.

... two ladies and I, both widows, we go out ... quite regularly we ... rotate between Browns Bay, Glenfield and Albany and ... try to have different meals at different places at different times so ... it doesn't become routine and boring. (Fred, p. 8).

For Arthur, the contact he had with his 'lady-friend' was another key part of his food-related activities. They each provided the other with a meal once a week. They also dined out about once a fortnight, at various different restaurants around the North Shore region.

For some of the men, other routines were developed to cope with the lack of company at meal-times. Frank, in the period immediately following the death of his wife, had developed a way to cope with the isolation at breakfast time. This involved having a photo of his wife with him during breakfast time to talk to. He also ensured his main meals were ready at the time he would be watching a particular television programme.

... Timing, so I've got the meal ready, right in front of me here, when the news comes on ... so, I've got company. (Frank, p. 11).

The ability to cope with living alone, irrespective of external social and support networks may also be an important point. Paul suggested that those who were more independent, were perhaps more able to cope with the challenges of living alone.

No it's ... not wonderful you ... sort-of gotta fall back on your own resources a bit you-know, if you're an independent person it's not too bad but, I can understand there are people who can't tolerate it. (Paul, p.10).

The desire to be independent was highlighted a number of times. Further to this, being able to procure and prepare food was also highlighted as an integral part of independence.

It's important to me to be able to fend for myself, yes. (Fred, p. 16).

I want to be independent as long as I possibly can be, and ... being able to cook for myself being able to ... provide food for myself ... is very ... important it's more or less paramount ... (Bill, p. 4).

... I s'pose I'm a bit, independent I don't like, burdening other people with my worries you know I like ... to look after myself. (Frank, p. 23).

For these men, being independent was linked to feelings of being pleased with oneself and proud of one's achievements.

... I think it's good to be independent, to think for yourself, do for yourself and feel pleased about it. (Fred, p. 16).

I don't want to skite but, I'm quite proud of myself at times because ... me daughters come and they say ... 'is there anything you wanting down the shops Dad?' no I'm alright ... you know, I would keep myself well stocked up. (Frank, p. 4).

Frank expanded further on the positive outcomes of being independent, by explaining how this had helped him to cope with the grief of losing his wife.

... when I first lost her when she first died I [thought] how the hell can I sit here at night an', God I'll be lonely you know ... but now [I've] got to look after myself, kind-of takes your mind off those [thoughts] you know. (Frank, p. 21).

A number of the men had strong opinions about needing and receiving support. Fred stated that he would probably do a lot less for himself when he was sick, if his wife was still around. Jim felt that being dependent on support could be fatal.

... you've got to have a positive attitude to living, if you just give up and let everything be done for you, you'll be gone in three years I've seen it happening. (Jim, p. 9).

Nevertheless, various forms of support were provided to most of the men through a number of different relationships. Fred, Bill and George all talked about the support they received from neighbours. This took the form of unexpected meals and food being

delivered to Fred and Bill. For George, a now deceased neighbour had occasionally helped him with shopping and other activities whenever he was ill. George had never been married and had no children, thus this support from a neighbour and one other elderly friend, also now deceased, appeared to be the sole support he had received. In the case of Arthur, his 'lady friend' was very helpful. Arthur also spoke of the support that his Christian faith provided him with.

For the majority of the other men, the first line of support was their families, in particular their children. Arthur did not need help with cooking or shopping, although he did accept assistance from his daughters for health issues and sometimes transport needs. For Frank, the support he received from his children was stepped up following a recent hospital stay. Now back to his normal health, his children still provided regular support in terms of shared or delivered meals. Frank saw these meals with his children as an opportunity to break his regular cycle. But he was, nevertheless, proud of his ability to look after himself. Frank also had his son's mobile phone number, in case he wanted his son to bring him anything on his way home from work. Paul also received assistance from his daughter in terms of food provision, with food being cooked and either refrigerated or frozen for him to use at a later time when he so desired.

The most extensive array of support was received by Bob. His daughters regularly checked his cupboards to see what food he had; transported him to the supermarket; assisted him with the actual food shopping process, including food choice; invited Bob to regular family meals; provided him with haircuts; installed Sky Television; and on occasions did his house-cleaning. According to Bob, who had a high NR, his daughters were very concerned about his eating habits and took too much interest in what he was eating. Nonetheless, he was grateful for the support they provided. Bob summed up the support provided by his daughters succinctly.

I'll never be without food because, of my children you know. (Bob, p. 2).

For Harry, as already discussed, his son or daughter-in-law took him to the supermarket to do his shopping. Harry occasionally had issues with getting this support and as previously discussed, this resulted in impacts on both his ability to procure food and his finances. Harry had the highest NR of all the participants in the study. Jack, who also

had high NR, did not receive any support from his family in regards to food-related matters.

The provision of support in various forms was a key facet of the lives of these men. Further to this, a number of the men had also given consideration to how much support they might require in the future in order to maintain the lifestyle they desired. For John, the desire to remain in his own home meant that he was prepared to receive as much assistance as necessary in order to fulfil this desire. Jim also foresaw the day when he would need to ask for help, in particular when his driving days were over. Paul on the other hand, was not keen to consider the possibility of further dependence.

5.4 Summary

In summary, individual circumstances were the range of personal, social and environmental circumstances of the participant's lives. They reflected the diversity of the participants and support the heterogeneity of older adults. Each individual's life course and experiences affected their current circumstances. The three salient circumstances, in terms of food-related activities, were the participant's financial situation, their personal mobility and access to personal transport, as well as their support and social networks.

The financial situation of the participants varied, as a result of life course experiences and current income. Participants with multiple pensions described themselves as 'comfortable' financially. Conversely, those men living on a single fixed income, such as the national superannuation, reported a 'careful' approach to finances. In some cases, these men decreased food intake or reduced purchases of fresh fruit in order to live within their limited means.

The participants' personal mobility and access to transport also varied. Those men dependent on others, for provision of transport, had to shop at times and locations that suited the transport provider. Alternatively, public transport was utilised, although there were limitations in regards to the stores that could be accessed by this means and additional costs were associated with the use of taxis. In some cases, more expensive local stores were utilised for essential purchases. These shopping disadvantages were reduced by an effective support network. Unfortunately, not all of the participants had reliable support networks.

Social and support networks were a positive attribute in the men's lives. Socialising provided more opportunities for shared meals with families, friends and various clubs. Unfortunately, men without personal transport had less social involvement; unless they had an effective support network. Support networks primarily consisted of family and friends, but neighbours also had a role. The assistance they provided ranged from transport, right through to delivering home-made meals. A desire for independence meant that some of the men did not want food-related assistance. Others gladly received and interwove support into their lifestyle. In one case, the support appeared to be integral to the individual's survival. For other men, ineffective support networks negatively impacted their lives in terms of food-related activities.

6 Chapter Six: Nutrition Knowledge & Skills

The second of the three themes that emerged was *nutrition knowledge and skills*. The participants' nutrition knowledge was described through the use of a nutrition knowledge questionnaire and the participants also described health-related concepts that guided their food-related activities. In addition, the extent of the participant's skills, in terms of food procurement and preparation, emerged from the discussions. Consequently, the theme *nutrition knowledge and skills* contained the two categories:

- Nutrition knowledge;
- Experience and skills.

The theme *nutrition knowledge and skills* described in the present study, is comparable to the theme of *food management skills* in the food choice capacity model of Bisogni et al. (2005) (refer to Section 2.6.4). Skills that were highlighted by Bisogni et al. (2005) were keeping food costs down; being a good cook; gardening; food preservation; and hunting. Consideration will now be given to the nature of the *nutrition knowledge and skills* highlighted in the present study of older single-living New Zealand men.

6.1 Nutrition Knowledge

Describing the level of nutrition knowledge of the participants was one of the objectives of the present study. Nutrition knowledge has a small, but nonetheless integral part to play in food choice (Wardle, Parmenter & Waller 2000). Hence, a lack of nutrition knowledge may be a barrier to healthy eating. The men's nutrition knowledge was described with the assistance of a general nutrition knowledge questionnaire. Further information pertaining to the category of nutrition knowledge also emerged during the interviews. Both these sources of information are combined into the category of 'nutrition knowledge' presented in this section.

The average score for the nutrition knowledge questionnaire, by the participants, was 58.3 (SD 12.7) from a possible score of 110, which equates to 53 per cent. Nutrition knowledge, as assessed by the questionnaire, varied amongst the men. Half of the men scored less than 50 per cent in the nutrition knowledge questionnaire. Differences in knowledge were visible between those men who had a normal to moderate level of nutritional risk (low NR) and those who had an increased nutritional risk (high NR)

(refer to Figure 6.1 below). Given the small sample size of the present study, it was not possible to determine if there was an association between nutrition knowledge and nutrition risk. The observed difference highlights the need for further research to determine if a relationship exists.

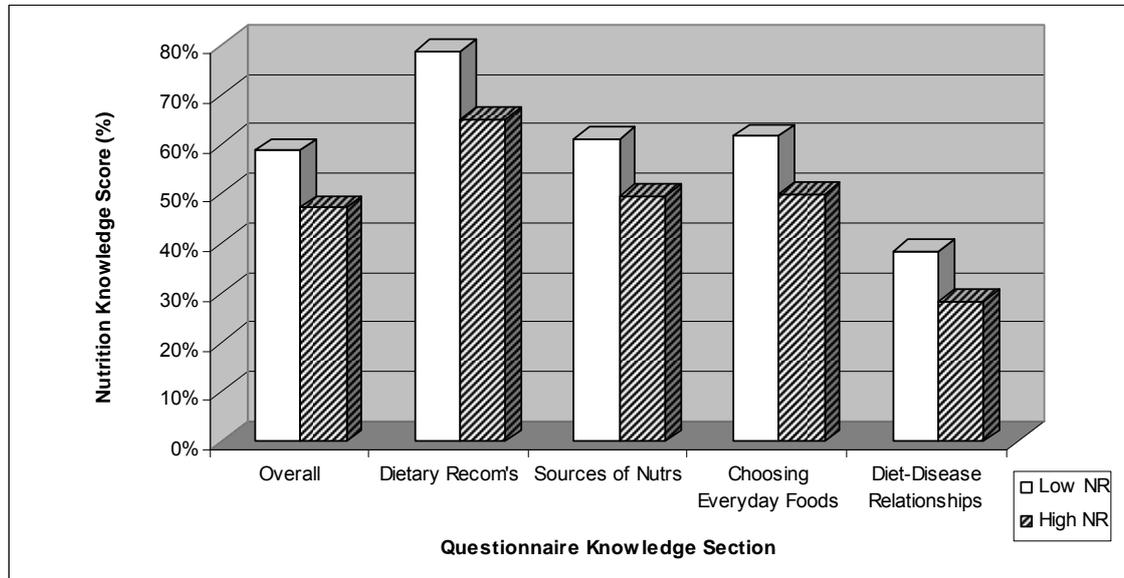


Figure 6.1: Nutrition knowledge scores of low and high nutritional risk (NR) men.

The men had varying perspectives on their level of nutrition knowledge. Some felt they had extremely good knowledge or at least sufficient to survive, whilst others felt that they had very little knowledge. Curiously, there were a number of participants who graded their level of knowledge quite differently from what the general nutrition knowledge questionnaire revealed. Jack for instance, felt that he had enough nutrition knowledge and understood what healthy eating was. However, Jack actually had the second lowest score on the nutrition knowledge questionnaire at 37 per cent. At the other end of the scale, Laurie stated that he didn't have "much knowledge" (Laurie, p. 10) about healthy eating, yet he actually scored above the group mean with a result of 56 per cent.

This mismatch between the participants' perceived level of nutrition knowledge and their nutrition knowledge as determined by a questionnaire is intriguing. It is entirely possible that some men have the knowledge necessary to maintain a healthy diet that meets Ministry of Health (1996) guidelines and perhaps do achieve that standard, yet

they may not be aware that they are achieving this standard. A review of the types of nutrition messages the New Zealand men referred to, in terms of healthy eating, provides another perspective on their knowledge.

Cut down on the sugar and the fat ... we've been told that so many times ... and salt too! I never use salt haven't used it for years. I never put salt in my vegetables. (George, p. 7).

... eat plenty of fruit and vegetables like all the, health experts say mm. (George, p. 4).

And what else is ... bad for you ... well alcohol, that doesn't worry me. I might have a drink if friends come in, just the occasional social drink ... never been much of a drinker. (George, p. 8).

Don't go over-eating lot of fatty foods an', things like that you know. (Frank, p. 17).

... I know some foods are harmful you mustn't ... eat too much of this and that ... regarding things like fat and ah, just sort-of basic things, sugar and so on. (Paul, p. 4).

George appeared to have a relatively good grasp on the fundamentals of healthy eating. However, the other participants predominantly highlighted the need to reduce dietary fat intake. This was achieved by purchasing low fat mince, cutting fat off steak, removing skin from chicken and using low fat food options.

Other health messages were, apparently, confusing and some still expressed the view that finishing everything on their plate was important. There was also some confusion about the number of servings of fruit and vegetables that health experts recommend consuming daily.

I ... do get a little bit confused ... I mean they talk about how important ... vitamin C is for ... your health and ... citrus fruit, is rich in vitamin C well ... as I say I've got a grapefruit out there [indicates back yard] ... 'n I have a grapefruit every morning well and then I read ... that eh grapefruit might not be good for you. You

know? You get those sort of things so, you just don't know yeah.
(Bill, p. 5).

But what I put on my plate I must finish it I don't like to chuck food
away you know ... (Bob, p. 4).

... I know it just says, fruit one a day or something like that and er,
it's good to have green vegetables and things. (Laurie, p. 10).

Evidently even the more widely publicised messages such as '5+ a day' may not be reaching some older single-living New Zealand men. A view supported by the results of the nutrition knowledge questionnaire, with only four of the twelve men able to correctly advise the number of servings of fruit and vegetables that experts recommend consuming each day.

Perhaps the most important point to emerge was the lack of understanding of the consequences of dietary behaviour, as highlighted by the results of the nutrition knowledge questionnaire. The fourth sub-section of the nutrition knowledge questionnaire assessed the participant's knowledge of diet-disease relationships. The average result achieved by the participants for that section was 33 per cent, the lowest score for any section of the questionnaire. Awareness of the relationships between diet and disease is likened to the variable 'perceived susceptibility of disease' in the health belief model (Janz & Becker 1984). According to the health belief model, if an individual's perceived susceptibility to disease is reduced it is less likely that they will take recommended preventative health actions such as improving dietary intake.

Unsurprisingly, a lack of consideration for the potential future consequences of poor diets also emerged during the discussions. A number of the men used only their past and current health as an indicator that their dietary habits were good enough.

... I try and keep it, as healthy as I can but um, probably whether I
do or not I don't know ... kept body and soul together so far. (Harry,
p. 6).

... I remain in good health so ... I can't be doing anything, too
wrong I hope ... (Paul, p. 4).

As far as I'm concerned I ... just eat what I fancy ... well it doesn't done me any harm has it? (Laurie, p. 10).

In contrast, some of the other men felt that the consequences of their healthy eating would be optimising their health for the remainder of their life. This perspective is likened to the variable 'perceived benefits of preventative action' in the health belief model (Janz & Becker 1984). These men were aiming for quality of life over quantity of life and food was seen as an integral part of this.

... what life I've got left I want it to be as healthy as possible ... and eating correctly I think is one way of doing it. (Fred, p. 6).

You've got no quality of life if you haven't got your health. So that's why you have to be careful with your ... food you know, use your head a bit. (George, p. 9).

The views of these forward planning men, all of whom had low NR, could be summarised as a plan to age successfully. That is, they saw healthy eating as integral to ensuring that what life they had left was as healthy as possible. A view that contrasted with those of Harry, Paul and Laurie, all of whom had high NR. The views of Harry, Paul and Laurie are likened to driving a car whilst looking in the 'rear-vision mirror'. A perspective perhaps best summarised by Harry's comment on the success of his eating style, which was 'kept body and soul together so far'. Whether a lack of knowledge about diet-disease relationships played a definitive role in the lack of consideration given to future consequences of poor diet, by these men, is unclear.

Interestingly, the individual with the highest score (50 per cent) in the diet-disease relationships sub-section of the nutrition knowledge questionnaire was John. He had been diagnosed with both cardiovascular disease and emphysema several decades ago. John described how he had modified his dietary behaviour in order to reduce the risk of his health problems worsening. Bill also had a story to tell about how he had survived pancreatic cancer and how the doctors had advised him that his healthy lifestyle was the reason why he wasn't leaving the hospital 'in a box'. Bill had the third highest score, amongst the participants, for the diet-disease relationships sub-section of the questionnaire. Thus, those with first-hand experiences of diet-disease relationships may have been more knowledgeable about the significant role diet plays in future health.

6.2 Experience and Skills

The second and final category contained within the theme of nutrition knowledge and skills, was that of ‘experience and skills’. The range of skills the men had in terms of food procurement, food preparation and even gardening emerged from the discussions. These skill levels were the result of a wide range of backgrounds and experiences.

A significant proportion of the participants had little or no prior experience of food shopping or cooking, whilst living with a partner. Of the 12 participants, only five had any experience of food shopping when younger and only three of those men had actually performed food shopping completely independently of a wife. In terms of cooking the situation was similar, with six of the participants highlighting prior experience. Of the six men with prior experience, two stated that the extent of their experience was cooking barbecues and preparing camp meals. Thus, only four of the 12 men had cooked main meals when younger.

For a number of the men, the point at which they gradually took over responsibility for food shopping and cooking was when their wife’s health began to deteriorate. For example, Jim progressively picked up responsibility for shopping and cooking as his wife’s illness slowly worsened. Their move to a different house forced Jim to take primary responsibility for food shopping and cooking.

... when we came here she just couldn’t find her way around she couldn’t get her head around it ... I just had to treat her as an invalid and ... learn the stove and ... feed us somehow and I got better and better at it. (Jim, p. 7).

For Arthur, the knowledge that his wife would die in the near future, due to illness, spurred him to undertake a cooking class through Age Concern North Shore. He was then able to prepare full meals for his wife during her illness. An approach he gave up following her death, preferring instead to use frozen meals.

For other men, their wife’s sudden death or a marriage separation was the first point at which it was necessary for them to contemplate the tasks of food shopping and cooking. A lack of interest for these activities prior to the marital transition, meant they had little

knowledge or skill in regards to food shopping and cooking. Hence, they found themselves alone and needing to learn a range of new skills.

I've never gone shopping in my life, I've never gone to supermarkets and things like that ... I've always given my wives, a blank cheque and signed the bottom of it ... (Bob, p. 2).

I always had my breakfast served to me [laughs] ... my supper put in front of me, and now [I'm] learning to do it for myself. (Bob, p. 2).

I took no interest whatsoever in it ... I mean I was spoilt for so many years in that regard ... and ... we took full advantage of it and ... to my detriment now possibly yeah. So my knowledge and ... interest in cooking is probably ... a pretty low level. (Paul, p. 4).

I was useless in the kitchen. I could cook mince and boil an egg that's about all. (Fred, p. 5).

For others, previous life experiences meant that they had experience with food shopping and meal preparation. For example, George had never been married and so had a well established routine of looking after himself.

... I used to do a lot of cooking away on the yachts. Some of the boys I used to take away they couldn't cook at all, blimen hopeless. (George, p. 8).

... Well I was in the navy ... and then I was by myself so I mean ... I more or less say from the time I left the navy 'til the time I ... married ... I more or less live similarly to then. (Bill, p. 8).

... I'm happy enough to cook it's a routine but ... I've had to do it ... you remember I bought up boys. (Jack, p. 7).

... I don't find shopping hard but then again ... let's not forget that I've always done the shopping. (John, p. 6).

John in particular, who had low NR, had extensive experience with both shopping and cooking. As a child he had helped his sickly mother by doing a lot of the shopping and occasionally some cooking. In his career with the navy he had periods of responsibility for food purchasing, preparation and serving to senior officers. During his marriage he

had shared shopping and cooking duties with his wife and at some stages John had taken full responsibility for these tasks due to the differing hours he and his wife had worked. As highlighted by John, an individual's background and experiences influence their current knowledge and skills.

... I don't [know] anyone else who's got my same background ... and let's be honest about it, it's background that comes into this because, I do, what I do now ... I don't do consciously, I don't even think about doing anything else other than what I'm doing now. (John, p. 21).

Thus, the varying backgrounds and experiences of the men contributed to their skill levels. The net result was a wide range of skill levels amongst the participants. Consideration is now given to the skills the men had.

In terms of shopping skills, half of the men discussed a planned approach to their food purchases. For most of the men this involved using a shopping list, to note down items that were running out. For Laurie, it also meant planning the week's main meals and ensuring that he purchased the necessary ingredients.

... I always put a little note on me ... [shopping] list 'meals', or 'dinners' or something like that and I get so many different things that I can use for dinners ... like fresh fish and ... corned beef and things like that ... eggs, sausages, steak, I get all those ... (Laurie, p. 1).

I make a list ... for example here plain towels paper towels, toilet-paper, rolled oats, margarine, spray cleaner, biscuits, renew the drumsticks, fish-cakes, sausages ... and I got all those, there we are ... I tick them all off ... because that's what I got. (Jack, p. 4).

John noted that without a shopping list he would be sure to forget things. Thus, he stressed the importance of a shopping list for successful shopping. In addition, John suggested that knowing where to find items was another prerequisite for successful shopping. For some of the men, successful shopping involved maintaining a regular stock of specific items. Other shopping skills discussed by the men included reading

food labels and identifying different variants of food. For instance, Jim was familiar with the nutrition labels on food, due to previous experiences of shopping for his wife who had coeliac disease. John talked about the different grades of minced meat that were available and was aware of the varying fat levels in these.

Three of the participants drew attention to their gardening abilities. Frank, whose wife had recently died, said that he now hoped to get back into his gardening and put some tomatoes in. Bill regularly grew vegetables. Jim grew herbs and some vegetables and was particularly proud of his ability to maintain a vegetable garden.

I'm doing gardening I've got all sorts of things, look out the window there [indicates front yard] ... look at those broad beans in flower!
(Jim, p. 10).

In terms of cooking, there was a wide range of skill levels amongst the men. For instance Bob, who had a high NR, reportedly did not know how to switch a stove on. Some participants were capable of preparing only basic meals, such as boiled potatoes, boiled vegetables and fried meat. Whilst more advanced skills were reported by other participants, these included creating casseroles, stir-fries, curries and stocks from raw ingredients (both fresh and processed forms).

Harry and Arthur both reported being able to cook a roast meal with all the traditional vegetables, but they chose not to utilise these skills regularly, preferring instead to prepare basic meals or in Arthur's case consume microwave meals. In contrast, Fred and Laurie had developed more advanced cooking skills that were regularly utilised. They had both set out to learn how to cook with the aid of various books and from watching television programmes. Laurie rated his cooking skills as "pretty good" (Laurie, p. 6). Fred had learnt how to stir-fry and make casseroles and with experience he had learnt what shortcuts to take.

And I've learnt not to take too many shortcuts, I mean at one time when I was cooking a ... casserole. I didn't um sauté the onions, but I do now I sauté the onions and put them to one side, so they've got some flavours in them and then I put them into the casserole afterwards. (Fred, p. 14).

The level of experience Fred had now gained meant that he would add seasonings to food without measuring them out. In addition, Fred would “keep an eye” (Fred, p. 13) on food rather than having to time his cooking. The most experienced and possibly skilled cook of all was John. He rated his cooking skills as “pretty good” (John, p. 17) and discussed the various techniques he had for preparing chicken stock, cooking curries, casseroles and a range of other main meal options.

The majority of the men stated that baking was not something they were able to do or wished to do. Jim had in the past made bread, in his bread-maker, primarily for his since deceased wife. He now debated whether he would continue to do this. Jack felt there was no need to bake due to the availability of baked goods in supermarkets. Bill noted that although his wife had baked for them, he hadn’t picked up these skills. The only participant who had an interest in baking was Laurie. For Laurie, baking was a hobby, something to do when he was bored or there was nothing on television. He also shared his baked goods regularly with his friends.

Laurie was also one of a minority who expressed interest in the appearance of his food and meals. This contrasted with Fred, who felt that although his skills extended to producing flavoursome meals, he was not yet capable of producing an attractive ‘restaurant’ quality meal.

... what I do sometimes is put, peas and potato together, whisk it all up ... after I’ve blended the peas ... and you get like green, and put it in a ... round tin, with no ... top an’ bottom ‘n ... lift it up ... and you got it on the plate like that. Just to make it look nice. (Laurie, p. 9).

... the flavours are there, sometimes the appearance is not that flash. But it’s there and it’s nutritious and flavoursome. (Fred, p. 10).

A number of the men talked about reaching a level of skill where they were confident in their own cooking abilities, they had a degree of versatility and were able to ‘throw together’ a meal. This ability to open the cupboard and produce a meal from what was found appeared to imbue them with a sense of control over their own lives.

... if for some reason I haven't thought about food during the day I can go to the pantry open it up and have a look, or go to the freezer and have a look and think yes I can put that together and that together ... (Fred, p. 9).

... I don't have to worry about what I'm going to eat let's put it that way. (Fred, p. 9).

Clearly though, skill level impacted food purchasing decisions. In particular, Fred noted that he would not purchase items if he could not recognise how to prepare them as part of a meal.

... I only buy what I know I can handle with the experience that I've had. I do see things in supermarkets like, ravioli and stuff I don't know what to do with that I can't be bothered reading what's ... on the back of the packet. I know it's a sort-of pasta with something stuck in the middle ... but I don't know what to do with it so I don't bother to buy it. (Fred, p. 14).

Each of the men had their own particular preferences in terms of appliances they used. The most popular of the appliances was the microwave. Nearly all of the men had a microwave, for some it was the only appliance they ever used. For Bob, Arthur and Frank a microwave was absolutely necessary to heat up their frozen main meals. For George, a microwave was his tool of choice to prepare his main meals.

I do it all in the microwave. (George, p. 3).

... Oohh yeah real boomer aren't they? ... They're great things, couldn't live without it now. (George, p. 3).

The use of an oven was relatively less common. Bob, Arthur, Frank and George rarely or never used their oven. Indeed, Bob stated that he wouldn't even know how to turn his stove on. For some men, ovens and other appliances were avoided for entirely different reasons. Jack for instance, couldn't be bothered cleaning a number of his appliances and so avoided using them. The use of the stove top was more prevalent than the use of the oven. Jack preferred to use a frying pan on the stove top, as this was a lot less bother. Laurie was the only participant that said he used the oven for most things. A key part of

this usage was his baking, which he stated needed to be done in an oven rather than a microwave.

By and large, irrespective of the skill level, appliances used or anything else, the majority of the men who prepared their own meals stated that they enjoyed these meals. Some of these men had utilised frozen meal services, meals-on-wheels or other institutional meal services and these experiences had cemented their preference for their own cooking.

I like the food I prepare and ah, well I suppose I'm thriving on it.
(Jim, p. 5).

Good, yeah I really enjoy my food yeah ... (George, p. 4).

I was getting meals on wheels and ... can't say I enjoyed them ... I couldn't get back to cooking for myself quick enough. (Bill, p. 5).

A few of the men, however, did not enjoy their own cooked meals. For example, Paul, who had a high NR, was not interested in cooking and didn't enjoy his own meals. Paul referred to his cooking skills as "very, very basic" (Paul, p. 3).

It doesn't interest me, it's a fiddly business ... I just don't have any feeling for it ... to my own detriment ... my meals ... correspondingly aren't interesting. They're ... basic and ... very often I simply eat because I know I should. (Paul, p. 3).

The regular use of frozen meals or microwave meals, reportedly also resulted in decreased enjoyment of meals for some, but not all, of the participants.

Well I relied on them for yeah quite a long time but not quite so much now. But ah, they become tiring after a length of time so ... I try to be a little bit more inventive now but ... simply through ... eating them for such a long period ... it's become a little boring, yeah. (Paul, p. 5).

They're alright put it in the machine and, I don't like ... I really don't like ... microwave food you know. (Bob, p. 4).

The fact that Paul doesn't enjoy the meals he prepares himself, or frozen meals, is troubling. Bob also states that he doesn't like the microwave meals that he uses. However, Bob's daughters provide him with home-made meals at least twice a week. For individuals such as Frank, who had very few cooking skills and who had in the past two years consumed frozen meals daily, the possibility of decreasing meal enjoyment was a concern. Interestingly, Paul was identified as having the second highest nutritional risk of all the participants. In terms of Bob and Frank, their nutritional risk was also identified as being higher than normal. Whether a lack of cooking skills contributed to their situation is not able to be determined, nevertheless the situation warrants further investigation.

6.3 Summary

General nutrition knowledge amongst the men was, on average, relatively low at 53 per cent. Public health messages about reducing dietary fat intake were well recognised. But, only four of the 12 participants were aware of the current recommendations for fruit and vegetable intake. The poorest area of nutrition knowledge, in terms of the scores from the nutrition knowledge questionnaire, was diet-disease relationships. This appeared to be reflected in the beliefs of some men, who suggested that their eating habits must be alright, as evidenced by their past and current health status. A perspective likened to a 'rear vision mirror' view of diet and health. Others recognised that healthy eating would influence future health and therefore their quality of life.

Prior experience with household management tasks, such as food shopping and meal preparation, was fairly limited amongst the participants. The majority of the men took responsibility for these tasks at the time of their wife's illness or after a marital transition. Nevertheless, most of the men had developed sufficient skills to meet their own perceived needs. Although, cooking skill level did reportedly impact on food choice decisions at the food procurement stage. Furthermore, a lack of cooking skills and the use of microwave meals were associated with less enjoyment of meals in some cases.

7 Chapter Seven: Food-Related Values

The third and final theme that emerged was *food-related values*. A range of different concepts emerged as values, in terms of food-related activities. These strong beliefs the men had, guided their decisions about food procurement and food preparation. They were influenced by life experiences and current circumstances. In total, four key categories emerged as the most salient, these were:

- The importance of healthy eating;
- Structure in food-related activities;
- Convenience;
- Like it or not, it has to be done – shopping and cooking.

Similarities between *food-related values*, in the present study, and *standards*, in the food choice capacity model, were identified (Bisogni et al. 2005) (refer to Section 2.6.4). *Standards* were “expectations that participants held for what and how they should eat” (Bisogni et al. 2005, p. 286). Examples of *standards* given by Bisogni et al. (2005) were making sure you had good food in your house for your family; regular family meals; meals as a pleasant family gathering time; and traditional Sunday meal. Consideration is now given to the *food-related values* that emerged in the present study. Firstly, the importance of healthy eating is discussed.

7.1 *The Importance of Healthy Eating*

The ‘importance of healthy eating’ was one category that emerged from within the theme of food-related values. There was considerable variation in the importance placed on healthy eating. For some men, healthy eating was very important, for others it was not a concern at all. Interestingly, the importance of healthy eating was discussed in relation to health consequences by a number of men.

For me, it’s very important. Not that I have any ambitions to live to a hundred but what life I’ve got left I want it to be as healthy as possible ... and eating correctly I think is one way of doing it. (Fred, p. 6).

Ooh yes it’s important to anyone isn’t it, you don’t want to shorten your life too much ... oh yeah you’ve gotta watch what y- like old

Jones [said] ... 'be careful what you put into your body'. (George, p. 4-5).

It's no great worry! It's just yeah, it's not a worry as far as that's concerned, but um, well you've gotta eat, that's it. (Harry, p. 6).

I don't worry about it ... touch wood I've always been healthy. (Laurie, p. 10).

The key difference between those who prioritised healthy eating and those who didn't, related to how the consequences of eating were viewed. In particular, those who stated that healthy eating was important linked its importance to possible future health consequences. Whereas, those who felt healthy eating was not especially important related their eating habits to past or present health. This variation in emphasis on health consequences has been highlighted previously in the discussion about nutrition knowledge (refer to Section 6.1). It was suggested then, that there were forward planning men who had a plan to successfully age and healthy eating was integral to this. There were also a number of men who took a 'rear-vision mirror' view to their dietary habits and health status. Harry and Laurie's views on healthy eating, both of whom had a high NR, are prime examples of this 'rear-vision mirror' attitude.

Diagnosis of serious illness had proved to be sufficient motivation for John to change his attitude towards healthy eating. Now very motivated about healthy eating, he had a considerably different approach prior to diagnosis with peripheral coronary artery disease and emphysema over forty years ago. The diagnosis of these health issues had highlighted the inadequacies of John's dietary intake and other health behaviour at that time. This proved to be sufficient motivation for him to modify his eating behaviours. His wife had also encouraged and enabled him to make these changes.

... I was extremely fortunate, in that, my problems were found ... at a relatively early age, and that 'a' I was, able to do something about it, and 'b' prepared to ... (John, p. 15).

And also, very very lucky in that ... my wife went along fully, you know because, it was a drastic [change] you know ... (John, p. 16).

When questioned further about what had motivated him to make the changes, John admitted that his wife had pushed him to make the necessary changes. For John, changes to his lifestyle had been commenced so early in his life that they were now ingrained. His food choices had changed to meet what was necessary for a healthy diet, but he also now preferred the taste of healthy food.

... I'm very much aware of knowing 'a' what I should eat, 'b' what I like eating, and over the years the two have virtually come together. (John, p. 13).

I hate greasy food. I don't like the smell of greasy food ... an' I'm fully aware that, where at one time I used to love say shop bought fish and chips you know ... I couldn't take it now ... I just couldn't eat it ... (John, p. 13).

Other life experiences also helped to form current feelings about healthy eating. The importance of family food interaction as a child was highlighted by Laurie. He was an only child, adopted by an elderly couple who had "cosseted" him (Laurie, p. 10). Laurie's adoptive parents had not encouraged him to eat vegetables and he felt this experience had formed his current adverse attitude towards vegetable consumption.

See what I mean ... if I'd been brought up with a big family that was eating vegetables I'd be eating vegetables. (Laurie, p. 11).

Both Jack and George also talked about standards that their mother had instilled in them. For Jack, this meant that takeaway food was not acceptable. For George, it meant that hot breakfasts were a routine, as was having a good range of food in the cupboard.

However, the acquisition of new information and experiences can modify the importance of healthy eating. John's story, as earlier described, illustrates this situation. Upon being diagnosed with more than one serious illness, John was motivated to change to a more healthy diet than the one he was currently maintaining. John's doctor had provided him with pamphlets and books to read, in order to learn more about his condition and how to change his behaviour. Evidence for the new-found importance of healthy eating in John's life, was found in his approach to food procurement. This involved purchasing meat with the lowest fat content possible. He also talked about the

challenges faced over the years in finding suppliers of margarine, lower fat milk and cheeses, before these items were common-place in New Zealand. This included purchasing imported Australian margarine from a pharmacy in central Auckland, because it was unavailable in normal food shops.

In contrast, Laurie spoke more often of his taste preferences and the costs of food in regards to food choice. Laurie would not eat things just because they were healthy. He would only eat food if it was something that he “fancied” (Laurie, p. 10).

For some of the other men, a new found interest in healthy eating meant that they had taken steps to develop their nutrition knowledge. This predominantly occurred following the loss of their wife and included purchasing books and picking up tips from television programmes and radio shows.

Well I didn't have much nutritional knowledge, but I do have several books that I have borrowed over the years to read more about it. One of which is ... 'Juicing for health' by Julie Stafford ... I've learnt from that ... (Fred, p. 6).

Yeah I just, pick up anything that they, reckon's good over the radio or the T.V... and ... I think I must remember that you know. (Frank, p. 16).

Evidently, life experiences may influence attitudes and food-related values. The loss of a partner appeared to motivate some of the men to learn more about nutrition and healthy eating. The diagnosis of a serious disease definitively increased the importance of healthy eating, a food-related value, for one gentleman. Thus, new experiences and the knowledge that the men purposefully or accidentally gained, altered the importance of healthy eating.

7.2 Structure in Food-Related Activities

The second food-related value that emerged from discussions with the participants was 'structure in food-related activities'. This consisted of routines, forward planning, timetables and the importance of familiarity in regards to food-related activities. 'Structure in food-related activities' is the unseen dimension of meals that may “add a sense of security, meaning, order, and structure to an elderly person's day”, and thereby,

“imbue that person with feelings of independence, control and sense of mastery over his or her environment” (Amarantos, Martinez & Dwyer 2001, p. 55). It is this very dimension of food-related behaviours that emerged during discussions with the men. Indeed, the importance of structure in food-related activities was highlighted by a number of the men in their opening comments, when they described their daily routine.

The daily activities of a number of the men followed a particular routine or set schedule, with specific times for different activities. They got out of bed at the same time each day, showered and shaved, went for walks and got newspapers all following a set schedule.

... I get up at seven o'clock every morning, have a shower, and then go and have me breakfast, then I have a shave and then I go and make me bed and then I, every Monday like a good housewife I do me washing. (Frank, p. 9).

Food-related activities were also part of a fixed routine for a number of the men. In particular, breakfast and lunch were often a fixed menu with the same foods eaten at these meal-times. Alternatively, a particular set of options were rotated daily at the relevant meal-time.

... my breakfast is ... porridge with ... either ... a banana ... or ... stewed fruit and I have ... two slices of toast 'n marmalade and that's my breakfast ... (Bill, p. 2).

Strong views were held about whether a main meal was taken at midday or in the evening and the maintenance of this routine was important to the men. There were situations where meals provided by institutions contradicted this routine and consequently these services were not utilised.

But I wouldn't have that on [retirement village restaurant has main meal at lunch-time] ... I, just don't want to eat my main meal midday ... (Jim, p. 8).

I don't like eating a large meal in the middle of the day because I haven't been used to it. (Fred, p. 2).

In terms of main meals, a considerable degree of planning was performed by some of the men. Bill for instance, stated that you could tell the day of the week by what he was eating. Laurie also planned out his weekly main meals, by noting on his shopping list what main meals he would have for the week and then ensuring he purchased the relevant ingredients.

Preparing large quantities of food for multiple meals, at one time, was also a key aspect of planning main meals. Meals were then frozen and used at a later date. Bill had a weekly routine of purchasing meat and vegetables, specifically to create a large batch of cooked food. He would then freeze the prepared food in meal-sized containers, for regular use over the following weeks. Other men simply prepared two or more nights worth of main meal at one time.

Some days or some nights I'll cook a meal for two nights if I make a spaghetti bolognese, one of my fortes... [laughs] and easy to make ... that'll last me two nights or I can freeze half of it and have it ... on another occasion during the week or the week after. (Fred, p. 3).

A more short-term approach was taken to main meal planning by some of the men. For instance, a decision might be made the night before or on the actual day. George used his microwave for all his cooking, which meant he had a certain degree of freedom in planning his meals. He could always defrost meat in the microwave at the last minute if necessary. A number of the men also had back-up plans, in case their normal routine was interrupted for any reason. This involved ensuring they had stocks in the cupboard, microwave meals in the freezer, or homemade meals in the freezer.

And if you're really stuck you can go and ... buy frozen food. I always carry a couple in the fridge just in case. In fact I've got a cottage pie there now which ... I'll keep, well I don't know when I'll eat it but it's there anyway ... (Fred, p. 5).

... I always keep a bit of food in the ... pantry there and in the fridge, I can always rustle up a meal no trouble. (George, p. 5).

For Frank, a regular frozen meal consumer, a strict routine of ordering frozen meals, storage and meal set-up ensured that his life was managed the way he desired. Frank identified timing as the most important factor in his meal-related activities. He liked to

eat his meals whilst watching the news on television, for company, so getting his daily timing right was an absolute priority.

An' four or five o'clock I get the ... meals I'm going to have tonight [and] I put them out ... to defrost a bit, and right on the tick of, quarter past five, in she goes into the microwave ... I've set m' table and everything ... I sit there and soon as the old bell goes on the microwave, I start m' meal and usually it's right on the tick, when Prime News starts ... (Frank, p. 22).

For some of the men, having a change was part of their routine. That is, the format of a meal on a particular day differed.

But on a Saturday morning as a routine I go out with a friend of mine and we have bacon and eggs at Palmer's Garden Centre. (Fred, p. 2).

... except Sunday on a Sunday I have ... probably ... make an omelette and have bacon with it or probably black pudding or ... sausages, something like that but that's Sunday I don't ... cook a lot. (Bill, p. 2).

Having variety in the main meal was also a key aspect of structure in food-related activities. Nearly all of the men identified the importance of having a variety of foods in their main meals. This, therefore, was a key objective in planning their main meals.

... That would be typical of my day except my evening meals would be different ... seven days a week. (Fred, p. 2).

Oh I, I try to vary it each day what I eat, I mean, I wouldn't eat chicken every day for a week, ah I try 'n have chicken one day and maybe beef or lamb or whatever ... or fish or something to break it up, each day really. (Harry, p. 4).

Now ... I wouldn't have two meals the same two days running. (Laurie, p. 8).

It was widely agreed that having the same main meals day in and day out, or week after week, resulted in boredom. Ultimately, this meant that meals weren't enjoyed as much.

Frozen meals in particular, as previously highlighted (refer to Section 6.2), were a potential cause of main meal boredom.

For quite a long time ... I've bought frozen meals. But they become mundane really ... there are good ones, but they're very, very much the same ... I suppose it's, cooking in bulk I don't know whether that's ... the answer. Any institutional cooking ... it loses something somewhere along the line. But ... yes I've used frozen meals ... they're alright for a while 'til you get sick of them yeah. (Harry, p. 5).

Interestingly, Jack described his daily routine of meals as “boring” (Jack, p. 6). But when questioned further on this, it emerged that Jack actually thought other people might perceive his meal routine as boring. He on the other hand, was quite happy with the routine of his meals.

Another aspect of structure, in food-related activities, was familiarity. A number of food-related decisions were made based on previous experiences of food-related routines. That is, familiar shops, familiar foods and family traditions were inextricably linked into the structure, in food-related activities, that the men created in their lives. Thus, the influence of life course experiences on this food-related value was evident.

... I keep to the same things myself, yeah. I don't ... try anything fancy, or new ... (George, p. 10).

I'm an English eater ... I just eat, what I've been used to ... I never go in a Chinese restaurant or, if I do I have ... whatever's English. (Laurie, p. 13).

I know my way around Woolworths like the back of my hand ... (Jim, p. 3).

... the supermarkets I go to now I, don't know particularly well and ah, I struggle to find things at times, um, whereas I was used to the other supermarkets and ah knew my way around. (Harry, p. 2).

In terms of shopping, being familiar with the supermarket layout was highlighted as an important advantage by a number of the men. In other ways though, shopping did not fit

into the same bracket of structure in food-related activities. It was approached in a variety of different ways. Some shopped every day or two for a few things, others shopped weekly for a substantial buy-up. Shopping often involved buying up stocks of food as a reserve or back-up, as already highlighted.

For some participants, a lack of planning and structure was a real problem. Paul identified his lack of planning as a partial cause of his food-related problems. He didn't enjoy the meals he prepared himself, nor did he enjoy frozen meals. So since living alone he was struggling to enjoy his food at all.

... so often I just don't think about an evening meal, until the last minute ... well I just don't anticipate it at all, it's just time to eat I go out there, find something. (Paul, p. 5-6).

... if I had more interest in it I s'pose I would ... anticipate a meal and prepare for it, and think about it ... but I don't, I don't really do that at all. (Paul, p. 6).

Structure, in food-related activities, was also not a great priority for Harry and Bob. Harry tried to create some order, but he also stated that he didn't really "give much thought" (Harry, p. 4) to his meal planning. Bob on the other hand, said that he didn't have any routine at all and he frequently didn't even bother to have a main meal. Bob had regularly consumed main meals at his previous residence, where they were available at the retirement village's restaurant at lunch-time. Since being forced to move to a council flat, he now went without a regular main meal. Bob, Harry and Paul were all assessed as having a high nutritional risk.

7.3 Convenience

'Convenience' was the third food-related value that emerged. A number of food-related decisions were impacted by this goal, from which shops were used for food purchases, to how meals were prepared, to which appliances were used and the actual food they consumed. Convenience comprised either time-saving or effort-saving and the pursuit of these goals guided the men's activities from the moment they stepped out the door to procure their food.

The location of a supermarket might be considered an important consideration for older adults and it was highlighted as convenient to live near a supermarket. However, it was the convenience of having amenities that were handy to a supermarket that was of greater consideration in selecting a store for regular patronage by these men. Desirable amenities that were highlighted included fruit and vegetable stores, cafes, banks, a post office, council chambers, library and hairdressers. One participant reported changing supermarkets after many years of loyal custom, in order to shop somewhere else with better amenities.

But the major shopping I go a little bit further afield, I go to Milford actually, but for many many years I did go over here to Sunnynook, but I find that the place like Milford centre there I can do, banking and other odd things, at the same time. Cuts down travel in general you know. (Paul, p. 2).

... the main appeal of it I suppose is that the other, facilities are in the centre that I can use you see. (Paul, p.2).

... there's all the shops there you know and you can have a good look around ... like if I want ... a haircut I just go up there and then I can pop into Countdown [supermarket] as well ... (Laurie, p. 3).

The goal of convenience, in regards to shop selection, also emerged in other ways. For instance, if only a couple of items were required then amenities were not a consideration. Instead, a more expensive local shop might be selected, in order to save effort or travel.

... if I'm in Foodtown or in New World I don't bother to cross the road to buy my fruit and vegetables I just buy them there, more expensive but still. (Fred, p. 3).

I don't go up if there's only one thing I'll go up to the dairy and get the milk. But ah, if there's three or four things then I'll go back up to town and get it again. (Laurie, p. 1).

The meal preparation process was also influenced by the goal of convenience. Meals were chosen based on simplicity of preparation; various packaged products were

employed to simplify meal preparation; preparation steps were minimised; and meals were produced in large quantities so that food could be reheated later, in order to save cooking every day.

I've got the setup here now that without taking too many steps I can get everything I need to prepare a meal. (Jim, p. 5).

... No I just like simple things that's easy to prepare. [laughs] That's what I like ... no not too much messing 'round. Some of my lady friends ... you go up the wall waiting to get a meal! By the time they talk and mess around, get a meal at all times ... speed is essential. (George, p. 4).

... when I say a stroganoff's I mean I'm lazy, because ... I can throw if I use flavoured tomatoes, mushrooms ... and onions and this [indicates recipe mix for stroganoff] with some ... rump steak that I've sliced thinly ... that's going to turn out a pretty good feed ... (John, p. 4).

Instead of having 'em, just grilled the sausages, you know I'd grill 'em in a pan, ah I usually do 'em altogether then it saves you keep ... keep cooking 'em. (Laurie, p. 8).

I think this is what it really comes down to, is, cooking larger quantities than I need, in order that I don't have to cook on other days. (John, p. 10).

The type of cooking method used was also influenced by the goal of convenience. Some cooking approaches were avoided and others were modified. Benefits of this for example, were a reduction in the amount of time and effort needed to clean up after the meal.

... I don't use it [the oven] at all, because it's too much of ... a bother, you-know ... it's easier just to use the frying pan. (Jack, p. 6).

Frying is not the healthiest cooking method for meat. Other cooking methods such as grilling are preferable due to the lower fat content that typically results. Hence, the pursuit of convenience was occurring at the expense of healthier eating on occasions.

The appliances used for cooking were also influenced by the goal of convenience. Considerations included the effort and time it would take to set-up and cook the food on a particular appliance, as well as the difficulty or time required to clean the appliance.

... what I use as a frying pan which is ... a big saucepan I use that because ... you've got high sides and you can put a lid on so you don't get any fat spatter. (Jim, p. 2).

...see that? [Participant enters the room carrying an electric grill]. I could use that but I don't bother ... it's made in Australia but it's a cow of a thing to clean! ... it's a real pain in the bum. I mean ... I don't bother ... (Jack, p. 7).

I've got a George Foreman cooker ... it's not what it's cracked up to be unless you're a real devotee of that kind of cooking that they recommend. And I can't be bothered cooking vegetables on it where I can stick them in the microwave it's done. (Fred, p. 13).

The use of a microwave was a time-saver for the men. Time-saving was a key aspect of convenience. A number of the men spoke specifically of the importance of speed or reducing the time taken for their meal-related activities. Arthur, Frank and Georges comments are examples of this viewpoint.

I mean speeds of the essence with me ... I don't want to spend too much time cooking and eating. (Arthur, p. 6).

Suppose I'm impetuous I like to get on, get it over and done with you know ... (Frank, p. 13).

Speed is essential. (George, p. 4).

Both Arthur and Frank used frozen meals for their main meals, whereas George prepared his own main meals. However, what they all had in common was that the microwave was an integral part of their quest for speed. Both Arthur and George summed up the benefits of the microwave with one word - convenience. George also

felt that the microwave removed the risk of him ruining his food and creating more mess, such as boiling water away in a saucepan might do.

The benefits of microwave cooking extended beyond the speed of the actual cooking process for both Arthur and Frank. They found that using frozen meals that were heated up in the microwave, removed the need to do a lot of food preparation and the requirement to clean up a lot of dishes, pot and pans.

You don't wanna spend you know preparing it and, laying out the table and un-laying the table and doing the washing up and ... then timing the meat and ... I've done all those things but now at my age I'd rather get the food ... out, as quick as possible ... (Arthur, p. 6).

Well there's nothing really to do, all you do ... is just to be able to take it out, stick it in the microwave, six minutes ... bang the bell goes ... it's ready, bring it out, sit it down there, peel the top off, you know. (Frank, p. 12).

I don't have to stand 'round and do, a whole swag of dishes, pots and pans. (Frank, p. 13).

For other men, frozen meals were a convenient back-up to have in their freezer. If they were in a hurry, or just felt like a quick meal, they could whip a frozen meal out and microwave it quickly for dinner.

... I do buy in some every now and again, and ... I'll slot 'em in you-know here and there ... they're nice and quick I know that sometimes you wonder 'what am I going to have' and you think oh, take it out and thaw it out, and have it in a few minutes ... (Harry, p. 5).

Other foods chosen or avoided due to convenience included omelettes, frozen vegetables and steaks. Omelettes were a quick option for dinner. Frozen vegetables were considered a convenient form of vegetables. Whereas, steaks were avoided by a number of men, due to the mess produced in cooking them.

... I don't eat ... steak as such, unless ... I go out somewhere I can't be bothered, and that's the truth of it I can't be bothered with the

hassle of ... and the mess that's made of producing steak. (John, p. 4).

For some of the participants, their current time- or effort-efficient approach to meal preparation differed from earlier in their lives. Arthur had only discovered microwave meals after his wife's death, though he noted that his wife would not have considered using microwave meals anyway. For others, their wife's illness had necessitated them spending more time looking after her or visiting her in hospital so they had less time available for a meal and had sought more convenient ways of producing a main meal.

... when my wife went into hospital as I said, I used to ... take her to tea, 'round there, sit her at the table, and then ... some one of the staff would come and help to feed her, if I didn't do it, and I'd dash home, and slap me one in the microwave ... for ten minutes an', have me hot meal, and I'd take me 'bout an hour to have well I used to watch the news and have me meal, and then I'd go back in the evenings yeah ... I did that for two years. (Frank, p. 7).

... the last ... four years about probably ... I didn't have the time, it's as simple as that ... I just didn't have the time, because, I mean, you know, she'd be able to, wave at us ... but that was about it, you know so ... I was looking after her ... because, and ... to be frank about it I was getting tired too. (John, p. 19).

Thus, convenience was a goal that influenced a number of food-related decisions for these men. Convenience took the form of reducing both effort and time, in food-related activities, for these men. Consideration is now given to the final food-related value.

7.4 Like It Or Not, It Has To Be Done – Shopping and Cooking

The final food-related value that emerged was 'like it or not, it has to be done – shopping and cooking'. This statement represented the men's cumulative feelings about food procurement and preparation. Whilst some of the men enjoying shopping or cooking, there were others who didn't like these activities. Irrespective of their feelings about these activities, the necessity of completing these tasks in order to survive emerged from the discussions.

The participants' views about shopping ranged from Laurie who professed to love shopping, through to Harry who said it was a hassle and a chore. The majority of the men stated that they enjoyed shopping, or at least found positive aspects about the shopping process. Following are a selection of these viewpoints.

... I love shopping. (Laurie, p. 3).

Oh I'm happy to do it. (Bill, p. 3).

... It's a change you know, having a look around seeing, different prices an', what's on special [laughs]. (Frank, p. 3).

Well I think it's very interesting really and I keep my eye out for anything that's different, and ... try it, mm. (Arthur, p. 4).

Both Frank and Arthur said they found the shopping process an enjoyable activity. For these men, shopping provided an opportunity for new experiences, finding new products, checking prices and generally having a look around the shop. Some of the men also described shopping in terms of an outing for themselves or a social occasion.

Ah I'm happy enough with it [shopping], least it gets you out of the place [laughs]. (Jack, p. 4).

... Well it doesn't worry me it's gotta be done [laughs] ... during the summer when I go fishing I'd um, it's a bit of a bind I s'pose but, it's gotta be done doesn't it. (George, p. 2).

Oh well I go to the ... market on a Sunday morning at Takapuna ... and ... get all my fruit and vegetables there ... and ... it's a social occasion I've been going there for about twenty five [years] so I know a lot of the stall owners, and ... I find it quite nice out there on a Sunday morning ... quite good ... (George, p. 1).

For Jack, who had limited social and support networks, shopping was an opportunity to get out of his flat. George in one statement appears to have a fairly neutral view about shopping. On another occasion he describes how he enjoys the social aspects of some of his shopping excursions.

The remainder of the men reported no positive aspects to shopping. Rather they had a neutral or negative view of shopping. In a number of these cases the necessity of the task was highlighted.

As I say when you gotta do something for yourself you've gotta do it [laughs]. (Bob, p. 3).

... I can't say I like it though ... yes, chore supermarket shopping ... [laughs] it's just a hassle a chore ... (Harry, p. 3).

... I don't like shopping, period ... I mean ... shopping to me is ... a painful necessity you know ... I don't enjoy going ... I don't enjoy shopping at all ... I go out armed with a list, and ... I buy what's on the list ... (John, p. 5).

I just do it because I have to ... I don't enjoy it particularly, no, because ah, shopping on your own ... is not so much fun as doing it with somebody, just do it because you have to. (Paul, p. 2).

For Paul, the fact that he now lived alone and shopped alone, was a negative compared to previous experiences of shopping with his partner. Previous life experiences also seemed to play a part in shaping some of the other men's feelings about food shopping. For Jim, the experience of shopping for himself was far simpler than his previous experiences of shopping for, or with, his wife. He now had quite a positive attitude towards shopping.

... it was a bit of an ordeal the going shopping ... with her, while she was still able to do it, because she took a long time to make up her mind about which brand you get of this and that because don't forget she was a coeliac and ah we learnt the hard way that you've got to read the fine print on every blessed packet. (Jim, p. 3).

... and of course it's a glorious sense of freedom now ... I don't have ... this constraint about ... the wheat and I can just ... shop ... knowing what I need and ... just get it ... (Jim, p. 3).

For Frank, the ability to procure his own food successfully was something he was quite proud of. Frank stated that he hadn't realised how much work his wife had previously undertaken in terms of shopping and cooking.

... it's been quite an experience really I just ... realise how much my wife used to do you know ... (Frank, p. 4).

But, now I've broken myself in now to getting it ... I feel quite proud of myself at times ... (Frank, p. 3).

All of the men regularly utilised supermarkets for the majority of their purchases, with the exception of fruit and vegetables as these were widely considered too expensive in supermarkets. Otherwise supermarket pricing was considered good by most of the participants. The one exception was Fred, who felt that all food items were expensive. Supermarkets were generally considered to be well stocked and the staff helpful. Overall there was generally positive feedback. In Arthur's words there was "nothing to complain about" (Arthur, p. 5). Bob's previous experiences in South Africa appeared to shape his positive views about life in New Zealand. Bob felt that service in New Zealand was very good, particularly in comparison to South Africa.

Altogether there were widely varying views about shopping. Whilst some loved it, others did not, but the majority noted that it had to be done. Shopping was seen as a necessary task, that must be completed as part of their living alone situation. The previous life experiences of some of the men appeared to shape their feelings about shopping, in some cases negatively and in others positively.

The views about cooking also ranged across the spectrum. Again from Laurie who professed to also love cooking, through to Frank who reportedly couldn't be bothered to cook for himself. In total, four of the men in the present study reported that they liked or enjoyed cooking.

Well I didn't do it 'til I come here [to New Zealand] now I love cooking. (Laurie, p. 6).

... I have always enjoyed cooking yes, there's a great satisfaction in my opinion. (John, p. 8).

Well ... I don't cook to live and I don't live to cook if you know what I mean ... I quite enjoy cooking it's not a chore far from being a chore I quite enjoy it ... but that's as far as it goes ... (Bill, p. 3).

I think I'm just a ... normal sort-of an eighty-year old. Perhaps not normal in terms of cooking ... I like to cook and other blokes don't. (Fred, p. 16).

Fred suggested that his interest in cooking was unusual for a man. He had two older male friends who hated cooking. Those men who said they liked or enjoyed cooking were sometimes excited and animated when they spoke about their cooking. They had wanted to learn how to cook and so had watched television programmes, read books and learned through their mistakes.

... Ooh I know what I'll ... do ... on the fish I'll make a white sauce with ... cornflour and also some ... chopped up parsley which I've got growing outside, ahh that goes well. (Jim, p. 2).

Oh yeah ... can't beat it ... sometimes I sit here and have a debate, eight o'clock at night, and ... the tele nothing [is on]. I've had enough of this and I go an' bake a cake ... (Laurie, p. 6).

I thought I'm going to learn to cook and I started with a basic cookbook, made some horrible mistakes, didn't trust the recipes of course 'that can't be right' so try something else ... and you learn the hard way. (Fred, p. 7).

In contrast, John had always enjoyed cooking, but with age his priorities had changed. He now would rather be doing other things, such as walking, reading or just lazing around in preference to cooking.

... I mean, well, time spent in the kitchen means, time I'm not gone walking. (John, p. 17).

... To be perfectly frank in the afternoon I'd just as soon put my feet up and have a little zzz you see [laughs]. (John, p. 17).

Some, but not all, of the enthusiastic cooks were also adventurous. Jim and Fred in particular, sought out new recipes and bought new cooking appliances in order to experiment.

... I've got a George Foreman cooker, you know? ... Yeah I bought it I thought ... it'd be another little accessory that I could use to experiment with and I soon found I liked the microwave that ... it was limited as far as I was concerned. (Fred, p. 13).

Laurie and Jim displayed interest in extending their existing repertoire of cooking skills. They watched television programmes and swapped recipes with other people. More typical was the view of Bill and Fred. Bill was quite happy with the cooking repertoire he had and Fred also felt he now had a sufficient skill level to keep himself happy. Although Bill did note, that if he was cooking for more than one person he might be more motivated to develop his cooking skills further.

Cooking was seen only as a necessary part of a routine for some of the other men. In Jack's case, he had been a solo parent and so had cooked regularly for two sons as they grew up. George was a bachelor who had never married and so had looked after himself for most of his adult life, following the death of his mother. Cooking was viewed by these men as a routine task that had to be done and they simply got on with it.

The remainder of the men did not like cooking. They viewed it as a chore or said that they couldn't be bothered with it. The amount of time and effort required to prepare a meal from raw ingredients was a negative.

... I don't have problems cooking but ... it's a bit of a chore shall we say. (Harry, p. 4).

... Oh a bit of a chore ... (Arthur, p. 3).

It doesn't interest me, it's a fiddly business ... I just don't have any feeling for it ... to my own detriment. (Paul, p. 3).

So my knowledge and ... interest in cooking is probably, is a pretty low level. (Paul, p. 4).

... I just didn't like cooking ... 's lot of fussing around for ... so little ... (Frank, p. 10).

To me it seems a lot of work, for ... short enjoyment sort-of style.
(Frank, p. 13).

Extensive food preparation was avoided by those men who disliked it. The wide availability of frozen meals meant they were a viable alternative to preparing an entire meal from raw ingredients. Both Arthur and Frank had prepared meals, from raw ingredients, for their terminally ill wives. But when they were no longer required to feed their wife, due to her hospitalisation or death, they chose to purchase frozen meals. The appeal of convenience foods, for these men, outweighed any enjoyment that they might gain from a home-made meal. For these participants, food choices were altered in order to avoid a task they didn't enjoy. Conversely for Harry and Paul, the monotony of frozen meals meant that they still endeavoured to cook home made meals. Although these two men disliked the cooking process, they still preferred their own meals to frozen meals.

7.5 Summary

Four food-related values emerged from the discussions with the men. These values appeared to be shaped by past experiences and guided current decisions about food procurement and meal preparation. The most salient values for these men were the *importance of healthy eating; structure in food-related activities; convenience; and like it or not, it has to be done – shopping and cooking.*

Healthy eating was important to a number of the men and was linked to future health consequences and successful ageing. Conversely, some of the other men said that healthy eating was not particularly important and, interestingly, linked their eating habits to past and current health. A perspective likened to a 'rear-vision mirror' view, highlighting the participants' lack of consideration for future health. Past experiences such as childhood experiences; diagnosis of serious disease; and the influence of marital partners all appeared to shape current feelings about the importance of healthy eating. This was subsequently reflected in the approach taken to both food procurement and preparation.

The desire for structure in food-related activities, another food-related value, took the form of standard routines, timetables, forward planning and familiarity. Participants had

set daily schedules and meal plans, they also had planned changes in both routine and the protein source in main meals. A lack of structure in food-related activities negatively affected food intake in some cases. For instance, the regular use of the same frozen main meals led to boredom in some cases. For others, main meals weren't planned, weren't enjoyed or were missed out altogether.

A key food-related value for most of the men was convenience. Convenience took the form of both time-savings and effort-savings. This goal impacted the selection of shops, foods, appliances for cooking and cooking methods. In some cases the pursuit of convenience took priority over healthy eating. Thus, convenience clearly impacted food procurement and preparation processes.

Both shopping and cooking were considered activities that 'like it or not, had to be done'; a fourth food-related value. Whilst some of the men reported positive aspects to shopping, such as social interactions and the opportunity to discover new products, others felt shopping was a chore not an enjoyable activity. Past experiences with shopping appeared to shape current feelings about this activity. Cooking also inspired a diverse range of views, whilst a number of the men enjoyed cooking and sought to extend their cooking skills others simply felt cooking was a chore or a hassle. The time and effort required to prepare a meal from raw ingredients was a particular negative for some of the men. Thus, they chose to utilise frozen meals in order to avoid food preparation activities. Evidently then, feelings about cooking activities may affect food choice at the food procurement stage. This ends the presentation of the findings from the present study. The following chapter presents a discussion of the findings.

8 Chapter Eight: Discussion

8.1 Introduction

The aim of the present study was to describe the barriers that a group of older, single-living New Zealand men faced in procuring and preparing meals as part of a healthy diet. Understanding the men's views of their world, in terms of food-related activities, was a core aspect of the research. A mixed methods approach, guided by qualitative description, was undertaken to answer the research aim. Data from semi-structured interviews was analysed using a general inductive approach (Thomas 2003). Quantitative data from a questionnaire were used to enhance the description of the participants. The combined result was the development of three themes containing nine categories. Each of these themes and their associated categories were presented in Chapters Five, Six and Seven.

This chapter presents a brief review of the key findings, in terms of the themes and categories that were developed from the data. This is followed by a discussion of the findings with reference to the original research objectives. Finally, the implications of the findings are highlighted, recommendations for future research are provided and the limitations of the research are presented.

8.2 Overview of Key Findings

Three core themes emerged from the study data, these were *individual circumstances*, *nutrition knowledge and skills* and *food-related values*. The three themes relate to and are underpinned by the 'food choice capacity' conceptual model of Bisogni et al. (2005). Following is a brief review of the themes, and their corresponding categories, from the present study.

The first of the three themes was *individual circumstances*. This referred to the personal, social and environmental circumstances of the participants that resulted from their life course and experiences. Three key inter-related categories emerged from within *individual circumstances*; these were the *financial situation* of the participants; their *personal mobility and transport* options; and their *social and support networks*. The variation in circumstances seen amongst the participants supports the view that older New Zealand adults are a diverse group.

The second theme developed from the data was *nutrition knowledge and skills*. These were, in essence, the tools or abilities the men had to procure and create healthy meals. *Nutrition knowledge* was described with the use of a questionnaire and emerged through discussions. Three sets of *skills* also emerged; these were shopping, gardening and cooking skills. The men's *nutrition knowledge and skills* were also influenced by their life course.

The third and final theme that emerged from the data was *food-related values*. These were strong beliefs that guided the participant's decisions about food procurement and preparation. Four values emerged, these were *the importance of healthy eating*; *structure in food-related activities*; *convenience*, in terms of both time-saving and effort-saving; and *like it or not, it has to be done – shopping and cooking*, which represented the men's cumulative feelings about food shopping and cooking. The impact of life course and past experiences on the four identified food-related values was evident.

8.3 Nutritional Risk

The first objective that directed the present study was to describe the *nutritional risk status* of the participants. Using the SCREEN II tool (Keller, Goy & Kane 2005), six of the 12 participants (50 per cent) were found to have a high level of nutritional risk. The remaining participants had low to moderate levels of risk, with only two of the twelve men attaining a score that indicated no risk. SCREEN II defines high risk as a score less than 50 from a possible total of 64, whereas SCREEN I defines high risk as a score less than 45 from a possible total of 60. Both versions of the SCREEN tool have been used in community-based studies to define nutritional risk in older adults.

Nutritional risk is a relatively common problem amongst community-living older adults (Keller et al. 2006). Various studies have identified anywhere from 25 to 65 per cent of older adults as being at nutritional risk – depending on the participant demographics (Keller, Ostbye & Goy 2004). A recent study in Canada, utilising the SCREEN I tool, found some 23.5 per cent of older adults (55+ years) had a high level of nutritional risk (Keller & Hedley 2002). Although a higher prevalence of nutritional risk was found in the present study (50 per cent), as compared to the Canadian study (23.5 per cent), this may be explained by the differing demographics. The participants in the present New

Zealand study were single-living and older than the Canadian participants, both factors that are associated with increased nutritional risk (American Dietetic Association 2000).

Nutritional risk factors that were common amongst the men in the present study were: frequently eating alone (100 per cent), not surprising given that all the participants lived alone; low meat/alternative intake (58.3 per cent); weight considered too high/low (50 per cent); and meal preparation not enjoyable (50 per cent). Not all nutritional risk factors from the present study were able to be compared to the Canadian study, as differing versions of the SCREEN tool were employed (Keller & Hedley 2002). Nevertheless, the Canadian study also found low meat/alternative intake amongst men, although the prevalence was lower (15 per cent). In terms of meal preparation, the Canadian men reported some difficulty in preparing meals (20 per cent), this SCREEN I item included lack of interest in the activity which is comparable to the lack of enjoyment reported by the New Zealand men (50 per cent). Low milk product intake was reported in both the present study (41.7 per cent) and by the men in the Canadian study (21 per cent), as was low fruit and vegetable intake in both the present study (33.3 per cent) and the Canadian study (63 per cent).

Nutritional risk screening identifies characteristics indicative of an increased risk of nutrition problems such as malnutrition (Council on Practice Quality Management Committee 1994). Malnutrition can lead to increased morbidity (Hickson 2006) and decreased quality of life (Vailas et al. 1998). A number of studies now support the view that there is a relationship between nutritional status and quality of life (Amarantos, Martinez & Dwyer 2001; Hickson & Frost 2004; Keller, Ostbye & Goy 2004). One recent study, that employed SCREEN I as a measure of nutritional risk, found that nutritional risk status was an independent predictor of decline in health-related quality of life (Keller, Ostbye & Goy 2004). Further to this, nutritional risk status, as assessed by an abbreviated version of SCREEN I, was also significantly associated with time to death in another Canadian study (Keller & Ostbye 2003). Consequently, it was concerning that half of the participants in the present study were assessed as having a high level of nutritional risk. Referral of participants at high risk, to Age Concern North Shore, was therefore crucial.

It is not possible to generalise findings from a mixed methods study of this nature. However, considerable past research supports the suggestion that older men who live

alone have poorer dietary habits than their peers (Davis et al. 1985; Horwath 1989; Donkin et al. 1998). Dietary habits are one aspect of nutritional risk screening, raising the likelihood that *issues such as nutritional risk exist amongst this population group*. Further investigation of this limited finding is warranted.

8.4 Understanding and Importance of a Healthy Diet

The second objective that guided the present study was to describe the level of *understanding and importance of a healthy diet* to the participants. Nutrition knowledge may have a small, but nonetheless crucial, role in the development of healthy eating habits (Wardle, Parmenter & Waller 2000; Worsley 2002). Furthermore, attitudes and beliefs are widely considered to influence food choice behaviours (Worsley 2002). In essence, both knowledge and attitudes about healthy eating were pieces of the food choice puzzle that the present study sought to understand.

In terms of *nutrition knowledge*, half of the participants scored less than 50 per cent in the general nutrition knowledge questionnaire and the average score was 53 per cent, indicating a relatively low degree of knowledge amongst these men. Unfortunately, no previous nutrition knowledge assessment of an adult New Zealand population has been conducted for use as a comparison. A recent British study, that utilised the same nutrition knowledge questionnaire, investigated demographic variation in nutrition knowledge (Parmenter, Waller & Wardle 2000). The researchers found lower nutrition knowledge in men compared with women; in single, separated, divorced or widowed individuals compared with married peers; and those aged 65 years and over (Parmenter, Waller & Wardle 2000). Thus, the lower scores of the participants in the present study are consistent with the demographic variation seen in nutrition knowledge amongst British adults (Parmenter, Waller & Wardle 2000).

It has been suggested that men's lower nutrition knowledge may in part be responsible for their lower intake of fruit and vegetables (Baker & Wardle 2003), one aspect of their poorer dietary habits. Interestingly, only four of the twelve participants in the present study could correctly advise the number of fruit and vegetable portions that health experts recommend consuming daily. This despite the '*5+ a day*' *fruit and vegetable promotional programme* being introduced to New Zealand in the early 1990s. While at first this programme was aimed at preschoolers and school children, the campaign was

later widened to the general population (Ashfield-Watt 2006). A recent survey investigating awareness, knowledge and compliance with the '5+ a day' message in New Zealand, found that the message was well recognised and understood (Ashfield-Watt 2006). However, the participants in that survey were members of households containing children. In addition, only 5.5 per cent of the survey respondents were men. It is surmised from the available information that no older, single-living men participated in the New Zealand survey and thus the level of awareness of the '5+ a day' healthy eating message within this population group is unknown. The findings of the present study suggest that current healthy eating promotions such as the '5+ a day' message, for fruit and vegetable consumption, may not be reaching a significant proportion of older single-living New Zealand men.

In contrast, *public health messages to reduce dietary fat intake* were highlighted by the majority of the men. This is not surprising given that dietary messages about reducing fat intake have been widely publicised for a number of decades now in most Western countries (Wardle, Parmenter & Waller 2000). It is the less well publicised messages or newer promotional messages about other aspects of healthy eating that may not be reaching these men and may be a barrier to dietary change.

Knowledge about the consequences of diet was also particularly lacking. This was reflected both in the nutrition knowledge questionnaire and the discussions. The average score for the diet-diseases section of the nutrition knowledge questionnaire was 33 percent. This was the lowest result for any of the sub-sections in the nutrition knowledge questionnaire and reflected a poor understanding of the consequences of diet, in terms of disease. These findings are in line with other research. Parmenter, Waller and Wardle (2000) found that English adults also had poor knowledge about associations between diet and disease. Anderson et al. (1998) found that adults in both England and Scotland had a limited understanding of the link between cancer and intake of fruit and vegetables.

Understanding the health implications of eating, or not eating, a particular food is one fundamental aspect of the *relationship between knowledge and dietary behaviour* (Parmenter & Wardle 1999). According to the health belief model (Janz & Becker 1984), the likelihood of taking a recommended preventative action, such as modifying dietary habits, depends both on the perceived benefits and barriers of that preventative

action and the perceived threat of the associated health condition, such as malnutrition or other diet-related diseases. Based on this theory, one would not expect the participants in the present study to be motivated to improve their dietary behaviour if they are unaware of diet-disease relationships and they perceive that there is no disease threat associated with their current dietary behaviour. Improving knowledge about diet-disease relationships is considered an essential part of successful dietary intervention programmes (Anderson et al. 1998).

A potential relationship between lack of knowledge about the consequences of poor dietary habits and feelings about the importance of a healthy diet emerged from the findings of the present study. The importance of healthy eating was one of four ‘food-related values’ that were identified. Whilst the majority of the men felt that healthy eating was important, there were some who specifically stated that they were not concerned about their eating habits. In both cases, *feelings about the importance of healthy eating were linked to the individual’s perceived state of health*. Interestingly though, those who felt healthy eating was important talked specifically about future health consequences. Whereas, those who weren’t ‘worried’ about healthy eating talked about healthy eating in terms of their current or past health, suggesting that the fact they were still alive and functioning proved their diet must be ‘alright’.

Attitudes and beliefs are widely considered to impact on food choice behaviours (Worsley 2002). The premise of the theory of planned behaviour (Ajzen 1991) is that the performance of a particular behaviour depends on the individuals intentions, which are formed from various beliefs and attitudes about the behaviour and the likely consequences. In a recent study, the theory of planned behaviour was applied to healthy eating behaviours (Conner, Norman & Bell 2002). Based on the findings of that study, the researchers suggested that attitudes and perceived behavioural control should be targeted to increase healthy eating intentions.

The lack of importance placed on healthy eating by some of the participants in the present study, is *one aspect of an individual’s attitude towards healthy eating*. Encouraging a more positive attitude towards healthy eating is necessary. Again knowledge about the consequences of healthy eating may be a core part of changing these attitudes. If individuals perceive there are no risks associated with their current dietary behaviour, they are unlikely to contemplate changes (Shepherd 1999).

One participant in the present study suggested that his current attitude to vegetable consumption and his low consumption of vegetables was the result of his *childhood experiences*. He had not been encouraged to consume vegetables by his adoptive parents during his childhood. Winter Falk, Bisogni and Sobal (1996) found in their study of food choice processes in older adults, that childhood experiences played a substantial role in food choice decisions. However, for another participant in the present study, the *diagnosis of heart disease in adulthood* had been sufficient motivation to educate himself about the risks of his current lifestyle, to prioritise healthy eating and thus modify his dietary behaviour. For this man, the disease threat was very real and perhaps therefore justified taking the recommended preventative action of modifying dietary habits. It appears that *life experiences may modify 'food-related values' such as the importance of healthy eating*. Bisogni et al. (2005) also found that 'life course and experiences' influenced the formation of 'standards', about eating, that people adhere to in later life. The positive role of the participant's wife in the process of dietary improvement, following diagnosis of heart disease, was also a contributing factor. Family, in particular marital partners, have a positive effect on dietary intake quality (Davis et al. 1985; Schafer et al. 1999), something that is now missing from the lives of these older single-living men.

In summary, a low level of nutrition knowledge amongst older, single-living New Zealand men, particularly in terms of understanding the consequences of poor dietary behaviours, may negatively impact on attitudes to healthy eating and consequently dietary behaviours. This may negatively affect food choices at the food procurement and preparation stages. Further investigation of these limited findings is warranted.

8.5 Personal Perspectives on Procuring and Preparing Meals

Describing the personal perspectives of older single-living New Zealand men in relation to procuring and preparing meals was the third objective that guided the present study. The inter-related themes of *individual circumstances; nutrition knowledge and skills; and food-related values*; impacted on meal procurement and preparation processes. Together, aspects of these themes became barriers or enablers to procuring and preparing meals as part of a healthy diet.

Individual circumstances were the personal, social and environmental circumstances of the participants. The individual's *financial situation, personal mobility and transport*, as well as their *social and support networks* were the most salient circumstances, in terms of food-related activities, for these men. Each of these factors was influenced by past experiences and in turn they influenced each other. Support for the impact of an individual's circumstances on food-related activities is found in the conceptual model of Bisogni et al. (2005), in which an individual's 'circumstances' influenced their food choice capacity.

A *wide variety of financial situations* existed amongst the participants. Clearly, the current financial situation of the men was influenced by their life course. Examples of life course experiences that fundamentally impacted the financial situation of these men were emigration, divorce and the loss of a partner through bereavement. Major life changes and downward financial shifts were also an aspect of 'circumstances' in the 'food choice capacity' model of Bisogni et al. (2005).

In New Zealand, the financial situation of older men is typically better than that of women (Statistics New Zealand 2004). In the present study, a number of the participants were *receiving multiple pensions* and reported having a '*comfortable*' lifestyle. For these men, finances had a lesser impact on food procurement decisions. In contrast, those participants surviving on a *limited income*, such as the New Zealand superannuation entitlement, reported a more '*careful*' approach to managing finances.

Living on a fixed income such as a governmental superannuation, may impact on the food-related lifestyle of older adults (American Dietetic Association 1996). As other expenses increase, older adults may choose to reduce their food costs by decreasing their food intake, in order to make ends meet (American Dietetic Association 1996). Limited finances did impact food procurement processes for some of the participants in the present study, with reports of men decreasing the size of the main meals they purchased or reducing their fresh fruit purchases in order to live within their limited means. These types of *economising behaviours* have also been reported in another New Zealand study on older adults (Statistics New Zealand 2004). In the New Zealand Survey of Older People around 30 per cent of older non-partnered individuals reported buying less meat or cheaper cuts of meat in order to keep food costs down and around 10 per cent reported cutting down on visits to the shops (Statistics New Zealand 2004).

In terms of the participant's finances, being *'careful'* impacted the selection of food brands and the shops that were frequented. One participant reported buying supermarket own-brand products as these were cheaper, a positive attribute given his limited income. In Scotland, the cheaper prices of own-brand supermarket products were also reportedly a positive for older adults (Hare, Kirk & Lang 2001). Supermarket shopping was employed by the participants for most purchases, with the exception of fresh fruit and vegetables as these were deemed too expensive in supermarkets. The perception that fruit and vegetables are too expensive is widespread and is one of the more intractable beliefs about these food items (John & Ziebland 2004). In a recent New Zealand survey, 34 per cent of participants reported that fruit was too expensive and 30 percent reported that vegetables were too expensive (Sullivan et al. 2004). The majority of the men in the present study purchased their fruit and vegetables from a specialist greengrocer. This was perceived as a more cost-effective source. In some cases though, as previously highlighted, fruit was only purchased and consumed when the prices were low enough to be acceptable to the individual.

Behaviours such as decreasing food intake and limiting fresh fruit and vegetable purchases may place older men at increased risk of malnutrition (American Dietetic Association 1996). Thus, *limited finances appeared to be a barrier* to procuring food for a healthy diet in some cases. However, while cost is often cited as a barrier to fruit and vegetable intake by low income consumers, the authors of a recent study suggest that other factors such as motivation may be of greater importance (Dibsdall et al. 2003).

Personal mobility and access to personal transport were another aspect of *individual circumstances* that impacted food-related activities. Good *personal mobility and access to personal transport* enabled greater choices about where and when to shop, how much to purchase and what other activities would be combined with a shopping trip. Participants that were reliant on others, for transport provision, had to shop at times and locations that suited the transport provider. Where that support was unreliable, there were additional costs incurred due to the use of more expensive local stores or the men simply went without fresh food. Piacentini, Hibbert and Al-Dajani (2001) also found that older Scottish adults who were reliant on others for transport, particularly where that support provision was weak, experienced more disadvantage in terms of shopping.

In particular, the Scottish adults who were dependent on others for transport, also tended to utilise local shops more than others and faced a cost disadvantage as a result (Piacentini, Hibbert & Al-Dajani 2001).

One participant, in the present study, who had limited personal mobility and no personal transport occasionally had to use a taxi to transport his weekly food shopping. This additional transport cost almost outweighed the cost savings of shopping at the supermarket, as opposed to the local corner dairy. Older adults in Scotland highlighted similar issues about transporting heavy food items and the cost of using taxis. However, the Scottish adults had recently gained access to a local community food co-operative that they could easily carry their fruit and vegetables home from (Piacentini, Hibbert & Al-Dajani 2001). Participants in the present study did not always live within walking distance to shops and so were reliant on transport of some form for food shopping trips.

Limited personal mobility and a lack of dependable transport are both potential causes of *food insecurity* (Lee & Frongillo 2001; Wolfe, Frongillo & Valois 2003). *Food insecurity* has a negative impact on dietary quality (Booth & Smith 2001) and may result in under-nutrition (American Dietetic Association 1998). The circumstances of the participants detailed above, are prime examples of individuals who do not have secure physical access to food due to problems with personal mobility, lack of transport and unreliable support networks. This appeared to be impacting the variety and nutrition quality of the men's diets. Thus, *limited personal mobility and a lack of personal transport may be barriers to healthy eating* in some older single-living New Zealand men.

An *effective support network* reduced the impact of limited personal mobility and a lack of personal transport for one gentleman. Good support networks can reduce these types of shopping disadvantages experienced by older people (Piacentini, Hibbert & Al-Dajani 2001). Support for this participant was provided by a close-knit family. Support for other participants was provided by family, friends and neighbours. It ranged from providing shopping transport, right through to delivering home-made meals. For many of the men, assistance was gladly received and interwoven into their lifestyle. For the above noted participant, his support network was integral to his food-related activities and possibly his survival. In fact, a large body of research suggests that those older adults with better social support do experience better health (Locher et al. 2005).

Unfortunately for some of the participants, reliable support networks were not available for assistance with shopping or other activities. This resulted in negative impacts on food procurement and preparation processes.

A desire for *independence* meant that some participants did not want support in the form of food-related assistance. Independence is a key facet of quality of life for older adults (American Dietetic Association 2000). The ability to procure and prepare their own meals imbued many of the men with positive feelings. They spoke of being proud of their ability to look after their own needs. These sentiments echo the findings of Amarantos, Martinez and Dwyer (2001) in their discussion of nutrition and quality of life, that procurement and preparation of meals can provide older adults with positive feelings, in terms of feeling independent and feeling in control of their own environment and situation.

Living alone was a challenge for the men, particularly in terms of the social isolation. Two thirds of the participants in the present study were widowed. A US study (Shahar et al. 2001) found that the loss of a partner resulted in changes to the social environment; loneliness; a lack of interest in food-related activities such as grocery shopping and meal preparation; and less enjoyment of food. Shahar et al. (2001) found that these changes in US widowed adults were accompanied with weight loss over a 12 month period. Issues reported by the men in the present study included the changed role of food and meals in their lives; the routine of day to day living and the lack of company. Although none of the participants in the present study reported weight loss, further investigation of this nutritional risk factor may be warranted given the issues that the men reported in regards to meals and living alone.

A number of the participants stressed the importance of an individual's *attitude* to their living-alone situation; the importance of 'getting on with things' and having an active life. For these men, this included having *interests in life and socialising*. These social occasions with families, friends and various clubs often included shared meals. Social outings that include shared meals, one form of food procurement, may play an important part in the dietary intake of older men. The more people present at meal-times the greater the size of the consumed meal (de Castro & Brewer 1992). Moreover, meals consumed with friends and family are known to be larger than those consumed alone (de Castro 1994), as are meals consumed in restaurants and fast food meals (de Castro

& Stroebele 2002). For these men, the opportunity to participate regularly in shared meals with clubs, families and friends is likely to have a positive effect on food intake. This socialisation may help to counteract the negative effects that living alone has on dietary intake.

Those *men lacking personal transport had less social involvement* and consequently less opportunity for shared meals. The one exception to this finding was again the participant who had a strong family support network. Previous research suggests that social participation by men declines with age, as a result of the loss of friends and, more particularly, following bereavement (Bennett 1998). The results of the present study suggest that the social participation of older single-living New Zealand men may also be affected by a lack of personal transport. A recent New Zealand survey found that loss of personal transport affected social networks and could result in social isolation (Davey 2004). The extent to which a loss of transport could affect social networks depends on the individual's personality and attitude (Davey 2004).

Another mechanism of support highlighted by one participant was that of his *Christian faith*. Research suggests that religiousness and depression are inversely correlated (Smith, McCullough & Poll 2003). A number of possible mechanisms for this effect have been suggested, including the increased social support that typically occurs through religious involvement (Locher et al. 2005). Irrespective of the mechanism, depression is associated with decreased appetite and thus any reduction in risk of depression in older adults is beneficial.

Finances, mobility and transport, as well as *support networks* are all inter-related with each other and the older adult's nutritional status (American Dietetic Association 2000). Having either limited finances, limited personal mobility or a lack of personal transport negatively impacted food procurement and preparation processes for some of these men. Furthermore, limited mobility and transport negatively impacted finances. Good support networks appeared to alleviate these issues and positively enhanced food procurement and preparation processes. These *individual circumstances* were the result of the men's life course and experiences and formed the base upon which the men's food-related activities were founded. Consideration is now given to how the men's *nutrition knowledge and skills* impacted food-related activities.

Nutrition knowledge and skills were the skills that cumulatively formed the individual's ability to procure and prepare meals. The skills that emerged as salient for the participants were *shopping*, *gardening* and *cooking*. The individual's *nutrition knowledge* was another vital aspect of this theme. These findings are underpinned by Bisogni et al. (2005), who proposes that an individual's 'food management skills' influence their food choice capacity. In both the present study and the food choice capacity model (Bisogni et al. 2005), these skills were influenced by the individual's previous life experiences.

Prior experience with *shopping* and *cooking* amongst the participants in the present study was fairly limited. These are two tasks that are commonly performed by women in households (Bennett 1998; Loudon & Della Bitta 1993). Researchers in England found that only one in five men cooked a meal on most or every day, as compared to four out of five women. Furthermore, nearly a quarter of these English men did not cook or did not feel confident enough to cook a meal from basic ingredients (Caraher et al. 1999). For the participants in the present study, their wife's terminal illness or a marital transition, such as divorce or widowhood, was the point at which most men picked up responsibility for these tasks.

Irrespective of prior experience, most men had developed sufficient cooking skills to meet their perceived needs. Notably though, *cooking skill level impacted food choice* through the food procurement process, with one participant stating he wouldn't purchase items he didn't know how to cook. This finding is supported by the English survey, where researchers found that not knowing how to cook a food was more likely to limit food choice in men (Caraher et al. 1999). A lack of cooking skills and the regular consumption of microwave meals were both associated with less meal enjoyment for some of the New Zealand men. A lack of meal enjoyment is of concern, as the palatability of a meal stimulates appetite in men (Yeomans et al. 1997). In terms of cooking skills, a lack of these skills was associated with poorer dietary habits in older single-living English men (Hughes, Bennett & Hetherington 2004). That is, those English men with poorer self-reported cooking skills consumed fewer vegetables and had worse physical health than their peers (Hughes, Bennett & Hetherington 2004). Research suggests that cooking skills not only help individuals to prepare their own meals, but also enable them to understand the composition of ready-prepared meals

(Caraher et al. 1999). Consequently, a lack of cooking skills may be a barrier to widening food choices and improving dietary behaviour in adults (Caraher et al. 1999).

Gardening was another skill that several of the participants reported utilising to provide food for their own consumption. Gardening appeared to be an enjoyable activity and the participants in the present study were proud of their achievements in this regard. As well as being an enjoyable past-time, skills in gardening may help to keep food costs down, provide good quality food and give individuals a feeling of self-sufficiency (Bisogni et al. 2005).

Nutrition knowledge and the importance of healthy eating have already been discussed (refer to Section 8.4). In terms of the older single-living men involved in the present study, evidence was found of both low nutrition knowledge and a low motivation for healthy eating. Interestingly, these men were relatively well educated in comparison to the general population of older New Zealand men, with 58 per cent of the participants holding post-secondary school level qualifications, whereas only 45 per cent of New Zealand men aged 75 years and over hold post-secondary school level qualifications (Statistics New Zealand 2002). Nutrition knowledge is associated with education levels, with lower nutrition knowledge in those with lower education levels (Parmenter, Waller & Wardle 2000). Consequently, it would be expected that older New Zealand men would, on average, have lower nutrition knowledge than the participants in the present study. In terms of the present study, it is possible that a lack of nutrition knowledge and low motivation for healthy eating may have negatively affected the food choices of some of the participants.

The *importance of healthy eating* was one of four *food-related values* that were identified. These values shaped the men's approach to their food-related activities and defined how these activities were conducted. Bisogni et al. (2005) identified a comparable influence in their study of food choice behaviours; they referred to this influence as *standards* that were "strong beliefs and feelings about the way that they should be eating and providing food for others" (Bisogni et al. 2005, p. 286). In an investigation involving older adults in the United States, *ideals* were identified as a prominent influence on food choice processes (Winter Falk, Bisogni & Sobal 1996). *Ideals* were strongly held beliefs about food and health. These beliefs dominated the food choice process and the researchers suggested that no other influence was as

prominent as *ideals*. Thus, *food-related values, standards or ideals* as they are variously termed, are an important influence on food choice behaviour.

It could reasonably be expected that these values would vary between different age-groups, genders, socio-economic groups and cultures. So what are the values that older single-living New Zealand men hold in regards to food-related activities? Four *food-related values* emerged from the discussions held with the participants of the present study. The *importance of healthy eating*, as previously discussed, was one of these. The remaining three *food-related values* were *structure in food-related activities*; *convenience*; and *like it or not, it has to be done – shopping and cooking*.

Structure in food-related activities involved daily schedules; set meal-times; standard breakfasts and lunches; main meals being consumed in the evening; main meals being produced in large quantities, for future use; planned changes in meal routine; and variety in the protein source of main meals. In some cases the participants' routines were highly structured, to the point that one participant suggested his food-routine might have become 'boring'. Hughes, Bennett and Hetherington (2004) also reported instances of older single-living English men describing their diets as boring. However, following further discussion with the participant in the present study, it became apparent that he did not find his routine boring rather he perceived that others would see it as boring.

Structure was a positive attribute that the majority of the men sought to develop in their lives. Indeed, meals can provide a sense of structure in the lives of older adults. In this manner, the older adult feels in control of their own life, independent and secure in their own environment (Amarantos, Martinez & Dwyer 2001).

A lack of structure in food-related activities was evident in some instances, resulting in predominantly unfavourable outcomes. For example, *lack of planning* for main meals had a negative impact on the resulting meal and consequently the enjoyment of that meal. The palatability of a meal is important, as palatability has been shown to stimulate appetite in men (Yeomans et al. 1997). Perhaps of more concern, one participant did not have a routine of having a daily main meal. Skipping main meals is a known nutritional risk factor (Keller, Goy & Kane 2005). The practice of skipping meals, as well as eating

low energy-dense foods and not snacking, increases the potential for under-nutrition in older adults (Quandt et al. 1997).

Lack of variety in main meals was another aspect of *lack of structure* and also created problems. In particular, the monotony of frozen meals was identified as a cause of main meal boredom by some men, but not others. A lack of variety in the diet may place older adults at nutritional risk (Roberts et al. 2005). Research indicates that the consumption of a low variety of energy-dense and micronutrient-dense foods is associated with low energy, protein and micronutrient intakes, as well as a low body mass index (BMI) in otherwise healthy community-dwelling older adults (Roberts et al. 2005). Thus, a lack of structure in food-related activities may have health risks associated with it. That is, a lack of structure in food-related activities may be a barrier to procuring and preparing regular meals as part of a healthy diet for some older single-living men.

Convenience was another *food-related value* that shaped the food-related behaviours of the participants. *Convenience* impacted the choice of shops, foods, appliances used for cooking and cooking methods. Another study of food choice in older American adults also found convenience to be of importance (Winter Falk, Bisogni & Sobal 1996). For those older adults, convenience was more often related to effort-savings. In the present study, convenience took the form of both *time-saving* and *effort-saving* for the older single-living New Zealand men. That is, whilst some focussed on the speed of food preparation, others were more interested in the ease of food preparation.

In some cases, *convenience* took priority over *healthy eating*. For instance, steaks were avoided due to the mess produced during meal preparation and cooking methods that were easier were employed in preference to healthier methods. It was not clear whether *convenience* truly outranked *healthy eating* for some men, or whether a lack of nutrition knowledge played a significant part in these decisions. However, research indicates that single men, as compared to single women, are more likely to state that ease of food preparation and cooking is an important influence on their food choice decisions (Donkin et al. 1998).

The net result of *convenience* was relative to the *skills* and background of the individual. For those participants who had regularly prepared main meals from raw ingredients

throughout their younger years, *convenience* in later years meant using recipe mixes and packaged sauces to simplify the food preparation process and reduce the effort required to prepare a meal. In contrast, for those participants with little previous cooking experience and little skill in preparing meals from raw ingredients, *convenience* in later years meant changing from preparing basic home-made meals to using microwave meals for main meals. Thus, the outcome of this process of simplifying food preparation in later years appeared to be relative to the individual's food preparation skills in their younger years. Two studies involving older single-living women (Gustafsson & Sidenvall 2002; Quandt et al. 2000), indicated that simplifying the whole meal process may, in some cases, lead to a risk of poor nutritional intake. Whether the same is true for older single-living men is unknown. However, the goal of *convenience* impacted on the food procurement and preparation processes in a number of these older single-living New Zealand men and could potentially be a barrier to healthy eating for some men, particularly those who prioritised *convenience* over *healthy eating*.

By and large both shopping and cooking were considered activities that *'like it or not, had to be done'*; the fourth food-related value. Enjoyable aspects of shopping included the opportunity to get out and the opportunity for social interaction. These *positive social dimensions of shopping* have been reported in both a study of older Scottish adults (Hare, Kirk & Lang 2001) and a study of disadvantaged Scottish consumers (Piacentini, Hibbert & Al-Dajani 2001). Scottish consumers who viewed shopping as a leisure activity included other activities in their trip, such as the purchase of a refreshment (Piacentini, Hibbert & Al-Dajani 2001). This same action was described by a number of the New Zealand men, who talked about including refreshments or other activities with their shopping trip.

For some participants though, shopping was a 'chore' not an enjoyable activity. Past experiences shaped current feelings about shopping, a *food-related value*. For instance, one man no longer enjoyed shopping as he felt it was a lonely activity since his wife's death. This contrasted with the feelings of ease experienced by another man, who now did not have to shop for, or with, his ill wife. This influence of past experiences on *food-related values* has already been highlighted and is comparable to the influence of life course on 'standards' in the food choice capacity model of Bisogni et al. (2005).

In terms of cooking, a number of the men found it an enjoyable activity. Some strove to extend their cooking skills or purchased new cooking appliances, a typology that was referred to as ‘adventurous’ in the Food in Later Life project (Raats n.d.). For some of the men though, cooking was a ‘chore’ or a ‘hassle’. The time and effort required to prepare a meal from raw ingredients was a significant negative for these men. Ease of food preparation and cooking is an important factor in the food choice decisions of men (Donkin et al. 1998). Consequently, some of these men used frozen meals for their main meals, in order to reduce the time and effort required to produce a main meal. It appears that the amount of enjoyment gained from cooking a home made meal was balanced with the desire for *convenience* and a decision made about how meals were prepared. Evidently the individual’s feelings about cooking activities affected food choice processes.

This concludes the discussion of the personal perspectives of older single-living New Zealand men in relation to procuring and preparing meals. The inter-related themes of *individual circumstances; nutrition knowledge and skills; and food-related values;* have been discussed in terms of their ability to act as barriers or enablers to procuring and preparing meals as part of a healthy diet. Consideration is now given to how this information can be utilised to improve the nutritional status of older single-living New Zealand men.

8.6 Implications

Nutritional well-being is an integral part of the health and quality of life of older adults (American Dietetic Association 2000). Given the anticipated growth of this population group, the importance of optimising their dietary habits for health and disease prevention is increasing (American Dietetic Association 2000). Older single-living men, in particular, are a vulnerable group in terms of dietary habits (Davis et al. 1985; Donkin et al. 1998; Horwath 1989). Of the small group of men who participated in the present study, half had a high level of nutritional risk. However, a number of the barriers these men faced to procuring and preparing meals as part of a healthy diet are amenable to modification.

The fourth objective of the present study was to describe a range of practical recommendations for health practitioners, to actively assist older New Zealand men to

successfully procure and prepare meals that constitute part of a healthy diet. Interventions need to be devised to address the wishes and needs of older men (Hughes, Bennett & Hetherington 2004). The identification of barriers that are amenable to change is one part of the equation; understanding the men's perspectives on food-related activities such as meal procurement and preparation is the other. Four key food-related values that these New Zealand men held as standards for food-related activities were identified in the present study.

Understanding the role of these food-related values in the lives of older adults is an important part of understanding their varying perspectives about food procurement and preparation (Bisogni et al. 2005). It has been suggested that the values or ideals that older adults hold, about how food-related activities should occur, actually dominate the food choice processes of older adults (Winter Falk, Bisogni & Sobal 1996). Consequently, any interventions aimed at improving nutritional status must recognise the importance of these values (Bisogni et al. 2005), in order to understand how they may act as barriers or enablers to healthy eating. Consideration is now given to the proposed nature of these interventions.

Development of knowledge and skills is the key area of intervention required to assist older single-living men. Generic programmes, aimed at both genders, may not meet the food-related values of these men and consequently may not be as effective. It is recommended that programmes are designed specifically for men (Keller & Hedley 2002). Nutrition interventions in older adults are also more likely to be successful if educational messages are limited to one or two key points; messages are personalised and reinforced; workshops with hands-on activities are included; appropriate theories of behaviour change are followed; and both incentives and access to health professionals are provided (Keller et al. 2006; Sahyoun, Pratt & Anderson 2004). Thus, following are recommendations for key areas that should be addressed by formal education programmes and the development of any associated support manuals for these programmes:

- **Increasing nutrition knowledge** is an important objective, as nutrition knowledge is estimated to account for between four and 33 per cent of the variation in dietary intake behaviour (Wardle, Parmenter & Waller 2000). It is recommended that community-based education programmes are developed to

improve the nutrition knowledge of older single-living New Zealand men. In order for these programmes to meet the wishes and needs of older men (Hughes, Bennett & Hetherington 2004), they must respect the four food-related values that were identified in the present study. Furthermore, it is recommended that any nutrition education programmes encompass the four basic areas identified by Parmenter and Wardle (1999), as connecting knowledge to dietary behaviour. They are, as follows:

1. *Current dietary recommendations* – education about key healthy eating messages, such as lowering intakes of dietary fat, salt and sugar; increasing fibre intake; encouraging consumption of ‘5+ a day’ servings of fruit and vegetables; and maintaining fluid intakes.
2. *Foods that provide the nutrients referred to in dietary recommendations* – education about which foods are high in dietary fat, salt, sugar and fibre; and what types of fluid intake are encouraged by health experts.
3. *Choosing healthy food options* – education about how to choose between different foods to identify the healthy options. Suggestions on how to routinely achieve the healthy eating recommendations would also be beneficial. For example, encouraging consumption of fruit with breakfast and as a dessert after dinner; encouraging a rainbow of different coloured vegetables with dinner. Convenience is a key food-related value for these men, so all recommendations must include ‘convenient’ options. For example, the use of tinned fruit and frozen vegetable options would be sensible. The majority of these men will not adhere to time-consuming, high-effort preparation of vegetables and fruit from their raw state for meals. Low effort options should be suggested.
4. *The health implications of eating different foods* - knowledge about the consequences of diet was particularly lacking amongst the participants in the present study. This finding was similar to those of two British research studies (Anderson et al. 1998; Parmenter, Waller & Wardle 2000). Thus, improving understanding of the consequences of dietary habits is necessary. Education on the naturally occurring changes of ageing that predispose older

adults to malnutrition would be invaluable. Particular emphasis should be placed on the important role diet plays in future health and quality of life for older adults, as well as the probable future consequences of poor dietary habits.

- **Providing information on developing structure in food-related activities** would be beneficial. Structure was a key food-related value that emerged from discussions with the participants. Evidence from the present study suggests that those individuals who created a set structure for their food-related activities were coping better than those who did not. Community-based education classes that provide helpful information in this area are recommended. These should include information on aspects such as:
 1. *How to plan main meals for the week.* For example, ensuring there is a variety of different protein sources and vegetables throughout the week;
 2. *How to plan food shopping.* For example, creating a shopping list based around the plan for the week of main meals, to ensure the key ingredients are purchased; maintaining a core stock of food items such as milk, butter, bread, tinned fruit, frozen vegetables and meals at all times;
 3. *Creating a daily structure for meal preparation,* to ensure that the steps are in place to create a healthy main meal. For example, checking that all the ingredients have been purchased and that the meat is taken out of the freezer at the appropriate time to defrost;
 4. *Developing a back-up plan for meals,* to cope in situations when the men are too busy, tired or not feeling well. For example, having a small stock of frozen meals on hand to use and retaining a supply of tinned food in the cupboards.

- **Development of cooking skills** is also necessary. Cooking skills not only help individuals to prepare their own meals, but also enable them to understand the composition of ready-prepared meals (Caraher et al. 1999). A lack of cooking skills may be a barrier to widening food choices and improving dietary

behaviour in adults (Caraher et al. 1999). It is suggested that community-based cooking classes are introduced, as follows:

1. Firstly, *basic cooking classes* are needed to introduce cooking to men with few cooking skills;
2. Secondly, more *advanced courses to up-skill* and develop both men's interest and enjoyment in meals would be beneficial.

These programmes need to be specifically designed for men, with their corresponding food-related values in mind. Men place significantly more importance on time-efficient and effort-efficient means of preparing meals than women (Donkin et al. 1998). The types of meals selected for instruction must therefore reflect this. For example, instruction on how to make spaghetti bolognaise using a canned pasta sauce would be more appropriate than instruction on how to make bolognaise sauce from raw ingredients. Some organisations, such as Age Concern North Shore, currently run cooking classes for older adults. However, courses that are aimed at both genders, or specifically at women, may not meet the food-related values that men hold, such as convenience and structure in food-related activities. Courses designed specifically for older men are required, in order to address their needs and wishes (Hughes, Bennett & Hetherington 2004).

- **Achieving a healthy diet on a limited income**, such as the national superannuation, is an important topic. It is suggested that community-based classes be introduced to provide suggestions on this topic and develop skills. Instruction should include:

1. *How to make the most of each dollar when shopping*. For example, buying in season produce, buying goods when on special and freezing, bulk buying goods for savings if storage room is available; purchasing supermarket own-brand of products;
2. *The importance of maintaining the quantity and quality of food consumed daily* as we age. For example, explaining how as we age we cannot afford to decrease food intake due to the risk of malnutrition, consequently plans must

be developed to cope with unexpected or rising expenses (see other items in this programme of education);

3. *The importance of fruit and vegetable intake* and how to achieve this on a limited budget. For example, buying fruit and vegetables that are in season; and purchasing tinned fruit and frozen vegetables when they are on special;
4. *Developing back-up food plans to cope* when unexpected health problems or extra living or medical costs arise. For example, creating a store of tinned foods in the cupboard and frozen meals in the freezer when money is available, to provide food assistance during weeks when other expenses are increased. Although a particularly sensitive issue, the invaluable support available from food banks should also be highlighted.

In addition to the above recommendations for community-based education programmes, a number of other steps can be taken to reduce the barriers that men face to procuring and preparing meals as part of a healthy diet. The following discussion details these recommendations.

Encouragement to join more clubs and associations is recommended. For those without personal transport, a method of transport to these clubs is required. Determining whether existing members can assist with transportation is an appropriate first step. It has been suggested that clubs and organisations could help older adults by providing transport to their facilities so that they can participate in activities (Davey 2004). Membership of clubs and associations provides more opportunities for shared meals, interests in life and the opportunity to make new friends. The Prescott Club is an excellent example of this; for some of the participants in the present study, the Prescott Club luncheon was their only regular social outing. Congregate dining programmes, such as the Prescott Club, may prevent the worsening of nutritional risk in older adults (Keller 2006).

Socialising with friends is also a positive activity. Encouraging the organisation of a weekly meal-swap with friends is one way of making meals more enjoyable. Men could take turns going to each others' house each week for lunch or dinner. Lunch might be an easier option for those men who do not have personal transport; as they can use public transport more safely during daylight hours.

Families also have an important role; providing practical and emotional support. Encouragement should be given to the families of older men, their children in particular, to share regular meals with single parents. For most of these men, independence is important, but so is companionship. The majority of these men gain a great deal of enjoyment from time and meals shared with family, although they may not outwardly demonstrate this. These shared meals are something to look forward, an occasion to get out of the house, offer a break in their normal routine and provide the important familial company that these men typically lack while eating their meals. Meals consumed with friends and family are known to be larger than those consumed alone (de Castro 1994); a significant positive for individuals who live alone and therefore consume most of their meals alone. Families could also assist with regular transport needs if workplaces supported ‘elder-care’ more readily (Davey 2004). Government level action may be required to support ‘elder-care’, a new aspect of family care; something that is likely to become more prevalent due to the changing demographics of our population. The implementation and support of ‘elder-care’ could be hastened by effective lobbying of central government.

Lack of personal transport and poor mobility are challenges for a number of older single-living men. With the burgeoning size of the older population this problem will no doubt continue to increase. Thought needs to be given to the **availability of regular public transport to local shopping centres.** Those supermarkets with amenities such as banks, post offices, libraries and cafes in the same centre are more attractive to older men. It has been suggested that shopping centres improve their services, in order to meet a range of older adults needs in one location (Davey 2004). Providing a regular transport service to these centres would not only assist the men, but may also provide increased custom for the supermarkets and other stores in the shopping centre. Provision of free transport services could become a key part of plans by major supermarkets and shopping centres to meet the needs of the growing, older-adult population and thus retain their patronage.

8.7 Future Research

A number of interesting points highlighted during the course of the present study warrant further investigation. Firstly, those men with high nutritional risk on average had lower nutrition knowledge than men with low to moderate nutritional risk. Further

investigation is required, to determine whether a statistically significant, independent association exists between these two factors in older single-living New Zealand men.

Lack of knowledge about consequences of healthy eating was linked to beliefs about the importance of healthy eating by a number of men. Further research is recommended, to determine whether a lack of knowledge about dietary consequences is implicated in the low importance placed on healthy eating by some older single-living New Zealand men.

There appeared to be some public health messages that the men were not overly familiar with. Lack of knowledge about the '5+ a day' healthy eating message was highlighted. Further investigation specifically in this age and gender group may be warranted, to ascertain if the '5+ a day' message is reaching this audience.

Overall, the outcomes of the present study have highlighted a number of potential barriers to healthy eating for older single-living New Zealand men. Further investigation via a mixed methods approach, utilising validated measures of nutritional risk and general nutrition knowledge assessment, within a larger sample representative of older single-living New Zealand men would be beneficial. This would assist in determining whether these results can be generalised to other older New Zealand men, living in similar situations.

8.8 Limitations of the Study

The present study was conducted with a small convenience sample of older single-living New Zealand men. A number of limitations result from the use of a small convenience sample. Firstly, the sample was not representative of older single-living New Zealand men. For instance, not all ethnic groups were represented in the sample. Furthermore, they all lived within one geographic region; the North Shore City. Secondly, as the convenience sample was recruited through Age Concern North Shore, it is possible that the volunteers who participated may have differed in important ways from the general population, thereby introducing a sample bias (Fink 2003). To explain, all sampling was conducted through clubs and associations that were linked to Age Concern North Shore. Club membership and interest in food-related activities was predominantly associated with lower nutritional risk in the present study. This would suggest that those who did not participate in the study may have had higher nutritional

risk. In addition, as this study focussed on food-related activities, it is possible that those who participated would have had more interest in these activities. Again it is possible that those who had no interest in these activities, and therefore did not participate, would potentially have had a greater nutritional risk. Conversely, individuals with lower nutritional risk may not have participated in the study for a range of different reasons including a dislike of talking about their personal situation.

Finally, participation in the present study required literacy skills. It is possible that requiring literacy skills for participation in the study would have excluded individuals with lower education levels or literacy problems from participating. However, lower education levels are associated with lower nutrition knowledge (Parmenter, Waller & Wardle 2000), that in turn has been associated with poorer dietary habits such as lower intake of fruit and vegetables (Baker & Wardle 2003). It is possible, therefore, that those who did not participate in the present study due to a lack of literacy skills may also have had higher nutritional risk.

Thus, the process of recruiting volunteers through Age Concern and the criteria for participation in the study may have introduced a number of biases to the sample, meaning that the results of this study must be applied with caution. Further to this, it is not possible to generalise the results of the present study to all older single-living New Zealand men due to the limited nature of the small convenience sample. Rather, the research has been conducted in such a manner as to provide sufficient information to allow 'naturalistic generalisations' (Johnson & Turner 2003).

A further limitation of the present study was the use of tools developed for non-New Zealand populations. Firstly, the SCREEN II tool employed to measure nutritional risk was designed and validated within an older Canadian population (Keller, Goy & Kane 2005). Secondly, the general nutrition knowledge questionnaire utilised for the study was designed and psychometrically validated for use within a British population (Parmenter & Wardle 1999). A nutrition knowledge questionnaire developed and validated for one population may not be valid in another population (Parmenter & Wardle 2000). The same is true for the nutritional risk assessment questionnaire. Checks are required for reliability and validity in the relevant population group (Parmenter & Wardle 2000). The validity of these tools within a New Zealand population was not determined due to time and budget constraints. Consequently, the

validity of the nutritional risk and nutrition knowledge questionnaires within the New Zealand population is unknown.

The methodology and methods that were employed in the present study were all based on assumptions and had inherent limitations; from the mixed methods approach and qualitative descriptive methods that were utilised, to the use of semi-structured interviews and the qualitative data analysis process (Thomas 2003). Thus, the results from the present study should be interpreted with caution. Before any further research is conducted and firm conclusions drawn, appropriate validation testing of the tools within a New Zealand population is required.

8.9 Concluding Statement – ‘Adding Life to Years’

Successful ageing is measured not just by length of life, but also by the quality of life that an individual enjoys (Kerschner & Pegues 1998). To this end, nutritional well-being is an integral part of good health and quality of life (American Dietetic Association 2000). However, a number of age-related changes result in an increased risk of poor nutritional status in older age (Morley 1997). These changes include the normal physiological changes of ageing and a range of social, psychological and medical factors that can potentially exacerbate nutritional issues (Morley 1997).

Although older single-living New Zealand men are outnumbered by women, and will continue to be for the foreseeable future (Statistics New Zealand 2006), their situation is of particular interest. Older single-living men are more likely to have poor dietary habits (Davis et al. 1985; Kant & Schatzkin 1999), leading to the suggestion that older men who live alone may be at high risk for an overall poor diet (Charlton 2002; Horwath 2002). Clearly there are disparities between the lot of older single-living men and women. The fact that older single-living men, a minority group, appear to be worse off is of concern.

Relatively little research to date has investigated how older men deal with living alone (Bennett, Hughes & Smith 2003; Hughes, Bennett & Hetherington 2004). The present mixed methods study, guided by qualitative descriptive methods, sought to understand the perspectives of a group of older single-living New Zealand men in regards to procuring and preparing meals, in order to identify barriers to a healthy diet. Three core

themes emerged as the most salient from the investigation. These were the varying *individual circumstances* of the men's lives, the *knowledge and skills* that they possessed and the *food-related values* that they aspired to.

Individual circumstances such as *limited finances*, *limited personal mobility*, *a lack of personal transport* and *a lack of reliable support networks* were all potential barriers to procuring and preparing meals as part of a healthy diet. However, effective support networks were able to reduce the disadvantage caused by these factors. Family played an integral part in these support networks, highlighting the influential role that family has in the life of the older adult. The wide variation in circumstances of these men's lives highlighted the diversity of the older population, reinforcing the point that older adults are a heterogeneous group. Consideration must be given to the individual circumstances of each person, in order to understand how these circumstances may be barriers to procuring meals as part of a healthy diet and how best the individual's requirements can be met.

A wide variation in *nutrition knowledge and skills* also existed amongst the men. On average, the nutrition knowledge levels were relatively low. However, some individuals possessed very good levels of understanding about healthy eating and its consequences, whilst others were somewhat lacking. Nutrition knowledge is an integral part of food choice. Therefore, a lack of knowledge may have been a barrier to procuring and preparing meals as part of a healthy diet for these men. Limited cooking skills were also a factor in food choice decisions. These also have the potential to be a barrier to procuring and preparing food as part of a healthy diet.

Food-related values were ideals or standards that the men sought to achieve in their food-related activities. The *importance of healthy eating*, *structure in food-related activities*, *convenience* and *feelings about shopping and cooking*, all shaped the decisions these men made about food-related activities. The importance placed on each of these food-related values varied; striving for *convenience* ahead of *healthy eating* was one example of a perspective taken. How these values were prioritised by the individual, was the result of each man's perspectives about how food-related activities should ideally occur and was influenced by their life course and past experiences. Importantly, the potential exists for the prioritisation of these values to be a barrier to a healthy diet. These values that older adults hold about how food-related activities

should occur, may actually dominate their food choice processes (Winter Falk, Bisogni & Sobal 1996).

The present study provided an insight into the *circumstances* and *skills* that these men had and the *values* that drove their food-related activities. A number of the identified barriers to procuring and preparing meals, as part of a healthy diet, were amenable to change through education and community support. Interventions that address the wishes and needs of older men, in particular, are needed (Hughes, Bennett & Hetherington 2004). Thus, the next logical step is to develop interventions that educate older single-living men about nutrition related matters, whilst recognising their *food-related values*.

The challenge for all is to look beyond the statistics, to understand how older New Zealand men live within a complex and varying mix of individual circumstances, knowledge and skill levels, to achieve their food-related values. The needs and wants of older single-living New Zealand men are not necessarily the same as those of older single-living New Zealand women. One size does not fit all. Public health advocates must, therefore, recognise and devise means of supporting the nutritional needs of older single-living New Zealand men and not allow their story to be eclipsed by that of the more prevalent older female members of our population.

Appendix I: Ethics Approval

The following page contains the Massey University Human Ethics Committee Approval letter for this study.



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31 August 2006

Jennifer Bowden
c/- Dr C Wham
College of Sciences
Massey University
Albany

Dear Jennifer

HUMAN ETHICS APPROVAL APPLICATION – MUHECN 06/058
“Understanding barriers to healthy eating in single-living older New Zealand men”

Thank you for your application. It has been fully considered, and approved by the Massey University Human Ethics Committee: Northern.

Approval is for three years. If this project has not been completed within three years from the date of this letter, a reapproval must be requested.

If the nature, content, location, procedures or personnel of your approved application change, please advise the Secretary of the Committee.

Yours sincerely

Professor Brian Murphy
Chair
Human Ethics Committee: Northern

cc: Dr C Wham
College of Humanities and Social Sciences

Appendix II: Information Sheet

Who Is Doing This Research?

My name is Jennifer Bowden and I am a student at Massey University's Albany campus. I am conducting this research as part of my Master of Science degree in Human Nutrition, from the Institute of Food, Nutrition and Human Health. My supervisor for this research is Dr Carol Wham.

What Is This Project About?

This study aims to identify barriers to healthy eating in older New Zealand men who live alone. In particular it aims to understand the experience of older New Zealand men, who live alone, in obtaining food for a healthful diet and what challenges they experience in this process.

Why Focus On Older Men & Food?

Having a good diet is important in order to ensure optimal health. However as we age it becomes more difficult to maintain a good diet, due to a variety of changes in our lives. There is some thought that the situation may be worse for men than women. For example, the majority of men have not been responsible for food shopping and cooking in their younger years, so taking responsibility for these tasks in later life can provide a challenge. This study therefore aims to understand the perspective of men in this situation.

Who Can Take Part In This Study?

We are looking for men aged 75 years or older; who live on their own, in the wider community. You will need to be able to comfortably communicate in English. If you are interested in participating, the researcher will run through a short questionnaire with you to determine if you are eligible for this study.

About 10 participants will be recruited for this study. This will be enough to identify trends, yet will still be achievable within the timeframe of the Master of Science degree program.

If I Take Part In This Study What Will I Have To Do?

There are two separate parts to this study, both of which need to be completed if you participate. They will both be completed at your home with the researcher. However if you prefer, arrangements can be made to complete both procedures at Massey University's Albany campus.

The first part of the study involves completing a questionnaire about your eating habits and your nutritional knowledge. This will take approximately 40 minutes to complete. The second part of the study involves an open discussion, led by the researcher and audio-taped, about your experiences in obtaining food. This discussion will take around 40 to 60 minutes, depending on how much you have to discuss. So in total, participating in this study will mean that you spend about 90 minutes with the researcher running through the above procedures.

Confidentiality And Other Project Procedures

All information collected during this study will be confidential. To protect your privacy we will use an anonymous ID code to label information relating to you, such as your completed questionnaire and audio-tapes. Access to the information which links your personal details to the ID code will be restricted to the researcher, Jennifer Bowden, and her supervisor, Dr Carol Wham.

We will analyse the information collected from participants to identify key themes relating to the aims of this project. The findings from this analysis will be written up in a report. The information you provide will only be used for this purpose. At the end of the project your questionnaire and audio-tapes will be archived in a secure location. They will not be accessible to anyone except the researcher and her supervisor.

Is There A Support Process For Participants?

Dr Carol Wham will be available to you throughout the duration of the study as a support person. We will ensure you have Dr Wham's contact details if you participate.

Will I Find Out The Results Of The Project?

At the completion of the project you will be supplied with a summary of the project findings and also feedback about your individual situation and any recommendations for improving your nutritional status if required. If you have an increased nutritional risk we will ask your permission to refer you to Age Concern to help resolve this. If you decline this offer we will provide you with details about your nutritional risk and contact details for Age Concern. In either case, no contact will be made to any third party without your permission.

Your Rights As A Participant In This Study

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

- decline to answer any particular question;
- withdraw from the study up until the start of the interview;
- ask any questions about the study at any time during participation;
- provide information on the understanding that your name will not be used unless you give permission to the researcher;
- be given access to a summary of the project findings when it is concluded;
- ask for the audio tape to be turned off at any time during the interview.

Ethics Committee Approval

This project has been reviewed and approved by the Massey University Human Ethics Committee: Northern, Application 06/058. If you have any concerns about the conduct of this research, please contact Professor Brian Murphy, Chair, Massey University Human Ethics Committee: Northern, telephone 09 414 0800 x9251, email humanethicsnorth@massey.ac.nz.

What Should I Do Now?

If you would like to participate in this study you will need to read this information sheet thoroughly and the enclosed consent form. If you have any immediate questions about this project please contact the researcher, Jennifer Bowden, otherwise we will be in contact with you soon. Thank you for considering participation in this project, it is much appreciated.

Jennifer Bowden (Researcher)
Phone: 025 756 556
Email: jennybowden@xtra.co.nz

Dr Carol Wham (Supervisor)
Phone: 09 414 0800 x41130
Email: c.a.wham@massey.ac.nz

Appendix III: Participant Consent Form

This consent form will be held for a period of five (5) years

I have read the Information Sheet and have had the details of the study explained to me. I have had time to consider whether to take part. I have been given appropriate contact details to obtain further information and to discuss the study. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I understand that my participation in this study is confidential and that no material which could identify me will be used in any reports of this study. I understand that a requirement of participation in this study is that my interview with the researcher will be audio-taped. I understand that taking part in this study is voluntary and that I may withdraw from the study up until the time of the interview.

Please circle the applicable choice for the statement below:

- I wish/do not wish to have my audio tapes 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 IV: Meeting Schedule

The following checklist provides details of the process of events which will occur at the meeting with each participant. The researcher will visit the participant at their home to conduct this appointment, unless the participant prefers to conduct the meeting at the Human Nutrition Research facility at Massey University's Albany campus.

Arrival & Introduction	
Identify myself to the volunteer (carry Massey University ID for verification)	
Introduce myself (the researcher) and explain my role in the study.	
Verify how the volunteer prefers to be addressed (i.e. Mr. or first name).	
Become aware of potential barriers to communications (i.e. hearing, vision etc).	
Find a comfortable location to do the interview and minimise distractions (i.e. turn off radio, television etc).	
Verify with the volunteer that they can take a break at any time if they require it.	
Review the Information Sheet	
Run through an overview of the study and ensure the volunteer understands the objectives of the study.	
Check whether the volunteer has read the information sheet and understood it.	
Check whether the volunteer has any questions about the study and ensure they are appropriately answered or directed to find an answer.	
Check Consent Form	
Confirm with the volunteer that they have read and understood the consent form.	
Check that the volunteer has signed and dated the consent form.	
Volunteer is now referred to as a participant following signing of the consent form.	
Allocate an anonymised ID to the participant. Write this on the top right-hand corner of the completed consent form.	
Explain briefly the research procedures that are now to be conducted.	
Part One – Questionnaire	
Explain the broad areas to be covered in the questionnaire. That is, to find out about their eating habits, nutritional health, nutritional knowledge and some general questions.	
Assure participant of the confidentiality of responses and also explain how the results will be used. That is, analysis for the study and also individual feedback and referrals for support if required.	
Remind participant they are able to take a break at any time and that they can decline to answer any question.	
Commence the questionnaire by reading instructions (e.g. explaining definition of words used in the Screen Tool such as 'rarely' or 'sometimes' in the context of the questionnaire) and then perform entire questionnaire.	

Part Two – Interview	
Explain the broad areas to be covered in the interview. That is, to understand how important healthy eating is to them and also to understand their experiences in procuring food.	
Explain about the use of audio-tape to record the interview. Ensure the participant is aware that this can be switched off at any time if they need to take a break.	
Start recording on audio-tape and commence interview (following Interview Guide).	
Interview Closure	
Remind the participant that they will be provided with a summary of the project results as well as individual feedback.	
Provide the participant with a letter that: <ul style="list-style-type: none"> ➤ Thanks them for their involvement in the study; ➤ Explains the process for the remainder of the study (i.e. provision of results, study outcomes etc); ➤ Contains the researcher’s contact details; ➤ Contains Dr Wham’s contact details for support for the study duration. 	
Thank the participant for their involvement in the study and encourage them to contact the researcher or the appointed support contact if they have any queries or concerns following today.	
Conclusion of the Interview Schedule	

Appendix V: Questionnaire

Date: / /

Questionnaire Start Time: :

Participant Code Number:

SECTION A: SCREEN II – Interviewer Version

This first section of questions is all about your eating habits. We would like to know about your normal habits, so we'll talk about your *typical* day. There are no right or wrong answers only answers that best describe your situation. (Score)

- 1a. Has your weight changed in the past 6 months?
- No, my weight has stayed within a few kilos 4
 - I don't know how much I weigh or if my weight has changed 0
- Yes, I gained...
- More than 5kg 0
 - 2½ - 5kg 1
 - About 2-2½ kg 2
- Yes, I lost...
- More than 5kg 0
 - 2½ - 5kg 1
 - About 2-2½ kg 2
- 1b. Have you been trying to change your weight in the past 6 months?
- Yes 4
 - No 4
 - No, but it changed anyway 0
- 1c. Do you think your weight is...
- More than it should be 0
 - Just right 4
 - Less than it should be 0
2. Do you skip meals?
- Never or rarely 4
 - Sometimes 2
 - Often 1
 - Almost every day 0
3. Do you limit or avoid certain foods?
- I eat most foods 4
 - I limit some foods and I am managing fine 2
 - I limit some foods and I am finding it difficult to manage 0
4. How would you describe your appetite?
- Very good 4
 - Good 3
 - Fair 2
 - Poor 0

5. How many pieces or servings of fruit and vegetables do you eat in a day? *Can be canned, fresh, frozen or juice.*
- Five or more 4
 - Four 3
 - Three 2
 - Two 1
 - Less than two 0
6. How often do you eat meat, eggs, fish, poultry OR meat alternatives?
Meat alternatives are dried peas, beans, lentils, nuts, peanut butter or tofu.
- Two or more times a day 4
 - One to two times a day 3
 - Once a day 1
 - Less than once a day 0
7. How often do you have milk products?
Includes fluid milk, cooking with milk, milk puddings, ice cream, cheese, yoghurt and milk alternatives like soy beverages.
- Three or more times a day 4
 - Two to three times a day 3
 - One to two times a day 2
 - Usually once a day 1
 - Less than once a day 0
8. How much fluid do you drink in a day?
Includes: water tea, coffee, herbal drinks, juice, and soft-drinks but not alcohol
- Eight or more cups 4
 - Five to seven cups 3
 - Three to four cups 2
 - About two cups 1
 - Less than two cups 0
9. Do you cough, choke or have pain when swallowing food OR fluids?
- Never 4
 - Rarely 3
 - Sometimes 1
 - Often or always 0
10. Is biting or chewing food difficult for you?
- Never 4
 - Rarely 3
 - Sometimes 2
 - Often or always 0
11. Do you use commercial meal replacements or supplements?
(Shakes, puddings, energy bars)
- Never or rarely 4
 - Sometimes 2
 - Often or always 0
12. Do you eat one or more meals a day with someone?
- Never or rarely 0
 - Sometimes 2
 - Often 3
 - Almost always 4
- 13a. Who usually prepares your meals?
- I do
 - I share my cooking with someone else
 - Someone else cooks most of my meals

- 13b. Which statement best describes meal preparation for you?
- I enjoy cooking most of my meals 4
 - I *sometimes* find cooking a chore 2
 - I *usually* find cooking a chore 0
 - I'm *satisfied* with the quality of food prepared by others 4
 - I'm *not satisfied* with the quality of food prepared by others 0
14. Do you have any problems getting your groceries?
Can be poor health or disability, limited income, lack of transportation, weather conditions, or finding someone to shop
- Never or rarely 4
 - Sometimes 2
 - Often 1
 - Always 0

END of SECTION A: SCREENII

SECTION B: NUTRITION KNOWLEDGE

This second section is a survey of nutrition knowledge, NOT a test. Your answers will help to identify which dietary advice people find confusing. If you do not know the answer to a question then please tell me that you are 'not sure' rather than guessing.

The first few items are about what advice you think experts are giving us

15. Do you think health experts recommend that people should be eating more, the same amount, or less of these foods? (*Tick one box per food*)

	More	Same	Less	Not Sure
Vegetables	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sugary foods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Starchy foods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fatty foods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
High fibre foods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fruit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Salty foods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

16. How many servings of fruit and vegetables a day do you think experts are advising people to eat? (*One serving could be, for example, an apple or a handful of chopped carrots*)

.....

17. Which fat do experts say is most important for people to cut down on? (*Tick one*)

- (a) Monounsaturated fat
- (b) Polyunsaturated fat
- (c) Saturated fat
- (d) Not sure

18. What version of dairy foods do experts say people should eat? (*Tick one*)

- (a) Full fat
- (b) Lower fat

- (c) Mixture of full fat and lower fat
- (d) Neither, dairy foods should be cut out
- (e) Not sure

Experts classify food into groups. We are interested to see whether people are aware of what foods are in these groups

19. Do you think these are *high or low in added sugar?* (Tick one box per food)

	High	Low	Not Sure
Bananas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unflavoured yoghurt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ice-cream	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Orange cordial	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tomato sauce	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tinned fruit in natural juice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

20. Do you think these are *high or low in fat?* (Tick one box per food)

	High	Low	Not Sure
Pasta (without sauce)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Low fat spread	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Baked beans	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Luncheon meat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Honey	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Scotch egg	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nuts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bread	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cottage cheese	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Polyunsaturated margarine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

21. Do you think experts put these in the *starchy foods* group? (Tick one box per food)

	Yes	No	Not Sure
Cheese	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pasta	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Butter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nuts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Porridge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

22. Do you think these are *high or low in salt?* (Tick one box per food)

	High	Low	Not Sure
Sausages	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pasta	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kippers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Red meat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Frozen vegetables	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cheese	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

23. Do you think these are *high or low in protein?* (Tick one box per food)

	High	Low	Not Sure
Chicken	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cheese	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fruit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Baked beans	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Butter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cream	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

24. Do you think these are *high or low in fibre/roughage?* (Tick one box per food)

	High	Low	Not Sure
Cornflakes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bananas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eggs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Red Meat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Broccoli	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nuts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fish	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Baked potatoes with skins	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chicken	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Baked beans	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

25. Do you think these fatty foods are *high or low in saturated fat?* (Tick one box per food)

	High	Low	Not Sure
Mackerel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Whole milk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Olive oil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Red meat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sunflower margarine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chocolate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

26. Some foods contain a lot of fat but no cholesterol.

- (a) Agree
- (b) Disagree
- (c) Not sure

27. Do you think experts call these a *healthy alternative to red meat?* (Tick one box per food)

	Yes	No	Not Sure
Liver pate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Luncheon meat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Baked beans	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nuts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Low fat cheese	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Quiche	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

28. A glass of unsweetened fruit juice counts as a helping of fruit.

- (a) Agree
- (b) Disagree
- (c) Not sure

29. Saturated fats are mainly found in (*tick one*):

- (a) Vegetable Oils
- (b) Dairy products
- (c) Both (a) and (b)
- (d) Not sure

30. Brown sugar is a healthy alternative to white sugar.

- (a) Agree
- (b) Disagree
- (c) Not sure

31. There is more protein in a glass of whole milk than in a glass of skimmed milk.

- (a) Agree
- (b) Disagree
- (c) Not sure

32. Polyunsaturated margarine contains less fat than butter.

- (a) Agree
- (b) Disagree
- (c) Not sure

33. Which of these breads contain the most vitamins and minerals? (*Tick one*)

- (a) White
- (b) Brown
- (c) Wholegrain
- (d) Not sure

34. Which do you think is higher in calories: butter or regular margarine? (*Tick one*)

- (a) Butter
- (b) Regular margarine
- (c) Both the same
- (d) Not sure

35. A type of oil which contains mostly monounsaturated fat is: (*Tick one*)

- (a) Coconut oil
- (b) Sunflower oil
- (c) Olive oil
- (d) Palm oil
- (e) Not sure

36. There is more calcium in a glass of whole milk than a glass of skimmed milk.

- (a) Agree
- (b) Disagree
- (c) Not sure

37. Which *one* of the following has the most calories for the same weight? (*Tick one*)

- (a) Sugar
- (b) Starchy foods
- (c) Fibre/roughage
- (d) Fat
- (e) Not sure

38. Harder fats contain more: (*Tick one*)

- (a) Monounsaturates
- (b) Polyunsaturates
- (c) Saturates
- (d) Not sure

39. Polyunsaturated fats are mainly found in: (*Tick one*)

- (a) Vegetable oils
- (b) Dairy products
- (c) Both (a) and (b)
- (d) Not sure

The next few items are about choosing foods

Please answer what is being asked and not whether you like or dislike the food!
For example, suppose you were asked.....

'If a person wanted to cut down on fat, which cheese would be best to eat?'

- (a) Cheddar cheese
- (b) Camembert
- (c) Cream cheese
- (d) Cottage cheese

If you didn't like cottage cheese, but knew it was the right answer, you would still tick cottage cheese.

40. Which would be the best choice for a low fat, high fibre snack? (*Tick one*)

- (a) Diet strawberry yoghurt
- (b) Raisins
- (c) Muesli bar
- (d) Wholemeal crackers and cheddar cheese

41. Which would be the best choice for a low fat, high fibre light meal? (*Tick one*)

- (a) Grilled chicken
- (b) Cheese on wholemeal toast
- (c) Beans on wholemeal toast
- (d) Quiche

42. Which kind of sandwich do you think is healthier? (*Tick one*)

- (a) Two *thick* slices of bread with a *thin* slice of cheddar cheese filling
- (b) Two *thin* slices of bread with a *thick* slice of cheddar cheese filling

43. Many people eat spaghetti bolognese (pasta with a tomato and meat sauce). Which do you think is healthier? (*Tick one*)

- (a) A *large amount* of pasta with a *little* sauce on top
- (b) A *small amount* of pasta with a *lot* of sauce on top

44. If a person wanted to reduce the amount of fat in their diet, which would be the best choice? (*Tick one*)

- (a) Steak, grilled
- (b) Sausages, grilled
- (c) Turkey, grilled
- (d) Pork chop, grilled

45. If a person wanted to reduce the amount of fat in their diet, but didn't want to give up chips, which one would be the best choice? (*Tick one*)

- (a) Thick cut chips
- (b) Thin cut chips
- (c) Crinkle cut chips

46. If a person felt like something sweet, but was trying to cut down on sugar, which would be the best choice? (*Tick one*)

- (a) Honey on toast
- (b) A cereal snack bar
- (c) Plain digestive biscuit
- (d) Banana with plain yoghurt

47. Which of these would be the healthiest pudding? (*Tick one*)

- (a) Baked apple
- (b) Strawberry yoghurt
- (c) Wholemeal crackers and cheddar cheese
- (d) Carrot cake with cream cheese topping

48. Which cheese would be the best choice as a lower fat option? (*Tick one*)

- (a) Plain cream cheese
- (b) Edam
- (c) Cheddar
- (d) Stilton

49. If a person wanted to reduce the amount of salt in their diet, which would be the best choice? (*Tick one*)

- (a) Ready made frozen shepherd's pie
- (b) Ham steak with pineapple
- (c) Mushroom omelette
- (d) Stir fry vegetables with soy sauce

The next items are about health problems or diseases

50. Are you aware of any major health problems or diseases that are related to a *low intake of fruit and vegetables*?

- (a) Yes
- (b) No
- (c) Not sure

If yes, what diseases or health problems do you think are related to a low intake of fruit and vegetables?

.....
.....
.....

51. Are you aware of any major health problems or diseases that are related to a *low intake of fibre*?

- (a) Yes
- (b) No
- (c) Not sure

If yes, what diseases or health problems do you think are related to a low intake of fibre?

.....
.....
.....

52. Are you aware of any major health problems or diseases that are related to *how much sugar* people eat?

- (a) Yes
- (b) No
- (c) Not sure

If yes, what diseases or health problems do you think are related to sugar?

.....
.....
.....

53. Are you aware of any major health problems or diseases that are related to *how much salt or sodium* people eat?

- (a) Yes
- (b) No
- (c) Not sure

If yes, what diseases or health problems do you think are related to salt?

.....
.....
.....

54. Are you aware of any major health problems or diseases that are related to the *amount of fat* people eat?

- (a) Yes
- (b) No
- (c) Not sure

If yes, what diseases or health problems do you think are related to fat?

.....
.....
.....

55. Do you think these help to reduce the chances of getting certain kinds of cancer? (*Answer each one*)

	Yes	No	Not Sure
Eating more fibre	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eating less sugar	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eating less fruit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eating less salt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eating more fruit & vegetables	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eating less preservatives/additives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

56. Do you think these help to prevent heart disease? (Answer each one)

	Yes	No	Not Sure
Eating more fibre	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eating less saturated fat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eating less salt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eating more fruit & vegetables	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eating less preservatives/additives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

57. Which *one* of these is more likely to raise people's blood cholesterol level? (Tick one)

- (a) Antioxidants
- (b) Polyunsaturated fats
- (c) Saturated fats
- (d) Cholesterol in the diet
- (e) Not sure

58. Have you heard of *antioxidant* vitamins?

- (a) Yes
- (b) No

59. If YES to question 58, do you think these are *antioxidant* vitamins? (Answer each one)

	Yes	No	Not Sure
Vitamin A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B Complex Vitamins	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vitamin C	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vitamin D	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vitamin E	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vitamin K	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

END of SECTION B: NUTRITION KNOWLEDGE

SECTION C: DEMOGRAPHICS

Finally we would like to ask a few questions about you.

60. How old are you?

- 75-79
- 80-84
- 85-89
- 90-94
- 95-99
- 100 or older

61. Are you:

- Single
- Married
- In a relationship
- Separated
- Divorced
- Widowed

62. Has your marital status changed in the past five years?
Please explain.

.....
.....
.....
.....

63. Have your living arrangements changed in the past five years?
Please explain.

.....
.....
.....
.....

64. Do you have any children?

- No
- 1
- 2
- 3
- 4
- More than 4

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

- Primary School
- Secondary School
- School Certificate (or equivalent)
- Sixth Form Certificate (or equivalent)
- University Entrance (or equivalent)
- Technical or trade certificate
- Diploma
- Degree
- Post-graduate degree

66. Do you have any health or nutrition related qualifications?

- Yes
Please specify.

.....

- No

67. What is/was your usual job?
Please be specific.

.....
.....

68. What is your ethnic origin?

- New Zealand European
- New Zealand Maori
- Pacific People
- Other – please specify:

.....

69. Are you on a special diet?

Yes

Please specify.

.....

No

END of SECTION C: DEMOGRAPHICS

END OF QUESTIONNAIRE

Questionnaire Finish Time: :

Appendix VI: Interview Guide

Date: / /

Interview Start Time: :

Participant Code Number:

The objective of this interview session is to investigate the following two aims:

- i. To determine the importance of a healthy diet to older single-living New Zealand men;
- ii. To describe the personal perspectives of older single-living New Zealand men in relation to procuring and preparing meals.

We've completed the questionnaire about your eating habits and nutritional knowledge and now I'd like to talk about your experiences with procuring food. I'm really interested in understanding your thoughts and feelings about this topic, so I'll begin by introducing a few different topics and then you can share your thoughts with me.

1. SOURCE OF YOUR FOOD/MEALS

Firstly, I'd like to spend some time talking about how you normally go about procuring or purchasing your food or meals. I'd like to understand what your normal routine is. So do you shop for yourself, prepare your own meals, or dine out or with friends, how regularly etc. So can you have a think about a typical week in your life and then describe for me how you normally get (or have gotten at a previous time/day) the food that you consume throughout the days in that week?

- Shop;
- Restaurant;
- Takeaway;
- Social/Sports Club.

In a typical week would you normally get your food by any other means?
If so, please explain.

2. SHOPPING

What is your normal procedure leading up to and during food shopping?

- Planning/shopping lists
- Standard routine
- Daily/weekly shopping
- Assistance with the actual shopping

How do you feel about food shopping for yourself?

What sort of challenges do you normally experience in terms of food shopping?

- Location – local shops or transport needed to visit remote supermarket;
- Transport – public, private, licenses, parking facilities
- Layout – shelves too high or low, poor labelling, no seating or rest areas, manoeuvring trundler difficult;
- Variety of food available;
- Portion sizes/bulk-buying food;
- Staff assistance or lack of;
- Skills for shopping – knowledge of foods to buy for week etc.

Can you tell me about one of the most disappointing or worst experiences you've had in relation to food shopping?

2. COOKING

What is your normal process for planning and preparing meals?

How do you decide what to eat at each meal-time for instance?

How do you feel about cooking for yourself?

How would you rate your cooking skills?

Are you an experienced cook? (i.e. Cooked when younger? When/if married?)

What sort of things do you find to be real challenges in terms of cooking and preparing meals for yourself?

- Facilities available at home for cooking
- Impact of cooking ability on food purchases
- Difficulty opening packages
- Manual processing of foods
- Handling electrical equipment
- Pots & pans too big
- Increased risk of injury (e.g. graters and knives)
- Fear of certain appliances (e.g. pressure cookers, microwaves)
- Appliances too big and therefore uneconomic to use.

3. NUTRITIONAL KNOWLEDGE

What is your opinion about *your own* knowledge of healthy eating?

4. MOTIVATION

What are your views on current advice about healthy eating?

How important is 'healthy eating' to you?

How do you find the motivation to purchase and prepare nutritious meals regularly for yourself?

Do you feel like your motivation to purchase and prepare meals has changed at all over the years?

If you think about a time recently when you really haven't wanted to bother with shopping or cooking – how were you feeling at that time?

- Emotional state;
- Health;
- Attitudes;
- Personal preferences.

5. HEALTH

Can you think back now to a time recently when you weren't able to purchase or prepare your food/meals because you weren't feeling that good. What was happening in your life at that time?

- Ill health
- Marital transitions – bereavement, separation, divorce
- Emotional state
- Social networks to help? Family, friends, community etc

Can you explain to me how you were feeling?

How do you prioritise healthy eating during these times?

6. FINANCIAL SITUATION

Do you think the financial situation of retired New Zealanders, who live alone, impacts their ability to eat what or where they really want?

- Type of food purchased
- Dining out
- Purchasing takeaways
- Cost of food

How do you feel about your own financial situation and its impact on your ability to have a healthy diet?

7. ADVICE & ASSISTANCE

What advice would you give to someone in your situation, who is living alone and wants to maintain a healthy diet?

Is there anything that would make your life easier for you?

Do you think the government or local council could be doing anything to help people like you?

Interview Finish Time: :

Appendix VII: Questionnaire Section B - Answers & Scores

The following pages contain the correct answers to the nutrition knowledge section of the questionnaire, Section B, and also the scoring guide for this section. The numbering of the questions in the following documents pertains to when the nutrition knowledge questionnaire is conducted in isolation, whereas in the present study the nutrition knowledge questionnaire was actually the second section in a larger questionnaire. Thus, question one in the answers overleaf refers to question 15 in the present study's questionnaire, etcetera.

The first few items are about what advice you think experts are giving us.

1. Do you think health experts recommend that people should be eating more, the same amount, or less of these foods? (tick one box per food)

	More	Same	Less	Not Sure
Vegetables	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sugary foods	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Meat	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Starchy foods	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fatty foods	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
High fibre foods	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fruit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Salty foods	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

2. How many servings of fruit and vegetables a day do you think experts are advising people to eat? (One serving could be, for example, an apple or a handful of chopped carrots)

5-6

3. Which fat do experts say is most important for people to cut down on? (tick one)

- (a) monounsaturated fat
 (b) polyunsaturated fat
 (c) saturated fat
 (d) not sure

4. What version of dairy foods do experts say people should eat? (tick one)

- (a) full fat
 (b) lower fat
 (c) mixture of full fat and lower fat
 (d) neither, dairy foods should be cut out
 (e) not sure

Experts classify foods into groups. We are interested to see whether people are aware of what foods are in these groups.

1. Do you think these are high or low in added sugar? (tick one box per food)

	High	Low	Not Sure
Bananas	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Unflavoured yoghurt	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Ice-cream	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Orange squash	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tomato ketchup	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tinned fruit in natural juice	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

2. Do you think these are high or low in fat? (tick one box per food)

	High	Low	Not Sure
Pasta (without sauce)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Low fat spread	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Baked beans	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Luncheon meat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Honey	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Scotch egg	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nuts	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bread	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cottage cheese	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Polyunsaturated margarine	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. Do you think experts put these in the **starchy foods** group? (tick one box per food)

	Yes	No	Not Sure
Cheese		<input checked="" type="checkbox"/>	
Pasta	<input checked="" type="checkbox"/>		
Butter		<input checked="" type="checkbox"/>	
Nuts		<input checked="" type="checkbox"/>	
Rice	<input checked="" type="checkbox"/>		
Porridge	<input checked="" type="checkbox"/>		

4. Do you think these are **high or low in salt**? (tick one box per food)

	High	Low	Not Sure
Sausages	<input checked="" type="checkbox"/>		
Pasta		<input checked="" type="checkbox"/>	
Kippers	<input checked="" type="checkbox"/>		
Red meat		<input checked="" type="checkbox"/>	
Frozen vegetables		<input checked="" type="checkbox"/>	
Cheese	<input checked="" type="checkbox"/>		

5. Do you think these are **high or low in protein**? (tick one box per food)

	High	Low	Not Sure
Chicken	<input checked="" type="checkbox"/>		
Cheese	<input checked="" type="checkbox"/>		
Fruit		<input checked="" type="checkbox"/>	
Baked beans	<input checked="" type="checkbox"/>		
Butter		<input checked="" type="checkbox"/>	
Cream		<input checked="" type="checkbox"/>	

6. Do you think these are **high or low in fibre/roughage**? (tick one box per food)

	High	Low	Not Sure
Cornflakes		<input checked="" type="checkbox"/>	
Bananas	<input checked="" type="checkbox"/>		
Eggs		<input checked="" type="checkbox"/>	
Red Meat		<input checked="" type="checkbox"/>	
Broccoli	<input checked="" type="checkbox"/>		
Nuts	<input checked="" type="checkbox"/>		
Fish		<input checked="" type="checkbox"/>	
Baked potatoes with skins	<input checked="" type="checkbox"/>		
Chicken		<input checked="" type="checkbox"/>	
Baked beans	<input checked="" type="checkbox"/>		

7. Do you think these fatty foods are **high or low in saturated fat**? (tick one box per food)

	High	Low	Not Sure
Mackerel		<input checked="" type="checkbox"/>	
Whole milk	<input checked="" type="checkbox"/>		
Olive oil		<input checked="" type="checkbox"/>	
Red meat	<input checked="" type="checkbox"/>		
Sunflower margarine		<input checked="" type="checkbox"/>	
Chocolate	<input checked="" type="checkbox"/>		

8. Some foods contain a lot of fat but no cholesterol.

- (a) agree
 (b) disagree
 (c) not sure

9. Do you think experts call these a healthy alternative to red meat? (tick one box per food)

	Yes	No	Not Sure
Liver pate		<input checked="" type="checkbox"/>	
Luncheon meat		<input checked="" type="checkbox"/>	
Baked beans	<input checked="" type="checkbox"/>		
Nuts	<input checked="" type="checkbox"/>		
Low fat cheese	<input checked="" type="checkbox"/>		
Quiche		<input checked="" type="checkbox"/>	

10. A glass of unsweetened fruit juice counts as a helping of fruit.

- (a) agree
 (b) disagree
 (c) not sure

11. Saturated fats are mainly found in: (tick one)

- (a) vegetable oils
 (b) dairy products
 (c) both (a) and (b)
 (d) not sure

12. Brown sugar is a healthy alternative to white sugar.

- (a) agree
 (b) disagree
 (c) not sure

13. There is more protein in a glass of whole milk than in a glass of skimmed milk.

- (a) agree
 (b) disagree
 (c) not sure

14. Polyunsaturated margarine contains less fat than butter.

- (a) agree
 (b) disagree
 (c) not sure

15. Which of these breads contain the most vitamins and minerals? (tick one)

- (a) white
 (b) brown
 (c) wholegrain
 (d) not sure

16. Which do you think is higher in calories: butter or regular margarine? (tick one)

- (a) butter
 (b) regular margarine
 (c) both the same
 (d) not sure

17. A type of oil which contains mostly monounsaturated fat is: (tick one)

- (a) coconut oil
 (b) sunflower oil
 (c) olive oil
 (d) palm oil
 (e) not sure

18. There is more calcium in a glass of whole milk than a glass of skimmed milk.

- (a) agree
 (b) disagree
 (c) not sure

19. Which one of the following has the most calories for the same weight? (tick one)

- (a) sugar
 (b) starchy foods
 (c) fibre/roughage
 (d) fat
 (e) not sure

20. Harder fats contain more: (tick one)

- (a) monounsaturates
 (b) polyunsaturates
 (c) saturates
 (d) not sure

21. Polyunsaturated fats are mainly found in: (tick one)

- (a) vegetable oils
 (b) dairy products
 (c) both (a) and (b)
 (d) not sure

The next few items are about choosing foods.

Please answer what is being asked and not whether you like or dislike the food!

For example, suppose you were asked ...

"If a person wanted to cut down on fat, which cheese would be best to eat?"

- (a) cheddar cheese
- (b) camembert
- (c) cream cheese
- (d) cottage cheese

If you didn't like cottage cheese, but knew it was the right answer, you would still tick cottage cheese.

1. Which would be the best choice for a low fat, high fibre snack? (tick one)
 - (a) diet strawberry yoghurt
 - (b) raisins
 - (c) muesli bar
 - (d) wholemeal crackers and cheddar cheese

2. Which would be the best choice for a low fat, high fibre light meal? (tick one)
 - (a) grilled chicken
 - (b) cheese on wholemeal toast
 - (c) beans on wholemeal toast
 - (d) quiche

3. Which kind of sandwich do you think is healthier? (tick one)
 - (a) two thick slices of bread with a thin slice of cheddar cheese filling
 - (b) two thin slices of bread with a thick slice of cheddar cheese filling

4. Many people eat spaghetti bolognese (pasta with a tomato and meat sauce). Which do you think is healthier? (tick one)
 - (a) a large amount of pasta with a little sauce on top
 - (b) a small amount of pasta with a lot of sauce on top

5. If a person wanted to reduce the amount of fat in their diet, which would be the best choice? (tick one)
 - (a) steak, grilled
 - (b) sausages, grilled
 - (c) turkey, grilled
 - (d) pork chop, grilled

6. If a person wanted to reduce the amount of fat in their diet, but didn't want to give up chips, which one would be the best choice? (tick one)
 - (a) thick cut chips
 - (b) thin cut chips
 - (c) crinkle cut chips

7. If a person felt like something sweet, but was trying to cut down on sugar, which would be the best choice? (tick one)
 - (a) honey on toast
 - (b) a cereal snack bar
 - (c) plain Digestive biscuit
 - (d) banana with plain yoghurt

8. Which of these would be the healthiest pudding? (tick one)
 - (a) baked apple
 - (b) strawberry yoghurt
 - (c) wholemeal crackers and cheddar cheese
 - (d) carrot cake with cream cheese topping

9. Which cheese would be the best choice as a lower fat option? (tick one)
 - (a) plain cream cheese
 - (b) Edam
 - (c) cheddar
 - (d) Stilton

10. If a person wanted to reduce the amount of salt in their diet, which would be the best choice? (tick one)
 - (a) ready made frozen shepherd's pie
 - (b) gammon with pineapple
 - (c) mushroom omelette
 - (d) stir fry vegetables with soy sauce

This section is about health problems or diseases.

1. Are you aware of any major health problems or diseases that are related to a low intake of fruit and vegetables?

- (a) yes
 (b) no
 (c) not sure

If yes, what diseases or health problems do you think are related to a low intake of fruit and vegetables?

✓ Heart diseases
Cancer
Bowel disorders

2. Are you aware of any major health problems or diseases that are related to a low intake of fibre?

- (a) yes
 (b) no
 (c) not sure

If yes, what diseases or health problems do you think are related to a low intake of fibre?

✓ Bowel disorders

3. Are you aware of any major health problems or diseases that are related to how much sugar people eat?

- (a) yes
 (b) no
 (c) not sure

If yes, what diseases or health problems do you think are related to sugar?

✓ Teeth

4. Are you aware of any major health problems or diseases that are related to how much salt or sodium people eat?

- (a) yes
 (b) no
 (c) not sure

If yes, what diseases or health problems do you think are related to salt?

✓ High blood pressure

5. Are you aware of any major health problems or diseases that are related to the amount of fat people eat?

- (a) yes
 (b) no
 (c) not sure

If yes, what diseases or health problems do you think are related to fat?

✓ Heart disease
Obesity

6. Do you think these help to reduce the chances of getting certain kinds of cancer? (*answer each one*)

	Yes	No	Not Sure
eating more fibre	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
eating less sugar	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
eating less fat	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
eating less salt	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
eating more fruit and vegetables	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
eating less preservatives/additives	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

7. Do you think these help prevent heart disease?
(answer each one)

	Yes	No	Not Sure
eating more fibre	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
eating less saturated fat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
eating less salt	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
eating more fruit and vegetables	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
eating less preservatives/additives	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

8. Which one of these is more likely to raise people's blood cholesterol level? (tick one)

- (a) antioxidants
- (b) polyunsaturated fats
- (c) saturated fats
- (d) cholesterol in the diet
- (e) not sure

9. Have you heard of antioxidant vitamins?

- (a) yes
- (b) no

10. If YES to question 9, do you think these are antioxidant vitamins? (answer each one)

	Yes	No	Not Sure
Vitamin A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B Complex Vitamins	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Vitamin C	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vitamin D	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Vitamin E	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vitamin K	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

SCORING THE NUTRITION KNOWLEDGE QUESTIONNAIRE

The *Nutrition Knowledge Questionnaire* consists of four independent sections, each assessing a different aspect of nutrition knowledge (dietary recommendations, food sources, food choices and diet-disease relationship). Both validity and reliability studies have been carried out on the questionnaire as a whole and each section independently, thus enabling each one to be used as a separate measure if required.

Section I: Dietary Recommendations

Each item carries one point for a correct answer. Maximum score = 11.

The subsections of the first question: “*Do you think health experts recommend that people should be eating more, the same amount, or less of these foods? ... vegetables, sugary foods, etc.*” are treated as separate items.

In answer to the second question, “*How many servings of fruit and vegetables a day do you think experts are advising people to eat?*”, responses of *five* and *six* are treated as correct (as five or more is recommended by the Health Education Authority, 1994; and six by the Department of Health, 1994).

Section II: Sources of Foods/Nutrients

Each item carries one point for a correct answer. Maximum score = 69

In questions with lists of foods, each food is treated as a separate item (questions 1,2,3,4,5,6,7,9).

Section III: Choosing Everyday Foods

Each item carries one point for a correct answer. Maximum score = 10.

Section IV: Diet-Disease Relationships

Each item carries one point for a correct answer. Maximum score = 20.

The first five items consist of two questions. The initial question in each of these items “*Are you aware of any major health problems or disease that are related to ... fruit and vegetables; fibre; sugar; salt; fat ... yes, no, not sure*” is not scored. The subsequent open-ended responses to “*If yes, what diseases or health problems do you think are related to ...?*” are scored. The Nutrition Survey measured knowledge of the following associations:

- (i) fruit and vegetables and *coronary heart disease, cancer and bowel disorders*;
- (ii) fibre and *bowel disorders*;
- (iii) sugar and *dental problems*;
- (iv) salt and *high blood pressure*;
- (v) fat and *coronary heart disease and obesity*.

Each of these correct answers (in italics) carry one point each. In addition, variations of these answers are also scored as correct and are given in the table below.

Correct Answer	Also Scored as Correct
Fruit/vegetables <i>and</i> Heart disease	-
Fruit/vegetables <i>and</i> Cancer	-
Fruit/vegetables <i>and</i> Bowel disorders	Bowel cancer, colon cancer, irritable bowel syndrome, diverticulitis, constipation, colon
Fibre <i>and</i> Bowel disorders	Bowel cancer, colon cancer, irritable bowel syndrome, diverticulitis, constipation, colon
Sugar <i>and</i> Teeth	-
Salt <i>and</i> High Blood Pressure	-
Fat <i>and</i> Heart disease	Cholesterol, hardened arteries, clogged arteries, angina
Fat <i>and</i> Obesity	Overweight

In question 6, “*Do you think these help to reduce the chances of getting certain kinds of cancer?*”, only two of the six items are scored – “*eating less fibre*” and “*eating more fruit and vegetables*”.

In question 7, “*Do you think these help prevent heart disease?*”, three of the five items are scores – “*eating less saturated fat*”, “*eating less salt*” and “*eating more fruit and vegetables*”.

(The other items in questions 6 and 7 are included to draw respondents’ attention away from the scored ones. Standing alone, the correct answers to the scored items might be more obvious. The non-scored items also allow for the collection of respondents’ opinions on these).

Question 9, “*Have you heard of antioxidant vitamins?*” is not scored.

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