

Large men and New Zealand primary  
care: the views of practitioners and  
patients regarding obesity and its  
management.

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# **Abstract**

## ***Background***

New Zealand is ranked third in terms of obesity prevalence globally, with male obesity rates equalling those of females. There have been calls for primary care to take a more proactive approach to the diagnosis and management of obesity, but little is known about weight management practices within New Zealand general practice. Less is known regarding the weight management experiences of large men. This thesis aims to assess the beliefs, attitudes, knowledge and practices of general practitioners and practice nurses regarding obesity and specifically male obesity and explore the impact of these factors on large men. In addition, it seeks to understand the lived experiences of large Kiwi men.

## ***Methods***

This study utilised a mixed methods approach. The quantitative phase employed a random cross-sectional design and involved the development, piloting and administration of an extensive survey. The results were analysed using a combination of descriptive and inferential statistics. The qualitative phase used a thematic analytic approach and purposive sampling to recruit participants. An interview schedule was developed, piloted and used to guide the semi-structured interviews. Text data was analysed using general inductive principles.

## ***Results***

In total 1,344 surveys were returned by health professionals. Of these 735 were from practice nurses, creating a significant database of practice nurse information. Fourteen interviews with large men were completed and analysed thematically. The majority of health professionals considered weight management part of their role and obesity was deemed a chronic disease, underpinned by complexity. Individuals were viewed as responsible for their weight but needing weight loss support. Body mass index was the diagnostic measurement most frequently used and the majority were confident in their ability to provide weight management counselling, but time was a significant barrier. Both health professional

groups considered male weight management would be enhanced by improved access to gender specific community-based options.

The men felt weight was a sensitive topic but one that needed discussing using appropriate terms. Getting weighed was common but waist circumference measurement less so. Men expressed a desire for tailored weight loss advice and support, compared to the generic advice received. Their feelings on the need for primary care professionals to be role models were mixed. Overall life as a large man was challenging. Although these men experienced discrimination during interactions with general practice, they did not feel it was the main source of stigma in their lives, with discriminatory experiences more common from family, friends and work colleagues.

## ***Conclusion***

Considering the findings from the surveys and interviews together this thesis is able to provide guidance to primary care. The combined findings have clarified the role of contemporary primary care in regard to male weight management as being one of awareness raising, diagnosis and support for onward referral where appropriate. The synthesis of the findings revealed a shared model of obesity causation and responsibility between health professionals and large men, not seen in other studies. Opportunities exist for primary care to enhance its responsiveness to men seeking to lose weight, thereby making it a more suitable environment for large men seeking to lose weight in the future.

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## **Words for reflection**

*As with any chronic illness, we rarely have the opportunity to cure. But we do have the opportunity to treat the patient with respect. Dr Mickey Stunkard*

*You treat a disease, you win, you lose. You treat a person, I guarantee you, you'll win, no matter what the outcome. Dr Hunter Doherty "Patch" Adams*

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## List of Abbreviations and glossary

BMI	Body-mass index
CVRA	Cardiovascular risk assessment
GP	General Practitioner
MHO	Metabolically healthy obese
MI	Motivational interviewing
MMR	Mixed methods research
NZ	New Zealand
ORDs	Obesity related diseases
PN	Practice Nurse
Pākehā	A Māori term for New Zealanders of European descent
PCPs	Primary care professionals
RCT	Randomised controlled trial
Tāne	Māori word for man
WC	Waist circumference
WHO	World Health Organisation



# Chapter 1: Introduction

## ***Introduction***

Over the past thirty years in rich and poor countries alike and across all sectors of society, the prevalence of obesity, as defined by a body-mass index (BMI) of more than 30kg/m<sup>2</sup>, has been increasing.<sup>(1)</sup> Approximately 1.46 billion adults globally were overweight in 2008, with obesity affecting 502 million.<sup>(2)</sup> To date no country has documented any major downward trend in obesity rates,<sup>(3)</sup> although stabilisation has been noted in some.<sup>(4)</sup>

There is much debate regarding the impact of obesity on health, with large pooling studies consistently showing associated increased risk of mortality and morbidity as BMI rises.<sup>(5-7)</sup> Most deaths linked to obesity are related to cardiovascular disease, however obesity is also recognised as a risk for type 2 diabetes, some cancers, musculoskeletal disorders and sleep apnoea.<sup>(8)</sup> Obesity has been likened to a slow motion car crash in terms of avoidable illness and rising health care costs by the chief executive of NHS England.<sup>(9)</sup>

Due to its relationship with these various medical conditions obesity is associated with increased health care costs.<sup>(10)</sup> Compared to those of normal weight, health care costs for those with a BMI between 30-34.99kg/m<sup>2</sup> are 19% higher, with expenditures for those with a BMI of 35kg/m<sup>2</sup> or over being 51% greater.<sup>(10)</sup> Furthermore, it is a driver of health and social inequality disproportionately effecting disadvantaged groups in society.<sup>(2)</sup>

Although obesity was identified as a key target area within the New Zealand Health Strategy<sup>(11)</sup> and a companion obesity toolkit provided to District Health Boards (DHBs), little progress has been made on curbing the escalating obesity crisis in New Zealand(NZ).<sup>(12)</sup> New Zealand is in the unenviable position of being ranked third in terms of obesity prevalence behind the United States and Mexico,<sup>(4)</sup> with obesity rates rising by 18.6% since 1989.<sup>(13)</sup> The vast majority of New Zealanders who are currently obese are adults.<sup>(14)</sup> In the last three decades obesity rates in NZ adults have tripled, with increases noted in all population groups. Māori, Pacific Islanders and those living in economic disadvantage, however, are disproportionately affected.<sup>(14)</sup> The prevalence of obesity in adults in NZ is 31%, compared to an average of 18% across countries belonging to the Organisation for Economic Co-

operation and Development (OECD).<sup>(4)</sup> Rates of obesity are virtually identical between men and women in NZ.<sup>(15, 16)</sup>

In 2006 in NZ approximately 8% of all illness, disability and premature mortality was associated with high BMI.<sup>(14)</sup> This makes it the second leading cause of health loss after smoking.<sup>(17)</sup> In the context of declining rates of smoking and increasing rates of obesity, high BMI is projected to supplant tobacco as the leading potentially modifiable risk factor by 2016.<sup>(17)</sup> Unless obesity rates start to decline the current resource constrained health sector will become increasingly burdened by obesity related diseases for the foreseeable future.<sup>(14)</sup> A recent study identified that NZ had some of the highest obesity related health care costs in the world.<sup>(18)</sup> In 2006 health care costs attributable to overweight and obesity in NZ were estimated to be NZ\$623.9 million, equating to 4.4% of NZ's total health care expenditure.<sup>(18)</sup> The same study also identified significant costs related to lost productivity associated with obesity.

In developed countries like NZ more men than women are overweight and obese, 71.4% compared to 60.0% respectively.<sup>(3)</sup> Men are more likely to be overweight or obese class 1,<sup>(19)</sup> with obesity linked to some of the main drivers of male mortality.<sup>(20)</sup> Between 2004-2006 two of the five leading causes of death for Maori males and three of the five leading causes of death for non-Maori males were from obesity related diseases.<sup>(20)</sup> Table 1.1 below provides an overview of BMI thresholds in adults.

**Table 1.1: BMI thresholds in adults<sup>(21)</sup>**

BMI	Descriptor
<18.5	Underweight
18.5-24.9	Normal range
25-29.9	Overweight
30-34.9	Obesity I
35-39.9	Obesity II
≥40	Obesity III

Similar to data from Norway, UK and Australia rates of overweight and obesity have increased more for men than women over the last couple of decades.<sup>(16, 22, 23)</sup> New Zealand men, like those in Bahrain, Kuwait, Saudi Arabia and the USA, are getting fatter, faster than those in other countries.<sup>(3)</sup> Models from the UK's Foresight

report suggest that the prevalence of overweight and obesity in males is going to exceed that of female rates in the near future.<sup>(23)</sup>

Men and obese men particularly are generally silent in obesity discourses. As a result there is limited understanding of their lived experiences.<sup>(24)</sup> Our understanding of their preferences regarding weight loss interventions is also inadequate as they are poorly represented in weight loss studies,<sup>(25)</sup> possibly suggesting that strategies to engage men in weight loss interventions and the programmes themselves are not optimal.<sup>(26)</sup> While there is a significant literature regarding primary care and its sub-optimal engagement with men and their health,<sup>(27-29)</sup> little is known about men's weight management experiences within the setting.

Obesity is a complex issue and in an environment of increasing rates of overweight and obesity there is an obvious need to focus on a range of preventive strategies, however it is also important to ensure that those living with obesity are provided with supportive and empathetic care. With the majority of NZ adults visiting their general practice at least annually,<sup>(16)</sup> there is a significant opportunity for primary care to play a role in the prevention and management of obesity.<sup>(30-32)</sup> To date only one qualitative NZ study has examined the views of general practitioners (GPs) regarding weight management,<sup>(33)</sup> with the twelve GPs all working within one restricted geographical area. No information is available on the views or weight management practices of NZ practice nurses (PNs). Consequently there is very limited understanding of the views of GPs and PNs regarding obesity and its management and no way of robustly comparing their views, knowledge and practices to those of their international counterparts.

Evidence from other countries suggests that GPs and PNs are not adequately addressing obesity and weight management with their patients for a variety of reasons.<sup>(34)</sup> Time is frequently cited as a key barrier,<sup>(35)</sup> as is lack of confidence in interventions and their own competency in providing weight loss counselling.<sup>(36, 37)</sup> In addition, there can be discrepant views between health professionals and patients regarding the cause of and responsibility for obesity.<sup>(38)</sup>

Evidence also suggests that those who are obese may experience discrimination and bias in health care settings because of their size, potentially impacting on their utilisation of primary care.<sup>(39)</sup> As a result some patients may delay or forego preventive health care interventions.<sup>(39)</sup> Data from the 2011/12 New Zealand Health Survey found that only 46% of obese adults and 36% of overweight adults reported having their weight and or height measured in the previous twelve

months, potentially suggesting that there is room for improvement in relation to weight management in NZ primary care.<sup>(15)</sup>

### ***Statement of the problem***

In NZ primary care has been identified as being a key contributor to the prevention and management of overweight and obesity.<sup>(30)</sup> There is, however, limited understanding regarding the views of NZ GPs related to obesity management and no information regarding PNs. In NZ PNs have a significant role in general practice providing preventive health care and chronic illness care.<sup>(40)</sup> The lack of knowledge regarding PNs and their weight management practices and the geographically restricted understanding of GPs' views presents a significant information gap in a country with high rates of overweight and obesity.

To date no study has sought to understand the experience of obese men living in contemporary NZ or their weight management experiences within primary care. A small NZ study has explored the experiences of large bodied women in primary care and found the women interviewed contextualised their size using a different framework from health professionals and that they spoke of experiencing stigmatisation.<sup>(41)</sup> With men comprising the largest proportion of the overweight and obese population in NZ, our lack of understanding of their lived and health care experiences presents a serious knowledge gap.

### ***Purpose of the Study and its significance to primary care***

This study, therefore aims to assess the beliefs, attitudes, knowledge and practices of GPs and PNs regarding obesity and specifically obese men and determine how these factors impact on the primary care experience of obese men. Underpinning the aim are four objectives. Table 1.2 lays out each objective and the corresponding question.



**Table 1.2: Study objectives and corresponding research questions**

Objective	Question
To assess the attitudes, beliefs, knowledge and practices of NZ GPs and PNs in relation to obesity.	What are the attitudes, beliefs, knowledge and practices of NZ GPs and PNs in relation to obesity?
To understand and describe the primary health care experiences of obese males in NZ.	What are the primary health care experiences of obese males in NZ?
To compare men's understanding of obesity with that of general practice health professionals.	How does the understanding of obesity between large men and general practice health professionals compare
To develop an understanding of the impact of obesity on men's lives.	How does obesity impact the lives of large men?

This study has considerable significance for primary care and NZ primary care specifically. With primary care professionals particularly being urged to talk to patients about their weight it is vital we have an understanding of current weight management activity in NZ primary care, especially in relation to barriers and facilitators. Furthermore, it is important to try and understand the beliefs, knowledge and experiences that underpin current practice and subsequently be able to compare these with the findings from the international literature. These findings will also assist in determining what role primary care has in the provision of weight management. Furthermore, our understanding of the weight management experiences of large men in primary care is lacking, not only in NZ but elsewhere. The health care needs of men struggling with excess weight has largely been ignored.<sup>(42)</sup> With large numbers of NZ men being overweight or obese and the majority of these visiting primary care at least once a year it is essential we gain an appreciation of their experiences. It is also important to be able to comprehend what their everyday experiences of being a large man in NZ are and to understand how they conceptualise their obesity, as these aspects of their lives accompany them into the consultation.

This study has the potential to be both timely and significant. It is topical in relation to increasing calls for health providers to address overweight and obesity with their patients. Its potential significance lies in providing new knowledge in

relation to weight management in NZ primary care. It aims to expand understanding of the views and practices of NZ GPs, at the same time as expanding the broader literature base in this area. It seeks to provide an understanding of the views and practices of PNs which are absent from the NZ literature and augment the related literature base which has a dearth of information in this area. Finally it aims to give a voice to large men who are largely absent from the primary health literature and infrequently heard in the weight management literature.

### ***Thesis outline***

This chapter introduced the topic and provided the rationale for this study. The aim of the study and its objectives were outlined and the significance of the study discussed.

Chapter two is split into three parts. Part one starts by providing an overview of the concepts underpinning beliefs, attitudes and stigma, as well as broad consideration of the role of general practice in weight management. It concludes with a review of the literature relating to the effectiveness of weight management in general practice and the emergence of partnership models between primary care and commercial programmes. Part two of the chapter commences with a description of the process used for searching the health professional literature and the inclusion criteria used, followed by information on the outcome of the search. A comprehensive overview of the literature pertinent to the health professional component of the study question is presented next and includes: consideration of obesity as a disease; the causes and consequences of obesity; health professional knowledge and self-efficacy regarding obesity and its management and deliberation of the personal versus societal responsibility argument. This section of the chapter ends with a reflection on the quality of the studies identified. Part three of the chapter starts with an overview of the process and outcome of the literature search related to obese men's experiences of primary care. This is followed by a discussion of obese women's experiences of primary care due to the inability to locate any information on the experiences of obese men. Next the matter of what is men's health is deliberated and subsequently the role of genes and gender is discussed. Following this the literature related to various aspects of life as a large man is presented. The chapter concludes with a summary.

Chapter three provides an overview of the ontological and epistemological stance of the researcher, as well as a summary of her background. It details the

methodological approach underpinning the research and provides an explanation for its use. The methods used for data collection and analysis are presented, their strengths and weaknesses considered and an overview of how they were used in this study given.

Chapter four reports the results from the surveys and the interviews.

Chapter five provides a detailed discussion of the quantitative and qualitative results separately. It then proceeds to synthesise the findings from both components of the study. The strengths and limitations of the study conclude the chapter.

Chapter six presents the main conclusions derived from the research and provides some suggestions for further research.

# Chapter 2: The Literature Review

## Introduction

Due to the scope of this study and the complexity of obesity this chapter encompasses multiple interrelated topics. Below is an outline map to provide an immediate overview of the chapter and the topics covered.

Part 1: generic literature	Part 2: health professional literature	Part 3: male literature
<ul style="list-style-type: none"><li>• Beliefs, attitudes &amp; behaviours</li><li>• Stigma</li><li>• Role of general practice</li></ul>	<ul style="list-style-type: none"><li>• Obesity, is it a disease?</li><li>• Causes of obesity</li><li>• Consequences of obesity</li><li>• Knowledge and self-efficacy</li><li>• Personal v societal responsibility</li><li>• Clinical practices</li><li>• Quality of studies included in the literature review</li></ul>	<ul style="list-style-type: none"><li>• Experiences of overweight &amp; obese women</li><li>• Men's health: what is it?</li><li>• Biological &amp; genetic differences</li><li>• Impact of gender on men's health</li><li>• Men and body image</li><li>• Men's engagement in healthy lifestyles</li><li>• Men's involvement with weight loss</li><li>• Men's lived experiences of being overweight</li><li>• Communicating with large men</li><li>• Emergent weight loss programmes for men</li></ul>

Figure 2.1: Outline map of chapter 2

The first part of the chapter explores literature concerning the role of beliefs and attitudes in relation to behaviours. It is not intended to be an exhaustive look at this subject matter. It provides an understanding of how beliefs and attitudes of primary health care professionals influence behaviour and practice. This is then followed by an outline of the theory of reasoned action and Bandura's self-efficacy theory, in an attempt to show how the beliefs and attitudes can form a platform for the development of stigmatising views. Subsequently theories of stigma are reviewed. Broad consideration is then given to the place of general practice in relation to weight management and the effectiveness of GPs and PNs in this area.

Part two commences with a description of the search strategies used to identify studies pertinent to this study's aim. The types of studies identified, when they were undertaken and where is described. The later sections review studies identified by the search strategy and their key findings in relation to the causes and consequences of obesity, the knowledge and self-efficacy of primary care providers in relation to obesity management, personal versus societal responsibility for obesity and finally clinical practices. These findings are compared with results from related contemporary research, allowing for the identification of concordant and discordant views. Finally, comment is made regarding the quality of the studies reviewed.

Part three describes the literature review process in relation to the second part of the study question. A significant gap in literature related to the primary care experience of large men is highlighted. Consequently, studies relating to the primary care experience of large women are discussed, as are studies exploring pertinent aspects of the lives of larger men.

## **Part One**

### ***Beliefs, attitudes and behaviours***

A belief about a person or object can be formed in a variety of ways. Fishbein and Ajzen describe three processes.<sup>(43)</sup> A descriptive belief forms following observation of another person or object. Alternatively a person may interact with another person, resulting in formation of a belief about that person, for example, that obese people are happy. This is known as an inferential belief. Finally, beliefs may be derived from information originating from outside sources, such as the newspapers or television. These are known as informational beliefs.

Beliefs are the building blocks underpinning attitudes.<sup>(44)</sup> An attitude can be considered as “A relatively enduring organisation of beliefs, feelings and behavioural tendencies towards socially significant objects, groups, events or symbols”.<sup>(45)</sup>

Attitudes appear to be comparatively stable attributes. They are generally recognised as exerting a strong influence on whether or not individuals engage in a defined behaviour,<sup>(46)</sup> for example, counselling an obese patient. This is the essence of the theory of reasoned action, which purports that one’s beliefs shape one’s attitudes, in turn predicting behaviour.<sup>(47)</sup> According to this theory, a person is motivated to perform a behaviour if they view it positively, and they believe their peers would want them to perform the behaviour.

This theory was later expanded by Icek Ajzen to include the concept of perceived behavioural control (PBC) which stems from Bandura’s self-efficacy model.<sup>(48)</sup> Bandura posits an individual will perform a certain behaviour based on their expectations about the outcomes of the behaviour, and their ability to engage in or execute the behaviour. Self-efficacy is a continuum,<sup>(48)</sup> with behaviours easy to execute at one end, such as taking a blood pressure, and behaviours demanding greater resources, opportunities and specialised skills, for example, counselling an obese individual at the other.

The relationship between PBC/self-efficacy and behaviour is further complicated by the notion that individuals are more likely to undertake a behaviour they perceive they have control over, compared to those they perceive they have no control over.<sup>(48)</sup> This concept of control has the potential to influence favourably or unfavourably a health professional’s decision to undertake an action. For example, they have control regarding whether or not to measure and weigh a patient. They

have no control over whether or not a patient actions specific advice they give regarding changes to diet or physical activity levels.

In summary, beliefs and attitudes underpin the way individuals interact with events, objects, and people within their environment. Attitudes can be both positive and negative; with negative attitudes potentially resulting in biases and consequently stigmatising views. The next section considers what stigma is and the effects of stigmatisation on a person.

## **Stigma**

The word stigma is Greek in origin, deriving from the practice of marking the skin of criminals, slaves or traitors, so they could easily be identified as flawed, morally corrupt individuals, and consequently shunned.<sup>(49)</sup> The nature of stigma is complicated by a wide assortment of definitions.<sup>(50)</sup> One of the twentieth century's most influential sociologist's, Erving Goffman defined stigma as "The phenomenon whereby an individual with an attribute is deeply discredited by his/her society, and is rejected as a result of the attribute. Stigma is a process by which the reaction of others spoils normal identity".<sup>(49)</sup>

Stigma theorists, such as Link and Phelan, have expanded on Goffman's conceptualisation of stigma with its emphasis on the individual, to consider stigma within a broader social context. They<sup>(50)</sup> suggest stigma is a multidimensional construct requiring five particular factors to be present. The first is the differentiating of difference. In the case of obesity it is highly visible and therefore, easy to identify. The next factor is the labelling of difference, resulting in the overweight or obese individual being associated with a range of undesirable characteristics that inform a stereotype. Labels associated with overweight and obese individuals predominantly relate to physical features and supposed moral flaws including, being ugly, stupid or lazy.<sup>(39, 51, 52)</sup> The third factor involves individuals being placed in defined groups and separated out from the rest of society, facilitating a sense of disconnection. In relation to obesity this separation can frequently be viewed in the way obese individuals are portrayed in movies and television programmes. Overweight and obese males are less likely to be seen interacting with love interests or talking to friends about dating, but more likely to be seen eating in TV shows and movies.<sup>(53)</sup> The fourth facet involves the experiencing of discrimination, resulting in loss of status. There is robust evidence that obese individuals experience this in a variety of settings, including workplaces, education and healthcare.<sup>(39, 51)</sup> Finally, Link and

Phelan<sup>(50)</sup> argue that for stigma to exist there must be unequal distribution of power which is exploited by the dominant group. Power is the intentional influence over the beliefs, emotions and behaviours of people.<sup>(54)</sup> Doctors are conferred with power and as a result their biomedical reductionist view of obesity holds sway in society, assisting the perpetuation of the view that obesity is a treatable condition, if only the individual would act.

Other stigma theorists have sought to understand the experience of stigma. Jones and associates developed a set of concepts characterising stigmatising experiences and these dimensions are valuable in understanding obesity stigma.<sup>(55)</sup> The dimensions comprise, concealability, which refers to the visibility of the condition in question, and the extent of its visibility. Clearly obesity and its extent are highly visible and difficult to mask. The next dimension, course, refers to the reversibility of the condition. While obesity is acknowledged as being reversible, it is significantly challenging to maintain weight loss in the longer term.<sup>(56)</sup> The disruptiveness dimension relates to the degree to which the condition strains or creates difficulty with interpersonal relationships. This dimension possibly challenges people's expectations regarding the way things 'should be' and as a result interactions are challenged. The peril dimension concerns the likelihood of danger to others and the severity of that danger. For the obese individual this is not a particularly significant dimension, unlike the aesthetic dimension. Due to the increasing importance of the physical body over the last half century this dimension has increased in relevance. The origin dimension links to the condition or conditions that the issue stems from. In relation to obesity the dominant societal belief is that obesity stems from a lack of control by the individual. Scrambler's conceptualisations of stigma differentiated between those to whom stigma is attributed but whose supposed flaws are considered to be beyond their capacity to correct, versus people with a supposed flaw society considers them culpable for.<sup>(57)</sup> This latter group are viewed as morally responsible for their defect and hence guilty.

Framing obesity within Scrambler's conceptualisation of stigma, provides an appreciation of the derivation of the "personal responsibility" viewpoint so popular in the media and with some health policy makers.<sup>(58)</sup> Furthermore, it appears to be a perspective embedded within many health promotion campaigns which have been shown to use denigrating and stereotypical images, as well as pejorative language towards larger individuals.<sup>(59)</sup> For example, the UK's National Obesity Forum has



supported harder hitting public health messages as a strategy to address the prevalence of obesity.<sup>(60)</sup>

Consideration of the conceptualisations of stigma provided by Jones et al.<sup>(55)</sup> and Scrambler<sup>(57)</sup> makes it easier to comprehend the development of weight discrimination within society. Discrimination is the experiential consequence, either structural or interpersonal, of stigma by disadvantaged groups in society.<sup>(61)</sup> Not only is weight discrimination common in Western society,<sup>(62)</sup> it remains socially acceptable<sup>(63)</sup> while acknowledged as undermining health.<sup>(64)</sup> A study by Puhl et al.<sup>(65)</sup> found that a person's chances of being discriminated against because of their weight, rose with increases in body weight. The average prevalence of perceived discrimination related to weight was five percent among men, and ten percent among women. Discrimination rates, however, were significantly higher amongst heavier adults. Forty percent of adults with a body mass index of thirty-five and above reported discrimination. The rates of discrimination related to weight reported in this study, are close to reported rates of racial discrimination in America. A more recent study by Sutin and Terracciano,<sup>(66)</sup> analysed weight and height data from two time points for 6,157 participants from the Health and Retirement study, as well as completed measures of discrimination. They showed how experience of discrimination resulted in obesity development or maintenance of obesity. Those not obese at baseline but who experienced weight discrimination were 2.5 times more likely to be obese by follow up (OR=2.54, 95%CI=1.58-4.08) and participants who were obese at baseline were three times more like to remain obese at follow up if they had been subjected to weight discrimination (OR=3.20, 95%CI=2.06-4.97). Although other forms of discrimination were assessed, e.g. gender, ethnicity, sexual orientation, these were not found to influence weight changes. In America, as in NZ, weight discrimination remains legal with few avenues open to people who experience weight-related discrimination.

The New Zealand Human Rights Act of 1993,<sup>(67)</sup> which passed into law on 1 February 1994, outlaws discrimination on a wide variety of grounds, including ethnic or national origins, sexual orientation, age, and religious beliefs, but not weight. The Health and Disability Commissioner's Code of Rights,<sup>(68)</sup> which became law in 1996, states, "Every consumer has the right to be free from discrimination, coercion, harassment and sexual, financial or other exploitation". In this case, the term discrimination is not linked to any specific descriptor and consequently has broader application.

A nationwide attitudinal survey conducted in NZ in 2003, examined people's perceptions of groups who were discriminated against in current society.<sup>(69)</sup> Twenty percent of those who responded perceived that people who are overweight are discriminated against a great deal, with a further 45% believing there was some discrimination against those who were overweight. At that point of time the findings put those who were overweight in the top five groups of people respondents perceived as being discriminated against.

The preceding paragraphs have outlined the inter-relationship between beliefs, attitudes and how negative attitudes underpin stigmatising behaviour. Examples of stigma theories were outlined,<sup>(50, 55, 57)</sup> and comment provided on the impact of the use of stereotypical and denigrating images within health promotion campaigns targeting obesity. Finally, mention was made regarding the acceptability and presence of weight discrimination in NZ and other western societies. In relation to this study these aspects were worthy of brief consideration, with the beliefs and attitudes of GPs and PNs towards larger male patients potentially impacting on their health care experience in general practice.

### ***The role of general practice in weight management***

The majority of adult New Zealanders visit their general practice at least annually,<sup>(16)</sup> although NZ men are less likely to visit than their female counterparts (74% vs 83%).<sup>(15)</sup> Within the male population those groups least likely to access general practice are those in the younger age group (15-44 yrs) and Asian men. Deprivation status does not appear to significantly impact on male visits to a GP.<sup>(15)</sup>

Due to the current prevalence of overweight and obesity in NZ society, a large percentage of men who visit general practice will be overweight or obese. Consequently, primary care has the potential to play a role in the identification, assessment and management of obese men. Possibly it also has a role in preventing those who are overweight becoming obese and those who are in the normal BMI range becoming overweight. With this in mind, the subsequent two sections consider whether GPs and PNs have a role in weight management and the evidence regarding the effectiveness of weight loss advice from GPs and PNs.

### ***Do patients think GPs and PNs have a role in weight management?***

Two Australian studies found that patients felt GPs had a role in weight management.<sup>(70, 71)</sup> Although Tan and colleagues found that 78% of patients

surveyed (N=227, 27% male) felt GPs had a role in weight management, just under 70% considered their GP had the necessary knowledge and skills to provide weight management advice, with approximately 60% stating they would ask their GP for weight loss advice. Conversely, in a qualitative study by Brown et al. obese patients were largely dissatisfied about the support they received from primary care, describing it as little more than awareness raising.<sup>(72)</sup> Lack of time was identified as a key barrier to the provision of effective weight management support in two studies,<sup>(35, 70)</sup> yet obese patients themselves have identified potential solutions to enhance the provision of weight management counselling in general practice. For example, group meetings in general practice, or a hybrid of the best of primary care and the commercial weight loss sector so the individual receives mutual support from both.<sup>(35, 72)</sup>

In a study by Tham and Young<sup>(71)</sup> the respondents were asked who the ideal person was to provide them with weight management advice; personal trainers were rated first, followed by dieticians, then a weight loss centre, with GPs rated fourth.<sup>(71)</sup> These findings were very similar to those of Yoong and colleagues.<sup>(73)</sup> Conversely, of the 84 men who returned a survey in a study by Ndebele, only 6% stated they would seek help with weight management issues from a GP.<sup>(74)</sup> Furthermore, a study by Yoong et al. found that only 0.3% of overweight individuals and 1.6% of those who were obese choose a PN to assist them with weight loss.<sup>(73)</sup>

Overall, it seems that people think that GPs have a role in weight management,<sup>(75)</sup> although they are cognisant that there are barriers to this within the setting. There was less information related to patients' perceptions of the role of PNs in relation to weight management. It should be acknowledged though, that within primary care nurses are delivering an increasing proportion of preventive health care and have been shown to be effective at delivering interventions to modify lifestyle risk factors.<sup>(76)</sup>

So if patients consider their GP has a role in providing weight management counselling and if the evidence supports the role of primary care nurses in lifestyle behaviour change what is the evidence regarding the effectiveness of weight loss advice from these two health professionals?

### ***Effectiveness of weight loss advice from a GP and PN***

Recent studies have found a relationship between very brief and brief interventions by health professionals and weight loss attempts and in some instances

actual weight loss. A literature review and meta-analysis of studies found that most studies demonstrated a positive association between primary care physician advice to lose weight and a patient's weight loss behaviour.<sup>(77)</sup> The meta-analysis revealed that provider weight loss advice had a statistically significant impact on patient attempts, with patients being almost four times more likely to attempt to lose weight. A key finding in this meta-analysis was the positive association demonstrated between weight loss advice and actual weight loss. This finding was irrespective of whether the individual had received advanced counselling or simply a diagnosis of overweight or obesity by a primary care provider. All the data were derived from surveys and as such the direction of effect cannot be determined. There is evidence that patients are more likely to initiate conversations about exercise and to a lesser degree about nutrition.<sup>(78)</sup> Other surveys however, not included in the literature review and meta-analysis by Rose and colleagues, also found advice to lose weight from a doctor or other health professional was strongly associated with a weight loss attempt.<sup>(79, 80)</sup> So while the evidence of the efficacy of brief advice and weight loss behaviour is not derived from randomised controlled trials, the number of studies with similar findings suggests there is a relationship between physician provided advice and weight loss behaviour. Furthermore, several studies have found a relationship between brief advice from a GP or PNs and behaviour change in relation to smoking, alcohol consumption and physical activity levels.<sup>(81-84)</sup> There is therefore, a body of evidence that supports the notion that GPs and PNs at least have a role to play in weight management even if it is only in the provision of brief advice.

In relation to the effectiveness of weight loss advice from PNs, data from the Counterweight Programme suggests they have a level of effectiveness.<sup>(85)</sup> This study was set within routine primary care, with PNs pivotal to its delivery. At data set closure, 1419 patients were enrolled for more than 12 months, and 825 for more than 24 months. Of the 1419 patients, data was available on 642, and for 357 of the 825 patients. Of the 642 patients the mean weight change was approximately -3.0kgs (95% CI= -3.5 -2.4kgs). Just over 30% of 12-month attenders maintained a greater than 5% weight loss. Mean weight change was less for those with 24-month data, -2.3kg (95%CI=-3.2-1.4kg). Approximately the same percentage of the 24-month cohort achieved a weight loss greater than 5% of their initial weight.<sup>(85)</sup> A strength of the programme was its flexibility of delivery, with group or one-on-one sessions available.<sup>(86)</sup> Study limitations included the lack of a control group and pertinent to this study, the low percentage of men enrolled.<sup>(85)</sup> While one in three participants

approximately lost weight, weight losses were generally small compared to results seen in recent partnerships between primary care and commercial weight loss programmes. More recently the findings of the Camden Weight Loss (CAMWEL) programme have been published.<sup>(87)</sup> This programme involved a structured one-on-one session delivered over 14 visits during a year by a trained advisor. Adults with a BMI  $\geq 25\text{kg/m}^2$  were randomised to the intervention group (N=191) or the control group (N=190). At twelve months 217 participants were re-assessed for weight, percent body fat, waist circumference, blood pressure and heart rate and missing values were imputed. The difference in mean weight change between the two groups was not statistically significant, although nearly 33% of those in the intervention arm lost 5% or more of their baseline weight compared to 20% of the control group. Overall however, the authors concluded that primary care interventions were unlikely to be sufficient to tackle the obesity epidemic and other measures were necessary.

Multiple recent research studies have examined the potential of a partnership between commercial weight loss programmes and primary care.<sup>(88-91)</sup> Results from these studies suggest that once patients are identified as overweight or obese, referral to a commercial weight loss programme offers a reasonable solution to addressing the sizeable issue of providing weight management support facing primary care. Less is known regarding the applicability of commercial weight loss programmes for men. A study by Barraji and colleagues<sup>(92)</sup> found that males randomised to Weight Watchers and with free access to Weight Watchers community classes for 12 months, lost on average 4.9kgs of body weight over the course of a year, compared to an average of 2.2kgs for men randomised to receive limited diet and activity counselling from a health care professional. While more research is required due to the low number of men in weight loss studies,<sup>(25)</sup> a study by Barraji and colleagues suggests that referral and free access to Weight Watchers is possibly a suitable support option for men seeking to lose weight.

While the studies by Jolly et al.<sup>(88)</sup> and Ahern et al.<sup>(91)</sup> were only of a 12-week duration, Jolly and colleagues<sup>(88)</sup> did measure weight loss at 12 months as well, and found that only those in the Weight Watchers arm, compared to the comparator group (exercise group) achieved statistically significant weight loss at one year. It should be noted, however, that the majority of the participants in the Jolly study had a BMI of 35 or less and the inclusion criteria for the Jebb study was a BMI between 27

and 35kg/m<sup>2</sup>.<sup>(88, 90)</sup> This may suggest that referral to a commercial programme is only appropriate for those who are overweight or class one obese.

Analysis of audit data of patients on the slimming on referral scheme in a study by Stubbs and colleagues<sup>(93)</sup> by BMI <30kg/m<sup>2</sup>, 30-34.9 kg/m<sup>2</sup>, 35-39.9 kg/m<sup>2</sup>, and ≥40 kg/m<sup>2</sup>, did find that after 12 weekly sessions mean weight losses were 2.9kg, 3.6kg, 4.1kg, and 4.8 kg respectively, with the percentage in each group achieving a weight loss of 5% being 33%, 37%, 36%, and 36% respectively. While these participants may be motivated as they had joined a slimming group, the results suggest that commercial programmes may be as effective for those of a higher BMI. Similarly, a meta-analysis of the effectiveness of lifestyle interventions incorporating diet and exercise, across different BMI groups, also found lifestyle interventions to be appropriate for those within differing BMI groups.<sup>(94)</sup> Limitations of this study were related to the absence of men in seven of the twenty-two included interventions and applicability of the findings to Caucasians only.

A systematic review and meta-analysis of behavioural weight management programmes for adults examined findings from randomised controlled trials conducted in everyday settings and delivered by staff available outside of the trial context.<sup>(95)</sup> This study found evidence to suggest that commercial interventions delivered in the community setting are effective in achieving weight loss but no evidence to support the delivery of weight management by generalist primary care teams. These findings are also supported by the results of another systematic review and meta-analysis of randomised controlled trials of behavioural interventions delivered in primary care for overweight and obese adults.<sup>(96)</sup> The studies included interventions delivered by a range of primary health care staff including physicians, PNs, public health nurses, nutritionists and community health educators. The pooled results only showed very small mean weight loss at 12 months of -1.36 kg (-2.10-0.63, P<0.0001), and -1.23kg (-2.28-0.18, P=0.002) at 24 months. It would appear that current research is more supportive of the shared care model of weight management; but what about the cost?

In translating the partnership model between primary care and commercial programmes to real world settings, policy makers will conceivably be concerned regarding costs as participants mostly received free membership. In the case of three of these studies this was for twelve free sessions<sup>(88, 89, 91)</sup> but in study by Jebb and colleagues,<sup>(90)</sup> free membership was for 12 months. The Jebb et al. study did include a within-trial cost effectiveness analysis. They determined that referral to a

commercial programme, in this case Weight Watchers, was a cost effective option for individuals with a BMI range of 27-35 kg/m<sup>2</sup> over a year.<sup>(97)</sup> Jolly et al.<sup>(88)</sup> also calculated that compared to referral to a commercial weight management programme, primary care one-on-one weight management counselling was more costly.

In a recent cost-effectiveness analysis comparing Slimming World to usual care, in both the short and long term, primary care referral to the commercial weight loss programme was deemed cost-effective.<sup>(98)</sup> Over a lifetime, referral was both cost saving (-£923.52) and associated with incremental benefit over usual care (0.22 Quality Adjusted Life Years). Sub-group analysis suggested that the programme was more cost-effective for men.

Overall, patients believe their GPs have a role in managing their weight. Their views on GPs as the preferred source of weight management advice is more mixed. Views on the role of PNs in relation to weight management counselling are relatively unexplored in the literature. Findings from studies are supportive of the use of brief advice by GPs and PNs to prompt a weight loss attempt. In relation to support to lose weight, current evidence supports a weight-loss partnership model between primary care and the commercial sector, compared to the delivery of weight-loss interventions in the primary care setting.

The partnership model of the individual living with obesity, primary care and community based weight loss providers aligns with a chronic care management model response to the issue. As a framework the Chronic Care Model (CCM) is recognised as providing a pragmatic approach to the provision of care applicable to a variety of chronic conditions and preventive healthcare activities,<sup>(99)</sup> with some authors suggesting the CCM is applicable to obesity management. Chen and Bodenheimer<sup>(100)</sup> have considered the components and subcomponents of the CCM and how they relate to the management of obesity. Much of the discussion relates to the provision of enhanced self-management support. To date however, chronic disease self-management approaches for weight management are unverified.<sup>(101)</sup>

As far back as 2001 the NZ Ministry of Health (MoH) launched a toolkit for District Health Boards (DHBs) to support them to address obesity rates in their district.<sup>(102)</sup> The toolkit provided suggestions regarding an extensive array of organisations and community groups for the sector to work with. In addition, it gave suggestions regarding a variety of approaches DHBs could implement across a range of settings. Essentially, this document provided a map for a whole of systems

approach to address obesity rates. Information on actions resulting from its launch was unable to be located.

Clearly there is evidence to suggest that primary care has a role to play in obesity prevention and weight management, the precise nature and extent of that role is less clear. To gain a clearer appreciation of how GPs and PNs perceive their role in weight management, what they understand about obesity and its causal factors and consequences and their attitude towards larger adults a literature review was undertaken. Part two of the chapter initially presents the parameters of the literature review related to the health professional component of the study question; followed by a description of the composition of identified studies. Subsequently the study findings are presented.



## ***Part Two***

### ***Parameters of the health professional literature review***

The intent of this aspect of the literature review was to identify a comprehensive selection of relevant papers to inform the researcher of the breadth and depth of research pertinent to the topic. In addition, the review was to assist in the development of a survey tool for health professionals. The purpose was not to undertake a systematic review.

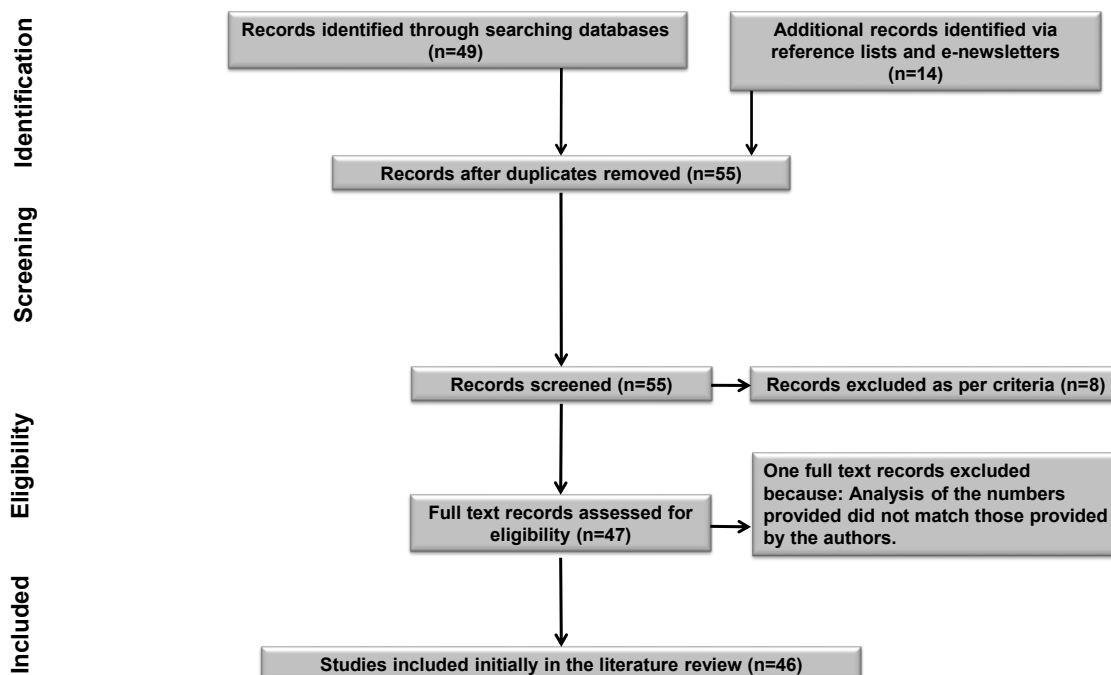
The process of identifying relevant literature began with the development of a search strategy which could be applied to a variety of databases. Online databases searched included Ovid, Proquest, CINAHL, PSYCHINFO and PubMed. The search strategy can be viewed in Appendix A and an example of how it functioned in one database, Ovid, provided in Appendix B. Studies were excluded if they did not include GPs/primary care doctors/family physicians or primary care nurses, did not discuss obesity, were not in the English language or if full text articles were not available. The timeframe for the literature search was 1995 to the present as the management of obesity in general practice is a contemporary topic.

All abstracts were read, and the full text of germane papers obtained. Abstracts were considered relevant if they met the criteria above and included at least one of the domains specified in the search strategy (beliefs, attitudes, knowledge or practices). Reference lists of all retrieved articles were appraised. The technique of snowballing was utilised to ensure that a comprehensive body of relevant literature was obtained for consideration. Google Scholar was used as an additional search engine.

Complementary to the literature searching, national popular hard copy media, such as The Listener, were monitored for related articles and the researcher joined the following organisations: the National Obesity Observatory, UK, Canadian Obesity Network, and the Rudd Centre for Food Policy and Obesity U.S.A., all of which provided regular electronic updates of the latest obesity research. The researcher also became a member of the International Association for the Study of Obesity, as well as the Australian and New Zealand Obesity Society. Membership of the latter organisation enabled the researcher to stay informed of local activity in the area of obesity research and assisted in establishing local networks with fellow researchers.

The initial running of the health professional related search string resulted in twenty-seven quantitative, nine qualitative, two mixed methods and eight literature

reviews being identified. These papers included studies from 1997-2012. Figure 2.2 illustrates the process of identification, screening, eligibility and inclusion underpinning the initial health professional literature search.



**Figure 2.2: Flow diagram of initial literature search**

A further four quantitative and one qualitative were identified post 2012. Table 2.1 illustrates the geographical origins of the papers, highlighting that obesity is an issue for primary care globally.

**Table 2.1: Distribution of published studies identified in the literature review**

Geographical location	Number of studies
USA	17
UK	14
Australia	4
Holland	3
Middle East (Saudi Arabia, Bahrain and Kuwait)	3
Sweden	2
France	2
Israel, China, Portugal, Germany Norway and New Zealand	6 (1 each)

## ***Overview of the identified studies***

Health care is a human dominated service, and as such, the patient experience is directly affected by the beliefs, attitudes, knowledge, and consequent behaviours of the staff. The health professional literature reviewed relating to these factors contained key themes. Beliefs regarding the nature of obesity, its causes and consequences, the characteristics of obese people and beliefs related to responsibility. Knowledge and self-efficacy were discussed in relation to the various weight management options and their efficacy, as well as the related clinical practices of primary care professionals and barriers to weight management in the setting. For the most part findings were comparable between GPs and PNs; however, variation did exist, not only between professional groupings but within each grouping.

This next section of the chapter is presented in a way that enables the review of studies identified by the health professional search strategy in relation to each key theme mentioned above, followed by a comparison of these findings with the broader but related research evidence.

### ***Obesity, is it a disease?***

Five of the papers<sup>(36, 103-106)</sup> reviewed assessed whether or not family physicians/GPs considered obesity to be a disease or not. In all five studies most subjects, over 85% of respondents, considered obesity to be a disease. The views of PNs on the topic were not evident in the literature. These findings are congruent with the views of organisations like the World Health Organisation (WHO) who consider obesity a disease. They state, “Obesity is a chronic disease, prevalent in both developed and developing countries, and affecting children as well as adults”.<sup>(107)</sup> Other health organisations agree<sup>(108)</sup> but many advocacy organisations, including the International Size Acceptance Association and the National Association to Advance Fat Acceptance do not.<sup>(108)</sup> Their issue with the medicalisation of obesity is it focuses the issue on the individual and not on the wider social determinants.<sup>(109)</sup> Those in advocacy organisations could potentially be framed as disease denials.<sup>(109)</sup>

The question of obesity’s disease status has been hotly debated.<sup>(110)</sup> Indeed, trying to determine if obesity is a disease is fraught with complexity. There are no precise definitions of what constitutes a disease, and lack of agreement on how the assorted components of the various definitions should be applied.<sup>(108)</sup> Richard Smith, points out that the Oxford Textbook of Medicine avoids defining disease, and

describes the concept of disease as “slippery”.<sup>(111)</sup> Disease is in fact a social construct.<sup>(109)</sup> Obesity has been labelled at various times a brain, metabolic, genetic, and a neurochemical disease, even a viral disease.<sup>(112)</sup> More recently, the American Association of Clinical Endocrinologists announced that obesity was a disease state, not just a condition.<sup>(113)</sup> It was formally recognised as a disease by the American Medical Association in June 2013.<sup>(114)</sup> The New Zealand Medical Association (NZMA) however, referred to it as a risk factor in their recent obesity policy briefing paper<sup>(115)</sup> and it is also reported as a risk factor in the NZ health survey.<sup>(15)</sup> Obesity was however, referred to as a long-term condition in a recent published paper by NZ endocrinologists.<sup>(116)</sup>

The International Statistical Classification of Diseases and Related Health Problems system lists obesity under endocrine, nutritional and metabolic diseases, code E66,<sup>(117)</sup> while the latest version (May 2012) of the International Classification of Primary Care, ICPC-2, codes obesity as obesity, not defining it further.

Three persuasive reasons for identifying obesity as a disease were suggested by Kopelman and Finer:<sup>(118)</sup>

- To further an understanding of obesity not as an inevitable consequence of modern life, but as a condition that can be avoided or reversed, resulting in substantial health benefit to the individual and society;
- To raise awareness amongst those of a higher weight, the medical professions and the public that obesity has the potential to increase morbidity and hasten mortality;
- To ensure that healthcare funders and planners, as well as governments recognise the prevalence of obesity within society and that it affects people of all ages.

Further reasons for identifying obesity as a disease include: a potential reduction in stigma and discrimination and improved access to evidence based prevention and weight management programmes. Saguy and Riley<sup>(119)</sup> point out that for some medicalising a behaviour generally “diminishes or removes blame from the individual for deviant actions”.

Conversely, negative ramifications also exist for individuals by designating obesity a disease.<sup>(113)</sup> Individuals may find themselves denied insurance, a mortgage or employment opportunities.<sup>(111)</sup> By being allocated a diagnosis individuals can become the patient<sup>(120)</sup> and potentially consider themselves flawed due to a

diagnostic allocation and in need of treatment.<sup>(111, 121, 122)</sup> The medicalisation of obesity has potential to constrain solutions by suggesting that effective responses rest within medical circles alone,<sup>(123, 124)</sup> resulting in the social origins of obesity being overshadowed and constricting social policy solutions to the issue.<sup>(120, 125)</sup> Katz asserts that pathologising obesity reflects society's inability to come to terms with the necessity of prevention.<sup>(124)</sup>

Following recent declarations of obesity as a disease, Hoyt and colleagues sought to determine if the 'obesity is a disease' message undermined the concern of obese individuals regarding their weight, lessening the chance they would make a weight loss attempt.<sup>(126)</sup> The study randomly assigned participants to read either an article portraying obesity as a disease or a control article offering a traditional public health interpretation of obesity. They found the disease based message lessened the importance obese participants placed on making a weight loss attempt and was associated with less healthful food choices. The disease message did have a positive effect; it increased body satisfaction but this effect was associated with poorer food choices by those of a higher BMI.<sup>(126)</sup>

In summary, the studies that sought to establish the view of family physicians/GPs in relation to whether obesity was a disease, found the majority agreed it was. This finding is in parallel with much of the broader research and the direction taken by respected health professional groups. Declaring obesity to be a disease remains controversial and although there are differing views on the advantages and disadvantages of medicalising obesity, many consider the benefits will outweigh the harms.

### ***Causes of obesity***

While the debate around whether obesity is a disease or not, is complex, it is not the only obesity topic to be hotly debated. The question surrounding the key drivers of obesity and which contributes most to the development of adiposity is no less complex. Multiple mechanisms are implicated, from genetics to the environment.

It is important to understand how GPs and PNs conceptualise the cause of obesity. If they frame it as a simple case of too many calories in and too few out, as a result of personal choices, this could result in them viewing the patient negatively.<sup>(127)</sup> Although the scientific literature contains a myriad of views regarding the aetiology of obesity, the papers from the literature review that assessed the

beliefs of GPs and PNs regarding the causes of obesity report a simpler framing of obesity.

In four studies<sup>(103, 104, 128, 129)</sup> the behavioural factors, physical inactivity and over eating, were considered the key drivers of obesity. Participants in three of the studies were GPs,<sup>(103, 104, 128)</sup> with one<sup>(128)</sup> also including clinical psychologists in the survey. The fourth study<sup>(129)</sup> surveyed PNs. A literature review of GP/family physician beliefs about the causes of obesity acknowledged the same finding.<sup>(130)</sup> In a UK study by Brown and Thompson<sup>(131)</sup> participating primary care nurses demonstrated a greater awareness of the numerous factors which influence the development of obesity, citing environmental, cultural and economic factors as affecting, either positively or negatively, the incidence of obesity. Two of the papers<sup>(103, 104)</sup> ranked the fat content of a person's diet as a significant factor. Views on the bio-medical causes of obesity were assessed in all four studies and in each case they were not considered significant driver of obesity.<sup>(103, 104, 128, 129)</sup>

In two of the three studies involving GPs<sup>(104, 128)</sup> psychological problems, such as depression were rated relatively highly but less significant in the third study.<sup>(103)</sup> Views on repeated dieting was measured and rated as moderately important in three of the studies.<sup>(103, 104, 128)</sup>

One study<sup>(128)</sup> asked a question regarding the influence of socio-economic position on obesity. Out of fifteen factors it was ranked as eleventh for people who were moderately overweight and tenth for those who were extremely overweight. In the Epling et al. study,<sup>(104)</sup> family physicians frequently stated, via comments within the survey, their frustrations with factors they perceived to be outside their realm of control. Comments related to the obesogenic environment were the third most frequent type documented.

The mechanistic model of the cause of excess body weight (energy in/energy out) dominated in the identified studies, with bio-medical causes being ranked as less influential in the development of obesity. The findings related to the relative importance of the individual's psychological well-being and obesity were not uniform however, in all three studies GPs considered weight cycling or repeated dieting as moderately significant in relation to obesity. Collectively the findings from these studies suggest that GPs and PNs view obesity as being largely caused by lifestyle choices; a view not mirrored in the associated literature which is considered next.

There is a vast body of literature related to obesity and its causes within the medical, public health and psychosocial literature. Time has seen an exponential

rise in the number of publications, especially from the 1980s onward. The role and importance allocated to the various causal factors has changed during this time. The framing of obesity as solely being caused by an energy imbalance driven by over eating and inactivity has been overridden. The temporal literature now characterises the increased prevalence of obesity as the result of complex interactions and relationships between multiple factors including: the obesogenic environment; genes; cultural beliefs; obesogenic behaviour; political and economic structures and socioeconomic determinants.<sup>(132)</sup> The scientific literature therefore endorses obesity as being multifactorial in origin.<sup>(132, 133)</sup> The following section considers some of this large and growing body of literature related to the causes of obesity.

At a fundamental level a positive energy imbalance is still recognised as causing obesity,<sup>(134)</sup> with the imbalance caused by the relationship between individuals, their biology and the exploitation of these factors by their environment.<sup>(132, 133, 135-138)</sup> This explanation of the aetiology of obesity, has been influenced by the speed and size of the increase in the prevalence of obesity. Researchers have concluded that a change in the human genome could not have caused such a sudden increase in prevalence.<sup>(133, 135, 137, 138)</sup> Figure 2.2 taken from the UK's Foresight report into tackling obesity, illustrates the complexity and interrelationship between these factors.

Map 5

Full Generic Map  
Thematic Clusters (filled)

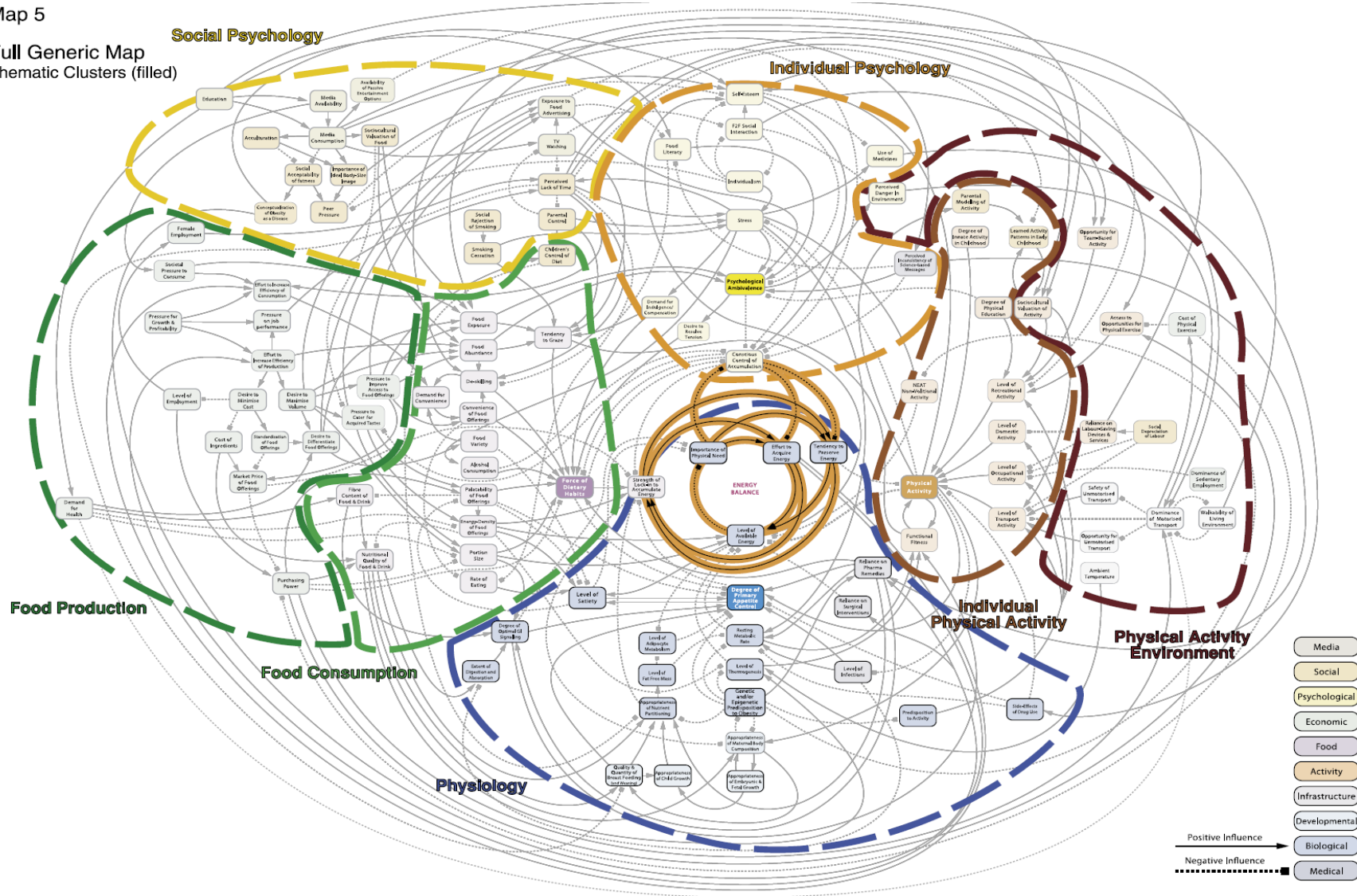


Figure 2.3: Obesity systems map with thematic clusters<sup>(139)</sup>



Figure 2.4 below translates Figure 2.3 into a simpler schematic representation.



Figure 2.4: The complexity of obesity<sup>(140)</sup>

### **Genes**

The potential role of genes first emerged in the 1980's with Stunkard's classic twin and adoption studies,<sup>(141)</sup> with Allison also demonstrating heritability of BMI in twins brought up apart.<sup>(142)</sup> The phrase "genes load the gun, the environment pulls the trigger"<sup>(135, 137)</sup> has been considered by some researchers and academics as a useful way of conceptualising the stimuli of genes in the obesity epidemic. In other words, common obesity results from the subtle interaction of our genes with environmental factors and may explain the variation in body weight seen in populations all living in the same obesogenic environment.<sup>(143)</sup> Overall, the rise of obesity in both the developed and developing world, points to the universal ability of anyone to become obese if they live in a permissive environment.

### **The role of the microbiome**

More recently scientists have explored the relationship between obesity and the gut microbiome in humans.<sup>(144)</sup> Just how gut microbiota interact with their hosts to regulate their weight is not yet fully understood, however, a number of mechanisms have been suggested.<sup>(144)</sup> These proposed mechanisms relate the ability of microbiota to extract nutrients (harvest energy) from food; the products (metabolites) of the microbiota adapting energy balance and the possibility that there

is an interaction between the immune system cells of the mucosal lining of the gastrointestinal tract and the microbiota, altering the microbiome's structure or physiology.<sup>(144)</sup> While this area of research is growing exponentially, understanding of the complex dynamics of host-microbe mediated obesity remains limited. The part played by various aspects of the environment, in relation to obesity, are discussed next.

### ***The environment***

In 1995 the Institute of Medicine stated, "There has been no real change in the gene pool in this period of increasing obesity. The root of the problem, therefore, must lie in the powerful social and cultural forces that promote an energy-rich diet and a sedentary lifestyle".<sup>(145)</sup> The obesogenicity of a person's environment is recognised as having a strong influence on their eating and activity behaviours.<sup>(132, 146, 147)</sup> The mechanisms by which a person's environment promotes obesity causing behaviours has been and is the focus of much research.

Food has become more palatable and omnipresent in our environment, resulting in constant stimuli to eat. In addition, the highly processed food that is so easily available is affecting food preferences and as a consequence is at best sustaining or at worst increasing the demand for unhealthy food.<sup>(132)</sup> These nutrient poor but energy dense foods are processed in a manner that make it difficult for the body to regulate intake and hence weight.<sup>(132)</sup> The evidence relating to the impact of different aspects of the food environment, such as access to affordable healthy food, and density of fast food restaurants on obesity rates is mixed.<sup>(146)</sup>

A literature review by Giskes et al.<sup>(145)</sup> found that weight status was most consistently linked to accessibility to supermarkets/takeaway outlets or residing in an deprived area. In contrast, Drewnowski et al.<sup>(148)</sup> found proximity to a supermarket had no impact on obesity rates. They did however, establish a link between type of supermarket and obesity rates. Customers of the high priced supermarkets, had obesity rates a third of those of customers of the low priced supermarkets. These findings link to the NZ study by Pearce et al.<sup>(149)</sup> who found no evidence of association in NZ between access to a supermarket or convenience store and fruit or vegetable consumption but an association between better access to a convenience store and lower consumption of vegetables. They proposed that access to convenience stores might be a useful proxy for access to poor dietary foods. In another study, Lake and Townsend<sup>(146)</sup> point to research that found age, gender,

poverty and cultural influences, rather than ease of access to supermarkets were more likely to influence consumption of fruit and vegetables. The challenge appears to be to untangle the aspects of the food environment which most significantly influence obesity.<sup>(145, 146)</sup>

A person's residential environment is also considered to influence the development of obesity.<sup>(150)</sup> Factors in the built environment including: higher residential densities, mix of land use, the presence of quality pavements, enjoyable scenery, perceptions of safety, and the presence of others all influence participation in physical activity.<sup>(146)</sup> A recent NZ study found overweight and obesity and low levels of walking were associated with area-level deprivation, independent of individual-level deprivation status. This suggests that weight and levels of physical activity are affected by the neighbourhood environment.<sup>(151)</sup>

While physical activity alone is acknowledged as having only a modest impact on weight loss typically less than 3% of initial body weight, it can assist in body weight regulation.<sup>(152)</sup> It also provides health benefits other than weight loss.<sup>(153)</sup> Hence, the provision and promotion of a variety of opportunities to be physically active within residential environments is important and of even greater importance for those who are of a higher weight,<sup>(150)</sup> many of whom live in areas of high deprivation.<sup>(15)</sup>

Industrialisation and the emergence of increasing technologies have altered the environments in which people live and work. Parallel to the rise in technology, working hours have increased. Combined these factors have led to a reduction in the amount of incidental physical activity an individual accumulates in 24 hours.<sup>(154)</sup> Furthermore, time spent watching television is recognised as influencing body weight.<sup>(133, 145, 146, 155)</sup> More recently a Finnish study of young adults (30-45 years) demonstrated that of the different types of sedentary behaviour assessed (TV viewing, computer time, reading, music/radio listening and other relaxation), TV viewing was the one most consistently related to higher BMI.<sup>(156)</sup> The relationship is thought to be bi-directional with obesity triggering increased television watching, as it does not require an individual to be physically active, and increased television watching contributing towards the development of obesity.<sup>(157)</sup> In addition, the emergence of women into full-time work has increased the appeal of energy dense, nutritionally poor convenience foods and take away meals.<sup>(132)</sup>

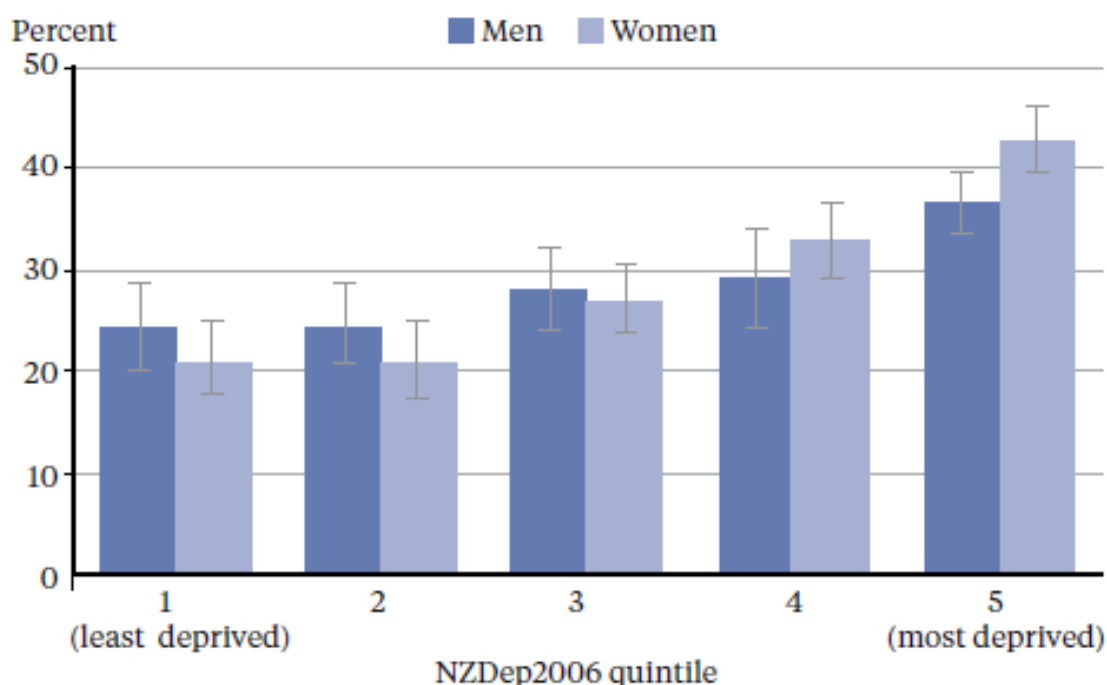
In summarising it can be seen that it is practically impossible in most developed societies to avoid exposure to the obesogenic environment. The interplay

between the individual and their food and built environments is complex, presenting researchers with methodological challenges in trying to untangle the causal pathways. The potential contributions of the social, economic and cultural determinants (SE&CDs) to the obesity epidemic are equally intricate and these are considered next.

### ***Socio-economic and cultural determinants***

The literature exploring the causal pathways linking SE&CDs to obesity is sparse.<sup>(158)</sup> There is however, repeated evidence of SE&CD disparities in relation to obesity prevalence<sup>(159, 160)</sup> suggesting the two are mutually reinforcing.<sup>(161, 162)</sup>

Overweight and obesity rates are consistently higher for individuals of lower socio-economic position and those belonging to minority racial/ethnic groups. In NZ obesity rates are higher for individuals who are Māori, Pacific Islanders and those living in quintile five, compared to those who are non-Māori, non-Pasifika and not living in quintile five.<sup>(19, 134)</sup> For those living in the most deprived areas in NZ, there is a 1.6 times increased risk of being obese compared to those living in the least deprived areas, after adjusting for age, gender and ethnicity.<sup>(15)</sup> Figure 2.4 taken from the 2011/2012 NZ Health Survey illustrates the association.



Source: 2011/12 New Zealand Health Survey (15 years and over)

**Figure 2.5: Prevalence of obesity by gender and deprivation quintile**

Figure 2.5 demonstrates that the prevalence of obesity is greater for males living in quintiles one to three, compared to females, with the pattern reversing in quintiles four and five.<sup>(15)</sup> This pattern is common and studies examining the relationship of socioeconomic position and obesity in men, such as the Australian study by Marwick et al.<sup>(163)</sup> predominantly detect an inverse relationship between socioeconomic position and obesity.<sup>(164)</sup> Conversely, Hans and colleagues found deprivation and adverse lifestyle behaviours, such as inactivity, predicted increased obesity and waist circumference (WC) in middle aged and elderly European men.<sup>(165)</sup> Not all individuals living in social disadvantaged circumstances become obese and Ball and Crawford call for more research into the area of obesity resilience.<sup>(164)</sup>

Interacting with the environment are our beliefs, attitudes, values and perceptions of body size but the influence of these factors on obesity prevalence is unclear. A NZ study examining the role of sociocultural factors on obesity aetiology concluded that socio-economic circumstances were more influential on food and physical activity behaviours than cultural beliefs and values.<sup>(166)</sup> Another NZ study established that erroneous body size perceptions were more prevalent in Māori and Pacific populations, with them more likely to perceive themselves as having a smaller body size than their European counterparts.<sup>(167)</sup> This tendency to perceive weight status incorrectly may reflect different ideals of body image between two population groups.

International evidence supports the role of cultural factors in influencing a variety of beliefs likely to influence body weight. For example, attitudes about ideal body weight, levels of body dissatisfaction and diet behaviour, as well as eating beliefs, customs and practices. Swinburn proposes that socio-cultural values may protect or predispose to weight gain and may be considered modifying factors, either amplifying or diminishing the influence of the main drivers obesity.<sup>(168)</sup>

Health literacy, “the degree to which individuals have the capacity to obtain, process and understand basic health information and services needed to make appropriate health decisions”<sup>(169)</sup> is recognised as influencing health outcomes.<sup>(170)</sup> The health literacy skills of the majority of adult New Zealanders are limited, with Māori having poorer health literacy compared to non-Māori.<sup>(169)</sup> Poor health literacy has been shown to impact on a person’s understanding of the benefits of weight loss and their ability to monitor and measure the same.<sup>(171)</sup> Health literacy also influences capacity to understand food labels and health messages.<sup>(172)</sup> Poor numeracy, a component of literacy, has been shown to have a significant negative relationship,

even after adjusting for potential confounders, with body mass index.<sup>(173)</sup> This study did not find any association between literacy level and body mass index. In comparison, a recent systematic review by Berkman et al.<sup>(172)</sup> did not demonstrate a relationship between numeracy levels and health outcomes. The authors, however noted the low number of studies in this area and the inconsistency of outcomes examined.<sup>(172)</sup> Clearly, the impact of health literacy and numeracy on body mass index status, health promotion messaging and weight management education requires additional examination.

A recent systematic review of primary health care-level interventions which aimed to enhance individual's knowledge and skills for weight loss found evidence for the effectiveness of multicomponent interventions.<sup>(174)</sup> The authors, however were unable to distinguish which aspect of the intervention was responsible for improving health literacy.

Clearly obesity causation is complex in nature and there has been a plethora of research published which tries to untangle the causal pathways but the evidence is mixed. The strength of evidence for the causes has been reviewed by the World Health Organisation and been rated from convincing to insufficient as illustrated in Table 2.2.<sup>(134)</sup>

**Table 2.2: Strength of evidence related to obesity causal factors**

<b>Strength of evidence</b>	<b>Causes or factors</b>
Convincing	High intake of energy-dense nutrient poor foods Sedentary lifestyles
Probable	Heavy marketing of energy-dense foods and fast-food outlets Adverse social and economic conditions (in developed countries especially for women)
Possible	Sugar sweetened soft drinks and fruit juices Large portion sizes High proportion of food prepared outside the home (western countries) "Rigid restraint/periodic disinhibition" eating patterns
Insufficient	Alcohol consumption

In summary, the causal pathways of obesity have been shown to be highly complex. While it is acknowledged that personal food choices impact on weight, personal behaviours are profoundly influenced by a myriad of upstream social, environmental and economic structures. The studies identified by the literature

search which considered the beliefs of GPs and PNs regarding the causes of obesity, did not reflect this complexity in their findings. The findings from these studies may not reflect an incomplete understanding of the composite nature of obesity by health professionals, rather the limitations of the survey instrument used. Ensuring that health professionals in general practice fully understand the multiple drivers of obesity is important, as simplifying the cause to purely one of over-eating and physical inactivity may engender negative attitudes, ultimately impacting on the patient/doctor relationship.<sup>(39)</sup>

The next section reviews the findings from studies identified via the literature search relating to the knowledge of GPs and PNs regarding the consequences of obesity. Subsequently the myriad of physical, psychological and social consequences of obesity from the generic literature are considered.

### ***Consequences of obesity on the individual***

Obesity is associated with several of the leading causes of death and disability in the developed world, including: cardiovascular disease, type 2 diabetes and some cancers.<sup>(175)</sup> Globally it contributes towards 44% of the burden of diabetes, 23% to the burden of ischaemic heart disease burden and dependent on the cancer between 7-41%.<sup>(176)</sup> As well as these physical health consequences, depression is common<sup>(177)</sup> and social discrimination widespread.<sup>(39)</sup>

Of the studies identified by the search strategy, five examined the awareness of either GPs or PNs regarding the link between obesity and other major health conditions.<sup>(103-105, 129, 178)</sup> Only two of these studies probed the knowledge of the health professionals to any extent.<sup>(105, 178)</sup> Consideration of these papers follows.

The survey by Miller et al.<sup>(178)</sup> assessed the knowledge of registered nurses, advanced PNs and nurse educators in America in relation to overweight and obesity. Participants were asked to list a minimum of three but up to five consequences of obesity; 41% named five, with 4% failing to list one. Ninety-six percent of respondents identified cardiovascular disease as a consequence of obesity, with 26% of respondents not identifying diabetes and 90% not identifying hypercholesterolemia. Similarly, identification of joint problems and sleep apnoea was low. These findings were independent of the educational attainment of the nurse.<sup>(178)</sup> Generalisability of the findings, however, are low due to the very low (15%) survey response rate.

A UK-based study by Hoppe and Ogden in 1997<sup>(129)</sup> examined the beliefs of PNs' about obesity. The survey was sent to 900 PNs and achieved a response rate of 65%. In this study the investigators divided the sample into sub groups based on the BMI of the PN, high or low and whether or not they provided weight loss clinics in practice. Overall PNs considered that obesity was a significant threat to health status, with cardiovascular disease the leading risk. Other non-cardiovascular consequences such as diabetes, joint and psychological problems were also identified. There was no significant difference in beliefs regarding consequences based on the nurses' BMI or whether or not they ran weight loss clinics.<sup>(129)</sup>

The 2003 survey by Foster, et al.<sup>(103)</sup> asked participants to answer the following question on a five-point Likert scale; "Obesity is associated with serious medical conditions". Over 90% of the 620 responding primary care physicians either agreed or strongly agreed with this statement.<sup>(103)</sup> Epling et al.<sup>(104)</sup> adapted the survey instrument used by Foster to survey primary care physicians in 2011. Using a five-point Likert scale the response to the same question had a mean of 4.93.<sup>(104)</sup>

A French study by Bocquier and colleagues<sup>(105)</sup> explored the understanding of French GPs regarding the consequences of obesity in greater detail. The study team used a telephone survey methodology to interview 600 GPs. They found a high level of recognition of many of the physical health impacts of obesity, with obesity-related infertility and its association with some cancers less well recognised by respondents. Respondents rated the psychological and social consequences of obesity as less important than the physical consequences. The survey utilised a six-point Likert scale with one being not important and six being very important. The mean scores for the importance of the physical, psychological and social consequences of obesity were 4.9, 4.3, and 3.8 respectively.<sup>(105)</sup>

The studies located via the search strategy show limited appraisal of the understanding of GPs and PNs regarding the consequences of obesity. Again these findings may not reflect a lack of appreciation of the breadth of impact obesity has on an individual, rather the limitation of the survey instruments used.

Acknowledgement of the significant consequences obesity has on a person's health and well-being is important. Recognition of these factors has the potential to contribute to greater empathy for those burdened by excess weight. Yet physicians frequently overlook empathetic opportunities during encounters with patients.<sup>(179)</sup> In addition, recognition of the universal impact of obesity on a person's wellbeing is vital if obesity prevention and management are to be prioritised. The following sections



provide an overview of the physical, mental and social consequences of obesity contained in the broader but related literature.

## ***Physical health consequences***

### ***Obesity, mortality and multimorbidity***

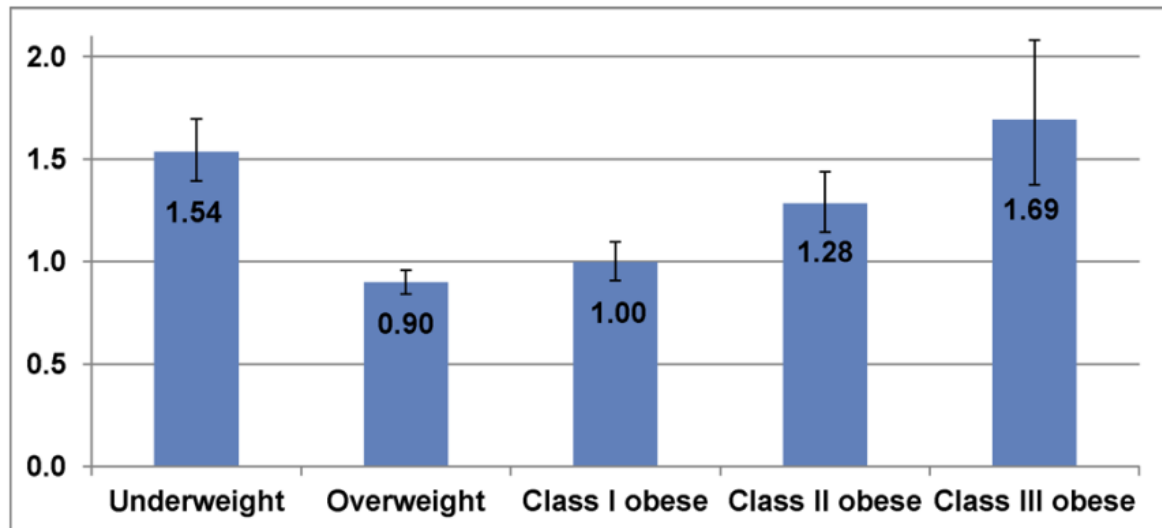
Over the years researchers have increasingly established an association between overweight and obesity and increased rates of mortality,<sup>(180)</sup> with the relationship between absolute mortality and body mass index being J-shaped.<sup>(181)</sup> This relationship was clearly demonstrated in the research undertaken by the Prospective Studies Collaboration.<sup>(182)</sup> Class 1 obesity, 30-34.9kg/m<sup>2</sup>, was found to reduce average life expectancy by two to four years, with class III obesity, 40-50kg/m<sup>2</sup>, significantly reducing average life expectancy, by between eight to ten years, comparable to the effects of smoking. A more recent study has again identified the parallel between morbid obesity and the effects of smoking in relation to reduction in life expectancy.<sup>(183)</sup>

Zimmermann et al.<sup>(184)</sup> examined the connection between obesity present in early adulthood, and all-cause mortality throughout adult life in men. They found that at all ages, from 18 to 80, the mortality rate in the obese was twice that seen in controls. Year of birth or level of education did not significantly influenced the finding.<sup>(184)</sup>

A 2013 systematic review and meta-analysis examining the association of all-cause mortality with overweight and obesity however, challenges the prevalent view contained in contemporary obesity mortality discourse.<sup>(5)</sup> This study concluded that relative to normal weight, obesity grades two and three were associated with significantly higher all-cause mortality but the association did not hold true for obesity grade one (BMI 30-35kg/m<sup>2</sup>). This study found overweight to be linked to significantly lower all-cause mortality compared to normal weight. These findings emphasise the complexity of the association between weight and mortality and point to the possibility that other factors, such as metabolic (lipid profile, glucose tolerance, blood pressure and WC), possibly play a role.<sup>(5)</sup>

A study by Chang et al.<sup>(185)</sup> examined mortality and life years lost in regard to obesity related diseases (ORDs) - coronary heart disease, hypertension, diabetes and stroke - in American non-smoking adults. The impact of ORDs was greatest for non-smoking younger adults, blacks opposed to whites, for males compared to

females and for those with of higher levels of obesity. Overall, ORDs increase the chances of dying and lessened life years by 0.2-11.7 years dependent on gender, race, BMI classification and age. Figure 2.6 illustrates the hazard ratios for death for each BMI classification.



**Figure 2.6: Hazard ratios for death for each BMI classification (reference: the normal-weight).**<sup>(185)</sup>

Interestingly the BMI association found in the Chang et al. study,<sup>(185)</sup> approximated a U-shaped relationship with the lowest mortality rate in the overweight classification, similar to the pattern found in the Flegal study.<sup>(5)</sup>

Flegal and colleagues findings, suggest that those who are overweight or class 1 obese may not experience the adverse metabolic complications those with greater adiposity do and that for them excess weight itself does not increase their risk of death. Yet a systematic review and meta-analysis of the literature found that compared to metabolically healthy normal-weight persons, metabolically healthy obese individuals were at a greater risk for all-cause mortality and cardiovascular events over the long term,  $\geq 10$  years.<sup>(6)</sup> Two later studies examining data from the Whitehall II study supports these findings.<sup>(186)</sup>; Bell, 2015 #749} These studies add weight to the argument that being metabolically healthy obese, is not a benign condition.

While it would be reasonable to expect the increasing prevalence of obesity to be driving a decrease in life expectancy, and an increase in cardiovascular-specific mortality, there appears to be a paradox at play. Juxtaposed against this picture is one where life expectancy overall has increased, and cardiovascular-specific mortality have decreased. Walls and colleagues<sup>(187)</sup> describe a number of factors that

could potentially account for the apparent contradiction. These include: improvement in the management of risk factors; such as hypertension and reductions in the rates of smoking; enhanced pharmacological and medical management of conditions linked to obesity, such as heart disease and diabetes; and finally the possibility that the negative impact of obesity has not yet been fully realised as there appears to be a link to obesity and length of exposure.

Obesity has also been shown to be an important independent predictor of multimorbidity (the presence of multiple coexistent diseases in an individual).<sup>(188)</sup> Agborsangaya and colleagues<sup>(189)</sup> found obesity to be associated with more than double the odds of multimorbidity in contrast to non-obesity (odds ratio=2.2, 95% CI 1.9-2.6). In addition, the prevalence of obesity was noted to increase with increasing numbers of chronic conditions. The prevalence of obesity was the lowest in those with no chronic condition (20.3%, 95% CI 18.3-22.2) and highest in those with five or more chronic conditions (52.8%, 95% CI 46.4-59.2). Similarly, a study by Booth, Prevost and Gulliford<sup>(190)</sup> that analysed primary care electronic health records between 2005 and 2011, found the standard prevalence of multimorbidity (defined in this study as the co-occurrence of two or more conditions from eleven defined conditions) was 23%, in normal weight men, rising to 27% in overweight men, with the rates in class I, II, and III obesity being 33%, 38%, and 44%.

The evidence presented in the previous section, strongly supports the contention that there is a positive link between obesity mortality and multimorbidity. The Chang study highlighted the association between obesity and certain diseases.<sup>(185)</sup> The physical health consequences of obesity are many and diverse and the World Health Organisation have tabulated these according to the strength and quality of evidence as illustrated in Table 2.3.<sup>(107)</sup>

**Table 2.3: Relative risk of health problems associated with obesity**

<b>Greatly increased (relative risk much greater than 3)*</b>	<b>Moderately increased (relative risk 2-3)*</b>	<b>Slightly increased (relative risk 1-2)*</b>
Non-insulin dependent diabetes mellitus	Coronary heart disease	Cancer (breast cancer in post- menopausal women endometrial cancer, colon cancer)
Gall bladder disease	Hypertension	Reproductive hormone abnormalities
Dyslipidaemia	Osteoarthritis	Polycystic ovary syndrome
Insulin resistance	Hyperuricaemia and gout	Impaired fertility
Breathlessness		Low back pain due to obesity
Sleep apnoea		Increased anaesthetic risk
		Foetal defects associated with maternal obesity

\*All relative risk estimates are approximate.

### ***Obesity and mental health***

Obesity is also recognised as affecting many aspects of a person’s psychological wellbeing including health related quality of life (HRQOL) and depression. Health related quality of life is a subjective health status based on a person’s perception of the impact of a health state on their ability to live a meaningful and fulfilling life.<sup>(191)</sup> Many studies examining the relationship between HRQOL and obesity derive from studies of obese patients in treatment settings, frequently limited to those undergoing surgical interventions. These findings therefore, may not be applicable to obese individuals in the general population as findings following small to moderate weight loss are more mixed.<sup>(191)</sup> A more contemporary systematic review and meta-analysis of randomised trials for weight loss which examined HRQOL found no significant association between weight loss and overall HRQOL improvement.<sup>(192)</sup>

Several health related quality of life studies have noted a gender difference, with obese women experiencing poorer HRQOL.<sup>(191, 193, 194)</sup> For men a BMI of 26.0kg/m<sup>2</sup> is associated with a maximum HRQOL score, with a low BMI being associated with a more negative score.<sup>(195)</sup> In comparison a maximum HRQOL score is associated with a BMI of 24.5kg/m<sup>2</sup> in women, with a BMI greater than 27 negatively impacting on women’s HRQOL.<sup>(195)</sup> The differential impact of BMI

between the genders is potentially related to various sociological influences, such as the media, where current portrayal of ideal body shapes for women and men result in women frequently trying to lose weight and men feeling pressured to increase their muscle size.<sup>(196)</sup>

In Australia, Cameron and colleagues,<sup>(197)</sup> conducted a longitudinal analysis of the data from the AusDiab study to explore the relationship between HRQOL and obesity. Their study confirmed previous findings but they also noted that low HRQOL was a predictor of weight gain.<sup>(197)</sup> Studies have also noted the influence of socio-economic determinants on HRQOL, with overweight and obese individuals in lower socio-economic categories having lower HRQOL scores than their counterparts in higher socio-economic groups.<sup>(198)</sup>

Studies into the relationship between obesity and depression have produced conflicting answers. The differing findings relate to the whether or not the relationship between obesity and depression is uni or bi-directional.

Two studies<sup>(199, 200)</sup> using the Whitehall II cohort found a unidirectional relationship between depression and anxiety with obesity. Conversely, a systematic review and meta-analysis of longitudinal studies exploring the relationship between overweight, obesity and depression did find evidence of a bi-directional relationship.<sup>(177)</sup> Analysis of data found that obesity was associated with a 55% increased risk of developing depression over time, conversely, depression was linked to a 58% increased risk of becoming obese over time.<sup>(177)</sup> A finding mirrored in another systematic review of longitudinal studies of overweight, obesity and depression.<sup>(201)</sup>

This finding of a bi-directional relationship between obesity and depression has significance for primary care. Primary care health providers need to consider the monitoring of weight in depressive patients and the monitoring of mood in obese patients.<sup>(177)</sup> Awareness of the relationship between these two significant health concerns could improve prevention and early detection, potentially reducing the health burden of each.<sup>(177)</sup>

A systematic review and meta-analysis<sup>(202)</sup> of 17 studies and 204,507 participants suggests that the association of depression and obesity is significantly influenced by gender, with the relationship between more pronounced in females. The 2006 NZ mental health survey also found overweight and obesity to be associated with mental disorder only in women,<sup>(203)</sup> as did consideration of the data from the World Mental Health Survey initiative.<sup>(204)</sup> An association also found in a

recent survey study of 3361 adults presenting in primary care.<sup>(205)</sup> A recent systematic review identified several biopsychosocial variables that increased the possibility of comorbid obesity and depression. These variables were severity of obesity, socioeconomic position, body image, psychological characteristics, physical health, interpersonal effectiveness, binge eating and experience of stigma.<sup>(206)</sup>

In summing up, the relationship between obesity and HRQOL appears complex while an obesity depression bidirectional relationship is evident in the more contemporary studies. Although significant weight loss is linked to improved HRQOL it is not clear if smaller losses are. The negative relationship between obesity category, HRQOL and depression appear to be less influential in males.

Obesity also places the individual in a position of social disadvantage due to 'sizism', leading to stigmatisation and consequent experiences of discrimination.<sup>(207)</sup> This next section considers pertinent findings from the studies in the literature review regarding the attitudes of GPs and PNs towards larger adults. This is followed by consideration of the wider literature on the topic.

### ***Social consequences of being of a significantly higher weight***

Eight studies<sup>(37, 103-105, 173, 208-210)</sup> from a range of countries including America, France, Israel, and Saudi Arabia, reported on negative attitudes or practices by GPs in relation to those of a higher weight, with UK studies by Brown et al.<sup>(211, 212)</sup> discussing findings in relation to PNs.

Hebl and colleagues<sup>(208)</sup> found respondents viewed heavier patients in a manner congruent with obese stereotypes. Overall this study pointed to a linear trend of declining quality of care associated with an increased body mass index.<sup>(208)</sup>

Huizinga et al.<sup>(173)</sup> found a link between a patient's BMI and the level of respect shown by a physician. Two hundred thirty-eight patients and forty physicians completed a questionnaire following a clinical encounter. Data analysis revealed a significant association between higher BMI and lower respect from physicians; the relationship remained after adjusting for patient age and gender.

A French study found that approximately 30% of the 600 respondents considered overweight and obese individuals to be lazier and more self-indulgent than normal weight counterpart.<sup>(105)</sup> GPs in another French study felt health professionals generally held negative views of the obese.<sup>(36)</sup>

Ferrante et al.<sup>(209)</sup> examined the practices and attitudes of family physicians regarding the care of the extremely (not further defined) obese using a self-

administered survey study design. From the 255 returned surveys (51% response rate), the study found higher levels of negative attitudes compared to other studies. Eighty percent of respondents felt extremely obese patients frequently or almost always lacked discipline, and 52% stated this patient group lacked motivation to lose weight. After adjusting for the following factors: physician age, gender, patient volume, and volume of severely obese patients, two factors were found to be independently associated with less negative attitudes: higher patient volume and being of an older age. The authors suggested that the higher level of negativity identified in this study, may be related their focus on extreme obesity. Sabiany,<sup>(210)</sup> however, reported similar levels of negative attitudes towards overweight and obesity in a survey of physicians working in primary care centres in Saudi Arabia.

Foster et al.<sup>(103)</sup> explored primary care physicians views on the attributes of obese patients by using a seven-point Likert type scale with opposing adjectives at either end, for example, neat versus sloppy. Of the 620 responding physicians, 62% considered obese people to be awkward, 53% thought them unattractive, 51% viewed them as non-compliant, and 50% considered them ugly. A later study by Epling et al.<sup>(104)</sup> that used a five-point Likert scale found that family physicians experience difficulty empathising with larger patients (Mean:1.81; SD: 0.95) and for the most part had negative reactions towards them (Mean:2.8; SD: 1.15).

Family physicians in Israel also attribute negative characteristics towards those who are obese.<sup>(37)</sup> In contrast to the Ferrante study,<sup>(209)</sup> this study found higher levels of adverse attitudes in older physicians, with them being more likely to consider this population group as lazy, compared to people of a normal weight. Overall, the studies which examined the views of GPs regarding larger adult patients suggest a level of negativity towards this patient group.

A literature review by Brown, identified negative attitudes towards obese individuals amongst a proportion of nurses<sup>(211)</sup>; however, in a later study he and colleagues found that primary care nurses approached conversations with obese patients, with sensitivity taking care to avoid stereotypes.<sup>(131)</sup> In another study Brown and colleagues<sup>(212)</sup> found that the majority (67% of 398 practice and district nurses and health visitors) disagreed with a statement suggesting that obese patients were lazier than other patients. The current sparse literature is inconsistent in regard to the attitudes of PNs towards obese individuals.

Unsurprisingly, seven of the literature reviews identified<sup>(130, 211, 213-217)</sup> consistently found the presence of negative beliefs and attitudes amongst a

proportion of primary health care professionals. The studies from the literature reviewed point to some GPs endorsing stereotypical beliefs about the characteristics of people who are obese. While it is not possible to state with the same level of confidence that PNs hold the same stereotypical beliefs, we should not be surprised if they are not impervious to the social norms that pervade society.<sup>(122)</sup>

Obesity is linked to multiple negative stereotypes including, lazy, unmotivated, incompetent, non-compliant, and indulgent.<sup>(39, 51, 218)</sup> These stereotypes generally go unchallenged driven in part by the fact that conditions perceived to be under volitional control, as well as those deemed to be derived from behavioural causes, such as obesity tend to be highly stigmatised.<sup>(219)</sup> Consequently obese people live with substantial disadvantage<sup>(39)</sup>; being obese is primarily a negative experience.<sup>(52)</sup>

The disadvantage is evident in the areas of employment, education, the media, and health care.<sup>(39, 51, 58)</sup> Two reviews of literature completed by Puhl and Brownell<sup>(51)</sup> in 2001 and then Puhl and Heuer<sup>(39)</sup> in 2009 regarding stigma and obesity, show no lessening of the stigmatisation of obese individuals in these settings. Acknowledging that obesity stigmatisation exists within multiple sectors the focus of this thesis is the health care arena and specifically primary care. The following section therefore, considers research regarding stigmatisation and discrimination of obese individuals in health care.

Weight bias is common in health care settings.<sup>(39, 51, 62, 127, 220, 221)</sup> Stereotyping of obese patients is common, making our health care institutions complicit in perpetuating negative stereotypical views.<sup>(39, 51, 62, 127, 161, 220, 221)</sup> The presence of stigmatising views impairs response efforts to prevent or treat an illness or disease as evidenced in relation to tuberculosis, mental illness and HIV/AIDS.<sup>(64)</sup>

Puhl points to the over simplistic perceptions related to the causes of obesity as contributing towards the presence and perpetuation of negative attitudes in the sector.<sup>(127, 220)</sup> Negative attitudes potentially become further entrenched by health professionals generally viewing the low rates of successful weight loss being caused by patient non-compliance.<sup>(127, 220)</sup> Negative attitudes can translate to discriminatory behaviour and discrimination can lead to adverse practices. The presence of stigmatisation in the health care arena is of concern in view of the increasing prevalence of obesity. Health care providers especially those based in primary care have unique opportunities to improve the physical, mental and social health of their obese patients. It is important that during consultations with obese patients the opportunity to have a positive impact on their health is not lost.



There is a perception that weight discrimination may incentivise those who are overweight to make a weight loss attempt. Yet the literature suggests it is more likely to result in overweight individuals engaging in obesity promoting behaviours.<sup>(222)</sup> The recent English study by Jackson et al. found significant associations between perceived weight discrimination and increases in weight and WC over a period of four years.<sup>(222)</sup>

It may not only be the health professional biases that get in the way of a productive consultation. Puhl and colleagues<sup>(223)</sup> recently assessed the perceptions of 358 members of the public towards normal-weight; overweight and obese doctors and how their perceptions of doctors in these weight categories impacted on doctor selection, trust and adherence to medical advice, via a survey. Respondents regardless of their own body weight, indicated they were less likely to follow advice given by overweight or obese doctors and more likely to mistrust them. This novel study suggests that overweight and obese providers may also be susceptible to biased attitudes from their patients. As this study was experimental, the influence of the significant relationship between the doctor and patient was overlooked. In contrast, Bleich and colleagues<sup>(224)</sup> surveyed non-pregnant patients who had visited their primary care physician within the last year and demonstrated that overweight and obese patients trust primary care physicians irrespective of their weight. Furthermore, they were more likely to trust dietary advice from an overweight physician compared to a normal weight physician. Bleich and associates suggest shared weight identity between patient and doctor may be the factor that enhances trust.<sup>(224)</sup>

To date no research has been published on whether obesity researchers and those studying obesity stigmatisation hold discriminatory views regarding obese people. A recent commentary in *The Lancet* by Flint and Reale, however, suggests they do.<sup>(225)</sup> More research is required to determine the extent of the issue as it has ethical implications.

In summing up, the studies in the review point to some primary health care professionals holding pejorative views regarding obese individuals congruent with the wider literature on the topic. Attitudes of PNs to those of a higher weight have been explored less. The consequence of these negative views was outlined in the broader literature. More recently the views of patients towards overweight and obese primary care physicians have been examined with mixed findings. It is not clear if trust is

related to all information or just weight management information. Finally, the issue of obesity stigma from obesity researchers was highlighted as an unexplored area.

The previous sections have provided an overview of findings from the studies found during the literature search related to the beliefs of GPs and PNs regarding the appropriateness of classifying obesity a disease, and the causes and consequences of obesity on an individual level. These findings were then discussed in the context of other contemporary studies which either supported the beliefs highlighted in the studies or highlighted flaws.

The next section of this thesis moves on to contemplate the findings from the identified studies around the cognitive variables of knowledge and self-efficacy regarding obesity management and how they correspond with findings in the broader literature. Subsequently, consideration of the findings regarding the views of primary health care professionals regarding who is responsible for managing obesity and its consequences will be described.

### ***Knowledge and self-efficacy regarding obesity and its management***

Several studies sought to establish the views of physicians regarding their obesity management training and how knowledgeable they considered themselves in relation to obesity management. One study assessed the knowledge of PNs. Findings were mixed.

A study by Forman-Hoffman et al.<sup>(106)</sup> reported that less than a third of the 55 responding primary care clinicians agreed they received good obesity management education in medical school or during their residency programmes. Sebianny reported similar findings.<sup>(210)</sup> Poor obesity management education was identified as a barrier to the provision of obesity counselling.<sup>(106)</sup> The generalisability of these findings is limited due to either low numbers or a low response rate.

Ferrante and colleagues found of 255 physicians respondents, 60% reported knowing a lot regarding exercise regimes to lose weight, with 57% stating the same about weight-loss diets.<sup>(209)</sup> Even higher rates were found in a study by Bleich and colleagues,<sup>(226)</sup> with 92% of 500 responding primary care physicians stating they felt competent to provide diet-related counselling, with the percent decreasing slightly to 90%, regarding the provision of exercise counselling. Similar high rates of preparedness were found in other studies.<sup>(227, 228)</sup> Numbers and or response rates within these studies were higher.

An American study of 4980 nurses with a response rate of 15.5%, found most did not understand how to differentiate between overweight and obesity, with only 26% of the 758 respondents calculating BMI. Less than 50% could name five negative health consequences of obesity. These findings suggest a gap in the obesity knowledge of some respondents.<sup>(178)</sup>

Findings are not consistent regarding obesity management knowledge, yet most emphasised a need for additional training in relation to obesity and its management within the primary care setting,<sup>(105, 106, 226)</sup> a requirement supported by other research findings.<sup>(178, 229)</sup>

Clinical guidelines are a strategy for providing clinicians with a succinct appraisal of the latest evidence. Some of the studies pointed to a low awareness of obesity guidelines,<sup>(105, 230, 231)</sup> as well as a lack of utility of some of the guidelines for primary care.<sup>(231, 232, Alexander, 2007 #99)</sup>

Awareness of obesity management guidelines was low for both GPs and PNs. Just under 7% of French GPs were aware of the presence of obesity management guidelines,<sup>(105)</sup> with the level rising to just under 50% of Scottish GPs.<sup>(230)</sup> Practice nurses in the Nolan et al.<sup>(231)</sup> study showed very limited awareness.<sup>(231)</sup>

In spite of the apparent low use of clinical guidelines several studies revealed that GPs had a good understanding of what constituted a reasonable amount of weight loss, as well as an awareness that medical benefits could be accrued from a modest reduction in weight.<sup>(36, 103, 105, 233, 234)</sup> The findings from a study by Phelan and colleagues being the only study identified that found the opposite.<sup>(235)</sup> So how do GPs accrue their knowledge considering the assorted awareness levels regarding obesity guidelines? Two survey studies questioned respondents regarding sources used to acquire obesity management knowledge. Medical journals and education sessions were reported as being popular ways of maintaining or enhancing obesity management knowledge.<sup>(105, 227)</sup>

Both GPs and PNs identified knowledge as a key enabler of effective obesity management.<sup>(236)</sup> No single agreed definition of knowledge exists however, it can be considered as “a justified belief that increases an individual’s capacity for effective action”.<sup>(237)</sup> To utilise their knowledge and skills health professionals, like patients also need a level of self-efficacy; a belief that the utilisation of their knowledge and skills will produce the desired effect.<sup>(237)</sup>

Self-efficacy levels can either augment or inhibit motivation to act. Role adequacy is another way of conceptualising self-efficacy.<sup>(231)</sup> Several of the studies

explored role adequacy of GPs in relation to the management of obesity revealing a correlation between role adequacy, training and some personal characteristics.<sup>(105, 214, 238)</sup> Professional and general practice factors were found to impact on the role adequacy of PNs.<sup>(231)</sup>

Clinician's weight and self-efficacy were shown to be linked in two studies and a literature review.<sup>(105, 214, 238)</sup> Overweight and obese clinicians reported lower levels of self-efficacy regarding the provision of lifestyle counselling. Bleich and colleagues found that overweight and obese physicians however, had higher levels of self-efficacy around prescribing weight loss medications compared to their normal weight counterparts (26% vs 18%,  $P=0.043$ ). In addition, they found that overweight or obese physicians who experienced higher quality education were more likely to consider themselves competent to provide dietary and exercise counselling, ( $P<0.001$ ) ( $P=0.002$ ) respectively.<sup>(238)</sup> Other factors positively associated with feeling effective in the field of weight management were, attendance at professional development sessions about weight problems ( $P<0.001$ ); awareness of relevant guidelines ( $P=0.02$ ); being of a normal weight ( $P=0.05$ ) and personal success in losing weight ( $P=0.01$ ).<sup>(105)</sup> Al-Ghawi and Uauy also highlighted a significant relationship between attendance at training courses on obesity management and self-efficacy.<sup>(234)</sup>

The following professional factors were found to be positively associated with role adequacy of PNs in the UK: attendance at weight management training; a belief in personal communication skills and ability to build rapport with patients. Support for taking extra time for obesity management was identified as a general practice factor positively associated with self-efficacy. Professional factors negatively associated with role adequacy were: low levels of guideline awareness; perceived lack of expertise in motivating change; lack of knowledge regarding referral options and beliefs related to their ability to impact positively on the outcome. General practice factors negatively associated with role adequacy included: perceived lack of priority for obesity management within the practice; lack of time; workload; lack of clarity regarding roles within the practice and absence of protocols for obesity management.<sup>(231)</sup>

As alluded to earlier self-efficacy or role adequacy is related to feelings of success which in the case of obesity management is frequently associated with weight loss by the patient. Several papers highlighted patient factors which may impact on the clinicians' sense of self-efficacy, with lack of patient motivation and

compliance commonly reported.<sup>(36, 105, 215, 233)</sup> A clinician's perception of a patient's level of motivation was found by Susman and colleagues<sup>(239)</sup> to predict a clinician's decision to devote time to counselling a patient about weight loss. Patients lack of nutritional knowledge was also cited as impacting on weight loss success.<sup>(105)</sup> Both GPs and PNs in a Scandinavian study considered a patient's unwillingness to change a major barrier to weight management and a successful outcome.<sup>(240)</sup> Two UK studies found that PNs felt low patient motivation and denial of the problem caused barriers to the provision of obesity management.<sup>(129, 231)</sup>

The optimal type and length of training for undergraduate doctors and nurses in relation to obesity and its prevention and management is unknown,<sup>(241)</sup> however, the identified studies pointed towards the inadequate provision of training in obesity management during medical school, with less known about undergraduate nursing training. A recent systematic review of obesity education in American medical schools supports the view that current training is inadequate,<sup>(242)</sup> with a UK study identifying three problem areas in the provision of obesity management education in medical schools. These were: varied interpretation of the General Medical Council's recommendations on the provision of obesity management education; mixed support for the inclusion of obesity management education within medical schools and difficulty in engaging some students with the topic.<sup>(243)</sup> Currently the Royal Australian College of General Practitioners is the only specialist training college to formally incorporate obesity in the postgraduate training curriculum.<sup>(241)</sup>

The studies found mixed levels of awareness of obesity management guidelines and issues with their relevance for the intended audience. Mercer drew attention to the challenge of relevance of obesity guidelines to general practice.<sup>(244)</sup> Mercer found that the National Institute for Health and Clinical Excellence (NICE) Clinical Guideline 43 on the prevention, identification, assessment and management of overweight and obesity in adults and children included very few studies derived from the UK, with only five of studies being conducted in primary care.<sup>(245)</sup> Thus impacting on its relevancy to the setting. A similar observation could be made of the 2009 NZ obesity guidelines, yet the authors state, "It is expected that this guideline will be used principally in primary care and community-based initiatives".<sup>(246)</sup> Lack of relevance of guideline recommendations is an acknowledged barrier to their implementation<sup>(247)</sup> however, localisation of obesity guidelines, and embedding them into practice procedures are recognised as useful strategies to operationalize guidelines.<sup>(236)</sup>

The literature reviewed suggested a range of factors that impact on the self-efficacy of health professionals in regard to the provision of weight management counselling. Factors included personal and general practice characteristics, as well as patient factors. The studies reviewed pointed to gaps in the quality of obesity education currently provided to undergraduate doctors and nurses. This finding was supported in the wider literature. Awareness of relevant clinical guidelines was found to be low, but health professionals appeared to acquire knowledge using other options. The lack of saliency of guidelines to the needs of their target audience was highlighted as a potential driver of the low utilisation found.

The frequently mentioned frustrations of those working with people of a higher weight may potentially impact on their views of who is responsible for managing the patient's excess weight, despite the fact that obesity is generally viewed as a chronic condition.<sup>(36, 103-106)</sup> The next section presents an overview of the discussion from studies and other temporal papers regarding divergent arguments around personal versus social responsibility.

### ***Personal versus societal responsibility for obesity***

Ogden and colleagues sought to disentangle how GPs and patients conceptualise obesity, in an effort to improve obesity management in primary care.<sup>(248)</sup> They found patients and GPs conceptualised obesity differently in terms of causes, consequences and solutions. Patients were more likely to attribute obesity to medical causes and view the GP as part of the solution. Conversely, GPs were more likely to frame obesity within a victim blaming model attributing the cause and the solution within the control of the individual. A later UK study by Epstein et al. found a mirroring of the same disagreement.<sup>(38)</sup> These differences were felt to create tension and conflict in the consulting room.<sup>(38)</sup> Findings from studies in Sweden<sup>(232, 240)</sup> and another UK study<sup>(236)</sup> support these views. Other studies found health professionals located responsibility for addressing obesity more broadly.<sup>(249, 250)</sup> These latter studies suggested governments, schools and youth organisations all had a role, as well as the individual.

In NZ the dominant philosophy remains one of personal responsibility; however Cappelen and Norheim consider that stating that people are responsible for their choices in the context of health is controversial. It assumes all individuals have the ability to exercise the same level of free will.<sup>(251)</sup> Changes in the modern food environment however, are recognised as compromising free will.<sup>(132, 252)</sup> These

forces include the promotion of palatable, but not necessarily nutritious food, and the increasing proportion of calories consumed in beverages. Thus, the modern food environment facilitates access to preferred, palatable, calorie dense foods, yet impedes personal imperatives to reduce weight by eating a nutritious low calorie meal.<sup>(132, 252)</sup> In addition, to make informed decisions individuals need access to understandable, transparent information about the food and beverages they are consuming. Yet NZ and Australian studies suggest consumers find current back of packet labelling problematic<sup>(253)</sup> a finding in line with other international studies.<sup>(254)</sup>

In some of the studies from the literature review respondents viewed weight management as a partnership activity between the health provider and the patient, not solely as an activity of personal responsibility. For example, Al-Jeheidli and colleagues found that 85% of GPs (N=200) believed they had a role to play in obesity management.<sup>(228)</sup> Similar to findings reported in other studies.<sup>(37, 234, 255)</sup> Practice nurses also consider it part of their role. Nolan et al. found that most nurses (N=22) considered weight management to be part of their role, as did Brown and colleagues.<sup>(212, 231)</sup> Conversely some GPs felt that weight management was not their responsibility.<sup>(38, 232)</sup>

To summarise, the generally differing views of health professionals and patients regarding the causes of obesity has the potential to cause tension in the consultation. While health professionals still favour the personal responsibility paradigm in relation to obesity causation, they appear to take a more partnership approach to weight management when dealing with patients in the consultation.

The concluding section of the literature related to health professionals examines the influence of the beliefs, attitudes and knowledge of GPs and PNs on clinical practices regarding weight management.

### ***Clinical practices***

If an overarching theme was to be chosen to describe the topic of obesity, complexity would be a descriptor of choice. Causality is complex, consequences are complex, impacts are multifaceted, and the debate regarding responsibility thorny. Weight management practices of primary health care professionals are no less diverse.

Initially the characteristics of primary care professionals associated with the provision of weight loss counselling are discussed, followed by consideration of findings related to when weight is discussed and why it might not be discussed.

Subsequently, descriptions of the findings related to diagnostic processes are presented. Finally, treatment strategies used to manage overweight and obesity, including: behavioural counselling, referral to another health professional or community based slimming group, pharmacological support or surgical intervention are options discussed.

### ***Characteristics of primary health care professionals associated with provision of weight loss counselling***

Certain characteristics of GPs associated with raising the issue of weight, were described in the literature. Physicians who participated in 150 minutes or more of physical activity weekly, those sixty years or older and those aware of their own BMI were all more likely to state they addressed weight issues.<sup>(235, 238)</sup> Bleich and colleagues also found if primary care physicians perceived a patient's BMI to be the same or greater than theirs, they were more likely to document the patient's BMI and initiate a weight loss discussion, 93% vs. 7%,  $P < 0.001$ ; and 89% vs 11%,  $P \leq 0.001$  respectively. In another American study, physicians who actively monitored their diets were more likely to calculate the BMI of their obese patients (42% vs. 13%,  $P < 0.05$ ).<sup>(106)</sup>

A cross-sectional survey of PNs in the UK revealed the BMI of the PN impacted on the type of advice provided.<sup>(129)</sup> Those with higher BMI were more likely to offer calorie controlled diets while those with a lower BMI were more likely to suggest eating less generally.

These findings suggest that weight management activity within a clinical consult may be connected in some way to personal characteristics, values and health behaviours of health professionals.

### ***Raising the topic***

The challenge for primary care professionals is how to inoffensively start a conversation about weight, especially with patients visiting general practice for an unrelated problem. A problem recognised in many of the studies.<sup>(208, 216, 231, 235, 238, 249, 256)</sup> In some instances health professionals delayed discussing the patient's weight until the patient was clinically obese or until they had developed a related comorbidity.<sup>(178, 238, 249, 256)</sup>

In the Hebl and Xu study only 42% of 122 physicians stated they would discuss weight loss with an obese patient, with the percentage falling to 35% for



overweight patients.<sup>(208)</sup> In contrast, of the 101 responding physicians in the Phelan et al. study 76% reported always or nearly always addressing weight with their overweight and obese patients.<sup>(235)</sup>

In Michie's study PNs were more likely to say they always raised the issue of weight with a patient who was overweight with no identified medical problem compared to their GP colleagues, 12% vs 4% respectively.<sup>(256)</sup> Advanced PNs, nurses and nurse educators in a study by Miller were less likely than those in the Michie study to address the issue weight.<sup>(178)</sup> Opportunities which legitimated raising the topic of weight during a consult, for example health checks were mentioned as enabling by PNs in a study by Nolan et al. They felt it permitted them to introduce the topic safely.<sup>(231)</sup>

In all the studies cited above the numbers are small and findings varied. Nevertheless the findings suggest reluctance amongst primary health care professionals to raise the issue of excess weight until one of three conditions are met; either the person becomes obese, they develop a related comorbidity or the consultation involves a clinical activity that validates a discussion about weight.

### ***Why the topic might not be raised***

The literature offered insight into reasons why primary health care professionals may choose not to discuss a patient's weight. Low levels of self-efficacy coupled with a lack of successful weight loss counselling experiences with patients have previously been discussed. In addition, the sensitive and personal nature of the issue and fear it may cause distress, impacting on the doctor's or nurse's relationship with their patient was a key concern highlighted.<sup>(131, 229, 256)</sup>

Brown and Thompson<sup>(131)</sup> found slim primary care nurses felt their body size intensified weight sensitivities, hindering the initiation of weight discussions. Certain strategies were utilised in relation to obesity management by this group of nurses. Avoiding the topic unless the patient raised it was one strategy; another was to build rapport by presenting information about another aspect of their own lifestyle where their behaviour did not meet health promotion criteria; an alternative tactic was to present themselves as having experience of walking the journey with a relative or friend.<sup>(131)</sup> The nurses in the study with higher BMIs also spoke of negative encounters with patients when they felt the patient was staring at their stomach. They expressed feelings of guilt regarding their ability to be good role models. They

also spoke about making a virtue of their size by being able to relate more with larger patients and being able to draw on personal experiences.<sup>(131)</sup>

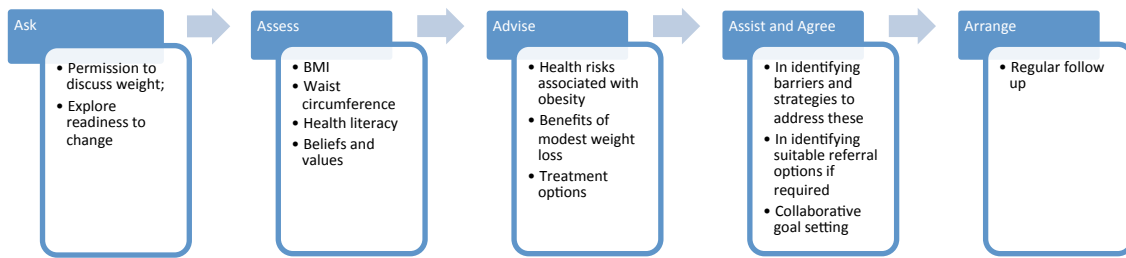
The challenges identified in the study by Brown and Thompson for nurses with a higher BMI are highly pertinent. As a group nurses have a high average BMI.<sup>(178, 257)</sup> In a cross sectional e-survey of nurses and midwives from Australia (n=3144), NZ (n=778) and the United Kingdom (n=1074), the prevalence of obesity in the NZ cohort of nurses exceeded that of the general population in NZ by 1.73%.<sup>(257)</sup> Those working in family and community care comprised 16.75% (n=721) of the cohort. The prevalence of normal weight, overweight, obese, and morbidly obese with this sub-sample was 39.81%, 32.04%, 25.10%, and 2.64% respectively. In other words, nearly 60% were overweight, obese or morbidly obese. Due to the frequency of raised BMI within the nursing community and the prevalence of overweight and obesity within the general population, it is important to look for ways to enhance weight management communication between the two groups.

Discussing weight with an overweight or obese patient appears to be a challenge for many in primary care. Data from NZ suggest roughly one in four obese adults have experienced someone talking to them or arranging for some to talk to them about their weight at their usual medical centre.<sup>(14)</sup> The NZ adult weight management guidelines<sup>(246)</sup> provide some good practice point tips in relation to communication, including the following:

- Providers should proactively develop their cultural competence to facilitate effective communication;
- Work to develop the relationship first to ensure an empathy with the cultural, social and socioeconomic circumstances of the person.

They fall short of providing practical tips on introducing the topic of weight into the conversation, a key stumbling block for many primary care health professionals.

The broader literature highlights the role of communication strategies such as the 5As approach. The various components of this approach are illustrated below in Figure 2.7.



**Figure 2.7: High level overview of the 5A's framework<sup>A</sup>**

This framework has been shown to be an effective weight management counselling approach. Implementation of the 5As obesity management tool in primary care is associated with a twofold increase in the instigation of weight management conversations by primary care providers following a ninety minute training, compared to their related activity prior to training (19 vs 39%,  $P=0.03$ ).<sup>(258)</sup> In their examination of which aspects of the 5A's patients wanted to receive during a weight loss discussion, Sherson and colleagues found that the majority valued the Assist and Arrange features of the approach. Physicians were found to be more likely to Advise and Assess, rarely Agreeing, Assisting or Arranging.<sup>(259)</sup> The brief training provided in the Rueda-Clausen study showed an increased use of the Assist components of the framework, suggesting that even brief training can enhance the use of this framework.<sup>(258)</sup> Use of the framework has also been associated with increased patient motivation to lose weight and increase weight loss.<sup>(260)</sup> Recognition of the usefulness and applicability of this framework has led to it being recommended in the recently published Australian clinical practice guidelines for the management of overweight and obesity<sup>(261, 262)</sup>.

Earlier in this chapter the meta-analysis by Rose and colleagues<sup>(77)</sup> and the study by Jackson<sup>(79)</sup> highlighted the strong association between attempts to lose weight and receipt of advice from a health professional. If health professionals were to consistently have the 'weight' conversation with their overweight and obese patients, they could make a significant contribution to population weight management as 78% of NZ adults visit their GP annually, with the percentage being only slightly lower for men.<sup>(15)</sup>

<sup>A</sup> Note the 5As of Obesity Management toolkit is available from the Canadian Obesity Network, <http://www.obesitynetwork.ca> a non-profit organization

Not until the topic of weight has been raised can health professionals assess a patient's BMI. This next section reviews strategies used to diagnose obesity mentioned in the studies and compares this with the broader literature.

### ***Strategies used to diagnose obesity***

Two studies reported GPs frequency of calculating BMI. Just over 35% of the 55 primary care physicians in the Forman-Hoffman et al. study reported always calculating BMI with 50% stating they sometimes did.<sup>(106)</sup> Bocquier reported that 73% (N=600) of GPs calculated their patient's BMI always or almost always.<sup>(105)</sup>

Use of WC as a diagnostic measurement was only examined in one of the studies. Compared to recording of BMI, WC was utilised less as a diagnostic measure. Just 18% of GPs in the Bocquier et al. study stating they measured it, always or almost always.<sup>(105)</sup>

Using the General Practice Research Database in the U.K., Booth et al.<sup>(263)</sup> conducted a cohort study of adults aged between 18-100 years, with a diagnosis of obesity between 1997 and 2007. Despite improvements in the annual recording of the BMI of obese adults in primary care, obese men remained less likely to have their BMI regularly monitored, with the gap actually widening between the two time periods. In a study using very similar methodology, Rose, et al.<sup>(264)</sup> found documentation of BMI across twelve practices was overall low. Out of a total of 79,947 patients 61% had a BMI recorded, but this ranged across the practices from 94% to 34%. Again men were less likely to have their BMI recorded. In NZ 46% of obese adults and 36% of overweight adults reported having their weight and/or height measured at their usual medical centre in the previous year.<sup>(14)</sup>

Bocquier et al.<sup>(105)</sup> also reported on the use of weight without reference to height, comparison with ideal weight and appearance as diagnostic methods. Of these appearance was the most frequently used method with 30% stating they always or almost always use this method. Appearance may possibly be used as the stimulus to initiate one of the other more evidence-based methods, however in the view of many researchers and topic specialists visual estimation of BMI is flawed<sup>(265, 266)</sup> and should not replace anthropometric measurement. The diagnostic tool used most frequently by PNs was not evident in the literature reviewed.

Two of the studies reviewed reported on completion of a more extensive patient assessment as part of weight loss counselling. Of GP respondents (n=363) to Campbell et al's. questionnaire between 83% and 94% reported that they usually

assessed the patient's weight history, and dietary and physical activity habits.<sup>(233)</sup> Sixty-two percent assessed their patient's readiness to change, with 78% assessing patient expectations.<sup>(233)</sup>

In the later study by Bocquier et al. 90% of GPs reported the following were often or always assessed as part of their weight management practices: weight history, dietary and physical activity habits, expectations and motivations.<sup>(105)</sup> In both these studies,<sup>(105, 233)</sup> the majority of those who stated they completed these activities viewed them as important.

Body-mass index is simple to measure and calculate, and taking a WC requires minimal training, making both measures easy to use in clinical practice.<sup>(246)</sup> Waist-to-hip ratio, however, requires training in specific techniques making it less practical in day-to-day general practice.<sup>(246)</sup> Despite the simplicity of measuring and calculating a person's BMI studies in the reviewed literature pointed to mixed rates of undertaking anthropometric measurements.

The recording of obesity in a patient's electronic record serves multiple purposes. It allows the practice to have a record of the prevalence of obesity within its enrolled population, thereby enabling it to see how it compares with national rates. It can empower the individual patient by raising awareness of obesity and the health risks associated with it. Data from individual practices can be aggregated to assist with regional and national health services planning and the data can be used for epidemiological research.<sup>(267, 268)</sup>

Recording an obesity diagnosis is also linked to the provision of weight related counselling. Bleich and colleagues demonstrated a statistical difference ( $P \leq 0.001$ ) in the provision of weight counselling between obese adults with a diagnosis and those without.<sup>(269)</sup> These findings are similar to the earlier findings in the Bardia study.<sup>(270)</sup> This study also found that a diagnosis of obesity was the strongest predictor of having a weight management plan documented; but older patients and men were significantly less likely to have an obesity diagnosis documented.<sup>(270)</sup>

After being diagnosed overweight or obesity, people should receive care and support tailored to their needs. Support can take the form of the provision of behavioural therapy including dietary and exercise advice alongside behavioural strategies such as goal setting; referral to other health professionals or a community based slimming group; pharmacotherapy or referral to surgery, or a combination of these. The following section considers how frequently GPs and PNs in the studies utilised these various forms of support.

## ***Types of support offered by GPs and PNs***

### ***Behavioural approaches***

The most frequent type of support offered by GPs within the papers reviewed was general low-intensity behavioural counselling, with the principal weight-loss recommendation being to engage in, and increase, physical activity.<sup>(37, 228, 233, 235)</sup>

A more structured approach to behavioural counselling for weight loss involves shared decision making regarding strategies for self-monitoring, patient-centred goal setting, problem solving, and relapse prevention. These strategies are recognised as being an effective form of lifestyle intervention.<sup>(271)</sup> In total, seven of the studies commented on one or more of these techniques.<sup>(36, 37, 105, 232-235)</sup> Overall use of behavioural approaches was low.

The study by Campbell and colleagues<sup>(233)</sup> did not assess the utilisation of behavioural approaches by GPs; however, it did assess how important GPs perceived assessment of readiness to change to be, as well as the use of the approach. Of 341 GPs one in three considered assessment of readiness of change to be important with approximately two in three stating they usually did it.<sup>(233)</sup> Readiness of change is an aspect of motivational interviewing,<sup>(272)</sup> intertwined with the delivery of behavioural change strategies.

Two of the qualitative studies considered behavioural approaches. Within the descriptive categories discussed by Hansson and colleagues,<sup>(232)</sup> mention was made of certain behavioural techniques. For example, within the theme promoting lifestyle change, the authors discussed how study participants (ten GPs and ten district nurses) considered helping patients to set realistic goals to be important. Within the same theme participants also mentioned the use of self-monitoring via food diaries and the need to problem solve with patients. Two of the eighteen nurses interviewed by Phillips et al.<sup>(273)</sup> spoke of incorporating certain tasks to enhance patient participation and motivation. These tasks related to self-monitoring of food intake and measurements such as, WC, as well as the use of smartphone apps.

Overall, the studies identified within the literature review suggest that behavioural change techniques are underutilised within general practice setting. The frequency of weight loss counselling has been shown to be declining within the context of increasing obesity prevalence.<sup>(274)</sup> Potential reasons for the decline proposed by the authors included: increasing rates of weight discrimination; competing demands on clinician time due to increasing rates of chronic illness and

administrative demands and lower clinician self-efficacy around provision of weight loss counselling due to the increasing prevalence of overweight and obesity.<sup>(274)</sup>

Hence it may be assumed that primary care health professionals would be increasingly likely to use other health professionals, such as dietitians or community based slimming groups to provide support to patients wanting to lose weight. Findings related to their use are presented next.

Six papers discussed this area<sup>(36, 105, 208, 230, 233, 275)</sup> and Hayden et al. considered it in a more contemporary literature review.<sup>(215)</sup> A multidisciplinary approach to managing obesity was strongly supported in a study of Scottish GPs.<sup>(230)</sup> Similarly, 65% of Australian GPs reported that they usually referred obese patients to other health professionals.<sup>(233)</sup> Hebl and Xu,<sup>(208)</sup> in contrast, reported lower referral rates by primary care physicians to a nutritional counsellor, a finding comparable with two French studies.<sup>(36, 105)</sup>

A qualitative study by Nolan et al. found PNs were most familiar with dietitians and local exercise on referral programmes as options but were unaware or referred rarely to other community based lifestyle programmes.<sup>(231)</sup> In a study by Brown et al.,<sup>(212)</sup> the majority of PN referrals were to local exercise on prescription schemes, followed by commercial slimming organisations, dietitian and psychological support.

In the literature review by Hayden et al. they determined that approximately 50-75% of physicians referred overweight and obese patients to a dietitian or other health professional for primary weight loss care. Referrals to weight loss programmes were slightly lower at 35-54%.<sup>(215)</sup> A more current paper<sup>(255)</sup> found that on average 48% (n=307) of Dutch GPs referred obese patients to a dietitian. Al-Jeheidli and colleagues pointed to the unavailability of dietitians or nutritionists as a common barrier to tackling obesity within primary care.<sup>(228)</sup>

Lack of dietitians is a recognised barrier for NZ primary care. The 2009 annual workforce survey found that only 9% of dietitians work in primary care.<sup>(276)</sup> Although this workforce deficiency was recognised in the 2010 NZ Ministry of Health inquiry into Obesity and Type 2 Diabetes, very little appears to have been done to address the shortage. The current number of dietitians working in the NZ primary care setting is unable to service referrals for weight management. Yet studies consistently find patients treated by dietitians in primary care lose weight,<sup>(277)</sup> with other studies identifying them as a key health professional group overweight adults wanting access to.<sup>(71, 73)</sup>

In summing up, the studies generally point to general advice being the mainstay of weight management support in general practice. The more structured techniques that form part of a behavioural change approach, and the ones most likely to assist the patient to succeed in their weight loss efforts, such as promotion of self-monitoring, goal-setting and problem solving, as well as low referral to weight management groups, appear to be generally underutilised. Furthermore, there is a lack of primary care-based dietitians to support GPs and PNs in their efforts to provide weight management support.

The next two sections consider the use of the more intensive, interventional approaches to weight loss, pharmacotherapy and bariatric surgery.

### ***Use of pharmacotherapy to treat obesity***

Generally physicians in the studies spanning the time period 2000 -2009, were sceptical about the role and usefulness of anti-obesity medication.<sup>(37, 38, 103, 209, 228, 233, 234)</sup> Two French studies<sup>(36, 105)</sup> did find higher use than the other studies. For example, the Bocquier study found 41% of the 600 GP respondents either often or always used medications for obesity management.<sup>(105)</sup> Similarly Campbell et al.<sup>(233)</sup> found a reasonable acceptance of the role of anti-obesity medication with only 31% of GPs stating medication was not useful. PN information related to the area of prescribing is understandably not available. Of the studies identified no study asked if PNs were comfortable answering patient questions regarding weight loss medications.

Pharmacological treatments for obesity are recognised as an adjunct to other weight loss approaches. The criteria for considering their use in NZ are a BMI above 30kg/m<sup>2</sup> or a BMI above 27kg/m<sup>2</sup> in association with coexisting conditions.<sup>(246)</sup> Currently in NZ the choice of weight loss medications is limited to either Xenical and Phentermine; neither are subsidised. The use of metformin as a weight loss drug is not commonplace in NZ despite the evidence that emerged from the Diabetes Prevention Programme (DPP).<sup>(278)</sup>

### ***Use of bariatric surgery to treat obesity***

Five of the studies identified within the literature review reported on the acceptance of bariatric surgery as a treatment modality.<sup>(36, 38, 103, 104, 209)</sup> In all but one, this option was reserved for exceptional cases, with the general perception being it was a high risk intervention. Even in Ferrante et al.'s study<sup>(209)</sup> regarding the



practices of family physicians in relation to extremely obese patients, 77% of respondents (N=255) stated they only infrequently or sometimes referred patients for bariatric surgery. The authors noted a lack of knowledge regarding the effectiveness and safety of bariatric surgery within this cohort of primary care physicians. They also demonstrated that a higher percentage of extremely obese patients in a practice acted as an independent predictor of lower knowledge. Findings in the Epling et al. study differed.<sup>(104)</sup> The mean score of respondents to the statement, 'If a patient meets the appropriate criteria for obesity surgery, I would recommend an evaluation by a surgeon', was 4.17 on a five-point Likert scale. Unsurprisingly, referral of patients to bariatric services was not assessed in relation to PNs but neither was their ability to discuss the option with patients.

The evidence regarding the efficacy of bariatric surgery for those in obese class II and III continues to increase. The Swedish Obese Subjects (SOS) study, a long-term prospective controlled trial has provided robust evidence regarding bariatric surgery.<sup>(279)</sup> The intervention group showed mean decreases in body weight after 2, 10, 15, and 20 years of -23%, -17%, -16%, and -18% compared to 0%, 1%, -1%, and -1% in the control group. The intervention group was also associated with a long-term reduction in overall mortality and decreased incidences of diabetes, myocardial infarction, stroke, and cancer.

In NZ there is reported to be a large unmet need for bariatric surgery.<sup>(280)</sup> In an editorial in the New Zealand Medical Journal, Flint and Kelly<sup>(280)</sup> persuasively discuss the ethics of denying morbidly obese patients the chance of surgery, likening this to denying patients with melanoma treatment because they failed to use sunscreen, or denying the COPD patient oxygen therapy because they used to smoke. They suggest the rationale for avoiding the provision of increased numbers of publically funded bariatric surgical interventions could be based on a concern that health care resources will be overwhelmed due to the prevalence of obesity and super obesity in NZ. They fittingly point out the inherent cost in doing nothing. One such cost being a maintenance or increase in obesity inequalities due to the inability of those most in need to either self-fund or fund private health insurance to cover the costs of surgery, as highlighted in the paper by Korda and colleagues.<sup>(281)</sup> More recently Booth et al.<sup>(282)</sup> have demonstrated a 7-year reduced incidence in the development of type 2 diabetes in a cohort of obese patients (2167) who had bariatric surgery compared to 2167 controls matched for age, sex, and BMI. The incidence of a diagnosis of type 2 diabetes was associated with an adjusted hazard

ratio of 0.20 (95% CI 0.13-0.30,  $P < 0.0001$ ). The effect was noted in both genders and across all ages.<sup>(282)</sup>

The Royal College of Physicians<sup>(283)</sup> pointedly drew attention to the impact of the lack of training received by health professionals in relation to the utilisation of pharmacotherapy and referral for surgical intervention. The report's authors proposed that a lack of appreciation of the medical consequences of obesity was manifested by a reluctance to use pharmacotherapy or surgery for those most at risk. The studies included in the literature review documented a disinclination to use pharmacotherapy or refer to surgery those who are significantly obese. In an attempt to address the lack of appreciation of the consequences of obesity, The Action on Obesity Report proposes as a reasonable starting point, the establishment of standardised systems of education and training across all health professional groups.<sup>(283)</sup>

Irrespective of the manner of weight loss support provided by either GPs or PNs, it is accepted good practice to discuss with the patient weight loss goals.<sup>(246)</sup> This next section presents information from the literature review regarding weight loss outcomes considered appropriate by primary care health professionals.

### ***Weight loss goals***

A variety of weight loss goals were mentioned within the identified studies, including: a small but sustained weight loss; adoption of healthy eating and physical activity habits; improvement in clinical indicators; improved body image and self-confidence; and weight loss to a normal BMI.<sup>(36, 103-105, 230, 233-235)</sup>

Many of the studies found that GPs cited a small, sustained amount of weight loss as an important goal for the prevention of obesity-related health complications.<sup>(36, 103, 104, 233, 234)</sup> This finding was not uniform. Phelan et al.<sup>(235)</sup> found primary care physicians viewed a weight loss of between 5-10% as a disappointing outcome. The findings did not vary by physician gender or body weight. The primary care physicians responding to the survey in the Foster et al. study determined an ideal, successful, and acceptable weight loss for an obese woman with type 2 diabetes to equate to a reduction in initial body weight of 31%, 20%, or 14% respectively.<sup>(103)</sup> These weight loss goals align with those of obese patients enrolled in a behavioural weight loss programme in a managed care organisation who identified a weight loss of 31% of initial body weight as a dream weight loss goal and a weight loss of 10% as disappointing.<sup>(284)</sup> Men possibly have less unrealistic weight

loss expectations than women.<sup>(285)</sup> Linne and colleagues found that of the women and men attending an academic obesity unit and taking part in a diet, exercise, and behavioural programme, women wanted to lose 42% of their initial body weight and men 29%.<sup>(285)</sup>

Adoption of healthy eating and physical activity habits, irrespective of weight loss, was considered to be a very important outcome by GPs in four studies.<sup>(36, 105, 230, 234)</sup> In three of the studies improvements in clinical indicators, such as blood pressure and lipid profile, were considered to be important outcomes of a weight management intervention.<sup>(36, 105, 230)</sup>

Only the two French studies commented on improved body image and self-confidence as an outcome of a weight management intervention. In the Bocquier et al. study,<sup>(105)</sup> this was assigned a mean value of 5; SD: 0.89, on a six-point Likert scale by responding GPs. Only one in three GPs in the other French study considered it a very important outcome.<sup>(36)</sup>

The final outcome discussed was weight loss to a normal BMI. Only 26% of respondents in the study by Thuan and colleagues<sup>(36)</sup> considered this to be very important; however 64% of their peers in the other French study set severe weight loss goals (weight loss to normal BMI).<sup>(105)</sup>

Some studies in the literature review assessed various behavioural, physical clinical and psychological goals of weight loss interventions. The importance of emphasising the impact of a small weight loss is consistent with multiple weight loss guidelines.<sup>(21, 246, 261, 286)</sup> Similarly guidelines highlight that weight loss can promote improvements in clinical indicators. Only the two studies set in France paid any attention to the significance of improved quality of life as a weight loss goal via enhanced body image and self-confidence. This lack of focus on this domain appears to be evident in the guidelines sourced, with only the Australian guideline highlighting the benefits of even small weight losses on quality of life, self-esteem and depression.<sup>(261)</sup> Next the appropriateness and acceptability of practice environments for larger adults is discussed.

### ***Suitability of the practice environment***

It is important that people feel comfortable when visiting their general practice. Findings were mixed in relation to how well general practice caters for larger adults. Ferrante et al. found that 97% of family physicians in their survey (n=255) had extra-large blood pressure cuffs and 62% provided armless chairs in their waiting rooms.

Less than half (42%) had scales able to cater for clients over 160kgs, with even fewer (32%) having large examination tables.<sup>(209)</sup> The impact of the patient's BMI on the length of the consultation was infrequently explored in the studies identified by the literature review. Hebl and Xu found that physicians reported spending less time with heavier patients,<sup>(208)</sup> while PNs in a study by Hoppe and Ogden who ran weight loss clinics reported spending longer on their consultations than PNs who were not involved in weight loss clinics.<sup>(129)</sup> Hebl and Xu point out that less time provides less time for patient-provider interaction and possibly poorer quality care.<sup>(208)</sup> The AHEAD study found an inverse relationship between receipt of influenza vaccination and higher BMI in elderly men and women, possibly contributing to an increase in adverse health outcomes.<sup>(287)</sup> Conversely, Yancy and colleagues found that for overweight and obese patients in the Veterans Affairs health care system the odds of receiving a vaccination increased linearly with BMI category; for men: OR=1.13 for overweight to OR=1.42 for obese class 3.<sup>(288)</sup> Overall, this study found that obese patients received preventive services at a higher rate than their normal weight counterparts. In a study by Chang and colleagues, similar findings were obtained, with obese and overweight patients not found to be in receipt of inferior care.<sup>(289)</sup>

The geography of the clinic room has been used metaphorically to represent the quality of the therapeutic relationship between patient and health professional. Moore notes that the physical limitations of the doctor's office are emblematic of the relationship between patient and doctor.<sup>(290)</sup> It is important that waiting areas are welcoming to people of all sizes, with armless chairs provided and magazines provided that do not support body shame.<sup>(291)</sup> High capacity scales and examination beds capable of supporting those of a higher weight are tools of the trade that should be available in each practice in view of the increasing prevalence of overweight and obesity.<sup>(291)</sup> Consultation times and how the patient's BMI influenced these was not well explored in the studies identified in the literature search. Studies in the more general literature provide mixed findings in relation to the quality of care provided to overweight and obese adults.

The studies that comprised the health professional section of the literature review, inferred that certain personal variables, values and health behaviours of health professionals may influence whether or not they address weight management. Furthermore, raising the topic of a patient's weight and the need for weight loss was generally considered challenging by most primary care professionals. The literature provided an insight into the various barriers present within the setting of primary care

in regards to discussing weight and weight loss. These included: low levels of self-efficacy, perhaps driven by poor undergraduate obesity education and infrequent experiences of successfully supporting a patient to lose weight; the sensitive and personal nature of the issue, coupled with the fear it may negatively impact on the relationship between the health professional and the patient; tensions between health professionals and patients regarding the causes of and responsibility for managing excess weight and finally the BMI of the health professional. The support offered to those seeking guidance with weight loss appears to be generally low level, generic information, however this could be due to studies infrequently asking questions regarding the more structured aspects of behavioural management approaches. Studies found pharmacotherapy and surgical intervention were generally not favoured by GPs. The ability of general practices to appropriately accommodate larger adults appears variable and information regarding consult times was generally sparse.

The final section of part one of the literature view, discusses the strengths and limitations of the studies highlighted by the literature review strategy, followed by a discussion of the gaps within the literature in relation to the study question.

### ***Quality of the studies included in the literature review***

The review of the literature resulted in 31 quantitative, 10 qualitative, 2 mixed methods, and 8 reviews being identified as pertinent to the health professional component of the research question. By and large, the studies of the beliefs, attitudes, knowledge and practices of GPs and PNs in relation to obesity were small. Either the sample started as small or response rates were low, however results were replicated across studies suggesting findings were robust.

Information on PNs is especially lacking and this is a key gap. In many countries, including NZ PNs provide preventive health care in the general practice setting making it important we understand their views, knowledge and practices in relation to obesity.

Many of the studies only looked at a specific component of the research question in relation to health professionals, although the studies by Bocquier et al.<sup>(105)</sup> and Thuan et al.<sup>(36)</sup> were more comprehensive. Generally the information on the beliefs of primary care professionals regarding the causes and consequences of obesity, especially societal causes, was incomplete; as was the information on the use of behavioural weight management strategies, recognised as being a key

component of a weight loss intervention. Furthermore, the prioritisation of obesity prevention and management within the general practice setting and the ability of the general practice to cater for larger bodied adults was not well explored.

Overall the literature in this area is incomplete; therefore, this study will enhance the current understanding of the beliefs, attitudes, knowledge and practices of primary care professionals in relation to obesity. More specifically, it will fill a data vacuum in relation management of overweight and obesity in NZ primary care.

As previously stated the study question is comprised of two parts. This next section looks at the literature related to large men and their experience of primary care. This is particularly pertinent due to incidence and prevalence of male obesity in NZ.<sup>(3)</sup>

## **Part Three**

### **Introduction**

This section of the chapter commences with an overview of the process and outcome of the literature search in relation to obese men's experiences of primary care. The sections immediately following consider, the meaning of men's health, as well as, the influences of sex and gender on men's health generally. These aspects were considered pertinent to the research question.

### **Literature review**

The intent of the literature review was to identify papers which examined the primary care experiences of overweight and obese men, thereby clarifying the breadth and depth of relevant research. The search strategy is available at Appendix B1. In addition it was anticipated the literature would assist in the development of an interview schedule for face-to-face interviews with larger men.

The search strategy was applied to a variety of online databases, including: Ovid, ProQuest, CINAHL, PSYCHINFO, and PubMed. The timeframe for the literature search were 1995 to the present. Three papers were identified relating the primary care experiences and perceptions of care of obese women; no similar studies related to men were identified. Reference lists of all retrieved articles were appraised. Google Scholar was again used as an additional search engine and specifically employed to search for relevant thesis; three were identified.<sup>(41, 292, 293)</sup>

No studies that examined the experiences of large men in primary care were identified using any of the online search engines or Google Scholar. Essentially, this area appears to be a data vacuum. Studies exploring the experiences of larger women accessing general practice were found and are summarised next.

### **Experiences of overweight and obese women in general practice**

Several studies revealed an association between increasing BMI in women and a delay in seeking health care,<sup>(220, 294)</sup> an avoidance of health care services,<sup>(295, 296)</sup> dissatisfaction with the medical consult,<sup>(297)</sup> or less frequent receipt of preventive health services.<sup>(298)</sup> Findings from these earlier studies were recently replicated in a small NZ study.<sup>(299)</sup> The NZ study found obese women lacked trust in the health system, with many speaking of a lack of respect from primary care providers, as well as a level of disappointment that weight bias was present within the consultation.

The women also admitted delaying or avoiding personal examinations, such as cervical smears and breast examinations, congruent with international study findings.<sup>(296, 300)</sup> As cited earlier, the study by Østbye did report on obese men within their cohorts and found they were less likely to receive the influenza vaccination compared to their normal weight counterparts.<sup>(298)</sup>

Due to the evidence gap in relation to the primary care experience of larger men, literature related to and thought to influence the primary care consultation was sought. This literature was reviewed in an effort to assist with the process understanding the experiences of large NZ men in primary care; thereby supporting the development of an interview schedule. The readings undertaken focused on men and body image and dissatisfaction; men and engagement in healthy eating and physical activity; men and weight loss behaviours; men's lived experiences of being overweight; motivators and barriers to men's engagement with weight loss; communication styles men value and finally emergent weight loss programmes for men.

Prior to discussing the findings from the broader research outlined above, an overview of what is meant by men's health; a profile of men's health in NZ and who the drivers of men's health are in NZ is discussed. Following this section, attention is given to the role of biology and gender on men's health as these, especially the later, is of considerable importance in relation to the health related behaviours of men.

### ***Men's health: what is it and its place within New Zealand health policy?***

Unlike the term, "women's health", the phrase, "men's health", has only recently been added to the list of MeSH (medical subject heading) terms used for indexing articles from biomedical journals and for the MEDLINE and PubMed databases.<sup>(301)</sup> Seventeen years in total separate the introduction of the two terms. So what is men's health? Various definitions exist regarding the umbrella term. The UK's Men's Health Forum uses the following definition:

*A male health issue is one arising from physiological, psychological, social or environmental factors which have a specific impact on boys or men and/or where particular interventions are required for boys or men in order to achieve improvements in health and well-being at either the individual or the population level.*<sup>(302)</sup>

The following definition is used by the New South Wales Department of Health in their 2009-2012 Men's Health Plan:



*Any issue, condition or determinant that affects the quality of life of men for which different responses are required in order for men and boys to experience optimal social, emotion and physical health.*<sup>(303)</sup>

These definitions are undoubtedly broad and some may consider them vague, however they signal a move away from the purely biological focus of previous concepts of men's health which has limited notions of both men's and women's health in the past.<sup>(304)</sup> The definitions above point to a recognition that men's health practices and outcomes are derived from an interrelationship between biological factors, risk taking behaviours and masculinity.<sup>(305)</sup> Moreover, these definitions are permissive, allowing for the participation of various disciplines within the health sector, as well as involvement of agencies outside of health to work together to improve the health of boys and men.<sup>(302)</sup>

Despite a reversal in educational achievement with females now outperforming males in NZ<sup>(306)</sup> and positive trends in relation to rates of pay, on average men's full-time earnings remain 14% higher than females.<sup>(307)</sup> Additionally, a greater percentage of men are in paid employment, 78% compared with 67% of women<sup>(308)</sup> and men are more likely to hold senior positions in the NZ workforce.<sup>(309)</sup> Regardless of their continued, albeit diminished, position of social advantage, men in NZ, like those in other Westernised countries, experience not only lower life expectancy but a greater likelihood of suffering a severe chronic condition.<sup>(15, 310)</sup> Men are also more likely to participate in many of the adverse lifestyle behaviours that predispose them to diagnosable disease.<sup>(15, 311)</sup> Within group differences in men's health also exist with ethnicity, socio-economic deprivation and sexual orientation driving inequalities.<sup>(312)</sup> Irrespective of their poorer health status, the 2011/2012 NZ Health Survey found men just as likely as women to report being in good health. Māori and Pacific men were the least likely, 83% and 85% respectively, to report being in good health compared to 90% of NZ European males, with the percentage for Asian men being slightly higher, 92%.<sup>(15)</sup>

Unlike Ireland and Australia, NZ has no dedicated men's health policy or agency devoted to issues related to men. Women in comparison have the Ministry of Women's Affairs which was established as a separate department in March 1985, nearly thirty years ago.<sup>(313, 314)</sup> Furthermore policy makers and regional health services in NZ have frequently focused on women's health issues and service requirement to the exclusion of men.<sup>(314)</sup> Most of the activities that seek to improve

the health of men have tended to be localised or linked to the work of specific non-government agencies and have been ad hoc in nature.

At a local level the most significant NZ initiative related to men's health was undertaken by North Health in the late 1990s. The initiative, built on the strong foundations of a review of the literature, followed by a community engagement process, never made headway. This was possibly due to the completion of the consultation process coinciding with an extensive restructure of the health service.<sup>(28)</sup>

Non-government agencies currently drive the majority of initiatives focused on men's health in NZ. The Cancer Society and the Mental Health Foundation, in conjunction with Movember, for example, developed the online resource Get the Tools.<sup>(315)</sup> Other organisations such as the Men's Health Trust NZ, the Canterbury Men's Centre and Mana Tāne Ora O Aotearoa, also focus on promoting men's health.

So what can explain the poorer health status of men? The literature proposes mechanisms which may assist in explaining differences between the health of males and females.<sup>(28, 316)</sup> These processes include: the biological/genetic differences between men and women; gendered differences; social and ethnicity differences; how men seek to maintain health and access health services and how health professionals care for men. The significance of each of these is currently uncertain.<sup>(28)</sup> What is known is that the evidence base in relation to men's health is limited, especially in relation to their preventive health care practices.<sup>(305)</sup>

Within both the scientific literature and the popular press the words sex and gender are frequently used interchangeably. Linguists contend they are distinct constructs, one being biological and the other social.<sup>(317)</sup> An individual's biological and physiological characteristics are denoted by the term sex, whereas a person's gender conveys behaviours, roles and societal expectations. In other words, people are born male or female but learn to be men and women. In the lives of individuals these two constructs coexist simultaneously and not in a vacuum<sup>(317)</sup> and although they may have mitigating or compounding influences on each other, for ease of discussion they will be considered separately in the following sections.

### ***Biological/genetic difference***

Research points to biological differences contributing to a greater risk of death for males right from conception.<sup>(318)</sup> The increased vulnerability of males continues after birth with cot death more common in male babies.<sup>(319)</sup> Furthermore, male

longevity has been shown to be negatively influenced by differences in immune and hormonal functioning,<sup>(28, 310)</sup> with testosterone and other hormonal influences seen as driving particular negative behaviours in men.<sup>(305)</sup> In addition, men are more vulnerable to certain diseases such as heart disease and colorectal cancer due to hereditary factors.<sup>(310)</sup> Overall, the power of biological factors to explain different morbidity and mortality profiles between men and women is thought to be small,<sup>(310)</sup> with social norms impacting on males from birth.<sup>(318)</sup> So while this thesis is set within the context of health science, it was felt appropriate to reflect briefly on the role of men as gendered beings contained within the sociological research.

### ***Impact of gender on men's health***

Simply put, gender explains the different expectations society has of the behaviour of males and females. These expectations are recognised as varying between cultures and over time.<sup>(310)</sup> Gender, therefore is neither a static concept, nor an intrinsic characteristic but something a person does amidst social traditions and structures such as schools, sports clubs and workplaces.<sup>(310, 320)</sup> Furthermore, gender behaviour is mediated by ethnicity, social class, age, and sexual orientation.<sup>(320, 321)</sup> Gender is acknowledged as having a substantial influence on health behaviours which in turn are recognised as being central to explaining differences in health status and life expectancy between men and women.<sup>(310)</sup>

Men's gender or masculinity plays a central role in the health of men, with many of the health outcomes experienced by men resulting from the dominant social norm of what it is to be a man within a particular society, at a particular time.<sup>(310)</sup> In 2000 the WHO acknowledged masculinity as a primary causative factor in the health differential between men and women.<sup>(322)</sup> The Australian sociologist, R. W. Connell has been instrumental in progressing the understanding of masculinity. Connell developed a framework to conceptualise contemporary masculinities and this is outlined in Table 2.4.<sup>(320)</sup>

**Table 2.4: A framework of contemporary masculinities<sup>(320)</sup>**

<b>Masculinity</b>	<b>Descriptor</b>
Hegemonic	Hegemonic masculinity is the dominant, idealised form of masculinity and is embodied in the following characteristic: heterosexuality, high socio-economic status, whiteness, self-reliance, robustness, toughness, restricted emotionality, a rejection of weakness and vulnerability. While hegemonic masculinity may not be the norm, it is certainly normative.
Subordinated	In understanding hegemonic masculinity it follows that other expressions of masculinity must be subordinate to this principal form. Gay masculinity is the most obvious example of a subordinate masculinity.
Marginalised	Marginalised masculinity relates to males who are unable to gain access into hegemonic masculinity because of certain characteristics like race, however, they can still subscribe to the norms of hegemony like physical strength and endurance, for example, Black athletes.
Complicity	Few men in society meet the norms of hegemonic masculinity; however, many may receive the benefits without enacting a strong version of hegemonic behaviour and are therefore regarded as sharing a complicit masculinity.

In NZ the particular form of masculinity that has developed hegemonic status is that of the rugged, practical bloke who can fix anything. He is muscled, and wiry; not effeminate, weedy, and studious; a doer, not a thinker.<sup>(323)</sup> Although his social life is within the homosocial world of the pub and sports club, he is heterosexual and therefore, a proper man.<sup>(324)</sup> These dominant characteristics of what it means to be a man in NZ are inextricably linked to the pioneering past of the country.<sup>(323)</sup>

Moving from a generic NZ view to an indigenous and Pacific focus on masculinity Brendon Hokowhitu states, “that no forms of Māori masculinity are more authentic than others”,<sup>(325)</sup> but he acknowledges that there exists an inseparable physicality linked to what society epitomises as a Māori man: the Māori sportsman, manual labourer, and the violent criminal. The concept of masculinity is more complex within Pacific Island cultures. Living within many of the Pacific cultures are men described as gender liminal, for example, the fa'afafine of Samoan culture, Tongan fakaleiti, or Tuvaluan pinapinaaine.<sup>(326)</sup> Consideration of the influence of each type of masculinity on men’s health and specifically obesity, is beyond the scope of this thesis

A significant body of research reveals that men who endorse the traditional norms of masculinity are less likely to engage in health promoting behaviours and are more likely to participant in health damaging behaviours.<sup>(310, 327, 328)</sup> Yet modern masculinities are altering, especially within urban environments,<sup>(310)</sup> so it is important

to remember that males are not a homogenous group.<sup>(320)</sup> Masculine characteristics such as strength and self-reliance, can have a positive as well as a destructive influence on men's health.<sup>(329)</sup> For example, the characteristic of self-reliance has been shown to promote awareness of health, motivation to maintain good health and a belief in the role of self in maintaining health.<sup>(310)</sup>

To conclude this section, it appears that men's health in present day NZ does not receive the same attention as that of women's health. Our genderising of male children, with the dominance of hegemonic masculinity, appears to be linked to significant negative effects on their overall health status and longevity, compared to biological determinants. The following sections consider men's body image, their engagement in healthy eating behaviours and physical activity, as well as, their involvement with weight loss.

### ***Men and body image***

The term 'body image' combines the concepts of body perception (the extent to which a person has an accurate perception of their body size, shape and weight) and body satisfaction (the level of satisfaction a person has with their body size, shape and weight). Negative feelings about one's body image can influence well-being and self-esteem.<sup>(330)</sup> Most empirical research in this area relates to the experiences of females.<sup>(331)</sup> With males being inundated with images in the media of superheroes, sports stars, action-men and body builders it is hardly surprising that recent research suggests that males are approaching parity with females in terms of body dissatisfaction.<sup>(331)</sup>

In contrast to female body dissatisfaction, male body dissatisfaction is bidirectional with some men feeling their bodies are too small.<sup>(331)</sup> Men's body image perception is also multidimensional, in that men not only consider the size of their body but also its composition, muscularity versus adiposity.<sup>(331)</sup> In a study of 80 Scottish men of low socioeconomic status, the mean BMI at which the sample reported satisfaction with their weight and shape fell within the overweight range, with men of normal weight mostly stating they would like to be larger.<sup>(332)</sup>

A study by Lemon and colleagues examining the relationship between weight perception and weight loss attempts found that compared to normal weight women, normal weight men were more likely to perceive themselves to be underweight.<sup>(333)</sup> Moreover, of the men categorised as obese 25% of those with a BMI  $\geq 40\text{kg/m}^2$  considered themselves to be underweight or just right.<sup>(333)</sup> This finding is not unique,

with multiple studies across various nationalities finding overweight and obese men unfailingly underestimate their size.<sup>(334-337)</sup>

Differences in self-esteem, in part influenced by socio-cultural influences and expectations are thought to contribute to weight perceptions. Sociocultural differences were noted as a key driver of weight misperceptions among overweight and obese men in a recent American study.<sup>(338)</sup> Nearly 36% of Mexican Americans, compared to approximately 23% of white Americans misjudged their weight. Sociocultural influences on weight misperceptions are also acknowledged in NZ.<sup>(167)</sup> Lewis and colleagues noted certain characteristics that appeared to enhance weight misperception. Men with decreased arm fat, those who were overweight or had a WC of <94cms were more likely to have a misperception regarding their body size.<sup>(338)</sup>

For men “bigness” has a positive association creating tension with societal expectations.<sup>(334)</sup> “Bigness”, however, relates to muscularity which is intertwined with hegemonic masculinity which places value on having a physical presence and taking up space.<sup>(24, 339)</sup> Leit and colleagues<sup>(340)</sup> showed how male centrefolds in Playgirl had gained 12kgs of muscle and lost 5kgs of body fat between 1973-1997. Men are being increasingly exposed to hypermuscular males in the mass media.<sup>(341)</sup> Contrary, fatness is generally viewed as emasculating and feminising by most men.<sup>(24)</sup> Again intra-gender exceptions exist, with men who belong to the black hip hop culture seeing fatness as hypermasculine and fatness being eroticised in the gay ‘bear’ community.<sup>(339)</sup>

Despite the literature exploring the issue of body dissatisfaction in men being limited, consideration of it in association with the weight perception literature highlights a key question in relation to this study. How do you engage men who are happy with their weight and body size but who are frequently in the overweight, if not obese category, with a weight loss programme? Indeed, the recent study by Yoong and colleagues found that male general practice patients were statistically significantly less likely to intend to lose weight compared to their female counterparts.<sup>(73)</sup> This issue is particularly relevant to NZ with men more likely to be overweight than women: 40.7% v 29.4%.<sup>(19)</sup> To answer the question regarding how to engage men in weight loss interventions, it is necessary to understand their relationship with food and physical activity and their experiences with dieting.

## ***Men's engagement in activity related to healthy eating and physical activity***

In NZ between gender differences exist in relation to the consumption of a healthy diet. Men are less likely, than females (59.3% compared to 72.2%) to eat three plus vegetable servings a day.<sup>(342)</sup> With intra-gender differences also noted in the study, driven by age, ethnicity and socio-economic status.<sup>(342)</sup> Overall the picture is very similar in regard to the recommended consumption of fruit servings.<sup>(15)</sup> The lower consumption of fruit and vegetables by men is not unique to NZ. In a study across twenty-three countries men were consistently less likely to report selecting foods low in fat or sodium or to eat fruit and fibre.<sup>(343)</sup> The next section presents possible explanations for the generally poorer quality of men's diet compared to females.<sup>(310)</sup>

Food choice is a complex human behaviour with multiple interacting intrinsic and extrinsic influences. Trying to distinguish key drivers of choice is difficult.<sup>(344)</sup> In regard to men, there has been little research exploring their food experiences and their understanding of the relationship between food, health and weight.<sup>(345)</sup> A qualitative study by Gough and Conner,<sup>(345)</sup> comprising 24 in-depth interviews with men of varying ages and socio-economic backgrounds identified two principal barriers to healthy eating: a rejection of healthy food based on perceptions of blandness and inability to satisfy, as well as a suspicion about government health messages. Melanson<sup>(346)</sup> proposes a more expansive list of barriers to healthy eating for men including: constraints associated with time and money; the genderising of food, nutrition and cooking and a belief that exercise is enough for health maintenance. Some of these themes, and others such as enjoyment of unhealthy food and tiredness were cited in the Riverina Men's study which examined barriers to healthy eating and regular physical activity for rural men.<sup>(347)</sup>

Eating behaviours have a strong socio-cultural association.<sup>(348)</sup> Consumption of meat, hearty portion sizes and alcohol have consistently been associated with masculinity.<sup>(344)</sup> Meat with its connection to strength and virility is especially associated with men. Furthermore, the traditional masculine ethos which values independent decision-making over compliance to authority, abundance and satisfaction over insufficiency and self-denial, may affect food choices made by men.<sup>(345)</sup>

Men, as noted earlier in this review, are not a homogenous group, and Jury and Flett found a positive association between men with higher incomes and

consumption of a diet higher in fruit and vegetables.<sup>(349)</sup> This finding mirrors those of the NZ Adult Nutrition Survey and the NZ Health Survey.<sup>(15, 342)</sup>

Overcoming barriers to healthy eating for men is crucial, to decrease lifestyle related morbidity and mortality in men. Researchers have suggested that a lack of nutrition and health messages targeting men as a key gap.<sup>(343, 349, 350)</sup> Men also find it difficult to connect with images used in health promotion campaigns.<sup>(351)</sup> This inequity in gendered information can support the belief that nutrition is a female domain or activity.<sup>(352)</sup> Equally, it could be argued it alleviates men of the burden of having to think about or act on information.<sup>(352)</sup> Research suggests that if health promotion messages are to resonate with men, they need to be pithy and use language appropriate for men. For example, there may be avoidance of the word 'health' which can be viewed as a female activity.<sup>(353)</sup>

Physical activity is generally more acceptable to men than restrictive eating and NZ males are no exception. Men in NZ are more likely to meet physical activity recommendations, across all age groups, than women.<sup>(15)</sup> Again intra-gender differences exist, with Asian males being less likely than Māori, Pacifica, and NZ European males to meet these recommendations.<sup>(15)</sup> In addition, males living in the most deprived areas are less likely to meet the recommendations than those in more affluent areas.<sup>(15)</sup>

Men frequently associate the cause of their obesity with physical inactivity<sup>(354)</sup>; although the role of physical activity on weight loss is modest and regarded as secondary to energy restriction.<sup>(152)</sup> This may explain their preference for modifying their physical activity levels as opposed to restraining their eating as a weight loss strategy. Furthermore, men speak of 'getting fit' and 'athletic' and not 'thinner' and 'smaller'.<sup>(354)</sup>

Decreases in physical activity levels are commonly associated by men with social transitions in life. Social transitions, such as leaving the parental home, first full-time job, marriage, and starting a family,<sup>(355, 356)</sup> are all viewed as impacting on opportunities to participate in physical activity<sup>(355)</sup> and are therefore linked to weight gain by men.<sup>(357)</sup> Watson found that men considered many social transitions as times of closure and dislocation from one's body image.<sup>(358)</sup> For example, marriage was considered as a time for 'settling down' or 'letting go' of one's body.

Men's eating behaviours and preference for physical activity have been outlined above. Yet it is acknowledged that weight loss is driven by alteration of the



type and volume of food consumed, so with increasing social pressure on men regarding their appearance, do men diet?

### ***Men's involvement with weight loss***

Multiple barriers exist in relation to engaging men in weight loss programmes. Pre-occupation with weight and weight loss is viewed by men as a 'women's thing', with the concept of managing your weight through dieting as inappropriate.<sup>(334, 339, 358)</sup> Lewis and colleagues identified that the male characteristics of self-reliance and the need for autonomy as barriers to men seeking help to lose weight.<sup>(354)</sup> Male interviewees in this study felt that asking for help would make them appear 'helpless' and 'weak' and possibly signal to others that they had 'failed', 'given up', or 'not tried hard enough'.<sup>(354)</sup> Most participants in this study wanted to 'go it alone' and felt that 'self-discipline', 'will-power', 'effort', and 'hard work' would ensure they were successful.<sup>(354)</sup> Men in the study also identified four barriers to making lifestyle changes: lack of support from family members and friends; lack of time to engage in activities due to work demands and family commitments; affordability of living a healthy lifestyle; and weight-based stigma which those who were severely obese in the study, identified as impeding their ability to exercise in public spaces. Correspondingly, Gast and Peak<sup>(359)</sup> also found lack of time was a frequently mentioned barrier, as did Morgan et al.<sup>(360)</sup> and Wirth and colleagues.<sup>(361)</sup> A third of the men in the Lewis et al. study<sup>(354)</sup> considered themselves the most significant barrier to making positive changes to their lifestyle. Indeed, Egger found a common strategy by men was not acknowledging they had a health problem.<sup>(362)</sup> In relation to intra-personal barriers, Morgan and colleagues<sup>(360)</sup> found men identified the following: lack of understanding about the relationship between energy balance and weight change, a lack of insight into why previous weight loss attempts failed, lack of self-discipline, and a tendency to blame external factors for weight gain. Wirth and colleagues<sup>(361)</sup> found that not being told to lose weight by a physician contributed to a lack of concern about weight loss. It appears that deciding to engage in weight loss is a complex decision for men involving consideration of their cultural identity, intra-personal factors, elements in their social environment, as well as experiences of obesity stigma.

Recently men are coming under increasing pressure to reshape their bodies<sup>(24)</sup> but the literature related to what motivates men to decide to lose weight is limited and not uniform.<sup>(74)</sup> Some studies found that men decided to lose weight

because of what they consider legitimate reasons, for example health concerns.<sup>(26, 348, 360, 361, 363, 364)</sup> Contrary, a focus group study by Egger and Mowbray found men cited wanting to lose weight to feel better as their motivator and did not mention health.<sup>(365)</sup> Sabinsky et al. found these two rational for engaging in weight loss strategies to be linked to age, with younger men seeking to lose weight to appear more attractive, whereas increased longevity and improved well-being were the motivators for older males.<sup>(364)</sup> These findings were generally mirrored by Hankey and colleagues,<sup>(366)</sup> however, improved fitness was the motivator for the youngest age group of men in their study. This differed from the goal of those who were morbidly obese in the study. They did not perceive improving physical fitness to be important, with the authors proposing this could have been because they perceived it as unattainable. Overall, these studies point to men having varied reasons for losing weight which appear to be related to age and what they feel is attainable.

How men comprehend their body has been suggested by some sociologists to influence engagement in health enhancing behaviours. Watson's seminal study based at a well man's clinic identified four types of male embodiment as outlined in Table 2.5.<sup>(367)</sup>

**Table 2.5: Watson's framework of male embodiment<sup>(367)</sup>**

<b>Normative embodiment</b>	<b>Normal, standard or idealised body shape</b>
Pragmatic embodiment	The body is regarded as a means of performing and completing tasks in order to fulfil specific roles required in the social world such as father, husband, employee
Experiential embodiment	How the body experiences emotions and physicality. This form of comprehension of their bodies is generally avoided by men as emotions are gendered as female, code for weakness
Visceral/physiological embodiment	Relates to the biological processes of the body which are usually unconsciously experienced and that support bodily function

The men in the study generally focused on pragmatic embodiment, in other words, was their body fit for purpose, whereas the health professionals focused on visceral/physiological embodiment.<sup>(367)</sup> This disconnect between how men and health professionals view the male body in relation to health and health behaviours may act as a barrier to engaging men in health promoting activities, such as weight loss.<sup>(367)</sup> Later research by Robertson questioned Watson's focus on pragmatic

embodiment, suggesting that the four modes of embodiment interact with each other, thereby influencing the health practices of men and consequently their health outcomes.<sup>(368)</sup>

In summarising the sections above it appears that men, by and large are less likely to consume the recommended number of fruit and vegetables daily, compared to women but are more likely to meet physical activity recommendations. While they are less likely than women to perceive themselves as overweight or obese, their body image is complicated due to tensions between muscularity and its relationship with masculinity and medically assigned healthy weight parameters. Furthermore, they engage less in weight loss efforts, possibly due to their perception that weight loss is a female activity. The following section considers men's experiences with being overweight, including stigma.

### ***Men's lived experiences of being overweight***

Our understanding of the lived experiences of larger men is far from complete. A qualitative study by Lewis et al.<sup>(354)</sup> involving 36 men, with a mean BMI of 37.1 kg/m<sup>2</sup> and a range of 30-60.7kg/m<sup>2</sup> found that the majority of men blamed themselves for their weight gain; with weight gain generating feelings of embarrassment, disappointment and disgust. In comparison, a study by Richardson<sup>(369)</sup> found that some men felt responsibility for their health was predetermined by factors, such as genetics.

In a qualitative study of nine large men with a mean BMI of 33.16kg/m<sup>2</sup> and a range of 30.6-42.2kg/m<sup>2(293)</sup> the overriding theme to emerge was one of struggling for well-being. This overarching theme comprised four sub-themes: being limited; being over-sized; being content yet desiring weight loss and being seen as obese. The first sub-category related to limitations in many areas of life, including recreational choices and daily routine activities. Being oversized related to experiences when purchasing clothes or furniture or challenges related to health care equipment, such as blood pressure cuffs or undersized patient clothing. The men in this study did not consider themselves to be obese hence the third theme, however they also described wanting to be like everybody else. The final category relates to the experience of being perceived as obese. The experiences portrayed were not all negative, with the men describing positive encounters with health professionals. The men, however did express a sense of invisibility as an individual, instead being seen primarily as obese.

Negative stereotypes of obese individuals are pervasive in industrialised nations,<sup>(39)</sup> with fatness usually discredited<sup>(370)</sup> and fat bodies considered to have failed in their duty to be fit, healthy, independent and strong citizens within neoliberal societies.<sup>(371)</sup> The relationship between obesity stereotypes and gender is not clear, with mixed research findings.

Participants in a study by Hebl and Turchin<sup>(221)</sup> allocated similar and different descriptors to images of larger men and women. They considered images of both larger men and women to be, “less happy in relationships, less popular and less successful. The images of larger females were also labelled as less appealing than smaller sized women, with the images of larger men categorised as less accomplished, less professional and less intelligent, compared to slimmer men. A study by Fikkan and Rothblum<sup>(372)</sup> determined that fat women experienced significant weight-based discrimination in multiple settings when compared to thinner women and men, whether fat or thin.

Findings indicate that men do experience weight stigma, however they tend to experience stigma at a higher BMI than women: BMI 35kg/m<sup>2</sup> or above as compared to BMI 27kg/m<sup>2</sup> in women.<sup>(373)</sup> Negative life experiences related to weight stigma may be less of a motivator for men in the overweight or obese 1 category to commence a weight loss programme. This coupled with their lower perception of their real body weight may further lessen the chances they will seek support to lose weight. These factors point to the need for effective communication with men regarding their weight on a one on one basis and in relation to health promotion messages. The following section considers the role of language when communicating with large men.

### ***Communicating with large men***

The literature provides some guidance regarding the terms larger people prefer, as well as the communication style men value when talking with their GP. Patients generally rate the word “weight” as the most desirable word for practitioners to use when discussing their size.<sup>(374-376)</sup> Whereas, BMI was the term preferred in a study of student dieticians, doctors, and nurses.<sup>(377)</sup> Other terms considered acceptable by large patients are: BMI, unhealthy body weight, unhealthy BMI, weight problem and excess weight.<sup>(374, 375)</sup> Undesirable terms include: excess fat, large size, obesity and heaviness, with the term fatness being the most undesirable descriptor.<sup>(374, 375)</sup> In both the study by Dutton et al. and Volger and colleagues, the

majority of the participants were female, 89.5% and 80% respectively. Volger et al.<sup>(375)</sup> did analyse results by gender and found there was no significant difference between men and women. Furthermore, an analysis based on BMI also found that those with a BMI of  $\geq 40\text{kg/m}^2$  did not differ significantly regarding preferred terms to those with a lower BMI. Other studies have found alternative perceptions to commonly used phrases in relation to weight.

In a study by Thomas and colleagues,<sup>(378)</sup> participants (n=76; 83% female) spoke of hating or disliking the word obesity, stating they would rather be called fat or overweight. In addition, a study by Gray and colleagues,<sup>(379)</sup> which examined men's motivations in joining a weight loss intervention, found being diagnosed as obese was a motivating factor. One participant said, "It's a bad word, especially if it fits". The use of the term obese was also endorsed as motivating by younger participants in another study by Gray and colleagues.<sup>(380)</sup> Participants in their mid- to late-30s sanctioning the use of the term by health professionals, with opinion divided amongst older participants. Men in this study, while acknowledging that terms like fat were hurtful also felt that the use of such language was perhaps more motivating than using a term like overweight.<sup>(380)</sup>

These alternative findings suggest that perhaps it is not merely a case of using the least offensive term but also being aware how responses to the terms may vary by gender, readiness to change and possibly age.<sup>(380)</sup> In addition, there appears to be a discrepancy between terms people consider acceptable and those viewed as motivating.<sup>(380)</sup> Gray and colleagues point out that the apparent preference of some men for more aggressive terms links with their preferred communication style which is generally, direct and decisive.<sup>(380)</sup> The section below considers the qualities men value when communicating with GPs.

It has been established that female patients appreciate a patient-centred approach and gender congruence with their practitioner,<sup>(381)</sup> yet little is known about male preferences.<sup>(382)</sup> A qualitative study by Smith and colleagues<sup>(382)</sup> sought to describe the qualities and styles of communication men prefer. They interviewed 36 men and the thematic analysis of the interview data revealed five core themes relating to qualities participants valued when consulting with a GP. These were: adoption of a frank approach; demonstrable competence; thoughtful use of humour; empathy; and the prompt resolution of health issues.<sup>(382)</sup> These core themes may also impact on the delivery style men would prefer in a weight loss intervention. The next section considers findings from emergent weight loss programmes specifically

for men. While these do not relate to weight loss interventions in primary care per se, it is important those working in primary care understand the generic preferences of men when discussing referral options for weight loss with men.

### ***Emergent weight loss programmes for men***

Despite progress over the last thirty years in the development of behavioural weight control strategies, study participants have predominantly been women.<sup>(25)</sup> In the ten years between 1999 and 2009, of the 95,207 participants in 244 behavioural weight control studies, 73% were women.<sup>(25)</sup> While there is little evidence to suggest that men and women should adopt different weight loss strategies,<sup>(383)</sup> there is a requirement to develop a better understanding of what men want from a weight loss programme in terms of content, structure and delivery mechanisms.

In 2012, Young et al.<sup>(384)</sup> conducted a systematic review and meta-analysis to investigate the effectiveness of male only weight loss and weight loss maintenance programmes and to identify characteristics associated with effectiveness. Twenty-four articles, describing twenty-three studies were included. The study interventions varied in treatment approach, duration, method of delivery and frequency of contact, with a common weakness being limited follow up. Overall, study quality was poor but the meta-analysis of randomised controlled trials of weight loss, with true control groups revealed a significant difference in weight change favouring weight loss interventions over the no intervention controls, -5.66kgs (95% CI: -6.35, -4.97)  $P < 0.00001$ . Characteristics that emerged as being linked to effectiveness included: some prescribed energy restriction within the dietary intervention; group face to face contact, being of a younger age ( $\leq 42.8$  yrs) and three or more contacts per month on average.

In 2014 an integrated report involving systematic reviews of the quantitative, qualitative and economic evidence base for the management of obesity in men was published.<sup>(26)</sup> This comprehensive report identified the following features as important in relation to effective weight loss interventions for men.

- The inclusion of a physical activity component;
- The use of reducing diet as well as exercise was found to be more effective;
- Programmes that included behaviour change approaches such as self-monitoring, goal setting, provision of feedback and review of goals, were more successful in relation to weight loss and weight loss maintenance;

- Group interventions were found to facilitate peer support amongst men with similar health issues;
- Evidence concerning men only versus mixed-sex groups was varied, however, male only groups may enhance the effectiveness of the intervention for some men;
- Sporting venues, such as those used in the Football Fans In Training (FFIT),<sup>(385)</sup> were recognised as instrumental in engaging men in weight loss programmes.<sup>(26, 386)</sup>;
- Workplaces or sporting venues are preferred by men, over health care settings.<sup>(26)</sup>.

The review was unable to determine the benefits of using an internet based programme for men and the influence of support from partners was inconsistent.<sup>(26)</sup>

The findings from these reviews are similar to those of a recently published systematic review and meta-synthesis of qualitative studies regarding the accessibility and acceptability of self-management support interventions for men with long term conditions.<sup>(387)</sup> This is perhaps unsurprising as weight management programmes are essentially a form of self-management support and obesity a long term condition.

Galdas and colleagues found four facilitators that appeared to enhance men's engagement with self-management support interventions. Men needed to feel that the intervention had a clear purpose. Interventions that involved some element of physical activity, provided opportunities to learn new information, in a factual way or were action orientated appeared to appeal to men's preference for problem-focused coping. Interventions needed to be provided in trusted environments such as those used by the Football Fans in Training programme. Interaction with peers, 'those in the same boat' was considered to normalise the experience. Finally, the opportunity of developing a level of expertise and gain practical strategies to integrate into daily life was also deemed to be vital in optimising the participation of men.<sup>(387)</sup>

No studies were identified which specifically evaluated the cost-effectiveness of weight reduction interventions in an overweight and obese male population exclusively.<sup>(26)</sup> Five studies were identified where a sub-group analysis of male participants in weight-loss interventions for male and female participants was undertaken. Considering the findings from these sub-group analyses, Robertson and colleagues<sup>(26)</sup> suggest that lifestyle interventions which contain, low fat calorie-

reducing dietary advice and physical activity are likely to be cost-effective. They point out, however that the current evidence has serious limitations and clear conclusions regarding the cost-effectiveness of weight loss interventions specifically for male overweight and obese men cannot be made.<sup>(26)</sup>

In summary, it appears that for men successful weight loss programmes comprise of the following components: a high degree of personalisation; some prescribed energy restriction within the dietary intervention; a physical activity component; group face to face contact, that may be more effective if the group is male only and located within a community venue, such as a workplace or sport setting; a behaviour change component, and greater frequency of contact.<sup>(26, 384, 388)</sup>

### ***Overall chapter summary***

This chapter has visited a wide range of literature related to the study question. The chapter commenced with a consideration of the ideology underpinning the nature of beliefs, attitudes and consequent behaviours, as well as providing an overview of the construction of stigma. This was followed by information which sought to position the place of general practice in weight management. Next the chapter provided an overview of the studies related to the health provider component of the question. These findings were discussed in the context of the broader associated literature. While no studies were identified which specifically examined the primary care experiences of large men, studies which considered the primary care experiences of large women were highlighted. Lastly, information was presented on aspects of men's lives that were judged as being likely to influence their primary care encounters.

The next chapter of this thesis describes the methodology chosen for the study and the underlying methods used. It also provides a perspective on the researcher, facilitating an understanding of the researcher's background and her relationship to the research topic.



## **Chapter 3: Methodology and methods**

### ***Introduction***

The previous chapter provided an overview of the complex issues surrounding the development of obesity and its consequences, as well as considering the beliefs, attitudes, knowledge and practices of primary care health professionals who interact with those who live with obesity. Furthermore, it drew attention to the lack of research about obese men's experiences in primary care, as well as the lack of NZ primary care obesity research. This research study, therefore, seeks to fill an identified research gap. To gain a comprehensive understanding of the research question, it was judged appropriate to collect the views of both primary care health professionals and large men, using a mixed methods methodology as the theoretical approach.

The substantive focus of this chapter is to describe the methodological approach underpinning the research, the rationale for its use and the methods used to conduct the study. Prior to addressing these aspects, the chapter opens with an overview of the researcher's professional experience and a brief outline of her personal engagement with the topic. This is followed by consideration of her ontological and epistemological stance.

### ***Background of the researcher***

Training as a nurse in the 1980s, I was predominantly exposed to biomedical, reductionist concepts regarding health and illness. Qualifying in 1984, I spent the next ten years working in a regional burns unit. During this time the role of the socioeconomic determinants on a person's health and wellbeing became evident to me. As the charge nurse on the paediatric ward, it was clear that nearly all the children admitted came from disadvantaged homes. Completing a health promotion paper provided me with my first formal learning experience regarding the SE&CDs of health and theories of behaviour change. Equipped with new knowledge but no understanding of how to utilise it to make a difference for the children in my care, I had a change of direction and started work in cardiac rehabilitation.

The impact of socioeconomic determinants on health was not quite as stark in cardiac rehabilitation but I became increasingly aware of inequalities in care delivery. In the 1990s, women were less likely to be referred to cardiac rehabilitation and more likely to receive sub-optimal pharmaceutical management and intervention. My years

spent working in cardiac rehabilitation stimulated multiple areas of interest, including heart health; chronic disease management; behaviour change, men's health and service delivery. These have stayed with me and influenced my career trajectory in NZ.

My first role in NZ was working at the National Heart Foundation (NHF) as their National Cardiac Rehabilitation manager. During this time I completed a post-graduate diploma in public health, augmenting my personal health care knowledge and experiences and expanding my health promotion knowledge. I also completed my first national research study while working at the NHF and published my first paper, starting my relationship with health services research. Although my role at the NHF focused on enhancing secondary prevention and treatment, my understanding of the role of primary care in relation to both personal and population health expanded. The mid 2000s saw a change of direction and I started work in primary care management. During this time I completed a Master's of Primary Health Care. The topic for that thesis brought together areas that I regard myself to be knowledgeable in, as well as passionate about, heart disease, primary care and health inequalities.

My career progression has seen me move from a secondary care treatment focus to a primary care prevention focus. From working with those who had experienced a cardiac event, to exploring how those at high risk of a cardiac event could be better managed in primary care, to now focusing on a single risk factor for heart disease, obesity. A common thread throughout my career and in my research has always been the issue of inequality. My decision to focus on obesity for this thesis was in no small way influenced by my interest in inequality as those who live with obesity appear to be disadvantaged by their body size across a number of domains.

As stated at the start of this section I am a nurse trained in the 1980s and consequently many of my assumptions about obesity and the obese are grounded in the biomedical model of my training. I admit that for many years I subscribed solely to the view that obesity was the result of too many calories in and too few out, with the responsibility for this imbalance resting with the individual. Since my arrival in NZ I no longer look at obesity solely through a biomedical lens. I now recognise the influence of the obesogenic environment and culture on a person's body size. Furthermore, I accept that the scientific understanding surrounding body weight is

hampered by multiple scientific uncertainties, complexities and inconsistencies. As a result I have embraced a more comprehensive model of obesity causation.

Furthermore, my engagement with the topic of obesity also has a personal aspect. My life has seemed a constant struggle to avoid a diagnosis of obesity. Therefore I have an appreciation regarding how wearisome it can be for those burdened with excess weight trying to control their weight day in and day out and how challenging it can be in the current obesogenic environment.

My decision to focus on large NZ men opposed to women was driven by a variety of factors including: my interest in men's health; the fact that men are underrepresented in weight loss studies<sup>(25)</sup>; NZ men are getting fatter, faster than men elsewhere<sup>(3)</sup>; as well as the lack of information on large men's weight management experiences in primary care. These last three factors all suggested to me that at the very least research inequalities were present, and at worst there is a lack of interest in providing large men with appropriate health services and support mechanisms.

The section above outlines the tacit views I bring to this research study, as well as the professional experiences that have brought me to this point. Next I outline my thoughts on the place of ontology and epistemology in guiding my research design.

### ***Ontological and Epistemological position of the researcher***

When I started this research journey my concern was trying to determine the best way to generate the knowledge needed to answer the question and decide which procedures would best enable that. Some questions are undoubtedly better suited to one research approach over the other, however I personally do not subscribe to the 'incompatibility thesis'.<sup>(389)</sup> This states that the two research paradigms (quantitative and qualitative) should remain totally separate.<sup>(389)</sup> The 'compatibility thesis counters this view point and is grounded in pragmatic philosophy.<sup>(390)</sup> The relationship between pragmatism and mixed methods research is discussed next.

### ***Pragmatism and mixed methods research***

Pragmatists consider the world to be experiential, comprising different elements and layers, some are objective, some subjective and others a mixture of both.<sup>(391)</sup> Hence pragmatists accept singular and multiple realities making it

understandable that philosophically pragmatism is commonly considered the partner of mixed methods research.<sup>(391)</sup> The approach allows the generation of a more holistic understanding of complex issues,<sup>(392)</sup> yet is also noted for its utility.<sup>(391)</sup> The link between pragmatism and a mixed methods approach was highlighted by Teddlie and Tashakkori:<sup>(393)</sup>

1. Pragmatism rejects the incompatibility thesis and supports both quantitative and qualitative approaches in the same study;
2. The research question is of primary importance, subsuming the methods chosen or the paradigm that might underlie that method;
3. Pragmatism also rejects the 'forced choice' between post positivism and constructivism, instead embracing both points of view;
4. Decisions about the use of methods (mixed, quantitative or qualitative) are dependent on the current research question and the developing research project;
5. Pragmatism rejects the emphasis on metaphysical concepts ('truth', 'reality') that have previously driven much of the debate;
6. Pragmatism is practical and applied.

In summary, the researcher views the research question as of primary importance and endorses a 'what works' philosophy in relation to research methodology and the subsequent methods.

Having considered pragmatism as the philosophical framework that underpins mixed methods research, the following section provides a brief overview of the mixed methods research approach. This is followed by a reflection of the advantages and disadvantages associated with this method.

### ***Mixed methods research***

As a distinct research entity, mixed methods research has only come to prominence in the latter half of the twentieth century<sup>(394)</sup> with the emergence of the 'compatibility thesis'.<sup>(389)</sup> The 'compatibility thesis' argued that not only should quantitative and qualitative methods be combined but that this approach ought to be encouraged.

Mixed method theorists have determined rationale for undertaking a mixed methods study. These are:

- Triangulation: looking for convergence or corroboration by using different methods;
- Complementarity: using results from one method to elaborate or clarify results from another method;
- Development: using results from one method to develop or inform the other method;
- Initiation: using different methods to look for contradictions or new perspectives on results or questions;
- Expansion: using different methods for different components of a study to extend the range of inquiry;
- Diversity - to obtain opposing viewpoints of the same experiences or associations.<sup>(395, 396)</sup>

Over the years mixed methods research has been known by a variety of names and assigned multiple definitions. Recently, Johnson et al.<sup>(392)</sup> examined criteria nineteen leading researchers in the field of mixed methods viewed as important considerations in defining this research approach. As a result of this process they developed a generic definition of the methodology which states:

*Mixed methods research is the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration.*

Other defining features of the mixed method approach are:

1. A research design that clearly specifies the sequencing and priority allocated to the quantitative and qualitative elements of data collection and analysis;
2. An explicit account of the manner in which the quantitative and qualitative aspects of the research related to each other, with heightened emphasis on the manner in which triangulation is used;
3. Pragmatism as the philosophy underpinning the research.<sup>(394)</sup>

Inference is also a significant component of mixed methods research.<sup>(397)</sup>

Research inferences are interpretations and conclusions based on the data collected, yet they are distinct from the data. The term inference can denote both a process

and an outcome. In regard to the former, making an inference is the product of a cognitive process comprising a series of steps to create meaning from the data. As an outcome it is the end result of the inference process, a meaning/conclusion/an understanding.<sup>(397)</sup> Teddlie and Tashakkori also suggest the use of the term inference quality as the mixed methods equivalent of internal validity (quantitative term) and or the trustworthiness (qualitative term) of a study.<sup>(397)</sup> Inference quality relates to the extent to which the interpretations and conclusions made based on the data are valid, rigorous, credible and acceptable.

As a research approach mixed methods are associated with several advantages and challenges. Many of the advantages are encapsulated within the rationale for the approach but a significant advantage is the appropriateness of the method for answering particularly complex health services research questions.<sup>(398)</sup> As a research approach however, several challenges are associated with the methodology as outlined in Table 3.1.

**Table 3.1: Challenges associated with mixed methods research<sup>(399-401)</sup>**

<b>Challenges</b>
Time consuming and expensive
Difficult to find a researcher with experience in both quantitative and qualitative research
Researcher has to learn multiple methods and is able to combine them intelligently
A mixed method study can be difficult for a single researcher to undertake especially when the two designs are best used concurrently
Methodological purists continue to contend that a researcher should work within either a quantitative or qualitative paradigm
How best to integrated findings is still uncertain and the extent of integration within mixed methods studies remains limited

As discussed above the literature determines certain elements as being key to the conduct of a mixed methods study, including: having a rationale for utilising the approach; utilisation of both quantitative and qualitative research methods; the ability to describe the emphasis afforded to each component in answering the research question; the relative sequencing of the two approaches (concurrent or sequential); how and when the two approaches are combined (during data collection, data analysis, data interpretation) and the clear use of inference. These elements of the methodological approach for this study are outlined in the next section.

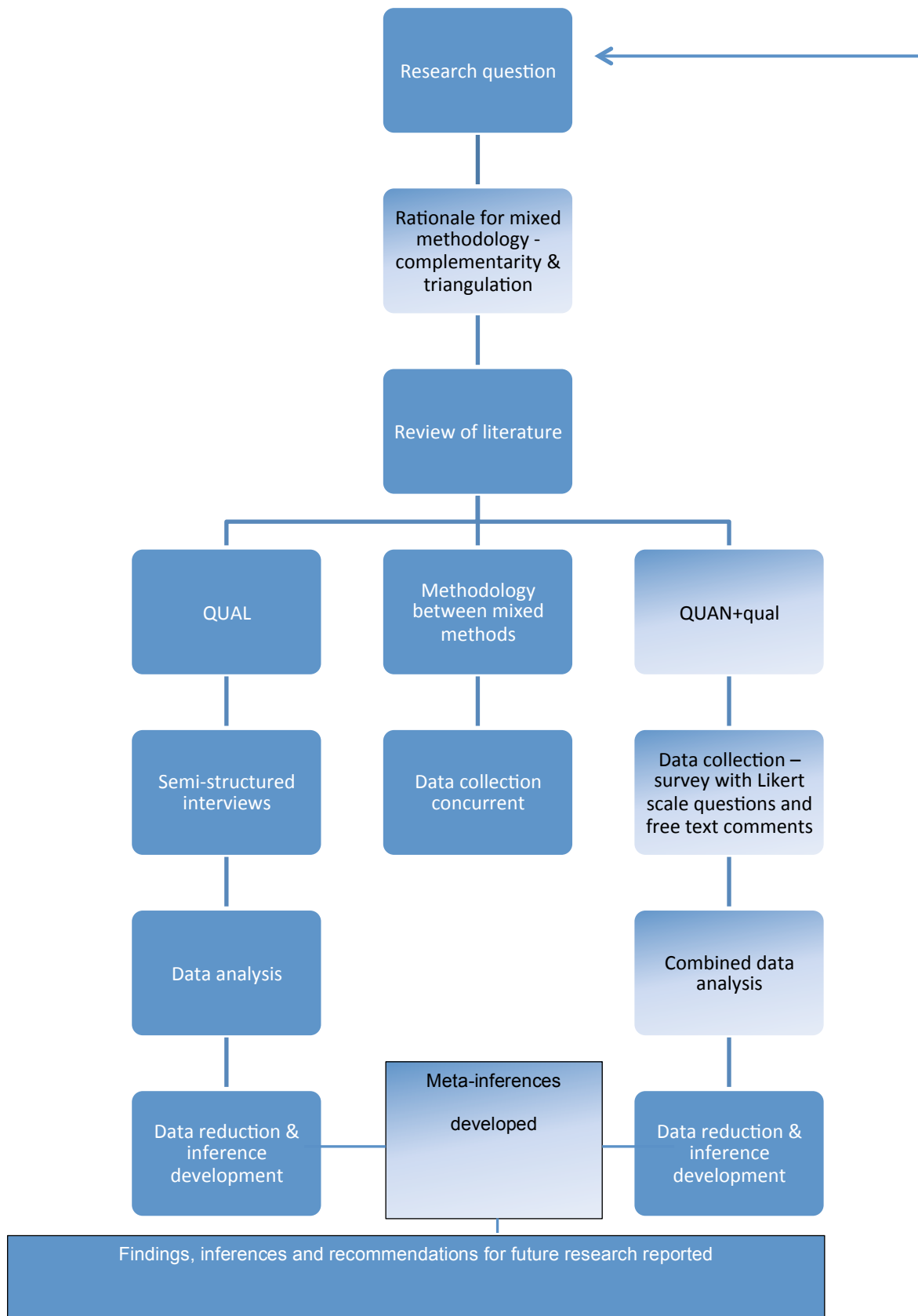
## ***Mixed methods and the design of this study***

The relationship between the research question and the study design chosen is a fundamental consideration in pragmatic mixed methods research. Pragmatism supports the use of a 'best fit' tactic when considering the most appropriate research approach to answer the question, rather than framing questions to fit with certain epistemological viewpoints. The next section outlines the rationale behind the choice of mixed methods for this piece of health services research.

Within the introduction to this thesis the aim of this study, to assess the beliefs, attitudes, knowledge and practices of general practitioners and practice nurses regarding obesity and specifically obese men and how these factors impact the primary care experience of obese men, was highlighted. The objectives underpinning the aim were also documented and include:

1. To assess the attitudes, beliefs, knowledge and practices of NZ GPs and PNs in relation to obesity;
2. To understand and describe the primary health care experiences of obese males in NZ;
3. To compare men's understanding of their obesity with that of general practice health professionals;
4. To develop an understanding of the impact of obesity on men's lives.

These objectives require different approaches, assessing, comparing, developing, locating and appraising to achieve the study aim. A mixed method approach was considered appropriate as it allowed the use of different methods to address the varying study objectives. Complementarity forms another rationale for using mixed methods, enabling the researcher to use the results from one method to elaborate or clarify results from another.<sup>(395)</sup> This was considered advantageous to this study as potentially it would provide a more holistic understanding of the question. Another reason for using a mixed method approach was triangulation. Triangulation of findings across the two methods and the literature review would assist in identifying similar findings and so support validation. Furthermore, obesity is a complex issue and how health services address the problem effectively is equally difficult. Employment of a mixed methods methodology is acknowledged as being particularly suitable for addressing complex health services research.<sup>(398)</sup> A model of the research process and approaches used in this study are presented in Figure 3.1.



**Figure 3.1: Concept map of mixed methods research process for this study**

Figure 3.1 demonstrates the mixed methods nature of this study and highlights key aspects associated with the conduct of mixed methods research. As integration



is a key component within mixed methods research times of integration are denoted in Figure 3.1 by shaded boxes.

The study was designed in the manner illustrated in Figure 3.1 to capture the information required to meet the study objectives. The survey enabled the collection of information predominantly related to objective one but it also contributed towards objectives two and three. The interviews with large men supported the collation of information related to objectives, two, three and four. Ultimately this study was undertaken to assess weight management within NZ primary care and how it impacts on large Kiwi men. As such, it aimed to produce a report that would have relevance for those working in the sector, their respective colleges and training institutions. Furthermore, the study could potentially highlight knowledge gaps requiring further research.

This chapter opened with an overview of the professional and personal experiences of the researcher and their role in the engagement of the researcher with the research topic. The philosophical stance of the researcher, pragmatism, was shown to be suitably aligned with the research methodology chosen to answer the study question. An explicit account of the research design and the relationship between the quantitative and qualitative components of the study was provided. The use of the different methods (literature review, surveys and interviews) demonstrate an intent to thoroughly investigate the study question and provide a holistic understanding of weight management in primary care and how it impacts on larger men.

The next section of this chapter discusses the ethical considerations associated with this study. This is followed by detailed overview of the methods or techniques employed to collect the data and analyse it. Both the theory underpinning the research strategy, the methods employed and the application of these methods within this study are discussed.

### ***Ethical considerations***

For those employing a mixed methods approach the ethical considerations are no different from those of other researchers except, in mixed methods research the context and demands of both research approaches must be considered.<sup>(402)</sup> For this study data was collected using both surveys and interviews. The ethical considerations of each are now considered.

While survey research is the same as all research involving humans in that it needs to meet a range of ethical obligations, such as voluntary participation and confidentiality,<sup>(403)</sup> postal survey research generally poses fewer ethical dilemmas. It is easy for potential participants to decline to participate and a covering letter or information sheet can identify the sponsors of the survey, its intent, how the person was selected and assurances regarding confidentiality. This enables the potential respondent to easily make a judgement as to whether or not they wish to participate. Confidentiality is usually the main concern in relation to survey research, especially when the survey includes sensitive questions.<sup>(404)</sup> Preservation of participant confidentiality is therefore critical. Access to respondent information should be limited to research personnel only.<sup>(404)</sup> True anonymity in postal surveys is challenging because the researcher generally needs to know the name and address of potential respondents to enable follow up of non-responders. There is little in the literature regarding the ethical implications of multiple reminders to non-responders,<sup>(403)</sup> however some ethics committees are becoming concerned that multiple reminders may be deemed harassment, thereby jeopardising the ethical requirement that survey participation is voluntary.<sup>(403)</sup>

In relation to this study no formal consent form was mailed out with the survey. Instead, potential participants were provided with a detailed information sheet to assist them in making an informed decision regarding participation (see Appendices D1 and D2). Non-responders received only one follow up mail out with a modified information sheet (see Appendices E1 and E2).

Greater ethical complexity is associated with in-depth interviews. While qualitative research is not generally associated with interventions that impact directly on participants, involvement in qualitative research can be associated with negative consequences.<sup>(405)</sup> Allmark and colleagues' literature review of the ethical issues related to in-depth interviews<sup>(406)</sup> highlighted several areas of concern. The issues of privacy and confidentiality were identified in numerous of the reviewed studies. The potential for interviews to probe areas that the participant may not have anticipated and would rather remained private was another consequence noted. True confidentiality can be challenging to maintain when writing up findings and although many may not be able to identify the individual, their peers who took part in the interview may be able to. Harm was another frequently mentioned issue as interviews are regularly used to explore difficult topics and as a result the interview can be emotionally intense with the potential to harm both interviewee and

interviewer. Another widely noted concern was the potential for the researcher to take on a dual role, that of researcher and therapist. Finally power was recognised as a significant issue, with the researcher holding most power in relation to the direction of the interview and at a later stage over the use of quotes and their interpretation.<sup>(405, 406)</sup>

In this study, all interviewees were provided with an information sheet, contact details of the researcher's supervisors, time to consider their participation in the study and an opportunity to ask further questions prior to the interview. In addition, their right not to answer any questions was reinforced prior to the interview.

### ***Ethical approval***

In accordance with the ethical requirements for national studies application was made to the Multi Region Ethics Committee. Ethical approval was granted on 20 March 2012 (see Appendix F).

### ***Research methods and their application to this study***

The following section provides a description of the data collection and data analysis methods used for both the quantitative and qualitative components used in this study. For clarity, an explanation of and justification for the research design, data collection method and data analysis approach for each component will be described separately. Following the theoretical consideration of each element, their actual application within this study is explained. Consideration of the strengths and limitations of each approach will also be provided.

### ***The quantitative strand of this mixed methods study***

#### ***Research approach***

This component of the study employed a random cross-sectional descriptive study design. Bryman describes cross-sectional design as involving the collection of data on more than one case, at a single point of time, with the purpose being to collect a body of quantitative data in connection with two or more variables. The data collected is then examined to detect patterns of association.<sup>(407)</sup> Hence, a cross-sectional design is appropriate if the focus of the research question is to describe factors associated with a topic of interest such as, demographics, behaviours, attitudes, experiences, practices or knowledge. The aim of a descriptive study is to provide a profile of what is happening within the population of interest at a point in

time in relation to the topic of interest. In the case of this study the objectives of the quantitative component were to be able to describe the frequency and distribution of the beliefs and attitudes of NZ GPs and PNs in relation to obesity, as well as their weight management practices and their obesity related knowledge.

In some instances cross-sectional studies may include some analytical work, for example comparing the distribution of a belief between two health professional groups. Careful consideration is required to ensure variables of interest to the research question are included within the survey. As an approach for generating evidence cross-sectional research is associated with some strengths and weaknesses as outlined in Table 3.2.

**Table 3.2: Advantages and disadvantages of cross-sectional research design**<sup>(408, 409)</sup>

<b>Advantages</b>	<b>Disadvantages</b>
Relatively inexpensive and takes little time to conduct	Only a snap shot in time: inferences are therefore limited as the results may differ if collected at a different time point
Can estimate prevalence of outcomes of interest because sample is usually taken from the whole population of interest	Susceptible to non-response. This can be a particular problem when the characteristics of the non-responders differ from responders making generalisability & therefore external validity a potential issue
Allows researchers to look at numerous factors at once	Associations identified may be difficult to interpret
There is no loss to follow up	Potential respondent burden depending on data collection form used

Surveys are frequently used within cross-sectional studies to collect information.<sup>(408)</sup> This next section gives an overview of the research method chosen, a postal survey highlighting key aspects of survey design.

### ***Survey methods***

Survey is the generic term used when the purpose of the design is to collect identical data from every case in the study.<sup>(410)</sup> Utilising a survey strategy provides researchers with a range of methods for data collection, including postal questionnaires, face to face interviews and telephone interviews.<sup>(411)</sup> All are associated with advantages and disadvantages.<sup>(411)</sup>

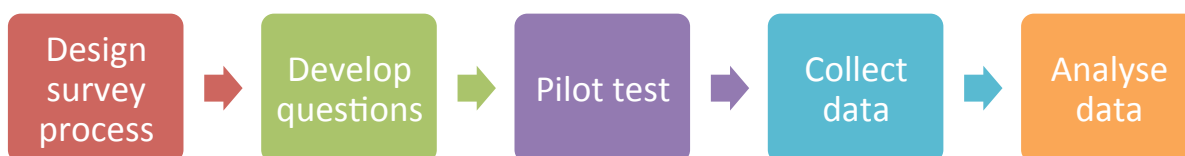
**Table 3.3: Advantages and disadvantages of various data collection options used in a survey research approach<sup>(411)</sup>**

Method	Advantages	Disadvantages
Postal surveys	Can reach a large group over a wide area Can provide an economical option	Response rate is usually low Requires a large sample due to low response rate and to ensure respondents reflect the demographics of the survey population and to provide a data set large enough for analysis
Face to face interviews	Response rate is usually higher than postal surveys Researcher can be more selective of respondents	More costly and time consuming than postal surveys
Telephone interviews	Quicker and cheaper than face to interviewing Usually results in a higher response rate than postal surveys	Frequently attract a higher refusal to participate rate than fact to face interviews

The research method chosen for the quantitative component of this study was a postal survey. Postal surveys remain the most effective option when surveying general practitioners and health professionals generally.<sup>(412, 413)</sup> Furthermore, when seeking to gain a national snapshot of the population of interest, they are a good option.<sup>(411)</sup>

### ***Designing a survey***

Survey design, development and implementation can be broken down into a five-step process, as illustrated below in Figure 3.2.



**Figure 3.2: Steps in the development and implementation of a survey<sup>(414)</sup>**

Within the first step there are several aspects recognised as contributing to survey effectiveness.<sup>(411, 415)</sup> These aspects include the survey’s content, it’s layout, including directions and ordering of questions, and its length.

### **Step one: Survey design**

A survey's content requires careful planning, with questions needing to correspond to the objectives of the survey<sup>(411)</sup> and identifying existing questionnaires is strongly recommended.<sup>(411)</sup> The content itself requires careful formatting as the look of a survey can promote or hinder response rates.<sup>(415)</sup> Several factors have been identified as important when formatting a survey:

- Directions: clear, concise directions are vital;
- Design: a booklet format is preferable for paper based surveys, as not only are they more professional in appearance, the pages are more likely to remain together and in order. Furthermore, a booklet design provides opportunity for a cover page and back cover. The former providing the opportunity to document the survey title, the organisation's logo and name and initial instructions. The latter provides an opportunity to thank the respondent, as well as a space for them to document any additional comments if they choose;
- Ordering of questions: it is important in establishing the logic and flow of the survey. The first question is particularly important as it is pivotal in engaging the participant in the remainder of the survey. In addition, questions should be grouped by topic, making it easier for the participant to focus and organise their thoughts;
- Question layout: it is important that questions and any associated scales are laid out in a consistent fashion;
- Survey length: when designing surveys it is important not to resort to tricks like reducing font size and spaces between lines to shorten the appearance of a survey's length. These strategies do not shorten the duration of time it takes to complete a survey and can reduce the readability of the survey and potentially the response rate.<sup>(414, 416)</sup>

The literature recommends a covering letter accompany the survey. As a minimum the covering letter should include the contact details of the lead researcher, why and how the participant was selected, the aim of the study and they should end with a thank-you.<sup>(411, 417)</sup>

In relation to this study two surveys were developed to ensure they were tailored to the differing roles of general practitioners and practice nurses. The surveys can be seen in Appendix G. Based on the literature related to survey layout,

the surveys used a booklet format, with a cover page designed to meet Dillman's suggestions.<sup>(416)</sup> The survey was divided into six sections as illustrated in Table 3.4 below.

**Table 3.4: Layout of survey**

<b>Section</b>	<b>Grouping</b>	<b>Included</b>
One	Prevention and management of obesity (Beliefs)	Questions regarding beliefs related to prevention and management of obesity
Two	Your training related to overweight and obesity management	Perceptions of training while undergraduate; self-rated knowledge and competence; completion of obesity related CME; use of guidelines
Three	Your views regarding obesity and men of a higher weight	Views on drivers of male obesity and its consequences; perceptions of level of trust obese men have in health providers of differing weight; experiences of providing weight management to obese men; perceptions of obese men
Four	Diagnosis, assessment and management	Behaviours in relation to diagnosis of obesity; counselling strategies and management options
Five	Your practice environment	Assessment of workload, views on prioritisation of obesity management within practice and availability of specific equipment
Six	About you	Demographics and self-reported weight category and physical activity level

The survey grouped key questions together and their layout was overall consistent, with the majority of questions using a scale to record responses. The demographic questions and those requiring a yes/no answer were the only ones not utilising a scale. Preambles were in bold font to enhance clarity. Within each section space was provided for participants to make additional comments if they desired. Participants were thanked for their participation and their contribution to the study acknowledged.

The length of the surveys was a concern, totalling thirteen pages. It included thirty-four overarching questions, requiring a total of 129 responses. Thought was given to narrowing the focus of the survey or splitting the content into two to reduce respondent burden. This was a strategy adopted by Campbell and colleagues.<sup>(233)</sup> As this was the first time quantitative research into obesity management within NZ general practice had been undertaken, it was decided to cover as many aspects of obesity and its management as possible.

## Step two: Question development

The role of questions within surveys is to measure things that are not directly observable.<sup>(414)</sup> How well they do this depends on a variety of factors including:

- Not employing a double-barrelled structure (two questions in one);
- Not using double negatives;
- Avoiding leading or ambiguous questions;
- Removal of superfluous questions;
- Using questions previously used.<sup>(411, 414, 417, 418)</sup>

Thayer-Hart and colleagues recommend creating tables for the final report, prior to finalising the survey, as this process assists in highlighting superfluous questions.<sup>(414)</sup>

Health surveys frequently include sensitive questions.<sup>(419)</sup> While there is no accepted definition of what constitutes a sensitive question, according to Tourangeau and Yan, a question can be considered sensitive when: “It asks for a socially undesirable answer, when it asks in effect that the respondent admits he or she has violated a social norm”.<sup>(420)</sup>

Sensitive questions are a concern as they may elicit responses that are considered socially favourable,<sup>(420)</sup> resulting in a survey’s findings being shaped by social desirability bias.<sup>(420, 421)</sup> Social desirability bias is an acknowledged type of measurement error.<sup>(420)</sup> The most widespread cause of social desirability bias noted in the literature is due to the respondent’s lack of comfort to reveal their true attitudes.<sup>(420)</sup> Sensitive questions are thought to cause problems related to lower overall response rates, item non-response and response accuracy.<sup>(420)</sup> The last of these consequences being the most frequently documented.<sup>(420)</sup>

Ways of alleviating the effects of question sensitivity have been explored by survey researchers,<sup>(420)</sup> with several ways of reducing item non-response and improving the accuracy of reporting being identified. Techniques include the mode of survey administration, the data collection setting and the wording of the question. Historically survey respondents are more willing to answer sensitive questions and report sensitive information when the questionnaire is self-administered.<sup>(420)</sup> The ability to complete a survey in a private setting is also recommended. The use of forgiving wording and familiar words are another suggested tactic for reducing non-response rates.<sup>(420, 421)</sup> Tourangeau and Yan, however, draw attention to the inconsistency of evidence supporting the use of forgiving wording. In a later study,



Naher and Krumpal, evaluated the effects of forgiving wording using an experimental on-line survey but could not identify any conclusive effects of question wording.<sup>(421)</sup> The evidence around using familiar words, as opposed to formal descriptors, appears to be a little stronger.<sup>(421)</sup> Another strategy to improve disclosure of sensitive information, is the provision of assurances regarding the confidentiality of the data.<sup>(420)</sup> The development of questions for this survey and the way sensitive questions were address is presented next.

The majority of questions contained within these two surveys (Appendix G) were based on questions used in earlier survey studies, identified within the literature review.<sup>(36, 37, 103-105, 129, 178, 209, 212, 226, 227, 233, 238, 248, 256, 422, 423)</sup> . Initially all questions of potential interest were assembled into one document (see Appendix H). These were reviewed, some discarded and the initial survey tool drafted. The survey tool went through eight iterations. In an attempt to ensure that unnecessary questions were avoided an exploratory document was constructed of potential tables for the results section (see Appendix I).

As with other surveys that seek information on attitudes, these surveys contained sensitive questions, particularly question 3.7. This question asked if the respondents held negative views towards large men. Admitting to holding stigmatising views towards a sub-group of patients means the GP or PN would be admitting that they deviated from their respective code of ethics.<sup>(424, 425)</sup> Yet due to the strong evidence within the literature that stigma towards large people is evident within health professions in other countries, it was deemed important to gain an understanding of the issue within NZ general practice. Based on guidance contained within the literature regarding sensitive questions, the following was put in place in an attempt to reduce the risk of a low response rate and item non-response, as well as improving response accuracy. The survey was self-administered so respondents were able to choose to reply in a private setting. Although the evidence around forgiving wording is inconsistent, the strategy was employed for this question. The preamble to the question states; “most people throughout society possess unflattering views of those who are obese”; thereby normalising negative attitudes towards larger individuals. An odd numbered response format was used to allow participants to choose a neutral value if they wished. Question 6.4 within the demographic section also asked a sensitive question regarding respondent’s weight. Again forgiving wording was employed to normalise the higher weight categories

provided. In addition, the information letter provided respondents with information on their anonymity, another strategy recommended in the literature.

The type of question, open or closed, is an important consideration. Closed questions provide participants with responses, compared to open questions which allow respondents to answer in their own words.<sup>(414, 417)</sup> Both come with advantages and disadvantages as outlined in Table 3.5 below.

**Table 3.5: Advantages and disadvantages of open and closed questions<sup>(418)</sup>**

Open questions		Closed questions	
Advantages	Disadvantages	Advantages	Disadvantages
Respondents can answer in their own way	They are time consuming	It is easy to process the answers	Spontaneity is lost
They allow for unusual responses	Answers require coding	Comparability is enhanced	It can be difficult to make forced choice answers
The questions do not suggest certain kinds of answer to respondents	They increase responder burden	The availability of answers may assist in clarifying the meaning of questions on occasions	Within the choices offered interpretation of meanings may differ by respondents
They are useful in exploring new areas		Completion is easy	Respondents may not be able to find a category they feel is applicable to them
They can be used to generate fixed choice format answers			

Larger surveys frequently use closed questions for ease of interpretation and analysis,<sup>(414)</sup> but their use requires consideration of how responses are going to be measured. Likert scales are a popular option,<sup>(426)</sup> providing a practical way of measuring latent constructs, such as attitudes, beliefs, feelings, opinions or behaviours, etc.<sup>(427)</sup> Traditionally Likert scales have the following features:

- A declarative statement;
- Ordered continuum of response categories;
- Balanced number of positive and negative response options;
- Descriptive label assigned to each category;
- Numeric value assigned to each category.<sup>(427)</sup>

In relation to the final point, it is normal to treat individual responses as ordinal data, as a participant's perception of the perceived difference between two adjacent levels cannot be assumed to be equal.<sup>(427)</sup> Odd and even numbered response formats can both be used with Likert scales,<sup>(426, 427)</sup> and each are associated with advantages and disadvantages. There is, however no definitive rule as to which is best but the odd numbered format is very common.<sup>(427)</sup> Studies regarding the optimal number of response options are also inconclusive.<sup>(428)</sup> Variations of the traditional Likert scale exist. For example, some Likert type scales may only provide category labels at the end points of the continuum, known as anchor categories.<sup>(427)</sup>

Due to the length of the survey, the desire to be able to compare within and between respondent groups, as well as with other studies the questions used within the surveys were closed questions, with a predominantly multi response format. It was recognised that respondents may want to convey some of their thoughts on the subject due to its topicality, so spaces for comments were provided at the end of each section.

The majority of the questions used an odd numbered Likert scale response format. As a Likert scale has a numerical value assigned to each response category it makes data entry easy. This was an important consideration in the case of these surveys due to their length.

### **Step three: Pilot testing**

Pilot testing is a crucial aspect of the survey design process and a key strategy in enhancing the effectiveness of the survey. It is essential when the research uses self-completion surveys as an interviewer is not present to resolve confusion.<sup>(418)</sup> The pilot should be undertaken with a sample of people representative of the target population.<sup>(411)</sup> When piloting a survey instrument, the following strategies have been suggested as means of improving the validity of a survey.

- Ask participants in the pilot to provide feedback regarding ambiguities and difficult questions;
- Record the time taken to complete the survey and decide if it is reasonable;
- Establish if there are sufficient response categories;
- Establish that responses can be interpreted;

- Check all questions are answered and identify any that are systematically missed by pilot participants;
- Re-word or re-scale any questions that are not answered as expected;
- Revise, and if possible pilot again.<sup>(411, 429)</sup>

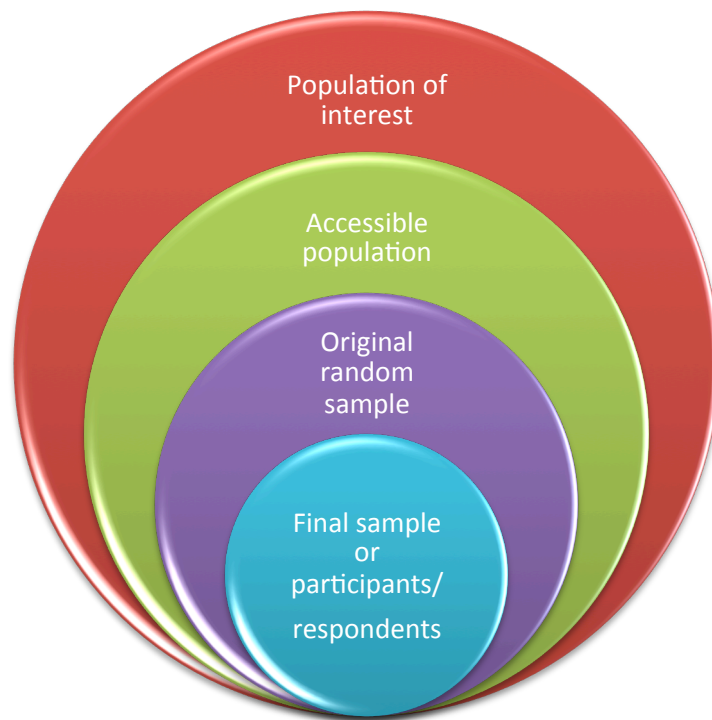
While crucial, pilot testing is also associated with some issues, key of which is contamination. Contamination can occur either via the data from the pilot being included in the main results or the pilot participants being included in the main sample.<sup>(429)</sup>

The two surveys were piloted at an educational weekend for GPs and PNs who worked for practices belonging to a rural Primary Health Organisation, the West Coast Primary Health Organisation (WCPHO). A usability assessment questionnaire was designed for the pre-testing and can be viewed in Appendix J. The findings from the usability assessment can be seen in Appendix K. Being able to pre-test the survey with a group of GPs and PNs who worked in such a geographically defined area of NZ reduced contamination risks. They were easy to exclude from the final sample and their rurality made it unlikely that they would discuss the survey with colleagues from elsewhere. After the pilot testing the survey underwent a further iteration before being piloted with three health professionals (2 GPs and a PN), all known to the researcher and hence able to be excluded from the final sample.

#### **Step four: Data collection**

Data collection encompasses the sampling frame, the sample design, including the calculation of sample size, the measurement instrument (already described) and response rate.

The sampling frame is drawn from the whole population of interest but generally comprises members of the population of interest who are accessible to a researcher.<sup>(430, 431)</sup> A mailing list is frequently used as a source for identifying accessible populations in survey research.<sup>(432)</sup> While mailing lists may be the only way of identifying potential members from the population of interest they are associated with inherent problems. These include, the list not being kept up to date and duplication of entries.<sup>(432)</sup> Figure 3.3 illustrates the concepts of population of interest, accessible population, the original sample and the final sample or respondents/participants.



**Figure 3.3: Conceptual map of a broad sampling frame**

There are two key sample design techniques, probability and non-probability.<sup>(430)</sup> Quantitative studies generally utilise probability sampling techniques, involving the selection of participants from the population of interest in a random manner. The aim is to end up with a final sample that is representative of the source population.<sup>(431)</sup>

While surveys provide a cost-effective method of gaining information on health professional attitudes, knowledge and practices,<sup>(433)</sup> poor survey response rates can compromise the validity and overall utility of final results.<sup>(434)</sup> Response rates of GPs to surveys are lower than those of the general population.<sup>(435)</sup> Likewise, low response rates by nurses has also been noted.<sup>(434)</sup> Response rates from health professionals in the US, Canada, Australia and NZ are recognised as being particularly low.<sup>(436)</sup> A recent Australian study by Bonevski and colleagues,<sup>(437)</sup> found response rates of between 25.8% to 32.5% in general practice.

Non-response bias creates apprehension regarding the generalisability of study findings as non-responders may differ systematically from responders.<sup>(434, 436)</sup> Response bias may be less of an issue with physician surveys as most non-response studies in this group have found no or minimal amounts of response bias. This is possibly due to the homogeneity of the physician population.<sup>(438-440)</sup> It is also possible that the homogeneity effect, applies to nursing research as well.

Health professionals do not respond to surveys for a variety of reasons: time constraints, poor perceived saliency of the survey, scepticism regarding the value of research, issues of confidentiality, surveys containing sensitive questions and perceptions of bias.<sup>(433, 434, 441)</sup> A Cochrane review by Edwards et al.<sup>(441)</sup> identified strategies that increase response rates to postal questionnaires (inclusive of the general population, patients and health professionals). The key findings are presented in Table 3.6.

**Table 3.6: Strategies to increase response rates to postal questionnaires**

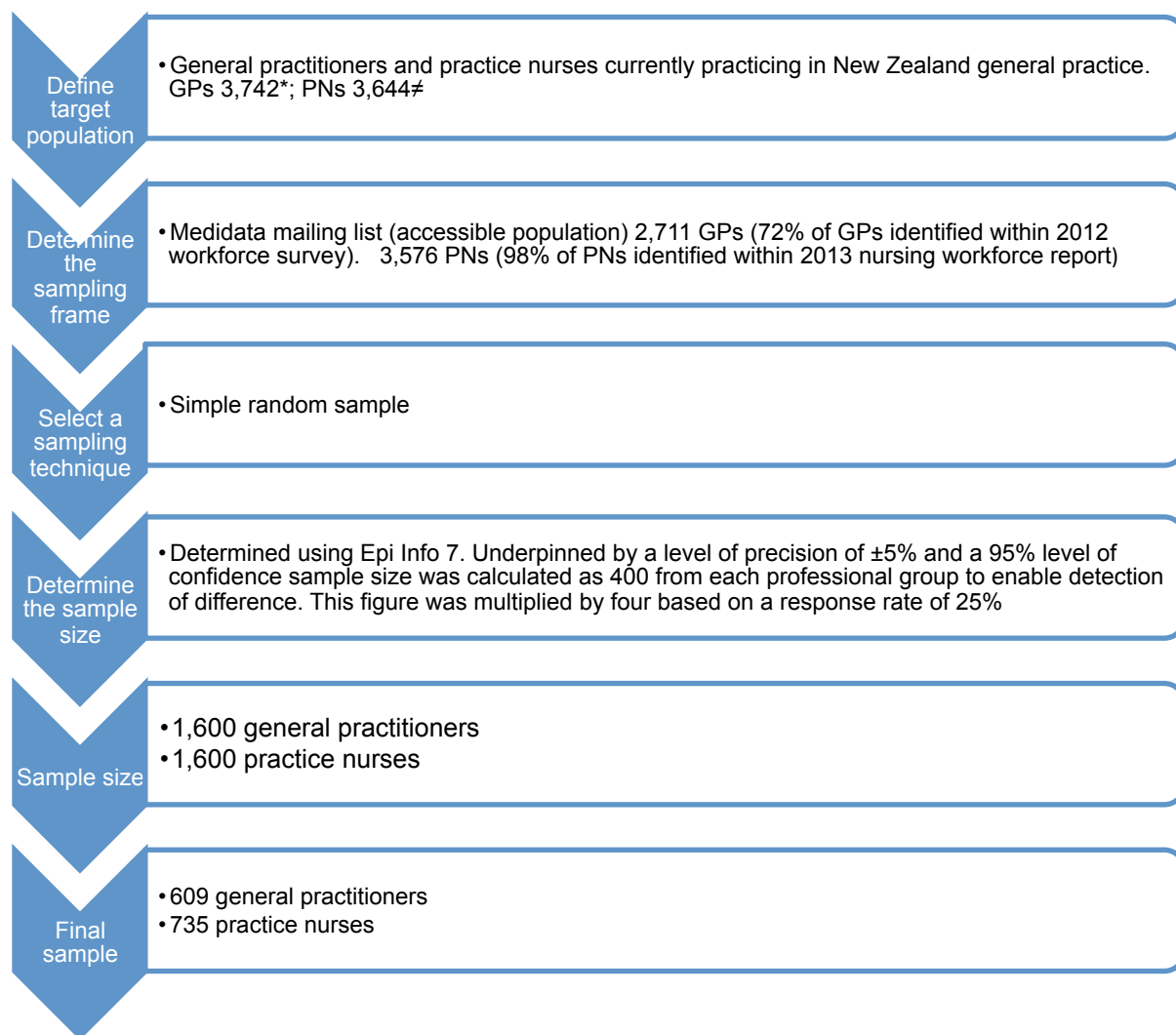
Strategy	Odds ratio	95% Confidence interval (CI)
Monetary incentive	2.02	1.79 to 2.27
Questionnaires designed to be interesting to participants	2.44	1.99 to 3.01
Questionnaire sent by recorded delivery	2.21	1.51 to 3.25
Short questionnaires	1.86	1.55 to 2.24
Incentives not conditional on response	1.71	1.29 to 2.26
Contacting participants prior to sending the questionnaire	1.54	1.24 to 1.92
Follow up contact	1.44	1.22 to 1.70
Providing non-responders with a second copy of the questionnaire	1.41	1.02 to 1.94
Use of coloured ink	1.39	1.16 to 1.67
Questionnaires originating from universities	1.31	1.11 to 1.54
Stamped return envelopes provided	1.26	1.13 to 1.41
Personalised questionnaires and letters	1.16	1.06 to 1.28
Questionnaires sent first class	1.12	1.02 to 1.23

Not all quantitative research involves hypothesis testing. With descriptive survey research the aim is frequently to be able to obtain an accurate estimate of a mean value or proportion and then to be able to use these findings to infer back to the population of interest. To be sure of the robustness of these figures a sample size calculation is required. Two factors are key considerations when calculating sample size; the level of precision and the level of confidence deemed to be acceptable for the study.<sup>(442)</sup> The sample size also needs to be appropriate for the analysis planned.<sup>(443)</sup> If descriptive statistics only are going to be used nearly any sample size will do, however larger sample sizes are required for more complex analysis, such as comparative analysis.<sup>(443)</sup> The likely response rate also needs to

be taken into consideration so allowances can be made for nonresponses.<sup>(442)</sup>

Consequently the sample size may be substantially larger than the number required for the level of confidence or precision desired by the researcher.<sup>(443)</sup>

The following section considers the aspects of data collection just discussed and their application within this study. Figure 3.4 provides a high level view of these aspects.



**Figure 3.4: Process undertaken to source the final sample for this study**

<sup>≠</sup>(444)

<sup>\*</sup>(445)

Within this study the population of interest comprised GPs and PNs currently working within NZ general practice. Figure 3.4 provides an overview of the study population, accessible population, the sampling technique chosen, how the sample size was determined, the sample size and the size of the final sample.

The accessible population came from Medidata who are the leading health care publisher in NZ. Consequently they hold extensive databases of health professional contact details. Overall, 59% of the accessible GP population was included in the sample and 45% of the accessible PN population. The final sample included 23% of the accessible GPs and 21% of the accessible PNs.

The issues alluded to by Aday<sup>(432)</sup> did impact on the databases provided by Medidata, with the main problem being the inclusion of individuals who were no longer at the address supplied. Other issues were the inclusion of some who had died, retired or were on long term leave.

The decision to use a simple random sample for this strand of the research design was underpinned by the desire to be able to generalise findings from the study to the population of interest as a whole. Utilising a simple random sample approach however came with associated challenges. The sample size for each professional group was large and the survey lengthy, impacting on the cost of undertaking the study.

Due to the significant costs incurred with this survey a successful application was made to the Ministry of Health for funding to support a second mail out. As well as providing non-responders with a second copy of the survey, the survey process adopted other strategies identified as increasing response rates. These strategies included the University of Otago logo on the front cover of the survey; provision of a stamped addressed envelope for return of the survey; personalisation of information sheets and the questionnaires sent first class. Participants had the opportunity to answer the survey on the hard-copy mailed version or access an on-line version via a web link. While incentives were not provided to all responders, those responding within the first three weeks could opt into a draw for a one of two mini iPads; one for each professional group. In addition, there was a draw for one of five \$100 fuel vouchers for anyone who participated. Non-monetary incentives were also used. Practice nurses could access a certificate for inclusion in their professional development portfolio and GPs could claim a continuing medical education point for completion of the survey. The saliency of the topic to the sector was also high, a factor acknowledged as assisting with response rates.

#### **Step five: Data analysis**

Preparing survey data for analysis comprises the following procedures: coding of the data, entering the data and cleaning the data. Prior to entering data a system needs to be developed to guide the data entry. In regards to information from



closed-ended questions contained within a survey, responses need to be converted to numerical data prior to being entered into a computer for analysis.<sup>(446)</sup> Frequently codes are already assigned to each closed-question response option,<sup>(446)</sup> as a result coding can be considered as taking place during the survey design rather than during data analysis.<sup>(447)</sup> Open-ended questions produce free text comments which can be coded following the construction of response categories,<sup>(447)</sup> or using a qualitative thematic approach. In addition, unique identifiers need to be assigned to each survey.

Surveys are frequently affected by missing data for various reasons including, the respondent refused to answer or they did not know the answer. The easiest option is to leave the cell blank. In some cases, researchers may want to identify between the various reasons for the missing data. In this instance, codes should be allocated to the different reasons and the appropriate code entered.<sup>(448)</sup> In summary, data coding procedures provide a systematic way of organising large volumes of data, making analysis easier.

Survey data needs to be entered into a format easily readable by a computer. In the case of hard copy surveys a database needs to be designed to receive the data. Excel provides a suitable medium, being easy to use and its files are simple to imported into statistical software packages for analysis.<sup>(448)</sup> Transcriptive and source data entry are the two principle types of data entry. Transcriptive data entry entails coding the data onto a source document which then acts as the source document from which data is entered into a computer. In source data entry, the data is entered directly into a computer database,<sup>(446)</sup> hence eliminating the intermediate step required in transcription data entry.

Once the data has been entered the next step in the process involves cleaning the data.<sup>(446)</sup> Data cleaning deals with data problems once they have occurred; in other words it addresses processing errors, helping to keep the number of data errors low. There are a number of ways of undertaking data cleaning and more than one method can be employed.<sup>(449)</sup> Manually checking the first few surveys entered provides an initial assessment of the quality of data entry.<sup>(449)</sup> Range checking is another form of data cleaning. It involves checking data responses entered to ensure the values entered relate to the numerical codes assigned to the question.<sup>(446)</sup> In excel ranges can be set so that a cell recognises a value outside of the set range. Data, some or all, can be double entered by two different operators, as a validation process by identifying copying errors.<sup>(449)</sup> Double data entry, however, can be both

time consuming and expensive.<sup>(450)</sup> In addition, decision rules have to be developed to cater for errors, for example, consulting the original questionnaire to establish the correct answer.<sup>(446)</sup>

As is common practice the survey was designed to enable respondents to document free text comments if they wished.<sup>(451)</sup> While there is a risk associated with providing space for free text comments in extensive surveys, Garcia and colleagues suggest five ways of utilising free text comments in surveys:

- Thematic analysis;
- Understanding responses to closed questions;
- Providing greater depth of understanding for the topics covered in the survey;
- Identifying issues not covered in the survey;
- Obtaining feedback on the research process.<sup>(451)</sup>

In summary, having agreed procedures for coding data and how to deal with missing data, as well as employing one or more data cleaning processes will ensure data is of a high quality and instil confidence in the conclusions drawn from the data analysis. Consideration needs to be given regarding the purpose of providing space for free text comments within the survey. The following section describes how the data associated with this study was prepared for analysis.

All surveys were allocated a unique identifier prior to mail out. In addition, all responses to questions and categorical variables were assigned a numerical code within the hard copy survey. All questions in the survey were closed apart from two questions in section two. These questions asked responders to name the guidelines they referred to most often and list other sources of information. These responses were collated in a word document and frequencies counted. Each section of the survey included a space for free text comments to be documented. These were collated into a word document and uploaded into NVivo 10<sup>(452)</sup> (qualitative research software) for thematic analysis.

Missing data were left as blank cells. The question with the greatest number of non-responses in both the GP and PN survey was the question related to the age of the responder. Thirty-one (5%) of the GP responders and 40 (5%) PN responders did not supply this information. None of the analyses planned used age as an independent variable. The next question which generated the second largest number of non-responses was the sensitive question related to beliefs regarding

large men. Even so between 96%-97% of GP responders answered the components of this question, with 95% of responding PNs documenting answers. Overall, non-response was not a significant issue within these surveys.

Two Excel spreadsheets were prepared to receive the survey data. The vertical axis contained the unique identifier data and the top horizontal axis codes for each question. Source data entry was undertaken and ranges were set so that values outside of the set range alerted the person entering the data. Due to the length of the survey and the number of respondents, data entry was eventually contracted out to a university Master's student who entered data on the remaining 833 surveys. To meet the additional cost the researcher successfully applied to the Royal New Zealand College of General Practitioners for extra funding.

The following data cleaning processes were adopted. The first twenty surveys were manually checked for accuracy; range checking which has already been mentioned, was employed and a 10% random sample of the entire dataset was double entered by the researcher and compared with the same data entered by the contractor. Comparison of the double entered data found an error rate of 2.1%. All identified errors within the dataset were resolved by referring to the relevant original survey. It was decided, however that the level of discrepancy introduced by these errors was unlikely to be particularly intolerable and it would be unlikely that it would impact on the tenor of the results, given that the majority of answers are on a 1 to 5 scale.

This study employed agreed coding procedures, had a strategy for dealing with missing data, of which there was little and utilised more than one data cleaning process. The next section is the final section related to the quantitative component of the study. It considers the basis for the data analysis processes adopted by the study and their utilisation.

The purpose of analysis is to summarise data into an easily understandable format, thereby assisting the researcher to answer the original research question.<sup>(411)</sup> Prior to conducting any analysis it is recommended that an analysis plan be developed to explore and consider the relevancy of undertaking various analysis in relation to the study objectives.<sup>(453)</sup> The major categories of statistical tests used for data analysis are: descriptive or inferential (bivariate, multivariate, parametric and non-parametric).<sup>(453)</sup> The focus in this section will be on descriptive and inferential analyses as these were the statistical tests employed in this study.

Descriptive statistics assist in the description, illustration or summarisation of the data from a sample, enabling data to be presented in a more meaningful way and facilitate interpretation.<sup>(453)</sup> In addition, descriptive statistics help detect patterns or trends.<sup>(454)</sup> They are not used to test hypothesis or to yield a P value. Descriptive statistics include measures of frequency and centrality, such as the mean, median and mode.<sup>(453)</sup> They do, however have limited ability to make inferences about one population group compared to another. To do this inferential statistical analysis is required.

Inferential statistics involves the analysis of numerical data to test the difference between group means or the relationship between variables.<sup>(455)</sup> Frequently inferential statistical analysis involves an estimation of the degree of error in making these inferences.<sup>(455)</sup> Examples of inferential statistical methods include the t-test and multiple regression analysis.<sup>(454)</sup> Tests of statistical significance in inferential statistics allows the researcher to distinguish true differences from chance and result in a P value.<sup>(454, 456)</sup> A P value is an assessment of the probability that the results are due to chance.<sup>(454, 456)</sup> An arbitrary test threshold value, frequently  $\alpha=0.05$  distinguishes results presumed to be due to chance from results due to other factors, such as true differences between groups.<sup>(456)</sup> Large samples can result in statistical significant differences being detected even when differences are very small.<sup>(456)</sup> Some researchers suggest that when a study produces a plethora of statistically significant results due to multiple tests being applied to the data, the  $\alpha$  value should be adjusted. This is known as the Bonferroni adjustment.<sup>(447)</sup> Alternatively, the number of results that are likely to have occurred by chance given the number of tests performed could be documented instead.<sup>(447)</sup>

Finally, it is important not to confuse statistical significance with practical or clinical significance.<sup>(456)</sup> The key question is, are the differences between groups/samples large enough to have real meaning? Practical significance is usually assessed by effect size.<sup>(457)</sup> One way of determining effect size is by assessing the difference between mean scores.<sup>(457)</sup> When assessing the significance of the effect size it is important to consider the scale of measurement used. For example, a difference in mean scores of 2 may not be practically significant if the measure scale was 1-100 but if it was 1-5 the difference may be significant. In addition, confidence limits help researchers clarify the importance of a result by providing information on the range of possible effect sizes.<sup>(458)</sup> The following paragraphs discuss how the data analysis theory just presented was applied in this study.

Although a data-analysis plan was developed, decisions around the analytical analyses turned out to be more iterative in nature, driven by the emergent descriptive statistics and their associated trends. The survey used in this study was long and the sample large. Using descriptive statistics provided a very useful approach to organising the data into a more easily interpretable format. Consideration of the trends that emerged during the descriptive analysis, in conjunction with findings within the international literature suggested that professional group, gender and body size may influence results. This informed the decision to undertake further analytical analysis of the data. T-tests were used to explore intra group differences within the GP cohort based on gender and body-size and within the PN cohort based on body-size only due to the lack of sufficient male PNs. T-tests were also used to explore inter group differences between the two health professional groups. Undertaking this level of analysis enabled more robust comparison with similar studies.

While the data was not subjected to numerous statistical tests, due to the large number of returned surveys, the analytical process resulted in a large number of statistically significant findings. As the  $\alpha$  level was set at 0.05 this meant there was a chance that 5% these findings were likely due to chance. Table 3.7 illustrates the number of statistically significant results within each analysis, as well as the number of statistically significant findings likely due to chance.

**Table 3.7: Number of statistically significant results that were likely due to chance**

<b>Analyses</b>	<b>Number of statistically significant differences</b>	<b>Number likely due to chance</b>
GP cohort – gender	24	1.2
GP cohort – body size	10	0.5
PN cohort – body size	18	0.9
Inter group differences	60	3

Where questions resulted in multiple free text comments these were extracted from each survey, collated and analysed using a general inductive approach.<sup>(459)</sup>

This gave a greater depth of understanding to the numerical responses.<sup>(451)</sup>

In summary, the quantitative strand of this mixed method study utilised a cross-sectional postal survey as the data collection method. The advantages and disadvantages of cross-sectional designs were highlighted, as were those related to various survey modalities. The steps in the development and implementation of the survey were presented, as were those related to data collection and data analysis.

Once more the benefits and difficulties associated with each of these steps were indicated. The next section of this chapter examines the theory underpinning the qualitative strand of the study and how the theory was applied to this component of the study.

### ***The qualitative strand of this mixed methods study***

#### ***The research approach***

General practice is part of an interdependent non-linear system, recognised as complex due to the interacting and interdependent nature of the component parts.<sup>(460)</sup> Qualitative research is acknowledged as being a suitable research approach to use when exploring complex environments like primary care.<sup>(461)</sup> Furthermore, it is recognised as being useful in seeking to understand previously unexplored or inadequately understood areas.<sup>(462)</sup> Qualitative research approaches rely primarily on inductive reasoning to understand and interpret the data collected.<sup>(463)</sup> Essentially induction is a process of discovery, which can lead to the generation of a hypothesis, whereas deduction is a process of proving or disproving a hypothesis.<sup>(464)</sup> As this study seeks in part to understand the primary care experiences of large men, using a research approach compatible with inductive reasoning is appropriate.

A common qualitative data collection method is the interview.<sup>(465)</sup> There are three main types of interview, unstructured, semi-structured and structured.<sup>(466)</sup> This study employed both face to face and telephone semi-structured interviews.

#### ***The semi-structured interview***

While semi-structured interviews use several questions to guide the interview, they provide a level of flexibility that enables the elaboration of information as it arises.<sup>(466, 467)</sup> This form of interview was selected for this study for the following reasons:

- It permits the interviewee to describe, explain and explore their experiences in their own words;
- It allows for the replication of interview questions with others;
- The level of flexibility allowed within this approach, enables repetitive refinement of the interview guide, guided by the thoughts of earlier interviewees which can then be taken up and discussed with later interviewees;<sup>(467, 468)</sup>

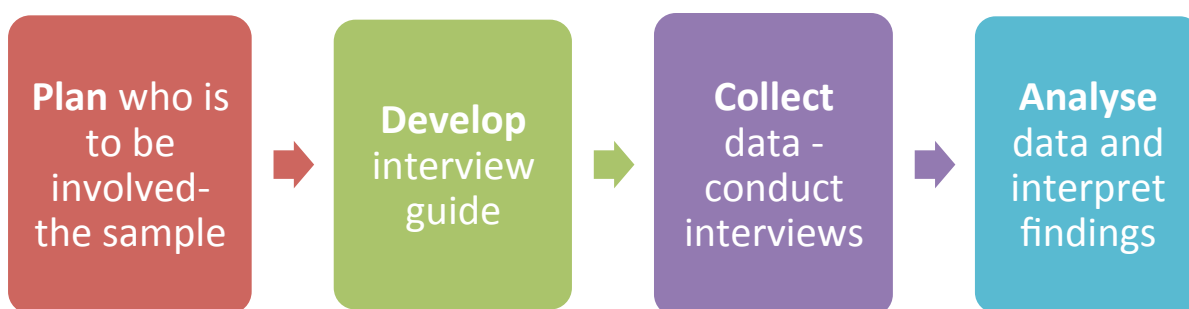
- The flexibility of approach means that information important to participants but not previously considered by the researcher can be uncovered.<sup>(466, 467)</sup>

These points also illustrate strengths associated with the technique.

Telephone, as well as face-to-face interviews were used in this study to interview men in both rural and urban locations. While social cues are reduced and digital recordings may be of a lesser quality, telephone interviewing provides some advantages.<sup>(469)</sup> The telephone extends access to participants and for some answering sensitive questions over the telephone can be easier than face to face.<sup>(469)</sup> Both types of interview require a skilled interviewer; take time and if being recorded for transcription purposes generate copious amounts of text data.<sup>(468)</sup>

A contract researcher was used in this study because of time and financial constraints associated with undertaking face-to-face interviews with participants who were geographically dispersed. The contracted researcher lived in an urban area, was known to the researcher and worked as a nutritionist within a general practice so was familiar with the topic of the research.

The process of undertaking semi-structured interviews follows the same general process steps for research generally. The steps are illustrated in Figure 3.5.

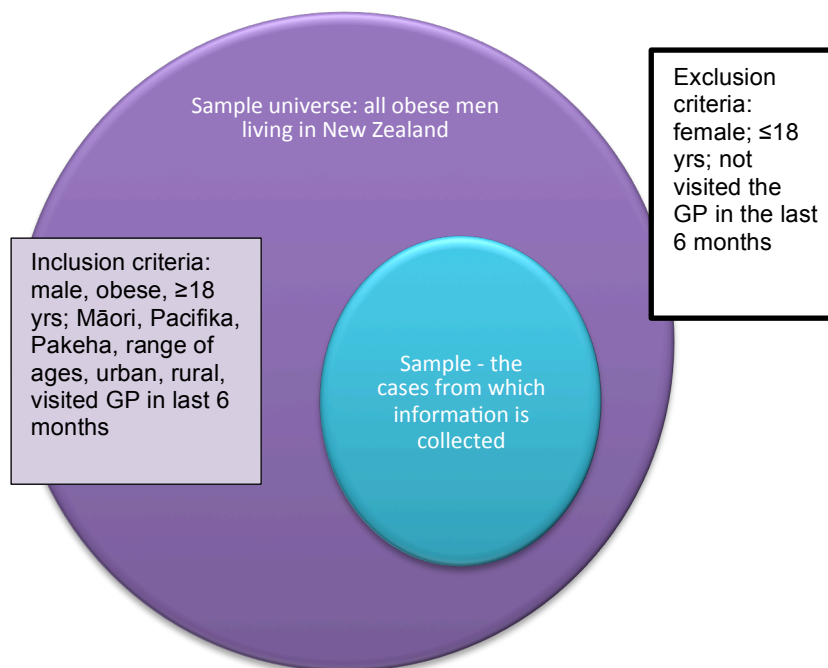


**Figure 3.5: Steps in the process of conducting semi-structured interviews**

### **The sample**

Who is to be interviewed is pivotal when using interviews to generate data to answer a research question, as sample selection has a profound influence on the quality of the research.<sup>(470)</sup> In qualitative studies purposive sampling techniques are primarily used,<sup>(471)</sup> the aim being to consciously select individuals, groups of individuals, or organisations from the sample universe who hold rich information relevant to the research question.<sup>(470, 471)</sup> While various broad categories of

purposive sampling are recognised,<sup>(471)</sup> this study utilised a generic purposive sampling strategy.<sup>(472)</sup> When using this strategy to select cases, criteria relating to the types of cases needed to answer the research question can be identified a priori.<sup>(472)</sup> These criteria form the sampling frame and those selected using this frame form the sample as illustrated in Figure 3.6 below.



**Figure 3.6: The sample universe, sample and inclusion and exclusion criteria for this study. Adapted from Robinson.<sup>(473)</sup>**

The inclusion criteria that formed the sampling frame were established a priori and the criteria were selected to ensure diversity in relation to ethnicity, age, and geographical location. Yet the criteria also sought to sample individuals with a level of homogeneity – men who were obese and had visited their general practice within the last six months. The choice of these criteria was driven by the supposition they would increase the likelihood of accessing a range of experiences, yet highlight commonality of beliefs and experiences amongst obese men. Identification of commonality is acknowledged as enhancing the chances that the findings are relevant and logically generalizable to the sample universe.<sup>(473)</sup>

While a range of opinions exist about the appropriate size of a sample in qualitative research,<sup>(472)</sup> the literature suggests that when interviewing a relatively homogenous group generally no new data emerges after fifteen or so interviews.<sup>(474)</sup> In other words, data saturation is achieved.<sup>(471)</sup> As such data saturation informally guides sample size.<sup>(431)</sup>



There was no pre-determined number of participants for this study, yet due to the practical realities of research, time and budget it was necessary to consider a provisional sample size.<sup>(473, 474)</sup> It was anticipated that between twelve and twenty would provide a reasonable number. The final sample size was fourteen. The process of conducting data collection and monitoring concurrently enabled recruitment to cease when no new information emerged during interviews thirteen and fourteen. This statement is made with the proviso that the study failed to recruit any obese Māori men despite efforts to do so. Interviews with obese Māori men may have resulted in additional themes being identified.

Multiple strategies were used to recruit men who would fulfil the sampling criteria in both rural and urban environments. The strategies included are outlined in Table 3.8.

**Table 3.8: Recruitment strategies**

<b>Rural</b>	<b>Urban</b>
Word of mouth – this was via health professionals in the area and individuals already recruited to the study	Word of mouth – this was via the person contracted to undertake the urban interviews
Community advertising* in <ul style="list-style-type: none"> <li>• Gyms</li> <li>• GP practices</li> <li>• Employment settings, e.g. West Roads and Westland Milk Products</li> <li>• Stores – Mega Mitre</li> <li>• Marae</li> </ul>	Community advertising* in <ul style="list-style-type: none"> <li>• Gyms</li> <li>• GP practices</li> <li>• Stores – Placemakers</li> <li>• Pacific churches</li> </ul>

\*The community advertising related to a poster. This varied slightly in the two different locations. Both posters can be seen in Appendices L1 and L2.

Potential participants were subjectively assessed over the phone as whether or not they met the study criteria when they made contact. Those who were deemed to meet the criteria and were interested in taking part of the study were sent an information sheet and an informed consent form (Appendices M and N). A follow up phone call was made two or three days later to clarify any queries and confirm participation. At the same time a date, time and venue of the participant's choice was confirmed for the interview.

## **Developing the interview guide**

The interview guide should ask questions that will generate information to answer the aim and objectives of the research.<sup>(466)</sup> Questions that generate information are those that are open ended, unbiased, sensitive, understandable and use language relevant to the people being interviewed.<sup>(466, 468)</sup> Sequencing of the questions is also important. McNamara suggests asking questions about the present before asking those about the past as it is usually easier for participants to discuss the present.<sup>(475)</sup> In addition, starting with questions that are easy for the participant to answer, moving to more difficult or sensitive questions, is recommended to put participants at ease.<sup>(466)</sup> This allows the interviewer and participant to develop rapport, thereby facilitating conversation.<sup>(466)</sup>

The qualitative component of this mixed methods study sought to explore the primary health care experiences of NZ males who are significantly overweight. This provided the main focus for the interview questions. Developing the interview guide provided some challenges. First and foremost the subject of interest, obesity is itself a sensitive topic. Most questions could potentially be sensitive to a greater or lesser extent. It is not a topic men generally discuss openly and one perhaps that they would rarely discuss with a woman other than their partner. Furthermore, the literature related to obese men's primary care experiences is sparse as noted in chapter two. Consequently, guidance regarding potential questions was limited. The literature review did, however identify some key areas regarding obese men that were considered worthy of incorporation within the interview guide. These topic areas were: what men thought of their body image; the lived experience of larger men; men's involvement with weight loss; how large men want to be communicated with regarding their weight and what comprises an ideal male weight loss programme.

The interview guide for this study was developed following several iterations and can be seen in Appendix O. All questions included were carefully considered and rationale for their inclusion was explored (see Appendix P). The interview guide was piloted with a group of three rural men. One man responded to a community advertising poster (see Appendix Q) seeking men to assist with the development of the interview guide and by word of mouth (snowballing) recruited two more men. These men were consented as they were going to answer the questions in the penultimate draft of the interview schedule but they were also going to answer the following three questions:

- Do you feel all these areas are relevant?
- Are there any other topic areas we should consider raising for discussion?
- Did you find any of the questions offensive?

All questions were considered relevant and inoffensive, with one key area to emerge that had not been included to date, clothing. This theme was present in Lewis's study of obese men's experiences with their weight but only five of the thirty-six men considered it an issue, hence it was not included in the original interview guide.<sup>(354)</sup> It was then added as a prompt to one of the questions for the remainder of the interviews. As well as assisting with finalising the interview guide, conducting the pilot focus group reaffirmed the decision to use one on one interviews for data gathering. During the focus group there were instances where one of the men would go to say something then stop, as the other two would interject with an alternative viewpoint.

The interview guide contained prompts about introductions, setting the scene, providing information regarding the study: obtaining informed consent and a completed demographic information sheet (see Appendix R). Prompts related to concluding the interview were also included. These prompts are always useful to include but due to the use of a contracted interviewer they were deemed essential to include.

The first question on the interview guide was designed to put the interviewee at ease and set the non-judgemental tone for the interview by asking about the positives of living a larger life. The initial group of questions focused on the men themselves prior to moving into asking them about historical experiences in general practice. The next group of questions examined multiple aspects of their general practice experience.

Half way through the interview the very delicate topic of stigma was raised. It was considered by this time the interviewee and the interviewer would have established a rapport and the interviewee should be feeling more at ease. This question was followed by a set of questions exploring interviewee's experience of weight gain and whether they thought carrying excess weight was associated with any negative consequences on their health. The next group of questions asked about their experiences of making a weight loss attempt, weight loss and weight loss programmes. The final questions took a more general focus and asked about views regarding current health promotion messages and the issue of personal versus social

responsibility for health and wellbeing. The interview guide ended by asking the interviewee if there was anything else they would like to add.

Developing this interview guide was an interesting exercise due to the sensitive nature of the overall topic and the lack of guidance available within the literature. Piloting the questions proved to be a valuable exercise, providing the researcher with confidence that the questions were suitable and an opportunity to revise the schedule prior to conducting other interviews.

There was concern that the interviewer effect may pose problems with this study. The interviewer effect relates to attributes of the interviewer, such as, gender, age and ethnicity. Frequently participants respond favourably to interviewers who are similar to themselves.<sup>(476)</sup> This component of the study involved interviewing large NZ men but the researcher was female, Pākeha and while overweight not obese, while the contracted interviewer was male, normal body size and Pākeha. The ordering of questions within the interview guide was one of the strategies used to address the issue. It was judged important to start with a positive question, which probably was not what was expected, in an effort to put the interviewee at ease. The aim was also to end with questions that were more general and less focused on personal experiences so the participant could leave the interview setting not feeling tense. True to the nature of semi-structured interviews, however questions were not always posed in the order they appear in the guide. Naturally the use of telephone interviews with some participants mitigated some issues associated in this study with interviewer effect. The next section looks at the interview and the process of collecting the data.

### **Collecting the data**

Prior to the interview commencing it is important that the following take place. The purpose of the interview and its format are explained to the participant; terms of confidentiality are clarified; an indication of the approximate length of the interview is given; the purpose of the digital recorder and who will be listening to the recordings is explained and their right to refuse to answer a question acknowledged.<sup>(476)</sup> Participants should also have an opportunity to seek further clarification if they wish and the interviewer should collect any forms required by the research.

Some form of permanent record of the interview, such as a digital recording, generally acceptable to most participants, is important.<sup>(468, 476)</sup> Digitally recording the

interview frees the interviewer from the distraction of taking notes, enabling them to focus on what the participant is saying.<sup>(476)</sup>

All of Whiting's recommendations regarding pre interview procedures were followed in these interviews whether face to face or via telephone.<sup>(476)</sup> The following demographic data were collected, age range, educational achievement, occupation, marital status, ethnicity, and body mass index (see Appendix R). These variables were collected to assess the commonality and diversity of experience of the large men interviewed based on these features.

For this study, both face to face and telephone interviews were digitally recorded. This worked very well for the face-to-face interviews but there were some sound issues with the telephone interviews. All the interviews took place at a venue of the participant's choosing, this was mainly in their home, another strategy to assist with putting the participant at ease. The interview guide appeared to work well. Dialogue between the interviewee and the interviewer was free flowing, with the majority of interviews lasting between fifty and seventy minutes, suggesting participants felt safe to discuss possibly difficult personal experiences related to their body size.

At the end of the interview the participant was thanked and presented with a thirty dollar fuel voucher. This was a token to acknowledge the time participants had taken out of their daily lives to participate in the study and share their knowledge, insights and experiences with the researcher.

Following the interview, audio recordings were checked and notes made. Each recording was sent to the transcriber via drop box as soon as the interviewer was able to access the internet. The reason the digital interview data was sent for transcription was simply because of the time required to transcribe. Bryman estimates an hour interview takes between five to six hours to transcribe.<sup>(468)</sup> The use of hired transcribers is not without its issues. Davidson suggests most issues, such as the omission or alteration of words can be avoided by employing professional transcribers and providing the transcribers with clear direction regarding what was expected.<sup>(477)</sup> She also suggests spot checking transcripts as they are returned. The transcribers employed for this study were professional and had been used by the researcher previously. The requirements of the researcher regarding how the transcripts were to be presented was clarified at the outset. The next section discusses the management of text data and its analysis.

## Data analysis and management

The purpose of qualitative data analysis is to derive meaning from the data collected. While there are multiple types of qualitative analysis there are primarily two approaches, the deductive and inductive approach.<sup>(478, 479)</sup> Deductive analysis uses a predetermined framework to analyse the data, whereas inductive analysis uses the data to derive a theory or model via a process of data reduction.<sup>(478)</sup> A variety of inductive approaches exist but a common method uses a generic analytical inductive approach, informed by grounded theory and sometimes known as thematic analysis.<sup>(465, 480)</sup> Thematic analysis is commonly used in health services research.<sup>(459)</sup> The next section summaries the key ideas and features of the approach.

The principles underlying the general inductive approach were outlined by Thomas as:

- Data analysis is guided by the objectives of the study (deductive) and multiple readings and interpretations of the raw data (inductive);
- The main mode of analysis is the development of categories from the raw data which can be developed into a model or framework;
- The findings result from multiple readings of the raw data by the researcher/s. The researcher/s make decisions about what text data is more or less relevant. Data considered relevant is coded;
- The reliability of the findings can be corroborated by a variety of methods including, independent replication of the research; comparison with findings from earlier research; triangulation within a project; feedback from participants, as well as comment from the users of the research.<sup>(459)</sup>

The key outcome of inductive analysis is the emergence of categories; these transpire from the coding process. A category may possess up to five components. The first of these is a label which is a word or short phrase that acts as a descriptor for the category. A description of the category provides meaning and each category has text data associated with it which comprises the third component. Fourthly, each category may have a link or relationship with other categories and finally the categories may be integrated into a model, theory or framework.<sup>(459)</sup> The stages of the general inductive approach as described by Thomas are presented in Table 3.9.<sup>(459)</sup>

**Table 3.9: Overview of the coding process in inductive analysis<sup>(459)</sup>**

Initial read through of text data	Identification of specific segments of text	Label the segments of information to create categories	Reduce overlap and redundancy amongst categories	Create a model incorporating most important categories
Many pages of text	Many segments of text	30-40 categories	15-20 categories	3-8 categories

The overall aim of the process as indicated in Table 3.9 is to be left with between three and eight summary or high level categories, however the mechanics of managing large volumes of text data can be daunting. A variety of ways are available to support the process. These range from manually sorting through the copious pages of data and underlining relevant segments of text; to using MS Word to cut, copy and paste similar segments of data into a new word document labelled with the category name; to using a computer software programme, such as NVivo, specifically developed to aid with this process.<sup>(459, 481)</sup> While electronic coding is quick it does require that the researcher takes the time to become familiar with the electronic software.<sup>(481)</sup> The extent to which software is utilised generally depends on the expertise of the user.<sup>(481)</sup> Qualitative data analysis software, however, does not undertake the analysis of the data. As Welsh writes: “The software is the loom that facilitates the knitting together of the tapestry, but the loom cannot determine the final picture on the tapestry”.<sup>(481)</sup>

Quantitative researchers frequently question the trustworthiness of qualitative research findings. There is no definitive method of validating qualitative analysis,<sup>(478)</sup> although findings can be verified and defended using a variety of methods. Having another coder use the category descriptions to find associated segments of text is one option. This procedure is known as a consistency check.<sup>(459, 482)</sup> Credibility or stakeholder checks involve those with a particular interest in the research, such as, participants or funders to comment on interpretations made.<sup>(459, 482, 483)</sup> Creswell highlights some additional options for validating the research, including triangulation by using different methods of data collection; clarifying the bias the researcher brings to the study; presentation of discrepant findings, external audit of the entire project, use of rich, thick descriptions to communicate findings and peer debriefing.<sup>(483)</sup> The next section describes the reality of the process in relation to this study.

The objective of this component of the study was to gain an understanding of a phenomenon, rather than test a hypothesis; therefore the selection of an inductive approach through the use of a generic thematic analysis approach was appropriate. The process of data analysis and interpretation commenced immediately following the collection of the first set of data and was repeated after each interview. As a result a document containing the key points was sent to the supervisory team (see Appendix S). The urban interviews followed those in the rural setting. Telephone discussions between the researcher and the contracted interviewer while the urban interviews were on-going meant the interview guide could be modified if required. All the digital recordings of the urban interviews were placed in drop-box and sent to the researcher. These were then stored alongside the rural interviews in a password-protected file. The audio recordings were sent via drop-box to the transcribing company.

All transcriptions were received in MS Word documents and the accuracy of the transcriptions validated by comparing them to the digital recording. Attempts were made to fill in any spaces left by transcribers not being able to distinguish a word or phrase. After formatting, all transcriptions were uploaded into NVivo 10.<sup>(452)</sup>

Initial readings of the transcriptions were from the hard copy documents. Once a level of comfort and familiarity had been achieved, the initial process of coding commenced in NVivo 10. While the overall approach to data analysis was inductive, there was a deductive element driven by the objective of this component of the research. Initially a multitude of codes were identified from the text data and captured within NVivo10. Overtime codes were merged and categories formed. This process was not a unidirectional linear process. It bore closer resemblance to a shuttlecock, going backwards and forwards and occasionally up and down. When a level of confidence in the categories and sub-categories had been achieved the associated segments of text were cut out of the transcriptions and laid out underneath their associated category. The remaining text was revisited to ensure no relevant text data was omitted. Of the categories that emerged only one was identified in advance, the remainder represent empirical findings.

The findings were then diagrammed into a type of mind map with lines indicating connections between themes and subthemes. This diagrammatic representation was an initial attempt to capture the interaction between the experiences of large NZ men within general practice, their lived experiences and beliefs. Several iterations of this were produced. The final iteration (see Appendix T)



was photographed, the image sent to a graphic artist who then used the image and accompanying text to design a graphic of the findings. This represents a novel attempt to collate numerous findings onto one page for ease of interpretation. The graphic is presented in chapter four.

A crucial phase of the analysis is legitimisation of the findings. The findings from the study went through a variety of processes in an attempt to ensure they were an authentic representation of the experiences the participants shared. Strategies used included stakeholder checks. Stakeholders contacted included participants, the contracted interviewer and supervisors. Consistency checks were undertaken by one supervisor (SP) and the contracted interviewer. Where possible, triangulation with the findings from the literature review was undertaken. In addition, the researcher provided personal information regarding both her professional and personal background in an attempt to convey transparency in relation to the analysis of the data. Finally, time was taken to ensure a detailed account was provided related to the data collection and analysis processes associated with this component of the study.

To summarise, the qualitative strand of this mixed methods study used semi-structured interviews to generate narrative data. The advantages of this mode of inquiry for the present study were that it allowed the large men interviewed to describe their life and general practice experiences in their own words. While the same questions were asked of each man the semi-structured nature of the interview meant that they were not always asked in the same order. Furthermore, it ensured that aspects important to the participants but perhaps not anticipated by the researcher could be collected. The phases in the development of the interview guide and its associated challenges were also described as was the approach to analysing the data. Utilising an inductive approach to the analysis was particularly useful. The requirement for the researcher to immerse themselves in the data allows engagement and connection with the narrative and resulted in an understanding of the lived and primary care experiences of large NZ men emerging through the words of the men interviewed.

### ***Overall summary***

This is a pragmatic study which utilised a mixed methods approach. Mixed methods are recognised as an appropriate and convenient way to manage many health services research questions. Both survey and interview techniques were used

to generate data to answer the research question. By combining these different methods and in association with the review of the literature a comprehensive and holistic understanding of weight management in NZ general practice and the implications for larger men emerged. The results produced by this approach are presented in the next chapter.

## **Chapter 4: Survey Results**

### ***Introduction***

This chapter reports the response rates, demographic details and results from the surveys. Response rates are reported first, followed by an overview of the demographics of the GPs and PNs. The numerical results from the questions asked within the surveys for each professional group are presented concurrently to assist with the visualisation of convergence or divergence of findings between the two groups. The surveys contained a significant number of free text comments, with certain questions generating a particularly large amount of text data. When this occurred the text data was thematically analysed. These findings are presented alongside the numerical data. Commentary is then provided regarding the statistical analysis of the survey data.

Data is presented based on the following rules: the demographic data percentage values are rounded to the nearest whole number and descriptive results percentage values are rounded to one decimal place. Mean and median values are reported and the number who did not answer each question noted. Results are calculated based on the number who answered the question. Analytical results are presented to three decimal points.

### ***Response rates and demographic findings***

The database provided by Medidata contained the mail contact details for a randomly selected cross sectional cohort of 1600 GPs and 1600 PNs. In regard to the GPs, 27 were no longer at the address supplied, two were on sabbatical, one had died and one was on maternity leave. This left a cohort of 1562. Of this cohort 609 (39.0%) returned the survey, with 445 (73.1%) surveys returned after the first mail out; 131 (21.5%) following the second mail out and 33 (5.4%) via Survey Monkey.

Of the contact details supplied for PNs, 43 were no longer at the address provided; one had died; one had retired; one was overseas; two no longer worked with patients and one worked in women's health, leaving a cohort of 1551. Of this cohort 735 (47.4%) returned the survey, with 508 (69.1%) surveys being returned after the first mail out; 208 (28.3%) following the second mail out and 19 (2.6%) via Survey Monkey.

Demographic questions within both surveys included gender, ethnicity and age and information relating to body weight perception and level of physical activity participation. In addition, they were asked whether they had previously attempted to lose weight and their preferred method of weight loss.

## **Gender**

**Table 4.1: Demographics by gender**

	<b>Male</b>	<b>Female</b>	<b>Number who answered</b>
GPs	308 (51%)	296 (49%)	604
PNs	18 (3%)	708 (98%)	726

## **Ethnicity**

Based on the primary ethnicity reported, the profile of responding GPs and PNs are presented in Table 4.2. The ethnicities reported are in accordance with standard NZ ethnicity reporting.<sup>(484)</sup> Six GPs and fifteen PNs did not report their ethnicity.

**Table 4.2: Ethnicity profile of responding GPs and PNs**

<b>Ethnicity</b>	<b>GP Frequency (%)</b>	<b>PN Frequency (%)</b>
Maori	16 (3.0)	46 (6)
New Zealand European	397 (66.0)	578 (80)
Samoan	2 (0.3)	6 (1)
Cook Island Maori	2 (0.3)	2 (0)
Tongan	2 (0.3)	4 (1)
Niuean	0 (0.0)	0 (0)
Chinese	30 (5.0)	10 (1)
Indian	32 (5.0)	5 (1)
Other	122 (20.0)	69 (10)

## Age

Thirty-one GPs and forty PN respondents did not answer this question. The mean age of GPs (N=578) was 49 years, and for PNs (N=695) their mean age was 47 years. In both cases the standard deviation (SD) was  $\pm 15$  years. General practitioners had a median age of 51 years, with the median age of PNs being 50. The age range of GPs was 26 to 74 years, and for PNs this was 22 to 79 years.

## Number of years in general practice

General practitioners and PNs were asked to provide information on the number of years they had been working in general practice. These findings are presented in Table 4.3.

**Table 4.3: The mean and median number of years GPs and PNs reported working in general practice**

	Mean number of years	SD	Median number of years	Answered the question
GPs	20 yrs	11yrs	20 yrs	597
PNs	12 yrs	9 yrs	10 yrs	720

## Self-reported body size perception, weight loss attempts and methods employed to lose weight

Six GPs and eleven PN participants did not report their perception of their body size. Table 4.4 shows the breakdown of responses.

**Table 4.4: Self-reported body size of GPs and PNs**

Self-reported body size	GP Frequency (%)	PN Frequency (%)
Underweight	13 (2)	9 (1)
Normal weight	446 (74)	479 (66)
Overweight	126 (21)	210 (29)
Obese	18 (3)	26 (4)

Of the 603 GPs answering the question related to previous weight loss attempts, N=348 (58%) stated they had previously attempted to lose weight. Of the 348 GP respondents who reported previously attempting to lose weight, 200 were female. Of the 717 PNs answering the question, 567 (79%) reported a previous

weight loss attempt. Table 4.5 below gives the preferred methods of weight loss used by those reporting a previous weight loss attempt. Responders could tick more than one box.

**Table 4.5: Methods of weight loss used by those reporting a previous weight loss attempt**

Method	GP Frequency	PN Frequency
Increasing physical activity	298	542
Decreasing calorie intake	290	498
Reducing fat intake	175	425
Reducing alcohol consumption	117	186
Very low calorie diet	37	98
Medication	18	35

### ***Self-reported physical activity levels***

Health professional respondents were also asked to self-report their physical activity levels based on descriptors used in the New Zealand Sport and Physical Activity survey.<sup>(485)</sup> Of the GPs, 602 answered the question, with 724 PNs responding. Their responses can be seen in Table 4.6.

**Table 4.6: Self-reported physical activity levels of responding GPs and PNs**

Self-reported physical activity level (N=602)	GP Frequency (%)	PN Frequency (%)
Sedentary	16 (3)	10 (1)
Relatively inactive	101 (17)	104 (15)
Relatively active	338 (56)	461 (64)
Highly active	147 (24)	148 (20)

### ***Descriptive findings from the surveys***

The following sections report findings from the surveys. The findings are presented under the following headings: beliefs and attitudes; training, knowledge, self-efficacy, and information sources; causes and consequences of obesity; weight management practices, experiences and improvement options for male weight management and finally general practice culture and environment.

## **Beliefs and attitudes**

This section presents the findings from questions which assessed whether GPs and PNs considered weight management to be part of their role and that of their health professional counterpart, as well as whether they deemed obesity a chronic disease. Furthermore, their beliefs regarding responsibility for weight gain and loss were explored as were their beliefs regarding their responsibility to be role models for their patients. Their views about the credibility of weight management advice from GPs and PNs who are themselves overweight or obese were sought, as were their perceptions of obese men.

Table 4.7 reports the level of agreement of GPs and PNs with the statement that weight management is a function of their role and that of their health professional counterpart, PN or GP.

**Table 4.7: Level of agreement of GPs and PNs with the statement, ‘weight management is a function of their role and that of their health professional counterpart in general practice’**

<b>GPs</b>	<b>Strongly disagreed or Disagreed N (%)</b>	<b>Neither agreed or disagreed N (%)</b>	<b>Agreed or strongly agreed N (%)</b>	<b>Mean</b>	<b>Median</b>	<b>Answered question</b>
<b>Weight management is part of the role of a GP</b>	33 (5.5)	20 (3.3)	550 (91.2)	4.2	4.0	603
<b>Weight management is part of the role of a PN</b>	29 (4.9)	22 (3.7)	544 (91.4)	4.2	4.0	595
<b>PNs</b>	<b>Strongly disagreed or Disagreed N (%)</b>	<b>Neither agreed or disagreed N (%)</b>	<b>Agreed or strongly agreed N (%)</b>	<b>Mean</b>	<b>Median</b>	<b>Answered question</b>
<b>Weight management is part of the role of a PN</b>	40 (5.5)	18 (2.5)	673 (92.1)	4.2	4.0	731
<b>Weight management is part of the role of a GP</b>	42 (5.9)	27 (3.8)	645 (90.3)	4.1	4.0	714

There was overwhelming agreement from both groups that weight management was part of their role and that of their health professional counterpart.

Next respondents were asked to rate their agreement with the statement, 'obesity is a chronic disease'. The results are provided in Table 4.8.

**Table 4.8: Level of agreement of GPs and PNs with the statement, 'obesity is a chronic disease'.**

Professional group	Strongly disagreed or Disagreed N (%)	Neither agreed or disagreed N (%)	Agreed or strongly agreed N (%)	Mean	Median	Answered question
GPs	38 (6.3)	35 (5.8)	530 (87.9)	4.3	5.0	603
PNs	39 (5.3)	29 (4.0)	664 (91.0)	4.4	5.0	732

Both groups considered obesity to be a chronic disease. This question generated eleven comments from GPs and four from PNs. Across both groups those who disagreed with the statement expressed the view that they considered obesity to be a risk factor. Within the GP group comments were also made regarding the social context of obesity.

*I disagree with disease modelling this social phenomenon. It is important but not a disease. (Male GP)*

*Really I think obesity is a social issue more than a medical one. (Female GP)*

The next question examined whether GPs and PNs believed individuals to be responsible for their weight and therefore their weight loss.

**Table 4.9: Level of agreement of GPs and PNs with the statement, 'individuals are responsible for their obesity and therefore the management of their weight loss'.**

	Strongly disagreed or Disagreed N (%)	Neither agreed or disagreed N (%)	Agreed or strongly agreed N (%)	Mean	Median	Answered question
GPs	57 (9.5)	121 (20.1)	423 (70.4)	3.8	4.0	601
PNs	105 (14.4)	155 (21.2)	470 (64.4)	3.7	4.0	730

The trend in both groups is towards agreement with the statement, however approximately one in three of both groups either disagreed or neither agreed or disagreed. This question generated multiple comments, with 97 from GPs and 194



from PNs. Thematic analysis of the comments generated two common themes across the professional groups, with a third theme emerging from the GP comments. The two common themes and associated illustrative quotes are presented below, followed by the third GP only theme.

### ***Management of obesity is a partnership***

*Obesity management is a TEAM approach needing input and cooperation from the individual and education/investigation/monitoring and management by the GP and PN. (Female GP)*

*As obesity is a chronic health condition it is both the responsibility of both the individual and the health professionals to work together to try and manage/improve it. (PN)*

### ***Obesity is a complex issue***

*Obesity is of multifactorial causation. Not the patient's fault. Most factors are beyond the patient's control: genetics, climate, medications, pollution, epigenetics, etc. (Male GP)*

*There are many factors responsible for obesity, e.g. culture, socioeconomic conditions, medical conditions etc. (PN)*

### ***Patients are responsible for their health***

*Patients are generally somewhat responsible for their health. This includes many aspects not just obesity. (Female GP)*

*GPs are not responsible for everything happening in a patient's life. We cannot live other people's lives for them. (Male GP)*

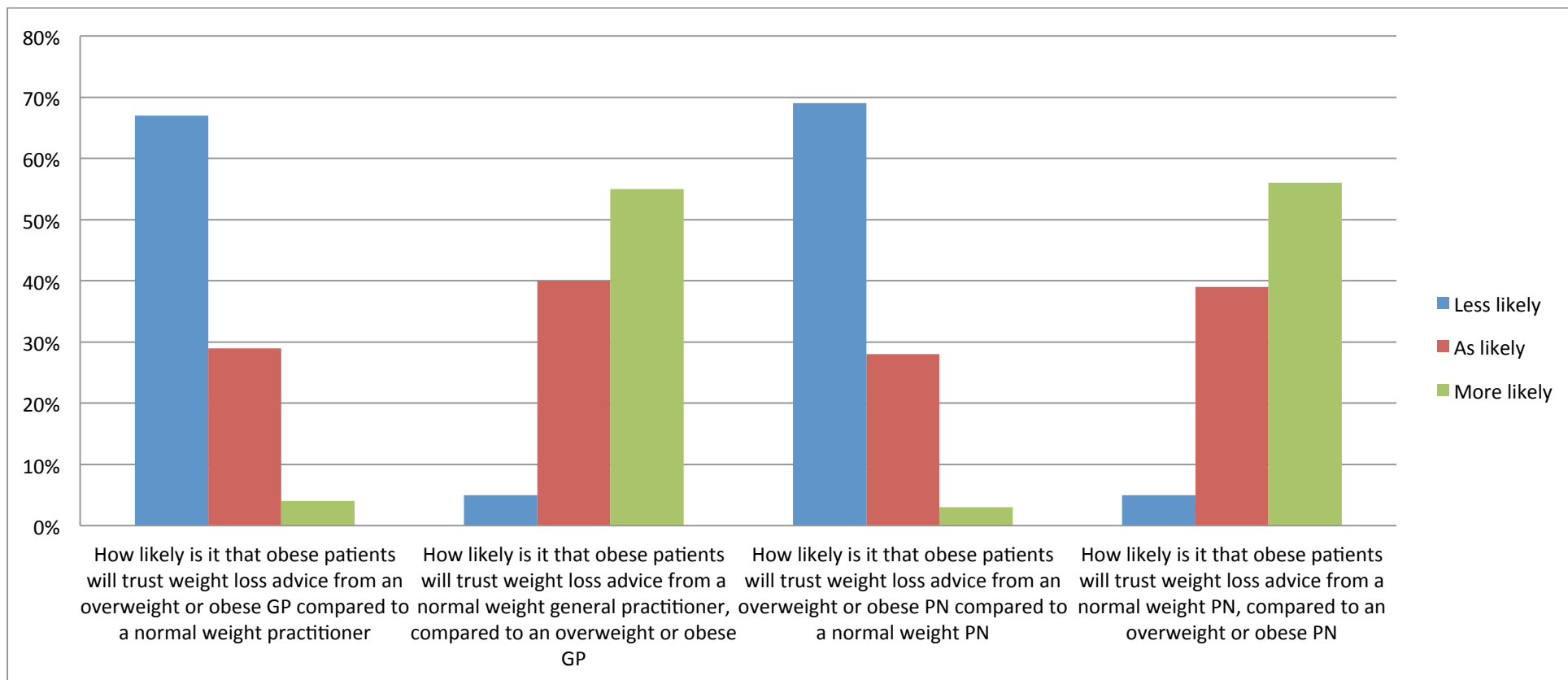
General practitioners and PNs were also asked whether they believed they had a role modelling responsibility to their patients. The results are presented in Table 4.10.

**Table 4.10: Agreement of GPs and PNs with the idea that they ought to be role models for their patients by maintaining a healthy weight and exercising regularly.**

<b>Maintaining a healthy weight</b>	<b>Strongly disagreed or Disagreed N (%)</b>	<b>Neither agreed or disagreed N (%)</b>	<b>Agreed or strongly agreed N (%)</b>	<b>Mean</b>	<b>Median</b>	<b>Answered question</b>
GPs	21 (3.5)	76 (12.7)	500 (83.8)	4.0	4.0	597
PNs	20 (2.8)	75 (10.4)	628 (86.9)	4.0	4.00	723
<b>Exercising regularly</b>						
<b>Exercising regularly</b>	<b>Strongly disagreed or Disagreed N (%)</b>	<b>Neither agreed or disagreed N (%)</b>	<b>Agree or strongly agreed N (%)</b>	<b>Mean</b>	<b>Median</b>	<b>Answered question</b>
GPs	19 (3.2)	60 (10.1)	518 (86.8)	4.0	4.0	597
PNs	20 (2.8)	75 (10.4)	625 (86.8)	4.0	4.00	720

Over 80% of both sets of respondents agreed or strongly agreed they had a responsibility to role model a healthy weight and participation in regular exercise to their patients.

Participants were also asked if they thought the weight of a GP or PN influenced how an obese patient assessed the trustworthiness of weight loss advice. Figure 4.1 illustrates the results of this two part question for both groups of health professionals.



**Figure 4.1: GP and PN views regarding the relationship between weight of the GP or PN and an obese patient's trust in their weight loss advice**

The pattern of results generated by the responding GPs (N=589 and N=588) and PNs (N=719 for both questions) are the same. Both groups consider an obese patient is less likely to trust the weight loss advice of a primary care professional if they are overweight or obese but more likely to trust it if they are a normal weight. The GP survey contained 30 related comments, with 35 documented in the PN surveys; all encompassed three themes. Labels for each theme were developed and these with their associated quotes follow.

### ***Connection and empathy***

*Because, you as the GP can understand their struggle if you are fat too. (GP)*

*As an obese nurse I have many patients who prefer to see me for Care Plus or smears. They tell me that they are more comfortable with me as I understand their troubles better. (PN)*

*I have been obese and know the difficulties re weight loss, self-image, depression etc. I managed (with support) to lose 22kg over 6 months and have managed to stay the same weight for nearly 10 years. It's a long and difficult journey. (PN)*

Conversely disconnection was expressed.

*Because I eat what I like and have never had to diet I find it difficult to understand how my overweight patients manage not to lose weight on what they say they eat (which appears to be a lot less than I eat!). (GP)*

### ***Trust and rapport***

*Good relationship the most important. (GP)*

*If there is a good rapport then nurses own weight is not so important, unless extremely skinny or morbidly obese. (PN)*

*It doesn't matter re size of nurse educator as long as information/ education is provided that is informative and accurate. (PN)*

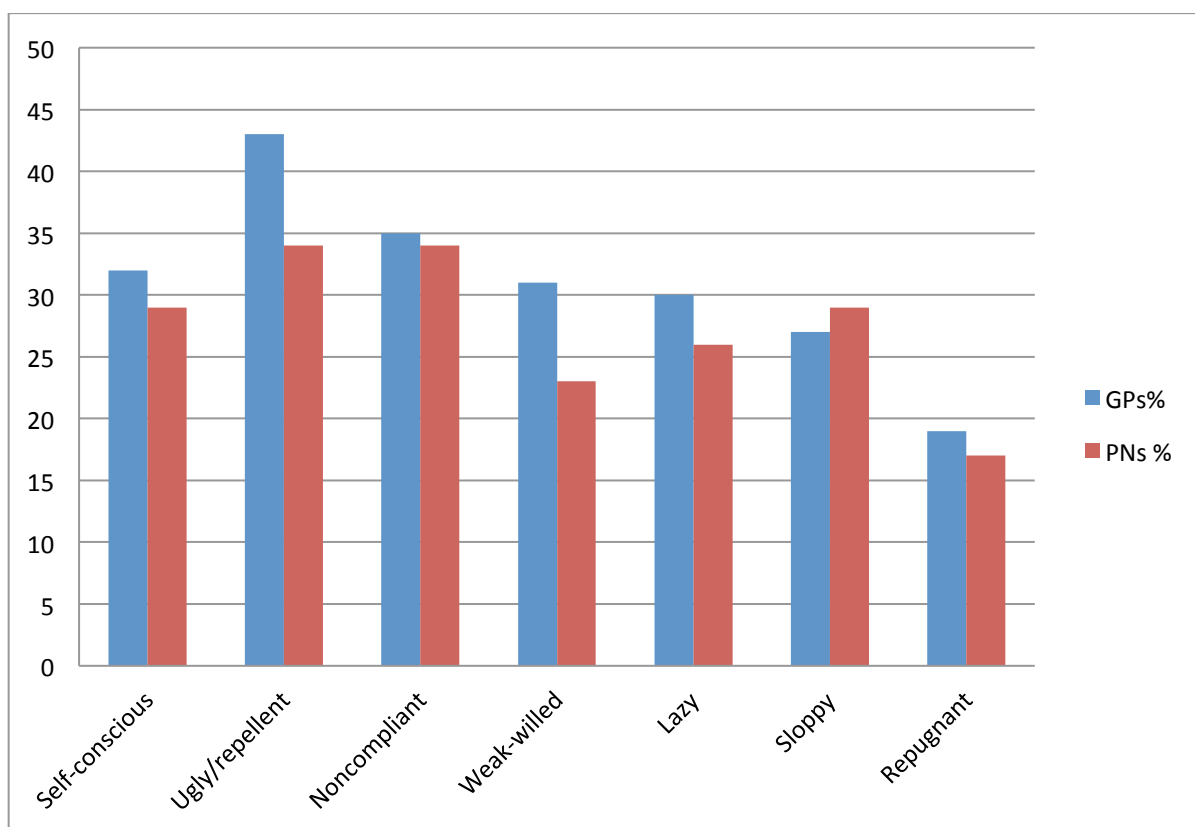
### ***Experiences of providing weight loss advice***

*My BMI is 19.5. Many patients who are overweight have a "well, it's alright for you" attitude. (GP)*

*Having a low BMI myself, I have found counselling obese clients can be difficult. They may think, 'She's too skinny' or 'It's easy for her'. I feel like I am passing judgement and feel uncomfortable weighing a person whose BMI is over 40. (PN)*

*I changed my lifestyle and I have had more success with patients when I am of a more acceptable weight myself than when I was obese. (PN)*

The survey invited participants to document their views on attributes of larger men. A five-point scale was used, with opposing adjectives, anchored at either end. The negative term was anchored on the left of the scale. Figure 4.2 illustrates the percentage of GPs and PNs who reported holding negative perceptions of obese men.



**Figure 4.2: Percentage of GPs and PNs who hold negative perceptions of obese men.**

This was the question within the survey that was answered by the least number of responders from both groups. Five hundred eighty-seven to five hundred eighty-nine GPs answered the various components of the question and for PNs the numbers were 698-700. Depending on the descriptor used between 19-43% of GPs and 17-34% of PNs hold negative views. For the GP cohort, four of the descriptive terms appeared to drive the negative perceptions with median scores of two. These terms were: ugly, non-compliant, weak willed, and repugnant. Within the PN cohort, the median value was three, with mean values all close to this figure. One in three PNs considered large men ugly/repellent and noncompliant.

This question produced 78 comments from GPs, with 121 from PNs. These were thematically analysed. Three themes were common to both groups, namely: it is individual and dependent on many factors; obesity can affect perceptions and I do not judge. Two additional themes emerged from the PN comments. These were, understanding the context of their lives and experiences of working with larger men. Category labels and associated representative quotes are presented below.

### ***It is individual and dependent on many factors***

*Many of the "desirable" traits are projected by wealth, education, clothing, and personal hygiene. (Male GP)*

*Every individual obese male is an individual and I cannot perceive them all to be the same. Many have different attributes, some good and some bad. (PN)*

### ***Obesity can effect perceptions***

*When I was morbidly obese I still had negative perception of other obese people and consciously had to challenge them. I also grow up in the society that saw obesity negatively and learnt the same prejudices. (Female GP)*

*I am obese myself, yet I dislike the look of obese people. (PN)*

### ***I do not judge***

*I don't operate this way. My approach is problem-based; i.e. obesity is a problem for the person and the whole society. It makes no point for me to cast values, which only add to the problem. Male GP.*

*I cannot answer, as a nurse I am no judge of my patients, I do not have any personal views that effect my treatment of patients. (PN)*

### ***Understanding the context of their lives***

*Understanding their context i.e. our Samoan and Pacific patients are culturally coming from a different place. (PN)*

*Have they lost their job through redundancy & become despondent, lowered self-esteem, worried, poorer, less money to go to gym, golf, less money for good healthy food for self and family. (PN)*

### ***Experiences of working with larger men***

*Interestingly, obese men don't seem to have the self-esteem issues that women have. They seem to have a "this is me, like it or lump it", attitude on the whole. (PN)*

*Often obese men are jovial and very pleasant. They seldom come across to me as negative, just accepting of where they are at. They are often less likely to have a complex about being overweight. (PN)*

### **Summary**

Both GPs and PNs agreed weight management was part of their role and that obesity is a chronic disease. While the majority of both groups agreed that individuals are responsible for their obesity and the management of their weight loss, the numerical finding was moderated by the numerous comments. Both groups agreed they have a responsibility to role model aspects of healthy living. Comparable results from both groups emerged in relation to the influence of the weight of the primary care professional on the assessed trustworthiness of their advice. Comments from PNs suggested other factors this group felt affected how obese men perceived weight loss advice. Finally, varying levels of negative perceptions towards obese men were found to exist within both groups.

The following section reports the results of questions that examined satisfaction with obesity education during training; on-going training undertaken; comfort in completing an abdominal examination of an obese abdomen or measuring a WC; self-assessment of knowledge and competency regarding factors associated with weight loss management, as well as, sources of information and support accessed.

### **Training, knowledge, self-efficacy and information sources**

Respondents were asked to indicate their views regarding the obesity management education they received during their training. Of the 599 GPs who answered, 64% considered it to be very poor or poor, with 42 (7%) rating it as good or very good. The findings were similar for PNs with 60% of 723 who responded to the question considering their obesity education to be very poor or poor. Only 14% judged it to be good or very good.

General practitioners were asked if they had completed a Continuing Medical Education (CME) session or learning activity on obesity management within the last five years. Of the 603 who answered, 43% (N=259) responded that they had completed some obesity management education in the last five years. Similarly PNs were asked if they had completed a Continuing Nursing Education (CNE) session or learning activity on obesity management within the last five years. Of the 728 who

answered, 41% (N=296) indicated they had completed some obesity management education.

General practitioners were asked whether or not they had undertaken any specific training or specifically been taught how to examine an obese male patient. Fifty-nine (9.78%) reported having either undertaken specific training or being specifically taught how to examine obese patients since qualifying. Comfort in examining an obese abdomen was also assessed. Of the 604 who answered this question, 66% (N=396) stated they were comfortable or very comfortable in examining an obese abdomen. The comfort level of PNs in undertaking a WC measurement on an obese male patient was also assessed. The majority, 72% of responders (N=727) stated they were comfortable or very comfortable in undertaking this task.

Knowledge of a variety of weight loss approaches was also assessed. Participant's self-rated knowledge is presented in Table 4.11.



**Table 4.11: Self-rated knowledge of various weight loss strategies**

<b>Professional group</b>	<b>Very poor or Poor N (%)</b>	<b>Fair N (%)</b>	<b>Good or very good N (%)</b>	<b>Mean</b>	<b>Median</b>	<b>Answered question</b>
GPs knowledge of healthy eating for weight loss	13 (2.2)	137 (22.7)	453 (75.1)	4.0	4.0	603
PNs knowledge of healthy eating for weight loss	2 (0.3)	72 (9.9)	657 (89.9)	4.3	4.0	731
<b>Physical activity</b>						
GPs knowledge of physical activity for weight loss	8 (1.3)	103 (17.1)	491 (81.6)	4.1	4.0	602
PNs knowledge of physical activity for weight loss	3 (0.4)	63 (8.6)	663 (91.0)	4.2	4.0	729
<b>Weight loss medications</b>						
GPs knowledge of weight loss medications	43 (7.1)	174 (28.9)	386 (64.0)	3.7	4.0	603
PNs knowledge of weight loss medications	289 (39.6)	301 (41.3)	139 (19.1)	2.8	3.0	729
<b>Surgical options</b>						
GPs knowledge of surgical options for weight loss	31 (5.2)	185 (30.7)	386 (64.1)	3.7	4.0	602
PNs knowledge of surgical options for weight loss	177 (24.3)	334 (45.9)	217 (29.8)	3.1	3.0	728
<b>Community resources</b>						
GPs knowledge of community resources to support people trying to lose weight	94 (15.6)	260 (43.1)	249 (41.3)	3.3	3.0	603
PNs knowledge of community resources to support people trying to lose weight	59 (8.1)	210 (28.8)	461 (63.2)	3.7	3.0	730

The majority of responders in both groups rated their knowledge of healthy eating and physical activity for weight loss as good or very good. Not surprisingly, more GPs rated their knowledge of medications and surgical interventions for weight loss, as good or very good compared to their PN colleagues. Practice nurses were more likely to rate their knowledge of community resources as good or very good.

Participants were also asked to rate their competence in providing counselling related to healthy eating and physical activity for weight loss. These findings are presented in Table 4.12.

**Table 4.12: Self-rated competence in providing counselling related to diet and physical activity for weight loss.**

<b>Professional group</b>	<b>Very poor or Poor N (%)</b>	<b>Fair N (%)</b>	<b>Good or very good N (%)</b>	<b>Mean</b>	<b>Median</b>	<b>Answered question</b>
GPs competence at providing counselling about diet for healthy weight loss	27 (4.5)	189 (31.3)	387 (64.2)	3.7	4.0	603
GPs competence at providing counselling about exercise/physical activity for healthy weight loss	11 (1.8)	140 (23.2)	452 (75.0)	3.9	4.0	603
PNs competence at providing counselling about diet for healthy weight loss	30 (4.1)	167 (22.9)	534 (73.1)	3.8	4.0	731
PNs competence at providing counselling about exercise/physical activity for healthy weight loss	19 (2.6)	165 (22.6)	546 (74.8)	3.9	4.0	730

General practitioners were more likely to rate their competency to provide counselling regarding exercise for healthy weight loss as good or very good, compared to dietary counselling. Practice nurses rated their competency in providing both types of counselling similarly.

The majority of GPs (74%, N=446) reported not using guidelines to assist them in the provision of weight management advice (602 answered this question). Conversely, the majority of PNs (N=414, 58.1%) stated they used guidelines. For GPs the most frequently mentioned guidelines were:

- Body-Mass Index,<sup>(246)</sup>
- Cardiovascular Risk Assessment Guidelines,<sup>(486)</sup>
- Best Practice Advocacy Centre resources;
- Waist Circumference.<sup>(246)</sup>

For PNs the most frequently mentioned guidelines were:

- The New Zealand Primary Health Care Handbook 2012,<sup>(487)</sup>
- Body-Mass Index,<sup>(246)</sup>
- Cardiovascular Risk Assessment Guidelines.<sup>(486)</sup>

The NZ Weight Management Guidelines for Adults 2009,<sup>(246)</sup> was mentioned twice by GPs and sixteen times by PNs.

Both groups cited a wide range of information sources and support used to assist them in the provision of weight management. The National Heart Foundation was the most widely mentioned source of information by both groups. General practitioners also mentioned CME, peer group meetings and conferences. In addition, the internet was named as a popular source of information, as was the Healthy Food Guide<sup>B</sup>. The internet was also a frequently mentioned source of information by PNs, as was Diabetes NZ, Appetite for Life, the Best Practice Advocacy Centre and the Ministry of Health.

A wide variety of weight management resources which may not be based on science or long-term research were also documented as sources of information, with PNs more likely to list these, however some were also listed by GPs. Mostly these were only listed once; they do however indicate the possibility that primary care health professionals may not always be accessing the most appropriate information

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<sup>B</sup> New Zealand Healthy Food Guide. [www.healthyfood.co.nz](http://www.healthyfood.co.nz)

to share with their patients. Table 4.13 presents a list of these resources and which group documented using them.

**Table 4.13: List of resources with unconfirmed evidence base and professional group who documented using the resource**

Resource	Health professional
The Obesity Myth – Professor Paul Camposs	PN
Fat Chance – Susan Maiava	PN
Real Weight Loss – Professor Doug Sellman	PN
The Gabrielle Method	PN
Eat what you love. Love what you eat	PN
Metagenics	PN
Dr Sandra Cabot Syndrome X	PN
The whole 9 or the whole 30 programme	PN & GP
The Kiss Diet Club	PN
Amlhungry.com	GP
Eat to live - Joel Fuhrman	GP
Size Does Matter – Mary-Rose Spense	GP
Developed own resource	GP

The source of support most frequently documented by both groups was the Green Prescription<sup>(488)</sup> and dieticians.

### **Summary**

Both GPs and PNs considered their undergraduate education regarding obesity management as poor. Within the last five years less than 50% of both groups have undertaken any further learning in the area. The majority of responders rated their knowledge of healthy eating and physical activity for weight loss as good or very good, however competence in providing weight management counselling was rated lower. While the reported use of guidelines (and specifically the NZ Weight Management Guidelines for Adults 2009) to assist with weight management was low amongst GPs, nearly 60% of PNs reported using them. Sources of information, other than guidelines and support were acknowledged by both groups.

The following section presents findings related to questions asked to gain an appreciation of GPs and PNs knowledge and understanding of the causes and consequences of obesity in men.

## ***Causes and consequences of obesity***

The question which sought to understand how primary care health professionals conceptualise causation in relation to male obesity was divided into six sections. Their level of agreement with a series of questions relating to the following influences was sought: food and activity influences; biological and psychological influences and societal and personal influences. For clarity the results for each series of questions is presented separately.

**Table 4.14: GP and PN views regarding the influence of food behaviours and nutritional knowledge on body weight in men**

<b>GPs</b>	<b>Strongly disagreed or disagreed N (%)</b>	<b>Neither agreed or disagreed N (%)</b>	<b>Agreed or strongly agreed N (%)</b>	<b>Mean</b>	<b>Median</b>	<b>Answered question</b>
Overeating	4 (0.7)	14 (2.3)	585 (97.0)	4.4	5.0	603
A diet high in fat	16 (2.7)	49 (8.1)	538 (89.2)	4.2	4.0	603
Poor nutritional knowledge	14 (2.3)	43 (7.1)	545 (90.5)	4.2	4.0	602
Repeated dieting	167 (27.9)	249 (41.6)	182 (30.4)	3.0	3.0	598
<b>PNs</b>	<b>Strongly disagreed or disagreed N (%)</b>	<b>Neither agreed or disagreed N (%)</b>	<b>Agreed or strongly agreed N (%)</b>	<b>Mean</b>	<b>Median</b>	<b>Answered question</b>
Overeating	5 (0.7)	26 (3.6)	695 (95.7)	4.4	4.0	726
A diet high in fat	8 (0.8)	18 (2.5)	704 (96.7)	4.4	4.0	728
Poor nutritional knowledge	37 (5.1)	62 (8.5)	647 (88.9)	4.3	4.0	728
Repeated dieting	197 (27.7)	315 (44.2)	200 (28.1)	3.0	3.0	712

The results show both groups agree or strongly agree that overeating, a high fat diet and poor nutritional knowledge all contribute to a higher body weight in men. About 1 in 3 think repeated dieting is influential. The mean and median values showed a high level of agreement.

**Table 4.15: GP and PN views regarding physical inactivity as an influence on male body weight**

<b>GPs</b>	<b>Strongly disagreed or disagreed N (%)</b>	<b>Neither agreed or disagreed N (%)</b>	<b>Agreed or strongly agreed N (%)</b>	<b>Mean</b>	<b>Median</b>	<b>Answered question</b>
Physical inactivity	7 (1.2)	13 (2.2)	583 (96.7)	4.4	4.0	603
Too many hours watching TV	16 (2.7)	141 (23.5)	444 (73.9)	3.9	4.0	601
<b>PNs</b>	<b>Strongly disagreed or disagreed N (%)</b>	<b>Neither agreed or disagreed N (%)</b>	<b>Agreed or strongly agreed N (%)</b>	<b>Mean</b>	<b>Median</b>	<b>Answered question</b>
Physical inactivity	4 (0.6)	28 (3.8)	697 (95.6)	4.4	4.0	729
Too many hours watching TV	26 (3.6)	217 (29.9)	482 (66.45)	3.8	4.0	725

The majority of GPs and PNs view physical inactivity as a key causal factor.

**Table 4.16: GP and PN views regarding biological influences on male body weight**

<b>GPs</b>	<b>Strongly disagreed or disagreed N (%)</b>	<b>Neither agreed or disagreed N (%)</b>	<b>Agreed or strongly agreed N (%)</b>	<b>Mean</b>	<b>Median</b>	<b>Answered question</b>
Genetic factors	28 (4.6)	72 (11.9)	504 (83.4)	4.0	4.0	604
Metabolic defects	102 (17.0)	182 (30.3)	307 (51.1)	3.3	4.0	601
Endocrine defects	172 (28.7)	218 (36.3)	210 (35.0)	3.0	3.0	600
<b>PNs</b>	<b>Strongly disagreed or disagreed N (%)</b>	<b>Neither agreed or disagreed N (%)</b>	<b>Agreed or strongly agreed N (%)</b>	<b>Mean</b>	<b>Median</b>	<b>Answered question</b>
Genetic factors	40 (5.5)	190 (26.1)	497 (68.4)	3.7	4.0	727
Metabolic defects	63 (8.7)	279 (38.5)	382 (52.8)	3.5	4.0	724
Endocrine defects	62 (8.6)	317 (43.8)	345 (47.7)	3.4	3.0	724

Of the biological factors listed, GPs and PNs were more likely to agree or strongly agree that genetic factors played a part in male obesity. The following table presents the views of GPs and PNs regarding the psychological influences on male weight.



**Table 4.17: GP and PN views regarding psychological influences on male body weight**

<b>GPs</b>	<b>Strongly disagreed or disagreed N (%)</b>	<b>Neither agreed or disagreed N (%)</b>	<b>Agreed or strongly agreed N (%)</b>	<b>Mean</b>	<b>Median</b>	<b>Answered question</b>
Depression	21 (3.5)	119 (19.8)	462 (76.8)	3.8	4.0	602
Risk taking tendencies	119 (19.9)	307 (51.3)	173 (28.9)	3.1	3.0	599
<b>PNs</b>	<b>Strongly disagreed or Disagreed N (%)</b>	<b>Neither agreed or disagreed N (%)</b>	<b>Agreed or strongly agreed N (%)</b>	<b>Mean</b>	<b>Median</b>	<b>Answered question</b>
Depression	14 (1.9)	122 (16.8)	427 (58.9)	4.0	4.0	725
Risk taking tendencies	104 (14.6)	338 (47.3)	273 (38.2)	3.2	3.0	715

While there was a difference in the percentage of each group agreeing or strongly agreeing with the role of depression and risk taking tendencies in relation to men's weight, the mean and median values were similar.

**Table 4.18: Views of GPs and PNs regarding societal influences on body weight**

<b>GPs</b>	<b>Strongly disagreed or disagreed N (%)</b>	<b>Neither agreed or disagreed N (%)</b>	<b>Agreed or strongly agreed N (%)</b>	<b>Mean</b>	<b>Median</b>	<b>Answered question</b>
The environment	41 (6.8)	99 (16.5)	460 (76.7)	3.9	4.0	600
Socio-economic determinants	16 (2.7)	54 (9.0)	533 (88.4)	4.2	4.0	603
Cultural determinants	13 (2.2)	45 (7.5)	546 (90.4)	4.2	4.0	604
Food insecurity	99 (16.4)	214 (35.4)	291 (48.2)	3.4	3.0	604
Lack of supportive legislation	168 (27.9)	205 (34.0)	230 (38.1)	3.1	3.0	603
<b>PNs</b>	<b>Strongly disagreed or disagreed N (%)</b>	<b>Neither agreed or disagreed N (%)</b>	<b>Agreed or strongly agreed N (%)</b>	<b>Mean</b>	<b>Median</b>	<b>Answered question</b>
The environment	57 (7.9)	144 (19.9)	521 (72.2)	3.8	4.0	722
Socio-economic determinants	20 (2.7)	55 (7.5)	654 (89.7)	4.2	4.0	729
Cultural determinants	12 (1.7)	61 (8.4)	655 (90.0)	4.2	4.0	728
Food insecurity	103 (14.2)	227 (31.4)	394 (54.4)	3.5	4.0	724
Lack of supportive legislation	207 (28.9)	327 (45.6)	185 (25.8)	2.9	3.0	717

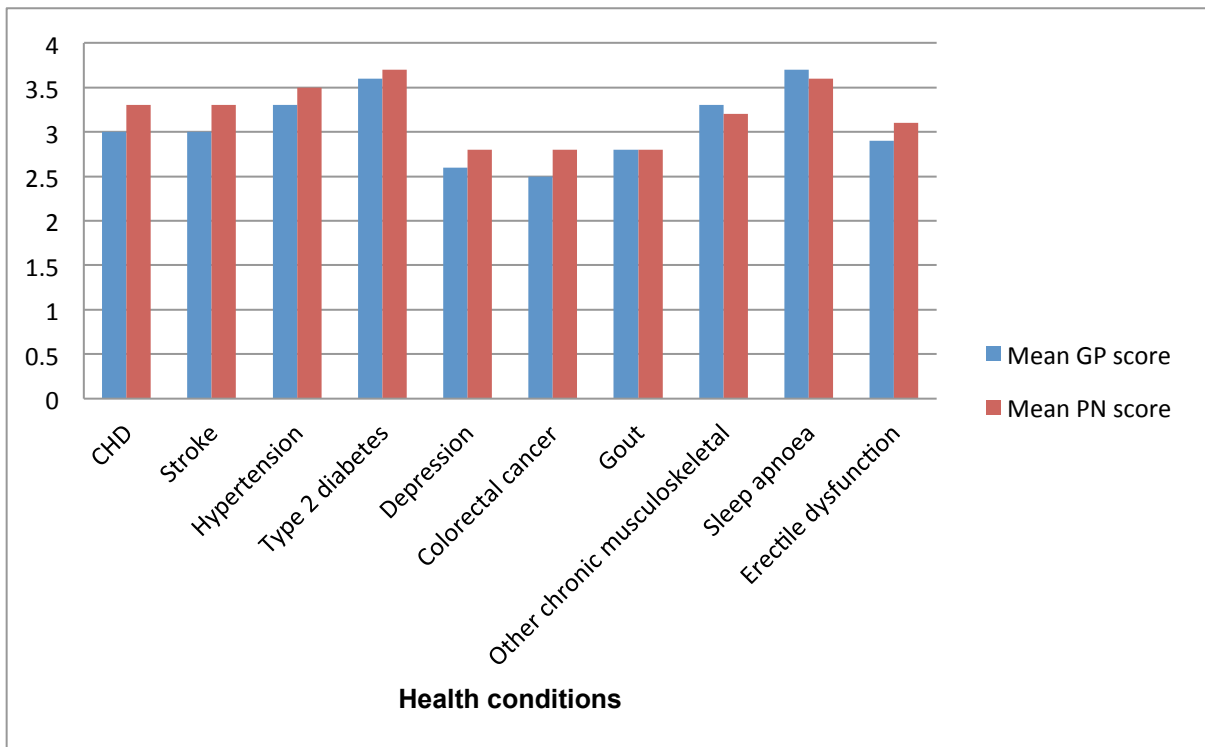
There was strong alignment of the views of GPs and PNs regarding the influence of the various societal factors listed. The final set of questions assessed the view of both groups regarding the role of personal characteristics on body weight.

**Table 4.19: GP and PN views regarding personal influences on male body weight**

<b>GPs</b>	<b>Strongly disagreed or Disagreed N (%)</b>	<b>Neither agreed or disagreed N (%)</b>	<b>Agreed or strongly agreed N (%)</b>	<b>Mean</b>	<b>Median</b>	<b>Answered question</b>
Lack of will power	61 (10.1)	161 (26.7)	381 (63.2)	3.6	4.0	603
Lack of motivation	41 (6.8)	77 (12.8)	486 (80.5)	3.9	4.0	604
Lack of understanding regarding the causes of obesity	46 (7.7)	115 (19.1)	440 (73.2)	3.8	4.0	601
Lack of health literacy	41 (6.8)	130 (21.5)	433 (71.7)	3.8	4.0	604
<b>PNs</b>	<b>Strongly disagreed or Disagreed N (%)</b>	<b>Neither agreed or disagreed N (%)</b>	<b>Agreed or strongly agreed N (%)</b>	<b>Mean</b>	<b>Median</b>	<b>Answered question</b>
Lack of will power	57 (7.9)	154 (21.2)	515 (70.9)	3.8	4.0	726
Lack of motivation	24 (3.3)	72 (9.9)	630 (86.8)	4.1	4.0	726
Lack of understanding regarding the causes of obesity	36 (5.0)	70 (9.7)	616 (85.3)	4.0	4.0	722
Lack of health literacy	54 (7.5)	107 (14.8)	564 (77.8)	3.9	4.0	725

Consideration of the mean and median values illustrates a strong alignment between the views of the GPs and PNs regarding personal factors that influence male body weight. Lack of motivation was considered the most influential characteristic by both groups.

As well as the causes participants were also asked about the medical consequences of obesity. Responders were asked to rate the risk of a non-smoking obese male developing a range of health problems compared to a non-smoking male with a normal body-mass index. One equalled the same risk, with four equating to a high risk. The results are presented in Figure 4.3.



**Figure 4.3: The mean scores of GPs and PNs regarding the risk of a non-smoking obese male developing a variety of health conditions compared to a normal weight non-smoking male**

Both GPs and PNs considered an obese non-smoking male to be at a mildly increased risk of developing depression, colorectal cancer and gout. In addition, GPs considered their risk of erectile dysfunction to be mildly elevated.

To summarise these findings, both groups appear to have a good understanding of the multifactorial causes of obesity. While the behavioural determinants are still rated as the significant drivers of obesity in men, there was strong acknowledgement of the role of societal drivers. Sleep apnoea and type 2 diabetes were rated as the most likely health consequences a non-smoking obese male would experience compared to his normal weight counterpart.

The next section reports the results in relation to the questions that explored weight management activity and experiences in general practice and preferred options for improving weight management for men.

## ***Weight management practices, experiences and improvement options for male weight management***

Initiating a conversation about weight is the first step in weight management. Respondents were asked about when they raised the topic of weight. The responses of both groups are presented in Table 4.20.

**Table 4.20: When the topic of weight is raised**

<b>Times weight is discussed</b>	<b>GP No N (%)</b>	<b>GP Yes N (%)</b>	<b>PN No N (%)</b>	<b>PN Yes N (%)</b>
If he is overweight and is at risk of becoming obese	95 (15.8)	505 (84.2)	127 (17.6)	595 (82.4)
If he is obese	19 (3.2)	585 (96.9)	54 (7.5)	668 (95.5)
If he is at risk of developing a weight related chronic condition	6 (1.0)	597 (99.0)	17 (2.3)	710 (97.7)
Teachable moments – when he presents with a condition affected by this obesity	3 (0.5)	601 (99.5)	5 (0.7)	722 (99.3)
When he wants to discuss it	17 (2.8)	587 (97.2)	28 (3.9)	696 (96.1)
If he is a new patient	302 (50.6)	295 (49.4)	303 (42.5)	410 (57.5)

The findings were similar in both groups. The first consultation with a new male patient was identified as the time GPs and PNs were least likely to raise the topic of weight. Even so, approximately 50% of GPs and nearly 60% of PNs reported they would discuss a patient's weight at an initial consultation. The chances of weight being discussed in a consult rose substantially once a man became obese. It was notable that over 80% of both groups said they would raise the topic if the man was overweight. General practitioners documented the following as times they would use to raise the topic of weight: a well man check; healthy lifestyle review, cardiovascular and diabetes risk assessment, pre-employment check or when the individual had disclosed a family history of hypertension, diabetes or raised cholesterol. Practice nurses documented over a hundred related comments in association with this question. The comments were thematically analysed and category labels developed. The first and largest category links closely to the comments made by GPs.

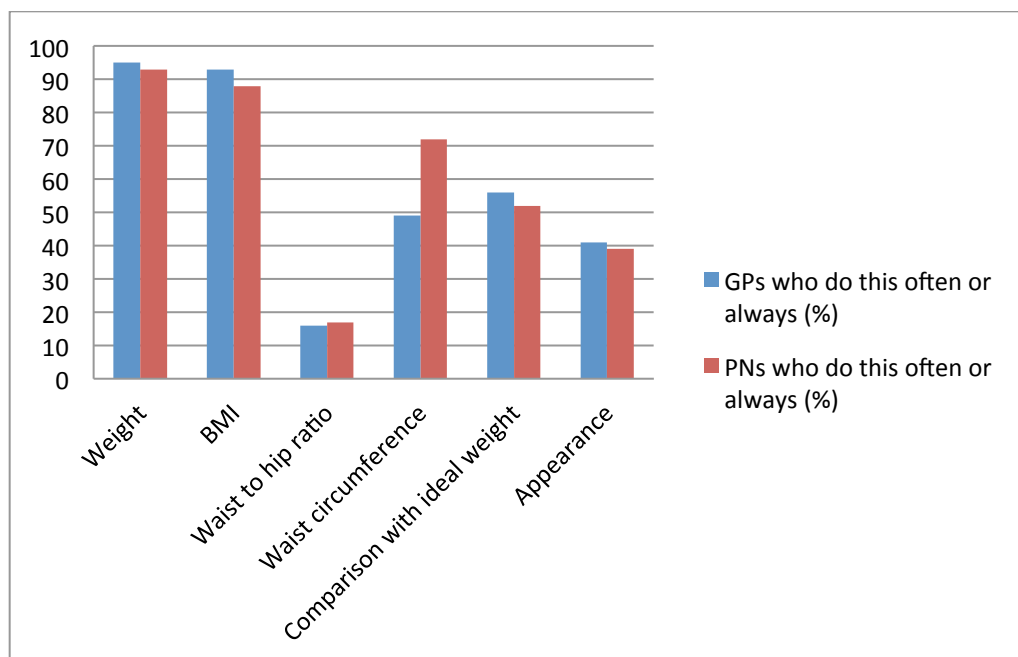
### ***Times when PNs felt that raising the topic of overweight was legitimate:***

- *During a cardiovascular risk assessment (CVRA);*

- *At a diabetes annual review;*
- *General wellness check;*
- *When providing blood test results – lipids, glucose etc;*
- *During a Care Plus appointment;*
- *During an insurance medical, pre-employment check or driver’s medical;*
- *When updating records/dashboard on medtech;*
- *During enrolment process of new patient.*

The two other PN themes were opportunistically, and after trust and rapport have been established. Clearly having a legitimate reason for raising the topic of a person’s weight was deemed important by both GPs and PNs.

General practitioners and PNs were asked about their frequency of using different measurements and approaches to diagnosing obesity. These questions were answered by between 592-596 GPs and between 705-721 PNs. Their frequency of undertaking these often or always is shown in Figure 4.4.



**Figure 4.4: Frequency of using different measurements and approaches to diagnose obesity**

Weighing a patient and calculating their body-mass index were the two most popular methods of measuring excess adiposity. Conversely, waist to hip ratio was the least frequently employed method. Waist circumference was used by 72% of PNs.

Participants were asked to rate how important they considered various aspects of weight management counselling to be. The question was framed around the 5As approach for weight management: Ask, Assess, Advise, Assist and Arrange.<sup>(258)</sup> For this question the scale was a three point scale with one equaling not important and three equaling very important. The numbers of those who considered the various aspects very important and the overall mean and median scores for each professional group are presented in Table 4.21.

**Table 4.21: Perceived importance of different components of the 5As approach to obesity management**

5As		Very important GP N (%)	Mean	Median	Very important PN N (%)	Mean	Median
<b>Ask</b>	Documenting the patient's BMI and waist circumference	386 (64.9)	2.6	3.0	497 (69.3)	2.6	3.0
	Assessing the patient's weight history	285 (48.1)	2.4	2.0	468 (65.2)	2.6	3.0
<b>Assess</b>	Assessing the patient's dietary habits	492 (82.6)	2.8	3.0	674 (93.7)	2.9	3.0
	Assessing the patient's physical activity habits	493 (82.7)	2.8	3.0	662 (92.1)	2.9	3.0
	Assessing patients' readiness to change	490 (82.2)	2.8	3.0	654 (91.2)	2.8	3.0
	Assessing patients' expectations of weight management/loss	400 (67.2)	2.6	3.0	561 (77.9)	2.7	3.0
	Assessing the patients' definition of a successful outcome	376 (63.2)	2.6	3.0	565 (78.6)	2.7	3.0
	Determining goals, problem solving barriers to reaching goals and for relapse prevention	422 (70.8)	2.6	3.0	613 (85.3)	2.8	3.0
<b>Assist</b>	Ability to refer patients to other health care professionals	259 (43.6)	2.3	2.0	481 (67.0)	2.6	3.0
	Involving the man's partner or family	259 (43.6)	2.3	2.0	453 (63.1)	2.6	3.0
<b>Arrange</b>	Reviewing your patient's progress until goal weight achieved	319 (53.8)	2.4	3.0	539 (75.0)	2.7	3.0



These questions were answered by a high number of responding GPs (593-596) and PNs (717-720). Once again there was a significant level of concordance between the two groups. The similarities in mean values diverge slightly in the areas of agreeing, assisting and arranging.

The question generated 58 comments from GPs. The comments reflected an understanding of the importance of the aspects of weight management counselling represented in the question but highlighted the barrier of time.

*There is not enough time for most of this rather than not enough importance. (Female GP)*

*All the above are important and very useful strategies but time is limited in normal general practice. (Male GP)*

Practice nurses also made multiple comments. While they acknowledged the challenge of time and the difficulty in referring patients to dieticians due to access criteria, they also highlighted other factors for assessment, such as health literacy; mental health and cultural or religious dietary requirements. In addition, they emphasised the importance of providing encouragement and support. For example:

*Fat men often avoid doctor visits because they dread confrontations about weight. Encourage them to be healthy at any size, praise every blood test taken, appointment kept, blood pressure improved, medication remembered, sport attempted. (PN)*

Finally, the PN comments stressed the importance of involving the man's partner or whanau, with his consent, especially for Māori, Pacifica and Indian men.

Goal setting is recognised as a key component of weight loss counselling. Participants were therefore asked to rate how important they considered various weight management goals to be. The scale for this question was a five point scale with one equating to unimportant and five to very important. The numbers from each group who considered the various goals to be important or very important and the associated mean and median scores are shown in Table 4.22.

**Table 4.22: GP and PN rating of the importance of a selection of weight management goals**

<b>Weight management goal</b>	<b>Important or very important GP N (%)</b>	<b>Mean</b>	<b>Median</b>	<b>Important or very important PN N (%)</b>	<b>Mean</b>	<b>Median</b>
Improvements in clinical indicators of health	475 (80.2)	4.1	4.0	678 (93.7)	4.5	5.0
Adoption of improved food and exercise habits irrespective of weight loss	525 (88.5)	4.2	4.0	692 (95.6)	4.5	5.0
Improved body image and self-confidence irrespective of weight loss	440 (74.5)	3.9	4.0	628 (87.1)	4.2	4.0
A weight loss of 5-10% of initial body weight	445 (75.3)	3.9	4.0	571 (79.9)	4.0	4.0
Weight loss to the BMI range of 18.5-24.9	138 (23.5)	2.8	3.0	334 (46.7)	3.3	3.0
Managing no further weight gain over time	437 (74.1)	3.9	4.0	598 (83.8)	4.1	4.0

These questions were answered by 588-593 GPs and 714-724 PNs. Once again the findings are notable for the similarity in views of the two groups. Each group considered the two most important goals to achieve in regards to a weight loss were improved diet and exercise behaviours and improved clinical indicators. The goal considered to be the least important was the attainment of a normal body-mass index. Yet it should be noted that nearly one in four GPs and one in two PNs still considered this to be either an important or very important goal.

Participants' experiences regarding the provision of weight management counselling to large men were also explored. This question used a five point Likert scale and Table 4.23 presents the number of GPs and PNs who agreed or strongly agreed with the statements, as well as the mean and median values for each group.

**Table 4.23: GP and PN level of agreement regarding experiences of providing weight management counselling to obese men and accompanying beliefs regarding men**

Statement	Agreed or strongly agreed GP N (%)	Mean	Median	Agreed or strongly agreed PN N (%)	Mean	Median
Dealing with obesity and weight loss in men is professionally frustrating	316 (53.0)	3.4	4.0	284 (39.2)	3.2	3.0
Behavioural interventions for men who are obese are often ineffective	317 (53.5)	3.3	4.0	264 (36.6)	3.0	3.0
I am pessimistic that obese male patients will be successful in losing weight	225 (37.8)	3.0	3.0	122 (16.9)	2.6	3.0
Pharmaceutical support for weight loss makes no real difference in male obese patients	301 (50.6)	3.4	3.0	100 (14.0)	2.9	3.0
Male obese patients want an easy way out	213 (35.7)	3.1	3.0	212 (29.4)	2.9	3.0
Male obese patients lack discipline to lose weight	151 (25.3)	2.8	3.0	159 (22.1)	2.7	3.0
A man's weight is his responsibility	360 (60.4)	3.5	4.0	364 (50.4)	3.3	3.0
It is easier to talk to men about their excess weight than women	141 (23.7)	2.8	3.0	122 (16.9)	2.7	3.0

These questions were answered by 593-596 GPs and 712-724 PNs. Consideration of the percentages of each group who agreed or strongly agreed with the statements, suggests there is less agreement between the two groups on these questions. A review of the mean scores, however, reveals a level of agreement on most statements. The only statement where there is a difference of 0.5 is the statement related to the use of pharmaceutical support for male weight loss. Approximately forty percent of PNs and one in two GPs find dealing with obesity and weight loss with men professionally frustrating, with approximately one in four in both groups considering obese men lack the discipline to lose weight. One in two GPs and one in three PNs lack confidence in behavioural weight loss interventions for

men. Neither GPs nor PNs find talking to men about their weight any easier than talking to women.

As well as asking participants when they raised the topic of weight, the survey also explored their reasons for not spending time providing weight management counselling. Table 4.24 contains the results.

**Table 4.24: Number of GPs and PNs who agreed or strongly agreed with statements related to reasons for not spending time providing weight management counselling to men**

Statement	Agreed or strongly agreed GP N (%)	Mean	Median	Agreed or strongly agreed PN N (%)	Mean	Median
Compared to women men are not receptive to discussing the topic	66 (11.0)	2.5	2.0	116 (15.9)	2.5	2.0
I haven't had much success with weight loss with my male obese patients	163 (27.0)	2.8	3.0	99 (13.7)	2.6	3.0
Few men are motivated to make the lifestyle changes needed	146 (24.2)	2.7	3.0	138 (19.0)	2.5	2.0
Few men have the personal or community resources to be able to deal with this	126 (20.9)	2.7	3.0	146 (20.1)	2.6	2.0
There is a lack of male specific weight loss programmes available in my area	245 (40.7)	3.1	3.0	268 (36.9)	3.0	3.0

Response rates to these questions were high with 602-603 GPs providing answers and 725-728 PNs responding. Approximately twice as many GPs compared to PNs felt they had not experienced much success with weight loss with their male patients. Consideration of the mean scores, however, highlights the comparability of the findings between the two groups once more.

Multiple comments were documented by both GPs and PNs. Lack of time was a cross-cutting theme, for example:

*Consultation time runs out when people have multiple other problems. Weight management needs dedicated time and resources and patient buy-in. (Male GP)*

*I don't have time to discuss because consultation filled up with other issues. (PN)*

Practice nurse comments also highlighted some patient barriers, including:

*Men are working and sometimes averse to visiting their doctor unless sick. Their time constraints limit the amount of opportunities. (PN)*

*Men do not seem to be as concerned/ worried about their weight as women. Think "beer gut" is normal. (PN)*

Finally in this section, participants were asked to rate the importance of a selection of options to assist them in their provision of weight management counselling in general practice. The number of GPs and PNs who considered the provided options as very important or crucial is reported in Table 4.25, alongside their related mean and median scores.

**Table 4.25: GP and PN rating of the importance of a variety of options to enhance weight management in general practice.**

	<b>Very important or crucial GP N (%)</b>	<b>Mean</b>	<b>Median</b>	<b>Very important or crucial PN N (%)</b>	<b>Mean</b>	<b>Median</b>
More male specific weight loss resources	285 (47.3)	3.3	3.0	456 (63.2)	3.6	4.0
Education for staff on cultural beliefs and values related to weight	232 (38.5)	3.1	3.0	431 (59.5)	3.5	4.0
More access to Māori /Pacific male weight loss community programmes	335 (55.6)	3.4	3.0	473 (65.3)	3.6	4.0
Funding to support patients to attend a commercial weight loss programme	311 (51.7)	3.3	4.0	437 (60.2)	3.6	4.0
Funding to support membership at a gym or similar	362 (60.2)	3.5	4.0	504 (69.5)	3.7	4.0
Additional nursing resources	288 (47.9)	3.3	3.0	397 (55.1)	3.5	4.0
Improved availability of male nurses	88 (14.7)	2.3	2.0	153 (21.2)	2.5	3.0
Availability of dietician clinics on site	345 (57.4)	3.5	4.0	463 (64.4)	3.5	4.0
Easier access to psychology services	268 (44.4)	3.23	3.0	324 (44.9)	3.2	3.0
Up to date list of community resources available to support male obese patients	387 (64.1)	3.6	4.0	552 (76.0)	3.9	4.0
Equipment/furniture that accommodated obese patients better	73 (12.1)	2.3	2.0	208 (28.8)	2.8	3.00
Education on specific approaches to discussing the topic of excess weight	251 (41.7)	3.1	3.0	483 (66.7)	3.7	4.00
More funding for public bariatric surgery	332 (55.1)	3.5	4.0	284 (39.4)	3.1	3.00

Of the responding GPs between 599-604 answered these questions, with between 719-726 PNs also responding. The options that scored a mean score of 3.5

or greater from the GP cohort were, an up to date list of community resources available to support male obese patients; funding to support membership at a gym or similar; availability of dieticians on site and more funding for public bariatric surgery. For PNs multiple options scored 3.5 or higher. Practice nurses considered the following the least important options: more male nurses; easier access to psychology services; better equipment and furniture in general practices and increased public funding for bariatric surgery which had the lowest associated mean value.

This question generated 81 comments from responding PNs. The proposed option of increased funding for public bariatric surgery generated the most comments. Four comments from GPs regarding bariatric surgery were made. Examples of the comments, for and against this option, are presented below. Subsequently the themes that emerged from other comments are documented. Some of the themes were common to both groups and others unique to one or other group.

### ***Increased funding of bariatric surgery; two sides of the argument***

#### ***For***

*Bariatric surgery for a limited number of patients would be very beneficial, e.g. my 230kg patient who has worked hard on diet and exercise but can't get surgery until he is diabetic. (GP)*

*Bariatric surgery should be a first option if the excess weight is persistent and is affecting health outcomes. It should not be considered the "easy way out", because it is not. (PN)*

#### ***Against***

*I don't think bariatric surgery is a viable option for many of the obese male patients as they often are not motivated to make the sort of lifestyle changes required. (GP)*

*Bariatric surgery does not always work – still dealing with emotional obesity and poor nutrition. They eat less but often still poor quality food. I think our goal should be healthy lifestyles and with that weight loss will happen. (PN)*

People also commented that if more bariatric surgery was to be made available there were associated implications.

*If more surgery is to be available then better dietician and psychological support needs to be provided as well. (PN)*

The four other themes and representative comments are presented below.

### ***Increased social awareness amongst men and marketing***

*Public health media advertising of the drink driving ilk, e.g. fat people have short lives. (GP)*

*A public awareness campaign on TV, like the smoking cessation programme, would be helpful to make men realise how important a healthy weight is for their future. (PN)*

*More male role models, mentors and coaches. (PN)*

### ***General practice setting***

*Funding to be able to offer patients subsidised long appointments for the purpose of discussing weight management. (GP)*

*After work appointments. (PN)*

*Improve ability to provide ongoing support. This could be more effective as a key factor is supported behavioural change and this would require ongoing support via either face to face visits/phone calls/group contact provided either by a health professional or a health coach. (PN)*

### ***Dieticians***

*Dieticians - would be great if more readily available. Mobile clinics that rotate around medical centres and are ideally funded. (PN)*

*We have no local dietician in our area at all. It is an expensive service for patients. (PN)*

### ***Education***

*It would be good to have education day re practical diet and exercise advice PNs can give to obese patients. Or how nurses can guide those patients practically. (PN)*

*I guess we need something very practical for nurses to utilise in practice. Not just knowledge! (PN)*

### ***So what's the evidence?***

*Community programmes; what evidence is there that they work better than brief intervention? (GP)*

*I am underwhelmed re the evidence that GP/PN interventions actually significantly modify people's behaviour so that they can successfully lose weight. (GP)*



### ***Social responsibility***

*This is a community problem that needs to be talked about at a community level. (GP)*

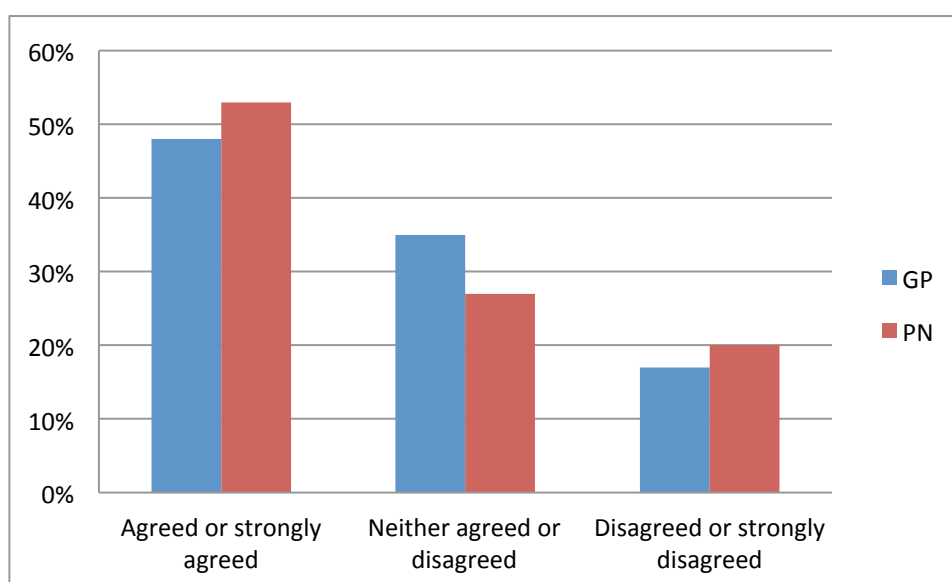
### ***Summary***

General practitioners and PNs are least likely to raise the topic of weight with a new patient and lack of time, not lack of importance was identified as a key barrier to the provision of weight management counselling. Both groups do not find talking to men about their weight any easier than talking to women. Measuring weight and body-mass index were the two most frequently used methods of diagnosing obesity and both groups considered improvements in clinical indicators and adoption of improved food and exercise habits, irrespective of weight loss, the most important goals of weight management. Both groups supported similar solutions to enhancing male weight management, however PNs were less supportive of increased public funding for bariatric surgery.

Finally, participants were asked about their workload, whether obesity prevention and management is prioritised in their workplace and the availability of specific equipment within their work environment. The next section reports these results.

### ***Practice culture and environment***

Participants were asked to rate whether they felt obesity prevention and management was prioritised within their general practice or health centre. The results are shown in Figure 4.5.



**Figure 4.5: GP and PN agreement with the statement that 'obesity prevention and management is prioritised in my general practice/health centre'.**

Forty-eight percent of GPs and 53% of PNs agreed or strongly agreed that obesity prevention and management was prioritised in their general practice or health centre. The table presenting the findings regarding the number of patients respondents reported seeing each week, can be viewed in Appendix U.

Finally, participants were asked to report on the availability of some basic equipment within their practice environment.

**Table 4.26: Availability of various piece of equipment within the practice**

Equipment options	GP No N (%)	GP Yes N (%)	PN No N (%)	PN Yes N (%)
Extra-large BP cuffs	6 (1.0)	597 (99.0)	18 (2.5)	705 (97.5)
Armless waiting room chairs	37 (6.1)	566 (93.9)	68 (9.4)	654 (90.6)
Armless chairs in clinic rooms	132 (22.0)	469 (78.0)	118 (16.3)	604 (83.7)
Scales for obese patients	238 (39.5)	365 (60.5)	299 (41.5)	421 (58.5)
Large size examination tables	466 (77.5)	135 (22.5)	596 (82.8)	124 (17.2)

The number of respondents who answered these questions was again high, with 601-603 GPs answering, as well as 720-723 PNs. The most notable gaps were in the availability of scales capable of weighing obese individuals and large examination couches. In addition, about one in five GPs commented that armless chairs were not available in their clinic rooms.

So far this chapter has reported the response rates achieved by the survey, provided an overview of the demographics of the respondents and described the

results derived from the surveys. The next section of this chapter considers the analytical findings from the surveys.

### ***Analytical findings from surveys***

Guided by findings in the literature review, analysis of the surveys took place to determine if gender, self-reported body weight and profession drove significant intra and inter group differences. The GP surveys were analysed by gender and self-reported weight category, with the PNs surveys being analysed by self-reported weight only. Comparison by health professional group was also completed.

The analysis of the GP data by gender resulted in twenty-four statistically significant differences and analysis by self-reported weight produced ten. The tables reporting these findings can be seen in Appendix V. No mean score difference exceeded 0.5 and only one question produced statistically different findings when analysed by both gender and self-reported weight. That question was question 1.3 from the survey; ‘Rate your agreement on the scale with the statement, “individuals are responsible for their obesity and therefore the management of their weight.”’ This question, therefore, was analysed using a linear regression analysis by weight and gender. Table 4.27 presents the results.

**Table 4.27: Regression analysis of general practitioner data by gender and weight for question 1.3**

<b>Variable</b>	<b>Coefficient</b>	<b>P value</b>	<b>95% CI</b>
Underweight/Normal weight	-0.441	0.121	0.998-0.116
Overweight/normal weight	-0.248	0.016	0.450-0.046
Obese/normal weight	-0.377	0.178	-.867-0.113
Female/Male	-0.2	0.016	0.275-0.126
Constant (male normal weight)	3.847	0.000	0.000

These finding suggest that on a five point scale, 20% of female GPs may score a point less than male GPs, i.e. be less likely to agree with the statement. In addition, almost 25% of those GPs who self-reported being overweight may also score a point less compared to normal weight GPs. The lack of statistical significance in relation to those who reported being obese is possibly to the small number in this group.

In addition, a logistic regression was also completed for this question by weight and gender and the result can be viewed in table 28.

**Table 28: Logistic regression analysis of general practitioner data by gender and weight for question 1.3**

Variable	Odds ratio	P-value	95% CI
Underweight/Normal weight	0.4402	0.1485	0.1446-1.3397
Overweight/normal weight	0.6113	0.0230	0.3999-0.9345
Obese/normal weight	0.7084	0.5206	0.2553-1.9653
Female/Male	0.7799	0.1749	0.5446-1.1169

Within the logistic regression analysis the nuances between the variables being tested is less overt due to the dichotomising of the five point scale. This can be seen, for example in the lesser significance of the p-value between females and males. Overall, however, the results tell the same story.

Due to the small number of male nurses in this cohort of PNs, analysis of the PN data was by self-reported body size only. This resulted in 18 statistically significant differences being detected. These findings can be seen in Appendix W. The difference in the mean values across all of these statistically significant results was small, never exceeding 0.5. Due to the size of the difference in mean scores no further analysis of PN data took place.

The final analyses undertaken related to inter-group comparisons. Both the GP and PN data sets were combined to allow for a comparative analysis of the whole data set. This analysis generated the greatest number of statistically significant findings, 60 in total. Once again the magnitude of the difference in mean scores rarely exceeded 0.5. The findings are presented in Appendix X. The number of statistically significant differences generated from this comparative analysis of the GP and PN findings is to be expected, due to the large volume of data. Of the 67 statistically significant differences generated only five exceeded a mean difference of 0.5. Two of these related to knowledge of weight loss medications and ability to provide information to patients on these, with a third related to knowledge of surgical options for weight loss. Of the remaining two differences, one was associated with weight loss goals, with the final difference connected to strategies to improve weight management for obese men in primary care.

This national cross sectional survey of GPs and PNs produced a significant volume of data due to the extensive nature the survey and the response rate achieved. The next section of this chapter provides a synopsis of key and notable

findings from the data. At the end of the section the notable GP and PN findings are each captured in their own graphic.

### ***Key outcomes and notable findings***

This cross-sectional survey produced five key outcomes. The foremost outcome of this study is that it has captured a significant dataset of information related to obesity management in NZ primary care, all be it self-reported data. Next it demonstrated an overall lack of intergroup difference in relation to obesity beliefs, attitudes, knowledge and practices. Thirdly it showed that the majority of intra-group differences tested for were small. It has also demonstrated similarities in beliefs, attitudes, knowledge and practices of NZ GPs and their international counterparts. Finally it established a significant dataset of PN information. In view of the lack of large quantitative studies regarding PNs and their views on obesity and its management, this is a significant outcome.

Notable findings from the GP and PN data are reported in the following order:

1. Beliefs and knowledge, encompassing beliefs about obesity, their role and obese men, as well as their understanding of the causes and consequences of obesity in men;
2. Communication;
3. Weight management practices, experiences and the practice environment;
4. Possible solutions to enhance the management of male obesity.

#### ***1. Beliefs and knowledge.***

The majority of NZ GPs and PNs responding to this survey think of obesity as a chronic condition. Moreover, both groups believe they have a role in weight management. Documented comments suggest they deem their role in weight management to be one of a partnership with the individual. In addition, a large majority think their role extends to role modelling positive lifestyle behaviours, such as, maintaining a healthy weight and participating in regular exercise. Respondents also felt that by being a healthy body weight, overweight or obese men would be more likely to trust the weight management advice given. Practice nurses especially highlighted other characteristics with the potential to enhance the level of trust a larger male had in the weight management advice given. Strong interpersonal skills that assisted in the development of connections and rapport, as well as the ability to empathise with the individual were noted.

The topic of self-responsibility for personal body weight was explored in two questions within the survey. Consideration of the numerical data points to both groups considering individuals to be responsible for their weight and their weight loss, but these numerical findings were moderated by multiple comments.

Both GPs and PNs demonstrated a comprehensive understanding of the multifactorial nature of obesity. Behavioural risk factors however were still regarded as the most influential drivers. Responding primary care providers also displayed a good understanding of the wide-ranging impact of obesity.

Overall, NZ GPs and PNs held ambivalent views towards large men but negative perceptions of obese men did exist in both groups. Dependent on the descriptor a significant minority held stereotypical views.

## **2. *Communication***

New Zealand GPs and PNs clearly recognise the importance of discussing weight with men, with a large percentage stating they raise the topic before the man becomes obese. Neither GPs nor PNs find discussing weight with men easy and comments contained in the surveys suggested that they prefer to raise the topic at times that legitimate the conversation. For example, at a cardiovascular risk assessment or a pre-employment check.

A large percentage of those responding considered they had the knowledge to discuss healthy eating and physical activity for weight loss but fewer perceived they had the skills to provide weight management counselling. Amongst GPs the use of the national weight management guidelines was limited; however several other examples of sources of information and support were mentioned by both groups. The survey also identified that one in two GPs and one in three PNs lack confidence in behavioural weight loss interventions for men, with many considering there is a lack of male specific weight loss resources. Both factors may hinder the initiation of weight loss conversations.

## **3. *Weight management practices, experiences and the practice environment.***

The most frequently used diagnostic measures of obesity were weight and BMI in both groups, with PNs more likely to report taking a WC measurement. Both GPs and PNs appear to have a high level of appreciation of the importance of the various components that comprise a weight management conversation as delineated

by the 5As framework. General practitioners documented many comments acknowledging the importance of these components but emphasised the challenge of time within the fifteen-minute consultation. Both groups considered the two most important weight management goals to be the adoption of improved food and exercise habits, irrespective of weight loss and improved clinical indicators. Nearly one in two PNs compared to one in four GPs viewed weight loss to within a normal BMI range an important or very important goal. This was one of the few statistically significant results that produced a 0.5 difference in mean score between the two groups.

Results from the questions exploring GP and PN experiences of providing weight management to men were generally mixed. General practitioners were more likely to admit not having experienced much success with weight loss and their male patients; consequently they were also more likely to report being pessimistic regarding the ability of their male patients to lose weight. They were also more likely to consider behavioural interventions ineffective. Neither group find talking to men about weight loss easier than talking to women and although neither group consider men unreceptive to discussing the topic, one in four GPs and one in five PNs think they lack motivation. A characteristic both groups identified as contributing to male obesity.

Around 50% of both groups agreed or strongly agreed that obesity prevention and management was prioritised in their practice. The availability of certain furniture and equipment within practices suggests that the ability of general practice to accommodate larger patients is mixed. For example, extra-large blood pressure cuffs and armless chairs in waiting rooms appear to be commonplace; although armless chairs are less likely to be available in clinic rooms. The lack of large examinations tables was particularly notable.

#### ***4. Possible solutions to enhance the management of male obesity.***

Both GPs and PNs generally thought that options to improve weight management for obese males resided outside of the general practice setting. For example, better linkages to community resources and funding to support membership at gyms were key preferences expressed. There was a difference in opinion regarding the place of bariatric surgery, with PNs were more likely to highlight the need for in house strategies, such as education on specific approaches to discussing the topic of excess weight. Both groups considered on site access to a dietician

would assist them to improve their provision of support to men seeking to lose weight.

The following two pages contain graphic representations of the key findings from the GP and PN data.



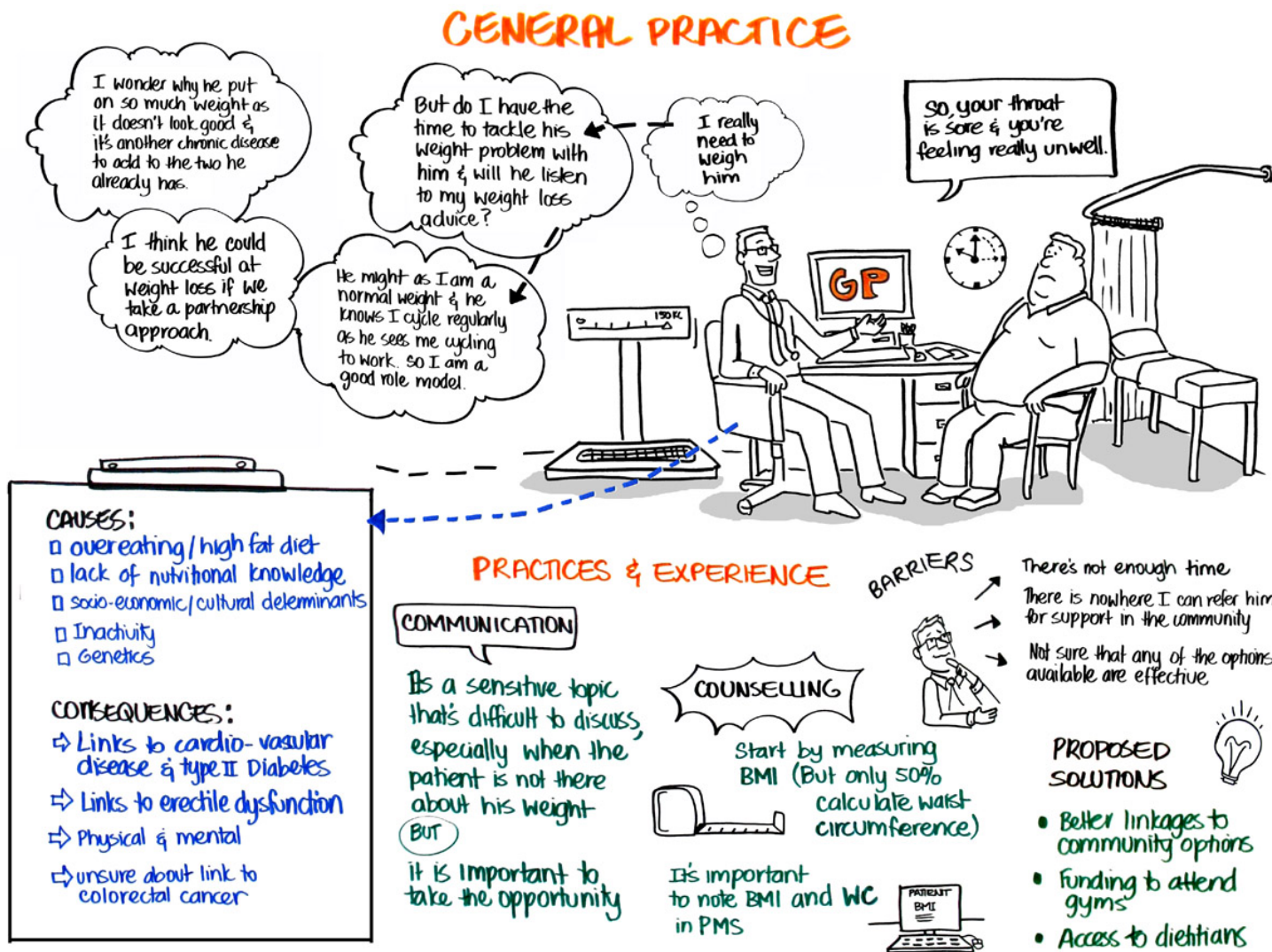


Figure 4.6: Synopsis of findings from the GP data and analysis of documented comments

# PRACTICE NURSE

## BELIEFS

- PNs & GPs have a **ROLE** in weight management.
- Obesity is a **NCD**
- I have a responsibility to **ROLE MODEL** healthy weight & participation in exercise.
- Nurse's weight can impact on patient trust but **EMPATHY** & **SHARED EXPERIENCES** can be used to overcome this
- obese men are **RESPONSIBLE** for their weight but they need our **SUPPORT**

## PERCEPTIONS

Obesity can negatively affect perceptions. This can be moderated by experience of working with obese men. Optimistic men can lose weight & are committed to losing weight. As a nurse, I do not judge.



## SOLUTIONS

- ✓ Up to date list of community resources
- ✓ Funding for gym membership
- ✓ Education on specific approaches to discussing topic

## KNOWLEDGE

**BEHAVIOURAL FACTORS**  
**CONSEQUENCES**  
Relationship to colon cancer & gout underappreciated

## RAISE THE TOPIC

Will raise the topic with those who are overweight but more wait till they are obese or until it is a 'legitimate' conversation

Do not find it any easier to discuss weight with men than with women

## PRACTICES



## WEIGHT COUNSELLING

is considered important but are **BARRIERS**



BMI & WC are not always measured

## WEIGHT MANAGEMENT GOALS

Most important!  
IMPROVED:  
✓ food  
✓ exercise habits  
✓ clinical indicators

## PRACTICE ENVIRONMENT

50% think obesity prevention & management is prioritised in their practice



**BEHAVIOURAL FACTORS**  
rated as most significant

lack of referral options  
time health patient practice  
large size is normalised in males

**SHARED RESPONSIBILITY**

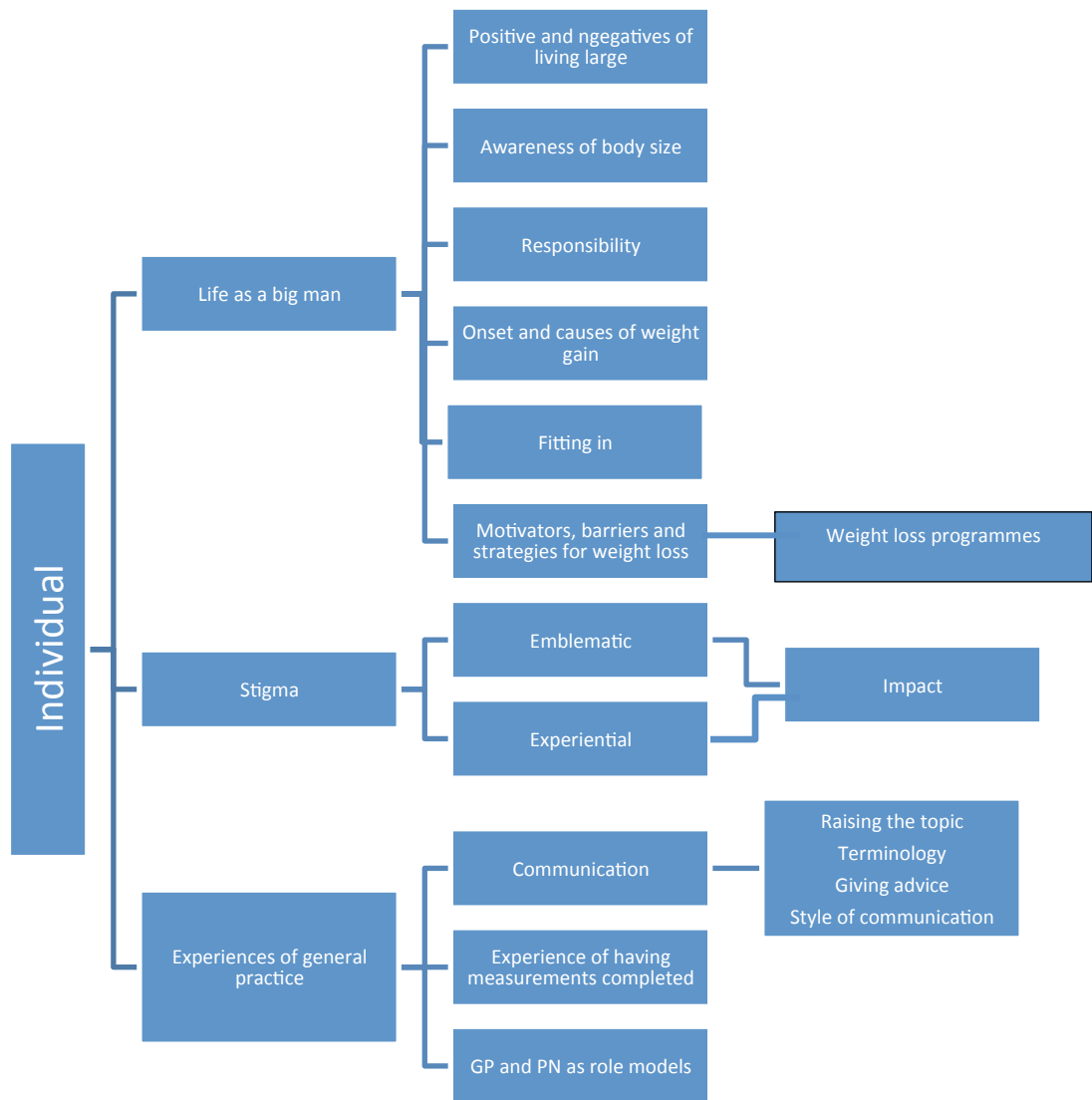


⊗ lack chairs; equipment; rooms for obese

Figure 4.7: Synopsis of PN findings from the PN data and analysis of documented comments

## **Chapter 5: Interview findings**

This chapter reports the findings that emerged from semi-structured interviews with fourteen men regarding their experiences of being the 'big fella', within and outside of the health sector. The general inductive analysis of the text data resulted in three overarching themes emerging. These themes were: life as a big man; stigma and experiences of general practice. Each theme and its allied sub-themes are presented separately but they should not be viewed as distinct themes, being fundamentally interrelated. The experiences the men have of living as large men and their exposure to discrimination accompany them into the clinic room. Figure 5.1 illustrates the themes and their associated sub-themes.



**Figure 5.1: An overview of the first, second and third order themes from the inductive thematic analysis of the text data**

Elaborations of the themes illustrated in Figure 5.1 are presented in the following sections. A graphic is then presented to demonstrate the interrelationship of the themes. The section begins with an outline of the characteristics of the male participants in the study.

### ***Demographics of male participants***

The demographics, geographical location, educational level attained and body-mass index of the fourteen male participants recruited for this study are presented in Table 5.1.

**Table 5.1: An overview of the characteristics of men recruited for this study (N=14)**

<b>Participant</b>	<b>Age range</b>	<b>Ethnicity</b>	<b>Location</b>	<b>Educational achievement</b>	<b>Marital status</b>	<b>Self-report height and weight</b>	<b>Calculated BMI</b>
1	35-44 yrs	Pākehā	Rural (SI)	High school	Married/co-habiting, with children	190.50cms 120 kgs	33.24 (class 1)
2	35-44 yrs	Pākehā	Rural (SI)	High school	Married/co-habiting, with children	180cms 106kgs	32.72 (class 1)
3	18-24 yrs	Pākehā	Rural (SI)	Polytechnic	Married/co-habiting, no children	193.04cms 135kgs	36.24 (class 2)
4	45-54 yrs	NZ European	Rural (SI)	University	Married/co-habiting, no children living in the home	182 cms 111kgs	33.51 (class 1)
5	65-74 yrs	NZ European	Rural (SI)	High school	Married/co-habiting, no children living in the home	174.0cms 94kgs	31.05 (class 1)
6	45-54 yrs	NZ European	Rural (SI)	University	Married/co-habiting, with children	168 cms 116.4kgs	41.10 (class 3)
7	55-64 yrs	NZ Pakeha	Rural (SI)	High school & a Diploma from Massey	Married/co-habiting, with children	183 cms 115kgs	34.34 (class 1)
8	45-54 yrs	New Zealander	Rural (SI)	High school	Married/co-habiting, with children	190.5cms 138kgs	38.23 (class 2)
9	55-64 yrs	New Zealand European	Rural (SI)	Trade school	Married/co-habiting, no children living in the home	Refused	Visually - obese
10	75 yrs+	European	Urban (NI)	Polytechnic	Widower	182 cms 108 kgs	32.6 (class 1)

<b>Participant</b>	<b>Age range</b>	<b>Ethnicity</b>	<b>Location</b>	<b>Educational achievement</b>	<b>Marital status</b>	<b>Self-report height and weight</b>	<b>Calculated BMI</b>
11	45-54 yrs	New Zealander	Urban (NI)	University	Married/co-habiting with children	168 cms 121 kgs	42.9 (class 3)
12	25-34 yrs	Tongan	Urban (SI)	University	Married/co-habiting with children	189 cms 186.5 kgs	52.07 (morbidly obese)
13	55-64 yrs	Pākehā	Urban (NI)	University	Married/co-habiting with children	177 cms 94kgs	30 (class1)
14	35-44 yrs	Samoan	Urban (SI)	University	Married/co-habiting with children	182 cms 147 kgs	44.38 (class 3)

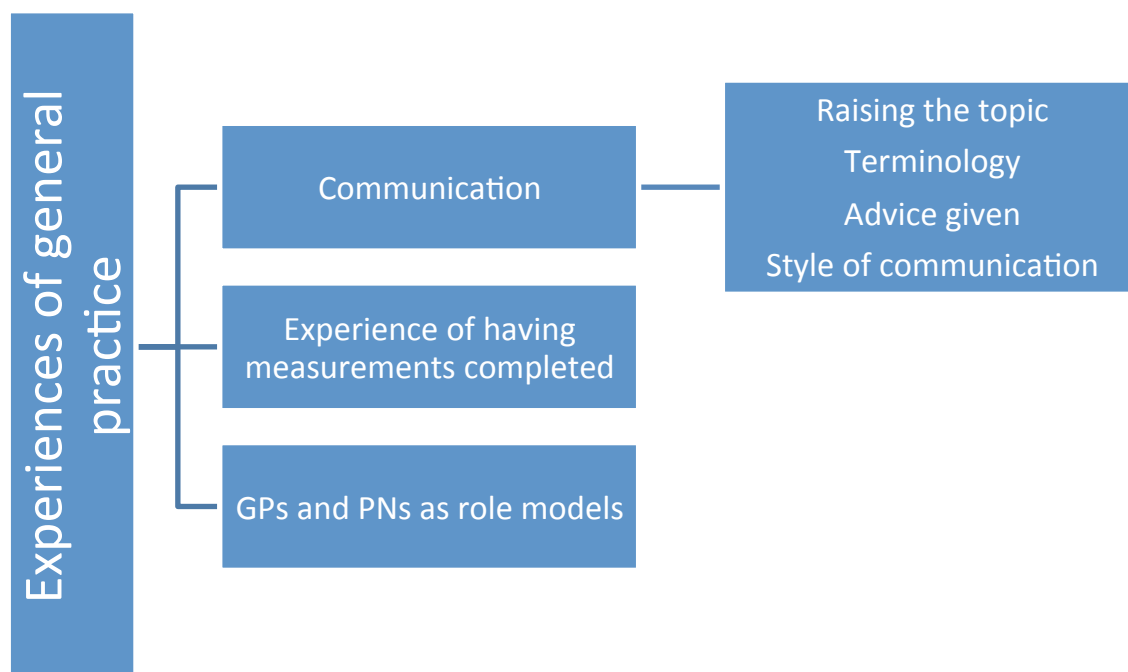
Key: SI = South Island; NI = North Island

Table 5.1 reveals that the men recruited to this study encompassed broad age ranges, from 18 to 24 years, up to 75+ years, with the majority being between 35 to 64 years. Twelve of the fourteen participants were Pākehā. While the majority lived in the South Island, participants lived in a mixture of urban and rural locations. All except one participant, who was a widower, were either living with a partner or married. Educational achievement across the group varied. The body-mass index range represented within the group was wide; from class one obese to morbidly obese.

The three key themes and their associated sub-themes that emerged from the conversations with these men are presented next. For each theme label a description of its main characteristics is provided. These descriptions are then supported by participant quotes to demonstrate meaning or association. The general practice theme is presented first as this was a key aspect of the research question.

### ***Theme one: Experiences of general practice***

This theme covers a variety of areas within general practice, comprising three sub-themes. One of sub themes comprises sub-categories. The overall theme and its constituent elements are illustrated in Figure 5.2.



**Figure 5.2: The sub-themes that comprised the theme, experiences of general practice**

## **Communication**

Communication formed the dominant sub-theme within the general practice theme, comprising four topic areas: raising the topic; terminology; advice given and style of communication. These will be discussed individually.

### ***Raising the topic***

These men had varied experiences of their weight being raised as a topic during a consultation. Some of the men spoke of their doctor not speaking to them about their weight.

*I do not personally have an experience where a doctor brought up my weight...No, actually I actually brought it up cause I say, I told him, I am really about trying to get back into training next year. (Interviewee 12; body-mass index of over 50)*

Others spoke of their doctor using an open questioning style to determine if this was a topic they wanted to discuss.

*He asked me about do I have any concerns about my health, and I, I, actually broached the subject of weight. (Interviewee 11)*

For some the topic appeared to be a frequent topic of discussion at a primary care visit.

*Every time I go in the nurse will always mention, about diet and talk about diet, and watch what I eat. (Interviewee 14)*

Anticipating the topic of weight was going to be raised in his consult caused one participant to develop a coping strategy.

*Yeah they've talked about the weight, blood pressure, I always get in first.....[laugh], so that's the way that I always tackle it, I always get in first...(So why do you get in first?) Because I guess, I try to relax that way, 'cause I know they're, I know that's gonna come. (Interviewee 6)*

All were agreed, however, that while it is a sensitive topic, primary care professionals had a responsibility to discuss weight with those who were overweight and obese and it was considered important that they do. For example:



Interviewer: So therefore there could be a risk for the medical practitioner to bring up your weight, but you think it's worthwhile? *"And important as well"* (Interviewee 12).

These men had differing experiences of having their weight discussed during a consult. These experiences ranged from the topic not being broached, to it being broached repeatedly. All were agreed that it was an important area for GPs and PNs to discuss but the terminology used to frame their weight during the discussion was a key area of concern.

### ***Terminology***

This aspect of communication was associated with the various ways health professionals referred to the men's size. For most of the men interviewed terms such as morbidly obese, obese and fat, were unacceptable.

*I don't know they call it, the b\*\*\*\*y term they use is that, a, a, morbidly obese...it drives me nuts. It's a terrible term. (Interviewee 6)*

*Overweight certainly find it would be quite acceptable, I can't accept fat or obese or something like, it's unacceptable. (Interviewee 11)*

For a couple, however, the term fat was not considered offensive.

Interviewer: You used the word fat um, is that ok with you? *"Yeah because it is true"*. (Interviewee 7)

Rationales for deeming certain terms unacceptable were also provided by the men.

*I think that fat has become quite a judgemental term, whereas the public need to accept that we're overweight, end, end of story. (Interviewee 11)*

One of the men highlighted why the term morbidly obese could become a barrier to discussing lifestyle change with your general practitioner.

*Hard to say, you wanna be fitter, when your doctor goes, oh you are morbidly obese.*

For most medical terms such as obese and morbidly obese were deemed objectionable, as was the lay term fat. Overweight was generally deemed a suitable term. The penultimate facet of the sub-theme communication, relates to the giving of advice.

### ***Giving advice***

This feature of communication related to the experiences the men had of receiving weight loss advice. When asked about what information they had been given regarding weight loss when visiting their general practice all men spoke of very generic advice as illustrated below.

*I need to watch what I eat. I need to do a lot of exercise. And ah I need to balance my lifestyle. (Interviewee 14)*

For some this lack of tailored advice was frustrating.

*They don't come up with any b\*\*\*\*y great ideas with what I can do about it, they, you know they have a bit of a moan and away you go. Mmm. (Interviewee 9)*

*We know what needs to be done we just don't know how it's going to be done. (Interviewee 7)*

Consistency of advice was an additional challenge highlighted.

*I've (had) 5 or 6 six different doctors so, consistency of people ya it's... they've all got different things (views)...". (Interviewee 6)*

The communication style of the health professional was the final facet of communication.

### ***Style of communication***

This final area relates to how men want their primary care health professional to discuss the possible adverse consequences of being overweight and how to achieve weight loss. Overall, men spoke of wanting clear, simple communication as illustrated by the following quote.

*Well with my GP I know him now, he knows who I am and, and he uses a lot of layman terms to explain stuff. He well ah, he will be factual and honest about it all. Well I think, for me I want to have it in simple terms. And like, what is wrong I want to have reality. (Interviewee 14)*

The sub-theme of communication encompassed multiple topics. The key messages can be summarised as follows. Men want the topic of their weight raised; they want sensitivity around the terminology used to describe their body size; they want constructive, tailored advice about how to go about weight loss and they want

the health professional to be honest with them when they discuss risk and use easy to understand language.

### ***Experience of having measurements taken***

This sub-theme concerns the experiences of these men in relation to being measured during the consult. While weight was commonly measured, measurement of WC was less common.

*Yeah generally they do a weigh in, blood pressure check, and those sorts of, yeah that sort of scenario and such. (Interviewer: Do they ever do any other measurements like waist measurement?) No, doctors don't seem to do that, no". (Interviewee 6)*

*I did one for the medical the other day for the bank; so yeah that was the works sort of thing, measuring the waist and that. (Interviewer: how did that feel?) Good because I had lost 6cms. (Interviewee 2)*

One participant spoke of feeling uncomfortable when asked to lift his shirt up. This was not due to the health professional measuring his waist; they were listening for chest sounds. It illustrates, however, the need for sensitivity when undertaking examinations with larger individuals.

*The only uncomfortable thing was I had (to) pull my, pull my shirt up sort of thing...yeah that, that, that was uncomfortable. (Interviewee 11)*

The largest participant interviewed though could not remember ever being weighed by his doctor even though he had been going to the same doctor for two years.

It would appear that getting weighed was a common event for many of these large men but measurement of WC less so. The final sub-theme to emerge from the text data related to general practice was associated with the expectations of participants regarding the need for their GP or PN to be positive role models.

### ***GPs and PNs as role models***

Participants were asked if they would trust weight loss advice from an overweight or obese general practitioner or practice nurse. Views were not consistent across the group. For some it did not appear to matter if their general practitioner or practice nurse was overweight.

*Role models, oh not too worried about what they look like or anything. All I expect from the GP is, just get it right and tell me what, what's my problem. (Interviewee 6)*

For others they admitted they would have a level of scepticism if their health professional was obese and giving them advice about losing weight.

*I would be a little more sceptical I guess if I had an obese GP. Certainly I would be sceptical about going to somebody who was obese giving me advice about obesity. (Interviewee 13)*

Others spoke of other aspects of the relationship between a patient and a health professional that took precedent over the health professional's weight.

*If they are dedicated to the conversation. If that happens I think that overrides gender, overrides, weight, overrides other things. (Interviewee 11)*

Others spoke of the therapeutic relationship and the level of trust they had in their doctor or nurse as being the most important aspects to them.

One participant suggested if a health professional was overweight they could overcome the possibility that they would be viewed negatively by a patient by having "a good back story". In other words this man thought if the health professional could provide a reasonable justification for their weight status, an overweight patient would be less likely to view them negatively. Another participant thought larger health professionals could have an advantage as they may find it easier to form relationships with larger patients.

The views regarding the need for health professionals to be positive role models were mixed within this group of men but by and large the health professional's size was not considered their most important characteristic.

### ***Theme two: Life as a big man***

The theme, life as a big man encompassed many aspects of being a big man in NZ. The key features of the men's life that emerged included their perceptions of the advantages and disadvantages of being larger; their level of awareness of their body size; responsibility for personal size; times and causes of changes in body size, the motivators of and barriers to weight loss, including preferences for weight lost programmes, as well as associated experiences.

## **Positives and negatives of living large**

Participants initially found it challenging to think of any positives of being a larger man and it was evident that the negatives outweighed the positives. Discussion invariably teased out positive aspects of being a larger man, ranging from the generic benefits of being big, employment opportunities, sporting and personal safety benefits to meeting cultural expectations. Quotes that typify the positives features of being a larger man are given below.

*It's good to be big like but I would rather be big like muscle big instead of just fat big. (Interviewee 3)*

*It is good for getting jobs that you like need to be a bit stronger you know. I have just started one as a jailer. (Interviewee 2)*

*If you are playing sport and you are, being bigger in some sports it is ah, is certainly an advantage, yeah. (Interviewee 5)*

*I know people are less hesitant to cause unnecessary trouble I know that, they would actually call me a bouncer I guess. (Interviewee 12)*

*It is very important in my position of a X um, and especially when you are a senior man like you are on terms of age um, people come and likely to have respect ah, you know when you are a big person. The idea of seniority you know when you are big and you know it is like you are bringing seniority. (Interviewee 14)*

All participants found it easier to describe negative consequences of being a large man. These comprised of functional limitations and health and social consequences, with the latter dominating. Functional limitations related to breathlessness and difficulty in moving as illustrated by the two following quotes.

*There is no real advantages in being big, because it is um, you huff and puff a bit more. (Interviewee 7)*

*Getting in and out of the old aluminium boat and things like that now are never what they used to be. (Interviewee 9)*

Participants were aware that their size contributed to their health issues.

*I do not have good sleep which when I, because I do not have enough air going to my brain and also to my lungs and it can also get into heart attack later on. (Interviewee 14)*

The social consequences of their size dominated the negatives of being obese raised by these men. Impacts mentioned related to social participation, feelings of discrimination, embarrassment and a sense of encumbrment.

*I guess it just can hold you back from, I guess participating in activities that you really wanna, get more involved in. (Interviewee 12)*

*Depending on the size of course there's a feeling of discrimination whether it's real or not I don't know but certainly feels (it). (Interviewee 11)*

*You're, you're always sweating away when it's, you know everybody else is sort of sitting round you relatively comfortable and your always feeling the, the heat and so you burst into sweats and you think, oh god this is not good, ...so there's that sort of social embarrassment sort of. (Interviewee 4)*

One participant spoke of wanting to feel unrestricted by his body size.

*I wanna be able to, I wanna feel as free..." (Interviewer "Yeah"), Just free. (Interviewee 12)*

Overall these negative consequences could be summed up by the comment of one man: "Naturally the life of a big man is not easy" (Interviewee 6).

These men were conscious of the link between obesity and several other conditions.

*You know knowing that ... know that it's not the best situation to be in, in terms of complications you might have medically and things like that down the track so, yeah. (Interviewee 4)*

Each man named at least one of the following, with type 2 diabetes and high blood being the most frequently mentioned:

- Type 2 diabetes;
- Heart disease;
- Arthritic conditions;
- Depression;
- High blood pressure;
- Erectile dysfunction;
- Raised cholesterol.

In this cohort of men the social consequences were the most frequently mentioned negative effects of being large. There was a high level of awareness that obesity was associated with negative health consequences, although the link between obesity and cancer was never mentioned. The next sub-theme relates to perceptions of body size.

### ***Awareness of body size***

Some of the men spoke of finding it challenging to conceptualise their size in relation to others. Photographs acted as a reality check in two ways. Firstly, photographs enabled men to compare themselves to others in the picture. Secondly, historic photos reminded them of how they used to look.

*I don't feel big; I don't feel bigger than everybody else around me. I never have that impression. Unless I, unless I see myself in a photograph I have no idea that I am much bigger than everybody else. (Interviewee 8)*

*In fact we found a photo a while ago, [huh] and we're looking at it, and it was of a camp, we're trying to work out who it was, and then someone said that's you, and I said, no, no it's not, then I had a look and thought, oh, oh it is. (Interviewee 4)*

For others understanding their dimensions occurred when they compared their weight to that of sporting stars.

*When I was 130, and I, that doesn't sound too bad when you say it 130, but, but when you start to look at other, other weight around, when you compare to, you know (an) All Black and you sort of start to think yourself, s\*\*t I'm actually getting fairly big I'm looking at All Blacks 130, s\*\*t I'm as big as that guy. I don't look like him you know. (Interviewee 6)*

Correctly perceiving their body size was problematic for some participants. Some spoke of making visual comparisons with current or historic photographs or comparing themselves to others of a similar weight to more accurately conceptualise their size.

Generally men in this group did not sense they were exposed to much societal pressure to conform to an idealised body shape, when compared to their female counterparts. There was, however an increasing awareness that societal expectations were changing.

*I think it is a bit easier, I mean, I don't think, yeah it's, I don't think men have actually need to be a certain chisel shape or anything. (Interviewee 6)*

*I wouldn't have thought there was the same degree of um, pressure, social pressure. However I think that is becoming a bit more prevalent now than it would've been, say five or ten years ago. (Interviewee 7)*

The topic of responsibility, personal and societal, in relation to personal weight was discussed during the interviews. This group of men held varied views as illustrated below.

### **Responsibility**

Men were asked who they considered to be responsible for their body size. Some staunchly considered the buck to stop with them and no-one else, for example:

*Hey the fact that I am where I am at, I have got no-one else to blame but \*\* because I am the one that did it, um, and it is a cop out to try and blame, use media and advertising. (Interviewee 7)*

Others were less single minded and clearly there was a tension in their thinking on the topic.

*I think that personal responsibility ultimately, you know, you are responsible for your body, that is the bottom line. However, the way that you think about what you put in your mouth is, can be influenced by all sorts of messages that you get from the environment around you. (Interviewee 13)*

While some of the men staunchly endorsed the notion of self-responsibility for their own health, this was not always reflected in their lifestyle as illustrated by another quote from interviewee 7.

*But men are not good at recognising and accepting their fallibility or their um, um, the fact that at some stage they are going die and that they may have shortened their life by making bad choices around diet and exercise and food and what have you and I think I am more aware of that now almost at 60 than I would've been at 50. (Interviewee 7)*

Participants' thoughts about the role of legislation whether it was in relation to a fat or sugar tax or related to food labelling were also explored. Responses varied more in relation to societal responsibility.



*I don't want to live in a society where a government is big brother and tells me what I can and can't eat, that is my choice. (Interviewee 7)*

*I mean we are taxing cigarettes because we ...know that they cause all sorts of huge costs to society as well as the individuals who become addicted to cigarettes and I think um, the same applies to some food ....., so you know why not. (Interviewee 13)*

Overall, body weight was considered an issue of personal responsibility, yet some spoke of deferring that responsibility till a later time in their lives. Thoughts around the role of legislation were more diverse. Some were adamant they still wanted autonomy to decide what they wanted to eat and drink. Others understood the rationale for implementing legislation.

The interview schedule also sought to gauge participants' views on current health promotion messages around food and physical activity, as these are possibly one strategy to increase awareness and enhance motivation to initiate changes in lifestyle. Many were aware of nutritional and physical activity messages, such as 5 plus a day or 30 minutes of physical activity each day. Awareness did not appear to be related to action partly because the men felt the way the message was delivered did not resonate with them.

*I think men aren't picking up on it ah like woman do. Whether that is because of the way the message is presented or whether that is just because, in the case of health and health intervention and taking control of your own health, woman seem to be better at it for some reason and whether that is because they are more interested, more organised or what, I don't really know but there is no doubt there is a difference between men and woman, and their attitude towards these things. (Interviewee 7)*

The next sub-theme to emerge linked to times in the men's lives when they first really noticed they were gaining weight and what they thought produced the weight gain, then and now.

### **Onset and causes of weight gain**

The ability of the men to pinpoint a time when they started to gain weight was striking. Although times across the life course varied between participants, the common thread was that for all men it happened at a point of social transition. Social transitions included; first part-time job; starting employment; marriage; change of job; having a family; migrating; divorce and retirement.

*Probably when I was like thirteen, when I got my first job and I had all this money and you could just buy whatever you want. If you didn't want to eat what your parents were cooking you just go to KFC or something. (Interviewee 3)*

*I'm a PE teacher so pretty active, and then I moved away from being a PE teacher, to do some PE teaching and do other stuff out of the, out of, out of class room stuff, and that's when it started.... Interviewee11*

*I went to Aussie and this is where I gained weight. (Interviewee 1)*

*Um, I got divorced when I was in my early 30's so that might have been a factor, yeah. (Interviewee 13)*

*Remember years ago I was thirteen stone, and I just stayed at thirteen stone for years and years and then suddenly after I retired it started to go up you know. (Interviewee 10)*

For this cohort of men, weight gain was generally associated with times of change during their life course. In many instances this change was associated with a period of corresponding vulnerability.

While social transitions were the common time point for weight gain, the reasons members of this cohort gave for their weight gain, then and since, varied. The prime explanation for weight gain was behavioural; however underpinning the overeating and the inactivity, a variety of other drivers could be detected in their narratives including: environmental; working obligations; emotional; psychological; socioeconomic; low nutritional literacy; and physical limitations. In some instances men spoke about multifactorial causes. Illustrative quotes are presented below.

**Environmental:** this category relates to obesogenic environments and specifically availability of calorie dense food and the impact of advertising on food choices.

*We went to X to, and we worked down there for six months and this was lunch, we had food on the table like you wouldn't believe. And we just you know, we gorged ourselves through the day, bacon and eggs for breakfast and then we would be out most of the nights in the pubs and, \*\*\*\*\* we piled it on. (Interviewee 2)*

*Yeah so environment is a factor I think, yeah psychological factor. I don't think we are constantly aware of it but it, you know, the people don't spend billions of dollars on advertising to try and get us to eat more food for nothing, because that obviously works you know. So um, I think the environment is a factor, yeah. (Interviewee 13)*

**Working life:** this category relates to changes in employment and work requirements.

*Before I went into X in 1993, I was an Alpine Guide and um, also involved with farming and logging, so I was a lot slimmer and fitter, so I was around about 90 kilos at that time. And that was a good weight for me and it seemed to work, and I could carry that with ease, but when I went into a more sedentary type work environment, my appetite for food and um, liquid beverages didn't diminish at all. My physical work output diminished a lot so I gained weight. (Interviewee 7)*

*Like we (truck drivers) average 12 hour days, sometimes doing a full day it can be 16 you know". (Interviewee 1)*

**Emotional:** this category refers to the consumption of food in association with emotions.

*I know I make mistakes like rewarding myself when things go well or go wrong with a sausage roll or a um, pint of beer or something like that and probably I have had too many of them over the last 20 years. (Interviewee 7)*

**Psychological:** this category refers to the role of stress and depression in weight gain.

*Yeah, just because stress, creates overeating, and, and actually there was no....control in my eating, you know I just ate. (Interviewee 6)  
Through depression for a while there, and came out of that and that helped pile the weight. (Interviewee 12)*

**Socioeconomic:** this category encompasses the impact of the family environment on eating behaviours and the influence of budgets on food choices.

*And budget, low budget for paying off, paying rent and having to go out, eat off the rest and, all the travel costs, so yeah I didn't really have much money to spend on better foods. (Interviewee 12)*

**Low nutritional literacy:** this category relates to knowledge regarding the nutritional value of food stuffs.

*I definitely think a lack of knowledge,...especially in the younger days. (Interviewee 12)*

**Physical limitations:** this category relates to the impact of physical limitations on weight gain.

*I have episodes with my spine I tend to become really sedentary, not move very much, like you still eat the same and so my corresponding, um, weight increase, because I was stable at 121kgs for, I don't know, 25 years. (Interviewee 8)*

**Multifactorial causes:** this category is presented as some of the men considered their weight gain had been caused by a variety of drivers. For example:

*So I think it is combination of genes and diet and exercise. (Interviewee 13)*

Overeating and inactivity were considered to be the overarching cause of obesity but these narratives illustrate how these behaviours are driven by a variety of other factors. These findings highlight the complexity of obesity causation but also the individual nature of weight gain. The penultimate sub-theme associated with life as a big man is fitting in and this is reported next.

**Fitting in:** This sub-theme is associated with the challenge of finding clothes and shoes to fit. This was a significant issue in this group.

*Like I have to go over to Christchurch to go shopping and I walk around the mall all day and I never find something that is my size. Especially shoes as well. Jeans are the worst. So hard to find some jeans. (Interviewee 3; Age range 18-24)*

*Geez I can't buy a standard piece of clothing from a clothing shop, 'cause they only go up to, double X, traditionally, double XL and then, then after that, it's very hard to find three XL, or four XL, and that's where I was heading, four XL. So I actually went on, on line to, there's a tall men's, large men's shop in Auckland you can do from internet. And so that, didn't worry me, 'cause I could get nice shirts and bits and pieces there but, there was a concern like I couldn't go into a normal shop downtown. (Interviewee 6; Age range 45-54)*

*I used to buy my trousers at Hallensteins, and then they stopped making them in my size 'cause they probably didn't sell so many of them. (Interviewee 10; Age range 75+)*

One participant mentioned how chairs with arm rests limited his social participation due to his inability to sit down in a lot of places.

*I guess I think, I don't oh, go and sit down, they suspiciously got arm rests, that aren't really accommodating. (Interviewee 12)*

Inability to buy clothes, irrespective of age range, was a significant issue for these men.

The final sub-theme in this category relates to what influences the instigation of a weight loss attempt, the associated obstacles faced, personal experiences of losing weight and what men look for in a weight loss programme.

**Motivators, barriers and weight loss:** The motivators and barriers to making a weight loss attempt these men spoke of are presented in Table 5.2.

**Table 5.2: The motivators and barriers to making a weight loss attempt**

<b>Motivators</b>	<b>Barriers</b>
For health and well-being (Health motivator)	Physical limitations (Health barrier)
Participation in sporting activities (Social motivator)	Lack of time/work commitments (Social barrier)
To be able to access health insurance (Social motivator)	Perceptions of dieting (Social barrier)
For the family (Social motivator)	Social life/times of celebration/not wanting to change this lifestyle (Social barrier)
A discriminatory experience (Social motivator)	Infallibility of men so keep reverting to the norm (Social barrier)
Appearance (Social motivator)	Food environment and cost of food (Societal barrier)
The moral imperative (Social motivator)	

It is worth noting that most of the motivators are social, as are the barriers. Selected quotes are used to illustrate some of the themes in Table 5.2.

### **MOTIVATORS**

#### ***The moral imperative***

*Well I want to be a better person I suppose; you know I want to be healthier. (Interviewee 13)*

*To be a better father, I guess. (Interviewee 12)*

### **A discriminatory experience**

*It was just, (the surgeon's comment) - your extra big, your knees can't handle it, rather than fixing your knees up, we'll fix up what's causing it which is your stomach. That was the one thing that pushed me to see a nutritionist. (Interviewee 11)*

### **BARRIERS**

#### **Social life and times of celebration**

*I generally feel great when I am training and I have done it and then all of a sudden it goes out the window. Christmas arrives and distractions and what have you, you know. Probably entertain too much. (Interviewee 13)  
You can't have your beer and you can't your, you know, your social part falls away a little bit, you know what I mean, and, and I mean, the other guy he's given up the life coach, I mean he said to me, look I still wanna live life today. (Interviewee 6)*

#### **Infallibility of men**

*But men are not good at recognising and accepting their fallibility or their um, um, the fact that at some stage they are going die and that they may have shortened their life by making bad choices around diet and exercise and food and what have you and I think I am more aware of that now almost at 60 than I would've been at 50. (Interviewee 7)*

For these men health reasons were the dominant motivator and lack of time or work commitments the most significant barriers to making a weight loss attempt. Most had made at least one formal weight loss attempt. Strategies used varied between individuals and in some instances multiple options were used. The strategies employed included increasing physical activity; eating less; using a smaller plate; detox; a nutritionist or a life coach to assist with goal setting, provide support and monitoring of weight; Weight Watchers on-line, and budding with a friend. Social support was seen as a key enabler for weight loss attempts. For example:

*I mean to have somebody who will help you with your training and make you aware of the times when you fall of track and um, try to understand what you want to have and achieve and the importance. It makes a difference at home as well. (Interviewee 12)*

On participant spoke of how heartening it was when his mates noticed he had lost weight.

*They (mates) geez you've lost a lot of weight, you are looking good and all those sort of things; that's great to hear. (Interviewee 6)*

These men were also asked what they would look for in a weight loss programme. Although some of the men had formal experience of being involved in a weight loss programme this was not something any of them had given much thought to, however aspects they deemed would be important to men included:

- Ability to do it with some mates;
- Nothing too flash;
- Would have to include exercise;
- Would have to involve a competitive element;
- Provide some dietary advice;
- Provide information on meals you can eat with your family;
- Ability to involve the partner so she knew what was involved and could provide support.

The men were also provided with overviews of two male specific weight loss programmes disseminated in the literature; the SHED-IT programme<sup>(489)</sup> and the Football Fans In Training programme.<sup>(490)</sup> Of these two models the latter was the preferred model, possibly due to its linkage to sport, the delivery of the programme in a sporting facility and the group nature of the intervention. The SHED-IT programme with its minimal intervention self-help format using resources or resources plus website support was not received favourably.

The men who participated in this study unanimously acknowledged that they gained weight during a period of social transition, although the reasons for weight gain varied. Generally men considered responsibility for their weight was theirs. The strategies they utilised to lose weight varied and numerous motivators and barriers were highlighted. Social support from friends, family and workplaces was seen as a key enabler and the men were able to provide characteristics of a male weight loss programme they deemed important. Overall, the adverse consequences of being a larger man in NZ were considered too far outweigh any potential benefits. The next section focuses on the final first order theme to emerge from the text data analysis, stigma.

### ***Theme three: Stigma***

The stigma theme relates to the stigmatising experiences of the men, as well as, their awareness of the presence of emblematic stigma in their everyday life. Emblematic stigma was associated with retail, health care and social settings.

Experiential stigma was related to interactions with family, friends, work colleagues and health professionals. The following sections provide examples of men's encounters with both forms of stigma.

### ***Emblematic stigma***

For these men emblematic stigma related to how society implicitly signals to larger people that they do not belong or are not catered for in a certain setting. Many men spoke of the challenge of finding clothes to fit off the peg in high street retailers. For example:

*You know it's very difficult to find clothes that fit properly. (Interviewee 12)*

*The size of the clothing was, was bigger in Australia. (Interviewee 11)*

Two men provided examples of emblematic stigma within health care settings. For one this was related to the problem of scales to measure his weight. In the second instance the presence of a chair with arms in the clinic room prompted concern.

*Had I been any bigger, I think it (sitting down) would've been difficult, yeah". (Interviewee 11)*

The lack of accommodating places to sit down in social settings was also noted.

These quotes illustrate the challenging encounters large men have in everyday life with social structures including clothing retail outlets and health care.

### ***Experiential stigma***

During the conversations with these men, multiple examples of experiential stigma surfaced. Men experienced stigma from society, family, friends and work colleagues, as well as from primary care staff.

Some of the men spoke of poor treatment by staff in clothing retail outlets. For example:

*The service industry thing really...Well they got, they got enough money don't they (larger people), see they're spending the money as well, just because they're big...don't treat them like they're b\*\*\*\*y pariahs, so you treat, treat them with respect ...whereas oh yeah, don't, don't treat them like big fatties, they're already conscious, we belong sort of thing. (Interviewee 11)*



This interviewee went on to comment that he did not find the retail experience in Australia quite so negative. He surmised this was because retail staff were used to “bigger guys” coming into the shop.

Family were another source of discrimination. The following example illustrates how one man feared what family would think, let alone what they say.

*I know family, my family you know, my wife’s family and my family will speak the truth. I just kind of like you know, thinking of what they would say or even what they are thinking about me you know with the weight and all that. (Interviewee 14)*

Others viewed the comments of a family member as justified and as being beneficial to their well-being.

*Ah certainly my mother has been critical of my weight at times, yeah but humiliated not really. She has just sort of said you are putting on too much weight, or what is that belly you have got there X. So, and sometimes it is kind of good to be reminded from your mother things that other people might not remind you of, you know. (Interviewee 13)*

Discriminatory comments and actions from friends were a common occurrence for these men. For example:

*People making comments in, in social settings, about my ability to do one thing or another...because of my weight. (Interviewee 11)*

*You know that makes me angry, they will say to me, oh, they will say something nasty. Yeah bottom line, if I put on a heavy shirt like a hanging shirt and what not and go out and have a few games of pool, it is good, but if you happen to wear one of my corny t-shirts I got that is a bit tight, you get people poke you in the belly and say oh, what is this... (Interviewee 9)*

For some of the men, however comments from mates were viewed as friendly teasing amongst friends.

*There’s, there’s always a bit of bantering among.....mates about whose got the biggest pot belly or, or, you know, who drinking most beer at the moment... (Interviewee 5)*

For others, friends’ comments were considered justified.

*‘Cause I know I mean I know, so they might say well you’re, you know you really, really need to lose some weight off your bum...and that’s fine, [huh*

*hum] 'cause and I know that's, that's, they, they're right so, can't, can't get upset about them being right. (Interviewee 4)*

Work colleagues were another group identified as instigating feelings of awkwardness.

*I guess in some, in some respects I think people do that, 'cause it's easy to, it's a good...bit of an ice breaker and it's a funny thing...in the end of the day how people will approach it, but they do look, they, they you know they do say, it's the big fella here or you know and you, and, and it doesn't really hurt but you don't really want to be the, the big fella. (Interviewee 6)*

While some of the men did speak of having a discriminatory experience within primary care, the experiences did not seem as pervasive as the experience of stigma from family, friends and work colleagues.

*The doctor as well, sort of makes you feel a bit guilty about it. She has had a dig with the blood pressure and that, and stop eating so many pies or, and that is where the morbidly obese comment came from. It wasn't professional. You know you are dealing with a pretty sort of sensitive thing for some people, so to word it the way she did...it was almost, makes you feel a bit small you know. (Interviewee 2)*

Conversely, one participant used the terms, “a gentle manner and a considerate manner”, to describe the way his general practitioner had broached the subject of his weight.

One participant provided an example of a specialist making a derogatory comment.

*He was the specialist (sport's medicine) I went to see (due to knee injury). I don't think it was intentional, but he started talking about having operations, looking at my knee and then he starts talking about a gastro-operation. So I briefly took exception to that. (Interviewee 11)*

None of the participant's mentioned negative comments from practice nurses during the interviews.

Stigma was experienced from a variety of sources. In some cases it was viewed as just friendly banter amongst mates and others had occasions where they deemed it to be warranted. For others the experience resulted in feelings of anger or fear. Humiliating comments from health professionals were a less prevalent experience in this group compared to comments from family, friends and work

colleagues. Some participants spoke of the impact of their stigmatising experiences and these forms the final sub-theme in this category

### ***Impact of stigma***

Stigma was recognised as having both psychological and behavioural impacts. One participant described how his level of self-confidence has been modified by experiences of stigma.

*You question yourself and you are conscious of your weight, if you don't fit within right in, considered the normal weight range, you're automatically quite often down, and even after your, almost like you're a diseased person and, this I get to, play on your confidence some days (Interviewee 12)*

He also made comment that the “many representation of who you are” in the media affected his self-confidence as well. Another participant talked about changing family’s plans about going back to the Islands on holiday because he anticipated a lot of negative comments about his weight.

*I am getting to a point now that I am starting to avoid trip, you know we are thinking of going to Samoa sometime for a visit and maybe up to Auckland, and I am trying to avoid it because I just don't want to receive comments from relatives and my wife family, man you are too big, man you are overweight you know. (Interviewee 14)*

In summary, this diverse group of men encountered emblematic and experiential stigma within their lives in rural and urban NZ. All participants spoke of times when they had been subjected to discriminatory comments. Some appeared able to shrug off the experience or felt it to be justified; others expressed anger, while for some the experience resulted in negative psychological consequences or modification of plans to lessen the likelihood of being exposed to further discrimination.

### ***Key outcomes and notable findings from the interviews***

There were two key outcomes from these interviews with large NZ men. Firstly, the study has started a conversation with a group in the population largely absent from the obesity/healthcare literature. Secondly, in giving these large men a voice the study is able to inform primary care professionals of some of the beliefs, experiences and expectations larger men may bring to the consult. Understanding

their lived experience outside of the general practice environment, how they conceptualise their weight gain, their motivators and barriers to weight loss, as well as their weight loss experiences may assist general practice to more effectively support this group of patients.

Despite the differing profiles of the men interviewed, there was a high level of consistency in the views expressed regarding life as a large Kiwi bloke. In relation to general practice these men felt that while weight was a sensitive topic and the use of appropriate terminology was vital, primary care professionals had a responsibility to discuss weight with those who were overweight or obese. Getting weighed was a common experience for most but having a WC measurement taken was reported less frequently. They expressed a desire for weight loss advice and support to be tailored to their needs instead of the current generic advice they were receiving which was judged to be frustrating. Their feelings on the need of general practitioners and practice nurses to be role models were mixed but several alluded to relational qualities they considered to be more important than the size of the health professional.

Some positive aspects of life as a larger man were highlighted but being larger was overwhelming viewed as a negative experience. Times of social transition were times of vulnerability to weight gain for those interviewed. While there was overarching agreement that weight gain was caused by eating too much and exercising too little, there was acknowledgement of the multiple drivers of obesity, although these did vary across the group. Multiple motivators and barriers to weight loss were identified. These men generally did not feel social pressure to conform to the chiselled male bodies found on the front cover of Men's Health. They did acknowledge, however that the social pressure on men to conform to a stereotypical shape was increasing. All had undergone stigmatising experiences from different sources and many were cognisant of the emblematic stigma around them.

The interviews with these fourteen men have demonstrated the complexity of being the "big fella" in contemporary NZ. All these men were aware that their size brought with it risks to their physical, psychological and social health. All had tried at least once to lose weight. There was a sense, however that they were having to navigate unfamiliar territory. Dieting is not a topic of conversation amongst men and most found the advice given by primary care unhelpful and on-going support lacking. A graphical depiction of the main findings from the interviews is presented on the next page.

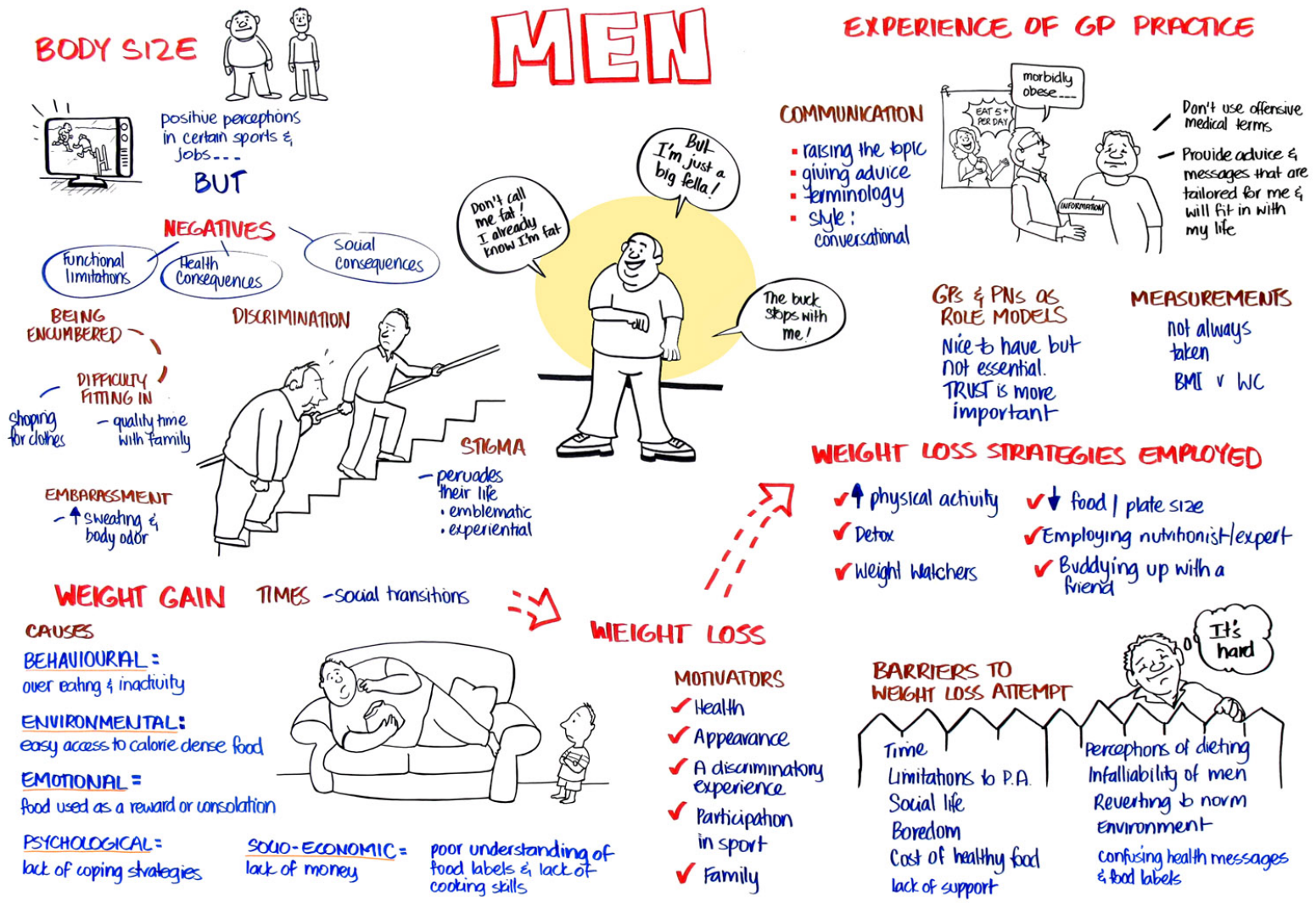


Figure 5.3: Synopsis of the findings from interviews with fourteen NZ men

## **Chapter 6: Discussion**

### ***Introduction***

This study's key purpose was to assess the beliefs, attitudes, knowledge and practices of GPs and PNs regarding obesity and specifically male obesity, as well as exploring the primary care experiences of large men. A concurrent mixed methods approach, using a survey and semi-structured interviews was utilised to achieve the aim. The survey was predominantly designed to fulfil objective one but contributed to objectives two and three of the study. The interviews provided experiential information related to objectives two, three and four. Chapters four and five reported the survey results and the interview findings respectively and highlighted key outcomes and notable findings.

This chapter begins by highlighting the key contributions of this study to the associated body of literature. Then an interpretation of the results of the survey, followed by the interview findings is provided in relation to current literature. Subsequently the findings from the final step in the research process, the synthesis of the quantitative results and the qualitative findings is presented. This allows the views of both sets of actors, health professional and patient to be considered concurrently, thereby providing a clearer understanding of the weight management experience of large men in general practice. The chapter concludes by discussing the strengths and limitations of the study.

### ***Key contributions of this study***

This study made several contributions to the associated body of primary care weight management literature. It established a significant dataset of information related to how NZ GPs and PNs view obesity and large men specifically and their weight management experiences and practices. Until now the literature has provided only limited understanding of the views and practices of NZ GPs,<sup>(33)</sup> with no information regarding NZ PNs found. No other study, national or international, has undertaken such a large comparison of the views and practices of GPs and PNs in relation to obesity and weight management. This study has also demonstrated multiple similarities between NZ GPs and their international counterparts regarding obesity and its management. Although gender of GP's and the body weight of both

GPs and PNs have been shown to drive difference in previous studies, in contrast this study found these intra-group differences were largely irrelevant.<sup>(213, 214)</sup>

Importantly the study collated a significant dataset of information related to the beliefs, attitudes, knowledge and practices of PNs. To date information on PNs and obesity management has largely been confined to smaller qualitative studies, with the exception of the 1997 study by Hoppe and Ogden.<sup>(129)</sup>

Large men are essentially absent from the obesity/healthcare literature. By giving these men a voice, the study is able to inform primary care professionals of some of the beliefs, experiences and expectations larger men may bring to the consultation. Understanding their previous primary care experiences, experience of life outside of the general practice environment, how they conceptualise their weight gain, their motivators and barriers to weight loss, as well as their weight loss experiences may assist general practice to more effectively support this group of patients. In addition, the narratives of these men showed remarkable consistency irrespective of ethnicity, age and location, however negative experiences were possibly more 'felt' by the larger men, suggesting that sizism towards men is present in society just as it is towards women.

### ***Overview of notable findings from the survey***

The notable findings from the survey of GPs and PNs encompassed four domains: beliefs and knowledge; communication; weight management practices and experiences and the practice environment. The findings related to each of these domains are now discussed.

#### ***Beliefs and knowledge***

In common with several studies from the literature review,<sup>(36, 103-106)</sup> NZ GPs overwhelmingly agreed obesity is a chronic disease. This was a view shared by responding PNs, however no identified studies involving PNs explored their views on the disease status of obesity, consequently comparability was not possible. Furthermore, while GPs and PNs still identified behavioural risk factors as the greatest influence on obesity aetiology, the survey revealed that NZ GPs and PNs have shifted away from the conventional biomedical view of obesity causation. They appear to have a significant appreciation of the complex causal pathways to obesity and the limitations imposed on individuals by their genes, the environment, their socioeconomic status and cultural values, as well as their personal skill set. This

understanding of the complex nature of obesity and their view that obesity is a disease may lessen negative bias towards larger patients.<sup>(127, 220)</sup> The presence of an interplay between beliefs about the causes of obesity and how people view larger individuals has been documented<sup>(127)</sup> and medicalising obesity as a disease has also been identified as having the potential to diminish or remove blame from the individual.<sup>(119)</sup>

Although this survey found that 70% of GPs and 64% of PNs agreed or strongly agreed that individuals were responsible for their weight, a view common in earlier studies,<sup>(38, 215, 240, 248, 423)</sup> multiple comments related to the question were documented which moderated the numerical response findings. Again this finding supports the view that primary care professionals understand obesity is the result of multiple factors not just overeating and inactivity. Moreover, each professional group considered they had a role in weight management, similar to studies from the literature review.<sup>(33, 37, 212, 228, 231, 232, 234, 240, 255, 273)</sup>

In common with findings from other studies,<sup>(37, 105)</sup> a substantial minority of NZ GPs and PNs appear to hold stereotypical views regarding larger men. Certain stereotypical descriptors were found to underpin the negative perceptions held. For GPs these terms were ugly, non-compliant, weak willed and repugnant. Within the PN cohort the key negative terms were, ugly and noncompliant. The prevalence of stereotypical views within this GP cohort however, was less than those found in the Foster et al. study.<sup>(103)</sup> Although Brown and colleagues found negative stereotypical views within nursing populations, comparisons of the extent of these views was not possible due to different data collection methods.<sup>(211)</sup> Alongside the numerical responses to this question, multiple comments were documented. These spoke of the challenge of not letting a person's size affect perceptions, while others spoke of not being there to judge but to support the patient and the need to be aware of the different contexts of people's lives. Due to the gendered focus of this survey it is unclear whether these stereotypical views would be held in relation to large women. It is also possible that some GPs and PNs would consider some of the descriptors were applicable to non-obese individuals as suggested by the text data theme; it is individual and dependent on many factors.

With research consistently demonstrating a significant relationship between obesity stigma and beliefs regarding personal responsibility,<sup>(491)</sup> largely underpinned by attribution theory,<sup>(57)</sup> it is worth considering the findings from these two survey questions collectively.



From a numerical perspective the majority of both groups consider individuals responsible for their weight, with a significant minority holding negative stereotypical views. However, both questions generated multiple free text comments which generally sought to temper the numerical responses. Clearly these questions generated a level of tension for respondents. It is not possible to determine if the numerical responses reflect an implicit process, with the free text comments revealing the results of an explicit process, however this would be one possible explanation.

Respondents were also asked about their responsibility to model healthy lifestyle behaviours to their patients. There was overwhelming agreement from both groups that they had a responsibility to maintain a healthy weight and exercise regularly. Findings similar to those in studies of GPs by Bocquier and colleagues and Foster et al.<sup>(103, 105)</sup> While no studies were found to compare the PN findings with, commentary in the British nursing press highlighted poor lifestyles amongst NHS nurses and called upon them to adopt healthier lifestyles befitting their positions as role models.<sup>(492)</sup>

These results from this study demonstrate a high level of awareness that health professionals are viewed as role models by the public, as well as a recognition that the lifestyle they portray may impact on their patient's adoption of healthy behaviours.<sup>(493, 494)</sup> After all it could be argued that an overweight or obese health professional is giving tacit approval to the patient for their lifestyle. In addition, they show a mindfulness that tensions may arise if the personal choices of the GP or PN are at odds with their role as a health educator. The results, however do not give any indication regarding the lifestyles of respondents.

General practitioners and PNs are providers of primary preventive services in NZ. As such they may be subjected to higher expectations regarding their personal lifestyle than other health care providers. In his article entitled, 'Physician Heal Thyself', Monaghan highlights the increasing pressure on healthcare providers to maintain a normal BMI to protect their credibility, enhance their role modelling status, reduce the threat to their own health and to slow down the escalating obesity crisis by being better able to influence patient behaviour.<sup>(494)</sup> Conversely, Oberg calls for GPs and PNs to be better supported to adopt healthier behaviours, so they can improve their own health and wellbeing and as a consequence conceivably increase the provision of behavioural counselling in primary care.<sup>(493)</sup>

The topic of the occupational credibility of overweight and obese health providers to give weight management counselling was also explored in the survey. This study found that both groups believed an obese patient would be less likely to trust weight loss advice from a primary care professional if they were overweight or obese. Other characteristics they thought patients may value, other than normal weight, were documented by respondents.

They considered the rapport between health providers and patients could override the size of the health care provider. Furthermore, they felt larger health providers had a greater ability to empathise with patients who were overweight or obese. These findings are similar to those of Brown and Thompson.<sup>(131)</sup> In their study, larger primary care nurses spoke of making a virtue out of their size by being able to empathize more strongly, but they showed a tendency for larger nurses to base weight loss advice on personal experiences. A finding replicated in a more recent study by Phillips et al.<sup>(273)</sup> Within this current study a documented comment relating to this question suggests similar activity, *“I talk about my eating disorder experience and my support and help from Overeaters Anonymous”*. It is possible, however that this behaviour is more widespread. When asked what sources of information they used to support their provision of weight loss counselling, PNs documented several relating to sources of unknown rigor. For example: the Gabrielle Method; The Kiss Diet Club; The Whole 9 or Whole 30 Programme and the Harcombe diet. The variety of this type of resource was less likely to be documented by GPs, yet there were not totally absent with reference made to the Whole 9 Programme, amihungry.com (<http://amihungry.com/>) and Eat to Live by Joel Fuhrman (<http://www.drfuhrman.com/>). The guidance contained in these sources may well be based on evidence and share elements found in nutritional guidelines but it is an assumption to assume that what worked on a personal level will work for the patient. Therefore, it is preferable for health professionals to consistently use agreed nutritional guidelines, thereby providing the patient with information based on peer-reviewed scientific evidence.

Both groups spoke of the difficulty of discussing weight with patients if their own BMI was low. Due to the low number who reported being underweight, low probably also refers to those of normal weight but perceived as low body weight by larger patients. This group felt they lacked legitimacy, similar to those with low BMI in the Brown and Thompson study,<sup>(131)</sup> who felt their low BMI amplified sensitivities around the weight loss conversation. Conversely, in that study nurses with a higher

BMI reported feeling self-conscious and guilty as they were unable to be a good role model. Practice nurses who self-reported being overweight or obese in this study did not describe similar feelings.

The effect of personal body size was a salient topic for responders in this study. The comments documented illustrate how GPs and PNs felt they had to manage the impression obese patients have of them. Responders spoke of the need to overcome the impression they lacked empathy because they are slim or having to surmount the view they do not follow their own advice because they are large by reiterating personal weight loss stories.

The relationship between the weight of the health professional and patient perceived credibility has recently been explored in the literature with mixed results.<sup>(223, 224, 495)</sup> Bleich and colleagues found overall high levels of trust in primary care physicians (PCPs), regardless of BMI.<sup>(224)</sup> In contrast, the study by Puhl and colleagues found respondents reported greater mistrust of physicians who were overweight or obese.<sup>(223)</sup> Furthermore, they were less inclined to follow their advice. The study by Puhl et al.<sup>(223)</sup> however was experimental and as McCartney rightly points out, it did not take into account the impact of long term relationships between patients and GPs.<sup>(496)</sup> A factor highlighted in this study as possibly overriding the size of the health care provider.

This survey explored many beliefs common to other surveys, such as the role of the health professional, the status of obesity as a disease and the question of personal responsibility. In these instances the findings were very similar to the other studies. Other less explored areas were also examined, for example the views of GPs and PNs regarding their responsibility to be role models. Here their views were found to correspond with patient expectations. The views of these GPs and PNs regarding the causes of obesity appear to be more holistic than those identified in other studies but this may be a result of the survey tool used. Their views of larger men seem similar to the views of other GPs and PNs regarding larger patients.

This study also generated some notable findings related to initiation of weight discussions and barriers to these discussions. These are discussed next.

### ***Communication***

Over 80% of both GPs and PNs stated they discussed weight with men when they are overweight. Compared to other studies,<sup>(178, 208, 228, 238, 255, 256)</sup> this cohort of GPs and PNs appears to raise the topic with patients of a lower BMI. This is

important as multiple studies have found that overweight and obese men unfailingly underestimate their size.<sup>(334-336)</sup> Consequently they are less likely to make a weight loss attempt. Similar to overseas studies however,<sup>(208, 231, 255)</sup> respondents were much more likely to instigate a conversation about weight once a man had become obese, had a weight related comorbidity or at a time that legitimated the conversation.

The survey also inquired about when GPs and PNs were unlikely to have a weight loss conversation. Overall the minority agreed or strongly agreed with the suggestions posited. The most significant reason given for not raising the topic was a lack of male specific weight loss programmes in their area. Of the comments attached to the question, lack of time was a cross cutting theme. Lack of time was seen as an issue not just for the health professional but also for men, with time constraints seen as impacting on their ability to address weight issues.

Recently studies have established the applicability of brief interventions as a strategy to support the initiation of weight loss attempts.<sup>(77, 79, 80)</sup> Brief advice interventions for smoking cessation and alcohol reduction are already acknowledged as being successful in primary care.<sup>(81, 82, 497)</sup> Furthermore, brief advice coupled with the offer of support for smoking cessation has been found to enhance effectiveness.<sup>(498, 499)</sup> To date no trial has compared a brief advice intervention to a weight management service, however Lewis and colleagues in the UK are currently undertaking a randomised controlled trial comparing these interventions.<sup>(500)</sup> With GPs and PNs acknowledging they have a role in weight management, brief interventions for weight management offers primary care a practical option. Moreover, the approach is already well established in the setting in relation to smoking cessation services, so health professionals are well versed in the approach.<sup>(501)</sup>

Other factors examined in the survey may also influence the instigation of weight conversations. The majority rated their knowledge of healthy eating and physical approaches for weight loss as good or very good, with slightly less rating their weight management counselling competency as good or very good in both groups. Furthermore, less than a third of GPs and a fifth of PNs agreed or strongly agreed with the statement 'I haven't had much success with weight loss with my male obese patients'. Overall it would seem that NZ GPs and PNs feel reasonably well prepared to talk about weight and have experience of successfully providing support to large men, unlike many of their overseas counterparts.<sup>(103, 106, 210, 231)</sup>

Practice nurses rated their knowledge of healthy eating and physical activity for weight loss higher than GPs, as well as competency to provide healthy eating counselling. A possible explanation for this finding is related to the greater engagement of PNs in behavioural change counselling which forms part of their role around the prevention and management of chronic conditions.<sup>(40)</sup> Consequently their greater engagement in the activity may enhance their self-efficacy.<sup>(502)</sup>

Both groups sourced a wide variety of information to support their knowledge and understanding of obesity and its management, however, use of the 2009 Weight Management Guidelines<sup>(246)</sup> varied between the two professional groups. Of the GPs 74% stated they did not use them. A finding that replicates that of Claridge and colleagues who also found low use of these guidelines by GPs in the Wellington region.<sup>(33)</sup> Other international studies identified GPs had low awareness of weight management guidelines.<sup>(105, 230)</sup> Use of the guidelines was higher by PNs, the majority (58%), stated they used them. In contrast, Nolan and colleagues found low guideline awareness amongst practice nurses in London and this was seen as a barrier to obesity management within their practice.<sup>(231)</sup>

The 2009 Weight Management Guidelines have a strong focus on primary care yet this study found few GPs use them and neither do a large minority of PNs. This is possibly due to multiple factors, including lack of agreement with the recommendations or environmental factors.<sup>(503)</sup> In addition, the lack of applicability of the evidence considered to primary care may also possibly explain the low uptake.<sup>(244)</sup>

Continuing medical education and CNE provide other opportunities for GPs and PNs to access information. Attendance at CME has been shown to be associated with improved confidence in the provision of weight management counselling.<sup>(105, 234)</sup> Of the GPs, 43% had undertaken a learning activity on obesity management within the last five years, slightly lower than the GPs in the study by Bocquier and colleagues.<sup>(105)</sup> A similar percentage of PNs had completed some relevant CNE. This finding may reflect a lack of opportunities to participate in obesity related CME and CNE rather than a lack of interest.

In summary, while both groups prefer to wait until a man is obese, has a weight related comorbidity or a legitimate opportunity presents itself, most will instigate a weight loss conversation with an overweight man. Lack of time was highlighted as the most significant barrier to starting weight loss conversations. Both

groups appear reasonably confident in their provision of weight loss counselling, obtaining information and support from a variety of sources.

A key component of the research question was being able to describe the weight management practices and experiences of GPs and PNs. The following practices were explored by the survey: diagnostic strategies, the provision of various elements of counselling and goal setting. The findings related to these practices, the experiences of GPs and PNs providing weight loss counselling to large men and strategies to enhance the provision of male weight loss support in the sector are discussed next.

### ***Weight management practices, experiences and solutions to enhance male weight loss support***

By far the most frequently used diagnostic strategy was calculation of a man's BMI. Ninety-three percent of GPs and 88% of PNs reported they did this often or always. The GP rate in this study was similar to that found in other studies,<sup>(105, 106)</sup> with no comparative data available for PNs. While the percentage of PNs reporting they often or always calculated a man's BMI was slightly lower than that of GPs, they were more likely to often or always measure a man's WC, 72% versus 49%. This difference is possibly the results of differing roles within general practice, as PNs are highly involved in the management of chronic diseases in NZ.<sup>(40)</sup> While GPs reported a lower rate of measuring WC, their use of the method was significantly higher than the 18% reported by Bocquier and colleagues in their study of French GPs.<sup>(105)</sup>

The rate reported in this study of GPs and PNs undertaking a BMI or WC measurement is somewhat at odds with the percent of overweight and obese NZ adults who report having their weight and or height measured at their usual medical centre in the previous year, 36% and 46% respectively.<sup>(14)</sup> Although some patients may not remember having their measurements taken in the previous year, a majority of these two large cohorts of health professionals said they always or often calculated a patient's BMI. Alternatively, health providers could be reporting what they think they do as opposed to what they actually do. Whatever the reason for the discrepancy, this is an area that needs further investigation in the NZ setting for a variety of reasons. Firstly because of the inconsistency outlined above and because studies have reported that men are less likely to have their BMI recorded and monitored.<sup>(263, 264)</sup> Thirdly the large percentage of GPs and PNs who stated they undertook a BMI and or WC measurement was not matched by the number who

considered documenting the measurement as important, 65% of GPs and 60% of PNs. Yet receipt of weight management by those who are overweight or obese is related to documentation of weight status.<sup>(504)</sup>

The survey also inquired about the perceived importance of various counselling strategies. The counselling strategies queried fitted within the 5As approach to obesity counselling; a framework for obesity counselling recognised as being useful in general practice.<sup>(262)</sup> Although PNs consistently scored higher regarding assessing factors, such as assessing a man’s dietary and physical activity habits, the majority of both groups considered this to be a very important aspect of weight management counselling. Similarly, 71% of GPs and 85% of PNs viewed agreeing goals as a very important activity. The aspects of this approach considered the least important were around assisting the individual. For example, referring the man to another health professional or involving his partner or close whanau/family member. Furthermore, only 54% of GPs thought it very important to follow up patients on their weight loss journey.

A study by Campbell and colleagues provides an opportunity to compare the perceptions of GPs over time regarding various aspects of weight management counselling.<sup>(233)</sup> This comparison is presented in Table 6.1.

**Table 6.1: Comparison of perceived importance rating by GPs of commonly assessed aspects of weight management counselling**

<b>Strategy</b>	<b>Very important Campbell et al.<sup>(233)</sup> study</b>	<b>Very important this study</b>
Assessing patients’ weight history	39%	48%
Assessing patients’ dietary habits	54%	83%
Assessing patients’ physical activity habits	59%	83%
Assessing patients’ readiness to change	32%	82%
Involving the man’s partner or significant other	7%	44%
Referring patient to other health professionals	16%	44%

The comparison of these findings identifies a significant increase in the perceived importance of all activities. Several possible explanations may account for these increases. With the increasing prevalence of obesity in communities between the 1990s and the present day, there is a greater awareness amongst GPs of the

problem. In 1997 9% of males were obese in NZ,<sup>(505)</sup> currently 31% of adult males are obese.<sup>(16)</sup> Since the emergence of the Chronic Care Model,<sup>(506)</sup> there is a growing awareness for the need of an approach that embraces not only the biomedical understanding of health and illness but also individual experiences of health and illness.<sup>(507)</sup> Furthermore, there is a growing appreciation that understanding the individual's health care experiences, is particularly important to those with complex conditions.<sup>(508)</sup>

While the percentage of GPs who consider it very important to be able to refer to other health professionals has risen, the percentage is still less than 50%. Yet juxtaposed against this, this survey found that time was documented as a key barrier to weight management in general practice. Over recent years team based care for patients with complex chronic conditions has become the accepted norm.<sup>(509)</sup> Teams of health professionals are able to provide for the diverse needs of those with chronic conditions or multimorbidity.<sup>(509)</sup> Yet this finding suggests inconsistent adoption of team working approaches to those living with obesity and all its complexities, potentially impacting on the individuals' experience of successful weight loss.

A recent observational study of 100 videotaped, real life consultations, between Dutch PNs and overweight and obese patients found the PNs rarely assisted the patient to set goals or address barriers to weight loss.<sup>(510)</sup> Over 80% of the PNs in this study perceived this as a very important aspect of a weight loss consult. Whether their belief in the importance of this activity translates into action, needs establishing.

In the review of the 5As model for weight loss counselling, Sherson and colleagues also found physicians were more likely to Advise and Assess, rarely, Assisting or Arranging.<sup>(259)</sup> In addition, their review found physicians rarely undertook the Agree component, however 71% of GPs responding to this study stated they considered this to be a very important component of weight loss counselling. Whether they perform this activity, remains to be established. The importance allocated to the various components of a weight management consult by responding GPs and PNs, deviates from what Sherson and colleagues found the majority of patients valued. Patients were found to appreciate the Assist and Arrange features of the approach most,<sup>(259)</sup> the very features that support them on their weight loss journey.

This question also generated multiple comments from both GPs and PNs. General practitioners documented that they recognised the importance of these



approaches but time was once more highlighted as a barrier. Practice nurses acknowledged the challenge of time but recorded other factors they considered important to assess. These included: health literacy; mental health and cultural or religious dietary requirements. These aspects are in line with recommendations in the NZ weight management guidelines.<sup>(246)</sup> The current NZ guidelines, unlike their Australian counterpart, do not provide any guidance around approaches to weight management in primary health care, taking a very clinical as opposed to an applied approach to the provision of guidance.<sup>(246, 261)</sup> A factor that possibly impacts on their utility for the sector.

An aspect of weight management counselling is goal setting. The majority of GPs and PNs in this study considered it very important to determine goals for weight loss with the patient. The two goals deemed the most important were the adoption of improved food and exercise habits and improvement in clinical indicators. The first finding possibly reflect the perception of both groups that the main driver of obesity in males is overeating and physical inactivity, with the second finding possibly relating to their biomedical focus. The majority, 75% of GPs and 80% of PNs deemed a weight loss of 5-10% of initial body weight an appropriate goal; a finding in line with the NZ weight management guidelines and underpinned by results from both clinical trials and translational research evidence.<sup>(246, 511-513)</sup>

In a study by Phelan and colleagues, however, a weight loss of between 5-10% was considered disappointing by 30% (N=29) of GPs. Likewise, 24% of GPs in this study viewed a weight loss to a normal BMI range as important or very important, with 47% of PNs viewing this as an important or very important goal. Although clinical benefits are recognised as accruing with as little as 5-10% weight loss, normal BMI is also associated with lower morbidity,<sup>(182)</sup> so perhaps it is unsurprising that both groups considered it important. The question of the importance of reaching a normal BMI range was one of only five questions to generate a mean difference greater than 0.5% between the two groups. This may reflect the fact that the PN cohort was almost entirely female and were more likely to report having made a weight loss attempt. Their response may have been underpinned by aesthetic values.

Establishing a shared goal with patients around realistic weight loss is important and part of the weight management counselling process.<sup>(514)</sup> While setting realistic weight loss goals can be challenging, men are acknowledged as setting more realistic goals, compared to women.<sup>(284, 285)</sup> Furthermore, goal setting is

fundamental to effective weight loss support.<sup>(515)</sup> Due to the level of doubt regarding behavioural weight loss interventions expressed in this study and others by some physicians and to a lesser extent PNs, both they and their patients may be best served by agreeing realistically achievable goals. By doing so their confidence in their ability to support individuals with weight loss, as well as the self-efficacy of the individual that they can successfully lose weight regarding weight loss, may be enhanced.<sup>(516)</sup>

General practitioners in this study were more likely to report finding weight management in obese men frustrating, a lack of confidence in behavioural and pharmaceutical interventions and a greater level of pessimism regarding the ability of larger men to lose weight compared to PNs. Studies from the literature review support these findings regarding GPs.<sup>(33, 36, 37, 209, 233)</sup>

Unlike their GP counterparts, PNs in this survey appear to have a more optimistic outlook regarding weight management and the efficacy of behavioural interventions. Their optimism regarding behavioural weight loss interventions is in line with a recent systematic review and meta-analysis. Peirson and colleagues found evidence of moderate quality to support the use of behavioural interventions for overweight and obese adults.<sup>(517)</sup> Furthermore, they found evidence to support the use of medications (orlistat and metformin) in association with behavioural interventions. Once more the greater involvement of PNs in preventive health care may mean they have more experience of success than their GP counterparts.

It is clear that those responding to this survey feel they have a role in providing weight management but responses to this survey also highlight challenges in the current environment to providing weight management support. The next section discusses responses to a variety of suggestions for helping general practice more effectively support large men in their care.

Respondents were asked to rate thirteen different options for weight management support to overweight and obese men in primary care. The four most frequently itemised options for both groups will be examined and discussed.

Both GPs and PNs considered an up to date list of community resources available to support male obese patients to be the number one option. Funding to support larger men access gyms or similar was viewed as the next most significant option by both groups. The reason why this was a more popular option than funding to support attendance at a commercial weight loss programme, with its associated evidence base, can possibly be explained by several factors. Although men are not

a homogenous group, physical activity is more acceptable to them than women<sup>(15)</sup> and men are more likely to associate the cause of their excess weight as inactivity.<sup>(354)</sup> Supporting them to increase their physical activity is likely to be perceived favourably as an intervention. As Lewis and colleagues highlighted, men speak of “getting fit” and “athletic” and not “thinner” and “smaller”.<sup>(354)</sup> Finally, men are grossly under-represented in studies involving commercial weight loss programmes.<sup>(25)</sup> While the body of evidence regarding weight loss interventions with a strong physical activity component remains small, interventions such as the Fit Fans programme show promise.<sup>(385)</sup>

The two groups then diverged on their preferred options. General practitioners rated the availability of dieticians on site and increased funding for bariatric surgery as very important or crucial, while PNs considered education on specific approaches to discussing the topic of excess weight and improved access to Maori and Pacific male weight loss community programmes as the next most important options.

The priority assigned by GPs to dieticians may at first appear to be at odds with the low number that thought being able to refer obese patients to other health professionals was important. The explanation here probably relates to the question asked. This question asked them to rate the importance of dietician clinics on site, on site being the significant phrase. Co-location is viewed as a pivotal factor in enabling team based care and is associated with the ability to provide enhanced services for patients with chronic conditions.<sup>(518, 519)</sup>

General practitioners were significantly more likely to support increased funding for bariatric surgery, similar to the GPs in the other NZ study.<sup>(33)</sup> Whereas PNs rated education on specific approaches to discussing the topic of excess weight as more important. This may be explained by their greater involvement in behavioural change and chronic condition prevention and management within the general practice setting.<sup>(40)</sup> Practice nurses also rated improved access to Maori and Pacific male weight loss community programmes higher than their GP colleagues. This may be an indication of their awareness of the cultural associations surrounding food and body image in these two cultures.<sup>(168)</sup>

In summing up this section, rates of measuring BMI are reported as being reasonably high and a plausible explanation could be given in relation to rates of GPs measuring of WCs. The discrepancy between the rates of measurements in this study and the rates reported by overweight and obese patients requires further

investigation. This survey explored the perceived importance of components of the 5As, not whether the actual components were undertaken. It is possible gaps in the provision of care around the Assist and Arrange components will exist in NZ primary care, so this needs to be explored further in the future. The views of the two groups regarding options to enhance weight management in primary care varied.

### ***Practice environments***

The survey also assessed the views of GPs and PNs regarding the priority allocated to the prevention and management of obesity within their practices, as well as the ability of the practice to cater for large men in relation to furniture and equipment. Overall, 48% of GPs and 53% of PNs agreed or strongly agreed that obesity prevention and management was prioritised within the practices they worked in. One in five, approximately in both groups disagreed or strongly disagreed these activities were prioritised. The availability of large BP cuffs in NZ general practices appears to be relatively high, a finding in line with the Ferrante et al. study.<sup>(209)</sup> The availability of armless chairs in waiting areas was higher than that reported by Ferrante and colleagues, as was the reported availability of scales capable of weighing obese adults. The family physicians in the study by Ferrante and colleagues, however had better access to large examination tables. No comparison can be made regarding the availability of armless chairs in clinic rooms but GPs and PNs replying to this survey reported lower availability in clinic rooms compared to waiting areas.

The literature review highlighted the importance of waiting areas and clinic rooms being accommodating to larger adults.<sup>(290, 291)</sup> The inability of a general practice to provide armless chairs in all locations, scales capable of weighing up to 300kgs and examination tables able to cater to larger adults will possibly be interpreted negatively by larger adults visiting their general practice. With one in three NZ adults now being obese clinical settings need to be equipped to accommodate larger adults.<sup>(109)</sup> Visiting a general practice should not be problematical physically, even if psychologically daunting.

The main findings generated by the survey indicated the GPs and PNs hold very similar beliefs in relation to the belief domains explored. While PNs appear to hold slightly more tolerant views regarding larger men, the difference between the two groups was not significant. Overall, findings suggest both groups have a broad appreciation of the various drivers of obesity, gaining their knowledge via a range of

sources. Initiating weight loss conversations with men is not considered any easier than talking to women. Nevertheless, a large majority of each group reported raising the topic of weight even with overweight men. The various components of a weight loss consultation were generally recognised as important by both groups. With time frequently mentioned as a barrier, it is possible not all components are delivered during a consult. The majority of both groups reported measuring BMI, but WC measurement was only undertaken by one in two GPs. General practitioners and PNs hold similar views regarding weight management goals but twice as many PNs consider weight loss to within a normal BMI range as an acceptable goal. It would appear from options selected that both groups see weight management being enhanced by locating the weight loss aspect of weight management outside of the general practice. Prioritisation of the prevention and management of obesity was considered by approximately one in two respondents to occur in their practice, with gaps detected in the provision of certain items of equipment and furniture. The findings discussed above answer the first of the research questions posited, what are the attitudes, beliefs, knowledge and practices of NZ GPs and PNs in relation to obesity?

This chapter now examines significant findings from the qualitative phase of this research. The main aim of this component of the study was to explore the primary care experiences of large NZ men, acknowledging that these experiences are also influenced by their everyday experiences of life as a large man in NZ, including experiences of stigma. Findings related to the main aim are presented first for discussion, followed by those related to life as a big man and then those associated with the third theme, stigma.

## ***Overview of notable findings from the interviews***

### ***Experiences of general practice***

This theme comprised three sub-themes: experiences of having measurements completed; GPs and PNs as role models; and communication. Communication contained four sub-categories: raising the topic; terminology; advice given; and style of communication, and is discussed first.

The analysis of the narratives of these men revealed their experiences of having their weight discussed during a consult varied. These experiences ranged

from the topic not being discussed, to weight being discussed at every consult. Both are problematic.

Studies have highlighted the relationship between discussing weight and patients making a weight loss attempt.<sup>(77, 79, 80)</sup> Wirth and colleagues found that not being told to lose weight instilled a level of complacency in men,<sup>(361)</sup> while Gray showed that receiving a diagnosis of obesity was a motivating factor for men to address their weight.<sup>(379)</sup> Yet a diagnosis cannot be made unless the topic of weight is raised in the consultation.

Conversely, talking about a person's weight at every consult irrespective of the reason for the consult could be construed as discriminatory. For one man interviewed his experience of having his weight raised at every consult caused him to develop a coping strategy to try and help him relax. Because as he put it, *'I know that's going to come'*, so he used humour to relieve his tension; a strategy common to those living with obesity.<sup>(378)</sup> Large women in NZ also feel their body size detracts from their presenting complaint.<sup>(41)</sup> Moore describes similar experiences as a morbidly obese woman.<sup>(290)</sup> She talks about every appointment becoming about her weight and given the preoccupation of health care staff with her weight, she explains the difficulty she has obtaining appropriate and effective treatment for her presenting problem. Towards the end of her article she writes; *"I am a human being and I deserve healthcare as much as any other human being, regardless of my weight. I am a person, not a problem for people to solve, not a disease or a moral failing"*.

A further finding from these interviews revealed that the men had various opinions regarding the acceptability of certain size related vocabulary. For the most part those interviewed deemed the terms, morbidly obese, obese and fat as unacceptable, or as one participant put it, 'a bit rough'. Morbidly obese and obese are standard medical terms but as Volger highlighted, patients may associate different meanings with these words than health providers.<sup>(375)</sup> The terms these men found unacceptable are consistent with the limited literature in this area.<sup>(374, 375, 520)</sup> Volger and colleagues found the word weight to be generally rated as the most desirable word by patients.<sup>(375)</sup> Other terms acceptable to larger patients are: BMI, unhealthy body weight, unhealthy BMI, weight problem and excess weight.<sup>(374, 375)</sup> The men in this study thought the term overweight was suitable. Preference for terms does not appear to differ between men and women and between those with a BMI of  $\geq 40\text{kg/m}^2$  and those with lower BMIs.<sup>(375)</sup>

The men in this study provided rationales for why they considered some terms unacceptable. The term fat was viewed as judgemental. Comprising of only three letters the term fat is a powerful little word associated with numerous negative characteristics and moral judgements,<sup>(371, 380)</sup> as well as being associated with blame.<sup>(520)</sup> One man described how when his GP used the term morbidly obese it became a barrier to him pursuing a conversation about wanting to be fitter. For him the term morbidly obese was associated with inactivity. So why would he think his GP thinks differently with the media more likely to portray overweight and obese people as sedentary.<sup>(521)</sup> In terms of clinical practice, a recent study identified the two most motivating terms for weight loss are unhealthy weight or overweight.<sup>(520)</sup>

There were some in this study who did not find terms viewed as generally unacceptable, such as fat offensive, a finding consistent with other studies.<sup>(379, 380)</sup> In the 2011 Gray et al. study the term fat was considered to be more motivating than overweight.<sup>(380)</sup> Gray also found that being diagnosed as obese acted as a motivator for men to address their weight. One man in that study said of the term, "*It's a bad word, especially if it fits*"; not too dissimilar from the sentiments of one of this study's participants regarding the term fat. When asked if the term fat was OK with him he responded, "*Yes because it is true*".

There seems to be an inconsistency regarding appropriate weight related terms and those viewed as motivating by men. Gray and colleagues pointed out that the preference of some men for more aggressive terms links to the style of communication they prefer, namely direct and decisive.<sup>(380)</sup>

The men in this study spoke of wanting clear, simple and honest communication from their GP and PN. In addition, there was an expectation that the GP would get it right and tell them what their problem was. These findings verify many of those identified by Smith and colleagues who found five key aspects men valued in their communications with general practitioners: adoption of a frank approach; demonstrable competence; thoughtful use of humour; empathy and the prompt resolution of health issues.<sup>(382)</sup> Linked strongly to this sub-category was that of advice giving in general practice.

Overall these men were dissatisfied with the weight loss advice they received. It was viewed as too generic, unconstructive, not tailored to their individual needs and inconsistent. Participants in a study by Thomas and colleagues also spoke of being prescribed blanket approaches to weight loss and not being treated as individuals.<sup>(378)</sup> None of these men mentioned receiving any support from those

working in general practice to implement diet or exercise regimes. In other words, the Assist and Arrange components of the 5As framework was missing.<sup>(258)</sup> This finding from this study suggest a preference for highly personalised, fact based, easy to understand advice, as well as a gap existing in the provision of support. This finding further supports the results from two systematic reviews and a study by Malterud.<sup>(26, 384, 522)</sup>

In summary, these interviews generated three categories relating to the theme of communication, with the findings showing remarkable similarity with other studies. The problematic nature of not having or always having weight discussed; the tension between acceptable and motivating weight related language, communication style preferences, the lack of tailor weight loss advice and the absence of support have all been highlighted in other studies. The next section discusses the experiences of these men related to having measurements taken in general practice.

Procedures in the clinic room affect the quality of the patient's experience of primary care. Many people, even those who are not obese, are sensitive about getting weighed and the embarrassment felt by obese women is well documented.<sup>(523)</sup> Most of those interviewed in this study spoke of getting weighed but they did not disclose any related negative experiences. Having a WC measurement taken was less frequently experienced and was linked to requirements for a medical for insurance purposes. The current NZ weight management guidelines recommend the use of WC especially in cases where BMI may be lower but excess intra-abdominal fat is suspected. In cases such as this it is a more accurate measurement of the distribution of body fat than BMI.<sup>(246)</sup> The apparent lack of use of WC measurements within this group of men may have been due to their BMI measurements being in the higher ranges. One man did speak of feeling awkward when asked to raise his shirt so the GP could listen to his chest. This experience highlights the need to be aware that larger patients may have increased sensitivities around exposing their bodies to examination. No other study was identified that discussed the experience of men having weight measurements taken during a primary care consult, so comparisons were not possible.

Within the theme of experiences in general practice the final sub-category relates to the men's views regarding the need for GPs and PNs to be role models. The findings were mixed, consistent with the varied findings in the literature. Fraser et al. also found conflicting perceptions regarding the relationship between the perceived health status of GPs and trust in their health advice.<sup>(495)</sup> The patients in



the study were more likely, however, to follow weight management advice from a non-obese physician.(495) Conversely, Bleich and colleagues found overweight and obese patients had significantly higher trust in diet advice from overweight primary care physicians compared to those of a normal weight.(224) The authors suggesting that concordance between patient and doctor body weight may positively influence the relationship from the patient's perspective, specifically in relation to communication around weight related behaviours.(224) The experimental study by Puhl and colleagues found respondents reported greater mistrust of physicians who were overweight or obese.(223) Due to its experimental nature this study did not account for the impact of relational continuity between health professional and patient, diminishing its relevancy to the sector.(496) The impact of factors other than the health professional's weight were evident in this study. The mixed nature of the findings from this and other studies indicates that this is clearly an under researched aspect of weight management counselling in primary care and requires further exploration. These findings provide an understanding of the primary health care experiences of obese males in NZ.

### **Stigma**

Findings related to stigma encompassing both the stigmatising experiences of men and their awareness of emblematic stigma or the symbols of discrimination in their daily lives are discussed next. Although highly pervasive the consequences of weight stigma compared to other forms of stigma are understudied especially in men. Analysis of the narratives revealed how men in this study were exposed to stigma from a variety of people and how conscious they were of stigma pervading their everyday activities and the structural environments they inhabit. The place of emblematic stigma in their lives will be discussed first.

The main form of emblematic stigma reported by these men related to the retail setting and their inability to find clothes in their size; a finding mirrored by other studies.<sup>(52, 293, 378)</sup> Furniture in social and health care settings was also seen as limiting and unaccommodating, again supported by findings from other studies.<sup>(52, 58, 293, 378)</sup>

These larger men live in a world designed for thinner people and as such are faced with practical difficulties in their daily lives. Their social world stigmatises them by not providing for them and it was clear they 'felt' this discrimination. For many their size had become problematic when it came to shopping for clothes. In some

instances furniture in public spaces provoked a sense of discomfort. For one man in this study having to shop on the internet left him feeling uncomfortable as he did not consider it the normal way to purchase clothes. For this man the inability to 'fit in' to what he considered a normal way of living, acted as a motivator for a weight loss attempt, similar to some men in the Lewis et al. study.<sup>(354)</sup>

The limitations imposed on these men by society are symbolic of the way society perceives larger people as failing not only themselves but society generally, possessing bodies considered unfit for purpose and a risk for the future.<sup>(524)</sup> Society in general needs to make accommodation for a variety of sizes to lessen the feeling of 'being different' expressed by many who are obese.<sup>(52)</sup> As Puhl and others have noted, experiences of weight discrimination do not motivate weight loss but cause weight gain.<sup>(39, 66, 523)</sup>

As well as being aware of the unaccommodating nature of society around them, these men also spoke of their experiences of personal stigma. The men spoke of discourteous treatment by staff in retail shops. For many family and friends were the worst source of interpersonal stigma but for some comments made by friends were viewed as friendly banter. For example: "*It is usually like mates, like me and him. It is usually, giddy fat boy what has been happening today sort of thing*". Others viewed comments from friends about their size as justified and deserving. This has been identified as a form of coping response.<sup>(58)</sup> Alternatively Monaghan and Malson suggest this could be a way of showing masculine emotional resilience, differentiating the male response from that of the sensitive woman.<sup>(370)</sup> Work colleagues were also identified as a source of stigma. While some of the men spoke of occasions when they felt discriminated against in primary care there was a sense that these experiences were not so pervasive as the stigmatising experiences from family, friends and work colleagues. These are recognised as not uncommon sources of discrimination.<sup>(525, 526)</sup> The men expressed a variety of emotions in relation to their experiences including: anger, frustration, fear, sadness and acceptance. The impact of these experiences is discussed next.

Stigma was noted as having a detrimental emotional toll on many of those interviewed, an impact well documented in the literature.<sup>(39, 523)</sup> One interviewee spoke of feeling '*diseased*' due to the way society treated him and consequently feeling "*quite often down*", with his self-confidence also affected. Even the man who expressed anger at the way larger adults are treated by retail staff expressed uncertainty about his right to be part of society when he said: "*...we belong, sort of*

*thing*". Some appeared to exhibit self-discriminating behaviour by accepting the negative comments of family and friends, behaviour rarely explored in those living with obesity. This behaviour is perhaps not surprising when the strength of weight bias is compared to other common biases.<sup>(527)</sup>

Compared to women little is known of obese men's experiences of stigma and consequent discrimination. This study has shown that for these men stigma manifested itself in a variety of ways. Their narrative shows they were exposed to stigmatising experiences not only when out in public but also in their own homes and with friends; times generally considered to be times and locations of safety. While some spoke of discriminatory comments from health providers this group did not appear to be the main source of the stigmatising experiences of this group of men. Furthermore, these men were acutely aware of the unaccommodating nature of their environments. These findings related to stigma contribute to answering question two and four.

Grounded in the data from these interviews, the qualitative component of this study has provided insights into the lived experiences of large NZ men. This data is by no means exhaustive nor does it represent the views of all NZ men but it has started a conversation that needs to continue. The analysis of these narratives revealed three main interconnected themes; the final theme will be discussed next.

### ***Life as a big man***

This theme comprises various categories as it captures multiple aspects of life as a large man. The themes that emerged are ones frequently seen in the sociological literature but less so in the medical literature. The categories are not necessarily presented in the order they appear in the results section as some intertwine and are therefore discussed together.

For these men it was difficult to articulate any positives aspects of life as a big man, their size was viewed negatively by all. The positives of 'bigness' evident in the literature was not a significant feature of the narratives of these men.<sup>(334)</sup> The negatives of being a big man encompassed three domains: functional limitations; social consequences and health problems.

These men were aware that their ability to perform and complete tasks normal in their social world was compromised by their body's size. Their body size also limited their ability to exercise as a means of weight loss with one man describing how issues with chaffing reduced his ability to cycle. This focus by the men on their

body's fitness for purpose is normal, relating to Watson's dimension of pragmatic embodiment.<sup>(367)</sup> This view of health equating to functionality, however, is frequently at odds with what men consider the abstract focus of health professionals on physiological health. As a result primary care providers may be missing opportunities to promote behaviour change.

The negative social implications associated with their size were the most difficult for these men and encompassed their ability to participate in activities and feelings of embarrassment and discrimination. Other studies have found similar findings.<sup>(293, 354, 378)</sup> For one man the social implications resulted in him feeling trapped inside his body and expressing the desire to be free. This sense of alienation was also alluded to in the study by Ogden and Clementi.<sup>(52)</sup> Overall there was a sense that for these men their social lives were limited because of their size, driven either by physical limitations on participation or psychological limitations as a result of feeling embarrassed or experiencing discrimination.

Similar to men in other studies these men were aware that their weight was affecting their present health status, with implications for the future.<sup>(293, 354)</sup> Health issues were frequently cited as a motivator for addressing their weight, in common with men in other studies.<sup>(26, 348, 360, 361, 363, 364)</sup>

For men, however, there is a tension associated with actively seeking to address health concerns as this is viewed by many as women's business.<sup>(352)</sup> This tension is further enhanced in NZ by the overarching social norm of maleness being the man who is self-reliant, staunch, and robust, for whom help seeking does not come naturally. Yet in today's society men are faced with the expectation that all good moral citizens will look after their bodies.<sup>(352)</sup> Robertson sums up this tension as the don't care/should care dilemma for men.<sup>(352)</sup> He suggests that health care services and providers need to support men to overcome this dichotomy and assist them in maintaining their gender identity by providing legitimate reasons to use health services. As men relate health to functionality these legitimate reasons are frequently associated with changes during their life-course, such as starting a family, or divorce or change of job.<sup>(352)</sup> Robertson's concept of using periods of change during a man's life-course to promote health is pertinent as the men in this study consistently pin-pointed a time in their life when their weight gain started.

Social transitions were periods of vulnerability for weight gain for all the men interviewed. The only variation was the point of transition. The social transitions identified spanned the life course: first part-time job while in school; getting married;

change of job; having a family; migration; divorce and retirement. This finding is in agreement with Smith and Holm,<sup>(355)</sup> who also found men reported life-course transition as times of weight gain. This relationship is significant for primary care and its relevance will be discussed further when the findings are synthesised.

As well as all men identifying a time in their life when they started to gain weight all believed it was due to eating too much and exercising less. Analysis of the narratives however, resulted in underlying causes of weight gain to emerge. In common with the men in a study by Smith and Holm,<sup>(355)</sup> these men spoke of work obligations and lack of time for being physically active as resulting in weight gain. Similarly, men in the study by Lewis cited work, long hours, the sedentary nature of some jobs and work stresses as impacting on their ability to be physically active.<sup>(354)</sup> Emotional stressors were common in the studies by Smith and Holm and Lewis and were evident in this study, with one man describing his eating as 'out of control' when he was stressed.<sup>(354, 355)</sup> Embedded within the stories these men told were other more diverse fundamental factors related to weight gain such as the environment, the media, their lack of disposable income, as well as the role of multiple factors including genetics. Each of these men demonstrated a more nuanced understanding of the cause of their obesity not noted within other cited papers. While one man considered his lack of knowledge about food did influenced his weight gain when younger, most of these men did not consider a lack of knowledge caused their weight gain. These men understood that at a fundamental level people gain weight when they consume more energy than they expend but each demonstrated a more subtle understanding of the causes of their own obesity.

A challenge for this group of men was correctly perceiving their body size. Some spoke of using photographs as a means of comparing themselves to others and their historic self. Others compared themselves to their sporting heroes but were aware of a disconnect between the composition of their body and that of their sporting stars. The inability of these men to correctly perceive their body's size is not unique to these men. Men across multiple nationalities have consistently been shown to underestimate their body size,<sup>(334-337)</sup> with cultural differences in perceptions existing based on preferences for smaller or larger bodies.<sup>(337)</sup> Furthermore, images used in the media to illustrate obesity stories frequently feature images of morbidly obese individuals who are not representative of the majority of obese individuals, especially men who are more likely to be obese class 1.<sup>(19)</sup> This has the potential to contribute to the under recognition of obesity by those less obese than those in the

images.<sup>(528)</sup> With accurate weight perception strongly correlated with attempts to lose weight,<sup>(529)</sup> the under estimation of body size so prevalent in men is a barrier to men actively seeking support to lose weight. This study, however highlighted other motivators for weight loss.

All interviewees were motivated to lose weight as all had made at least one weight loss attempt. Multiple motivators for weight loss were identified by these men including: for health and well-being; to participate in sports; to access health insurance; a moral imperative; for family; for aesthetic reasons and because of a discriminatory experience. The literature suggests that men prefer to lose weight for what they consider to be legitimate reasons,<sup>(26, 363, 364)</sup> such as, for health reasons like many of the male participants in this study and the study by Lewis and colleagues,<sup>(354)</sup> or to access health insurance like a participant in this study. Age does appear to influence motivation, with younger men more likely to lose weight to enhance appearance or improve fitness, compared to older men who aim to lose weight for reasons of health and well-being.<sup>(354, 364, 366)</sup> Review of the motivators cited by the men in this study mirror these finding. Hence it is important to determine the individual's specific reasons for wanting to lose weight, as for many men the reason will be nothing to do with their physical health. Once more re-emphasising that men focus on their body being fit for a purpose: to play sport; to attract a partner; to be a useful member of society or to be a good father. Understanding motivations differ between individual men is vital and core to supporting their self-management of their condition but at present it does not appear to reflect the blanket experience of these men in regard to weight loss advice.

Likewise it is important to understand the barriers men face in addressing their weight to enable the development of programmes that better meet their needs. Studies examining the barriers men perceive in regards to engaging in weight loss are sparse. Men in this study identified several barriers and all, apart from physical limitations, were located in the social domain and strongly linked to their gendered self. Barriers identified in this study mirrored those in other studies. The concept of dieting was viewed as a barrier by men in this study, in accordance with other studies.<sup>(334, 339, 358, 530)</sup> Dieting is viewed as a 'woman's thing', with men perceiving the food they would eat on a diet as unappetising and insubstantial.<sup>(345, 358)</sup> The men spoke of the lack of time as a significant barrier, again in agreement with several other studies.<sup>(354, 359-361)</sup> Cost was another obstacle mentioned and acknowledged in other studies.<sup>(354, 364)</sup> Men in this group spoke of (not wanting to give up their lifestyle

similar to those in a study by Egger and Mowbray.<sup>(365)</sup> Not being able to drink beer was cited in another study as a key barrier.<sup>(364)</sup> Interestingly none of the men in this study mentioned lack of motivation as a barrier to engaging in weight loss although this was the main reason identified by men in a study by Sabinsky et al.<sup>(364)</sup> It is difficult to explain this finding as participants in the Sabinsky study had all made prior weight loss attempts, similar to these men. It is possible that different experiences with weight loss success may account for these dissimilar findings.

One man in this study spoke at length about the sense of infallibility men have and how he considers this to be a significant barrier to men adopting healthier lives. A third of men in a study by Lewis and colleagues considered themselves to be the biggest barrier to making positive changes to their lifestyles.<sup>(354)</sup> Egger found men were able to ignore the fact their weight was causing their health problems.<sup>(362)</sup> Overall this and other studies suggest that gender is a significant barrier to men engaging in weight loss; a finding supported by the sociologists.<sup>(310)</sup> It is worth noting that masculine characteristics such as self-reliance and autonomy, can be positive influences on men's health.<sup>(329)</sup> Self-reliance has been shown to promote awareness of health, motivation to maintain good health and a belief in the role of self in maintaining health.<sup>(310)</sup> In fact all men in this study considered their weight to be their responsibility.

Men in this study generally believed their weight was their responsibility, however the extent to which they adhered to this belief differed. Some staunchly believed their body size was solely due to their behaviours and to blame anyone else, the media or advertising was evading reality, a finding common to other studies that have looked at how lay-men frame responsibility for health.<sup>(354, 369)</sup> For others their views were not so black and white. While they felt they were responsible for what they ate, they acknowledged the effect of persuasive messages in the environment. While this finding was not evident in other literature, men's ability to defer responsibility for their health by taking it for granted was evident in the paper by Richardson.<sup>(369)</sup> In this paper he discusses the views of men in relation to individual responsibility; their ability to abdicate responsibility for health; their inability to make connections about past behaviour and future health and their views regarding responsibility and risk. The quote below from this study highlights many of the themes from Richardson's study.

*But men are not good at recognising and accepting their fallibility or their um, um, the fact that at some stage they are going die and that they may*

*have shortened their life by making bad choices around diet and exercise and food and what have you and I think I am more aware of that now almost at 60 than I would've been at 50. (Interviewee 7)*

The quote encapsulates men's ability to evade responsibility for health till a later time in their life, while acknowledging that men are not good at making connections between their behaviour and health outcomes and their apparent sense of invincibility.

The views of the men regarding the role of societal responsibility and obesity were more varied. For some their ability to exercise autonomy over what they ate and drank was paramount, whereas others recognised the role regulation played in changing behaviours.

The responses of these men to the question of personal and social responsibility in relation to obesity varied. Some of the responses emphasised the desire of men to be autonomous in regards to their health decisions.<sup>(531)</sup> Some reinforced the view of many health professionals that men are not interested and or engaged in their health, potentially creating a sense of inertia amongst health professionals working with men.<sup>(531)</sup> If these responses are considered in association with the responses related to times of weight gain and motivators for weight loss attempts, it is possible to appreciate that men are not stagnant in their social practices and norms. As a result opportunities exist for health professionals to engage men in health without impinging on their perceptions of what it is to be a man.<sup>(531)</sup> The third theme that emerged from the analysis of the narratives, contributes to our understanding of question four, posed at the start of the thesis.

In summary, the qualitative component of this study has provided a valuable insight into the lives of large NZ men. Obesity appears to have affected many aspects of the lives of these men and was viewed as a negative experience. They all had experience of discriminatory comments from a variety of sources and were very aware of how their structural environment did not always accommodate men their size. They displayed a good understanding of the underlying causes of their obesity and were able to pin point a time in their life when they started to gain weight. They were aware that from a medical paradigm their size was associated with a range of health risks and all were able to name one or more risks. All considered themselves responsible for their current size and all had made one or more weight loss attempts. Multiple barriers to attempting weight loss were identified, many relating to what it means to be a man in contemporary NZ.



These men felt it appropriate for GPs and PNs to discuss their weight but wanted these discussions carried out in a sensitive manner. Other personal characteristics of their GP and PN were generally valued over and above their size. Their narratives appeared to indicate that WC measurements are not the norm when visiting the GP. None of the men had experience of personalised weight loss advice from health professionals in primary care and this was considered particularly frustrating. Comments suggest that the lack of certain furniture or equipment has the potential to make the visit to the general practice problematic for some men.

In conclusion, these findings grounded in the everyday experiences of a group of NZ men have provided valuable and beneficial information. In view of the fact that the current discourse surrounding obesity and weight management is under-informed by male perspectives, these findings are particularly relevant. The implication of these findings and their relationship to the results generated by the survey of GPs and PNs are discussed next.

The focus in this phase of the study is to look for convergence and divergence of findings. The aim being to provide assistance to those working in primary care with their interactions with large NZ men and as a result enhance the primary care experiences of NZ men seeking to lose weight.

### ***Synthesis of the findings***

Both the men interviewed and responding health professionals considered GPs and PNs have a role in weight management. What that role is, is yet to be defined but with men in this study and others acknowledging they find judging their body size challenging, weighing men could potentially form part of their role. Weighing provides an opportunity to alert men to their real weight. This is also important for those men who are in the normal weight range as they frequently perceive themselves as underweight. Furthermore, it may delay or stop those who are overweight becoming obese or those who are class one obese moving up the obesity spectrum. Weighing patients' should become a routine part general practice<sup>(532)</sup> as it serves multiple purposes. Not only does it support a weight management conversation, it provides a practice with a record of the prevalence of obesity within its enrolled population, thereby allowing data to be aggregated for use in epidemiological research.<sup>(267, 268)</sup>

Time concerns were a frequently mentioned barrier by both GPs and PNs to them providing optimal weight management care and support. This possibly drove

the strong support from both groups for options to enhance male weight management outside of the practice setting. Implicit approval for this was also given by the men as they spoke of their dissatisfaction around the weight management advice they received in primary care, as well as the lack of support. International studies support this view, with greater weight loss noted in those referred by primary care to a commercial weight loss programme compared to those who received standard care,<sup>(88-90)</sup> however men were poorly represented in these studies. Currently in NZ there are few weight management programmes targeting males in the community but male specific approaches have been successfully trialled in both Scotland and Australia. The men interviewed voiced a preference for the Scottish model.<sup>(490)</sup>

Both GPs and PNs reported times they were likely to have a weight conversation with a patient, with the most popular times being if the man was obese, had an obesity related chronic condition or at a teachable moment. Both groups also documented other times they raised the topic and these were times they felt legitimated the instigation of a weight loss conversation, such as a pre-employment check or insurance medical. These are also times men would also consider appropriate as going to see a health provider to have a pre-employment check or an insurance medical is viewed as a valid reason for a man to 'do health'.<sup>(531)</sup> Analysis of the narratives from the men highlighted additional opportunities.

All the men in this study spoke of weight gain happening at times of social transition, such as fatherhood or change of job, hence these times provide additional chances to discuss weight. Social transitions are frequently associated with changes in function, commonly impacting on the ability to be active. Consequently, these times are occasions when GPs and PNs can promote awareness regarding the possibility of weight gain and avoidance strategies. In addition, these times provide opportunities to discuss the possibility of initiating a weight loss attempt with those who are already overweight or obese, so they are able to meet new challenges. The impact of social transitions on body weight is not widely discussed in the literature, yet the significance of it for these men in relation to their weight journey suggests the phenomenon warrants further investigation.

The ability to meet the functional requirements associated with their social context is important to men.<sup>(352)</sup> For the men in this study the negative consequences of obesity were mainly related to the social aspects of their lives. Therefore, focusing on the ability of the man to maintain or regain functions important

to his social circumstances would appear to be a reasonable motivational strategy for GPs and PNs to use. Conversely, avoidance of some abstract biological value, such as a lipid level which has no apparent connection to functional ability may also be a useful strategy.

For those supporting men to lose weight it is important to note that the men in this study did not aspire to possessing the idealised male body shape, neither did they necessarily consider bigness bad. Being big but muscular was considered good. This differs from women who frequently just desire a smaller body irrespective of composition, based on some image they have seen in the popular media.<sup>(533)</sup> Men, however speak of 'getting fit' and 'athletic', not thinner or smaller.<sup>(354)</sup>

There was significant alignment between how GPs and PNs conceptualised the causes of obesity and how men framed the causes of their weight gain. At a fundamental level both groups endorsed over-consumption and under-activity as the primary cause, while acknowledging the impact of other factors, such as the environment on weight gain. This finding of mutual understanding is contrary to the findings of Ogden and colleagues,<sup>(248, 423)</sup> who found that patients more likely to attribute their obesity to biological causes, whereas GPs were more likely to cite social, psychological or behavioural causes, with PNs following a similar model of obesity causation.<sup>(129)</sup> This variance of views is recognised as a potential cause of tension within the consultation, possibly explaining why outcomes of primary care weight management are poor.<sup>(248)</sup> The finding in this study of a convergence of views is a positive as divergent beliefs are acknowledged as affecting the doctor-patient relationship.<sup>(534)</sup> The findings from this study suggest that with men a shared understanding of the causes of the problem does not have to be negotiated as it is already present. The discovery of this similarity of views regarding obesity causation, answers question three asked at the start of the study. Furthermore, the views of the health professionals and the men also converged in regard to the topic of responsibility, once more circumventing any need to arrive at a shared understanding responsibility. Primary care providers, however will have to negotiate their role in a partnership approach as the male characteristics of self-reliance and their need for autonomy may become obstacles to men accepting help to lose weight.<sup>(354)</sup>

These men did not necessarily share the views of the health professionals regarding the need for the GP or PN to be a normal weight. They did acknowledge the benefits of having a GP or PN of normal weight but the general consensus was that other aspects of the relationship were more important, such as trust, rapport,

being dedicated to the conversation and competency. These views align with those expressed by the health professionals in comments in the survey. The characteristics valued by the men and highlighted in the comments from the health professionals reflect key enablers of the patient provider relationship. Empathy and trust are fundamental to health professional patient relationships. A recent systematic review of the role of empathy in general practice concluded its importance was undisputable.<sup>(535)</sup> Likewise trust is acknowledged as key to the therapeutic relationship.<sup>(536)</sup> The significance of these aspects to the relationship between patient and health care provider may explain the difference noted in the studies regarding provider weight and patients' level of trust around weight management advice. Bleich and colleagues found a high degree of trust irrespective of the clinicians BMI, Puhl and colleagues did not.<sup>(223, 224)</sup> The latter study's experimental design did not account for the influence of the long term relationship between a patient and a GP. A study by Fraser found communication style and appearance of health care providers are both recognised as impacting on the patient's perception of their provider and the advice received.<sup>(495)</sup> Hence, it could be that the one mediates the other in relation to GPs and PNs of a higher weight but also GPs and PNs of a normal weight who are frequently perceived as not understanding the experiences of the overweight or obese patient. The bearing of each of these factors on patient trust needs further investigation.

General practitioners, PNs and the men interviewed signalled that getting weighed is a more frequent occurrence than having a WC measured. For most of the men in this study this may have been a suitable decision on the part of the primary care provider, with most having a BMI greater than 35kg/m<sup>2</sup> therefore being visibly obese. It is well established, however that men frequently misjudge their weight especially those who are overweight,<sup>(338)</sup> yet being overweight and having a WC of >94cm indicates a higher risk of type 2 diabetes, hypertension and cardiovascular disease.<sup>(246)</sup> As the NZ guidelines suggest, the addition of a WC is useful in providing additional information, adding credence to the weight management conversation. While the majority of PNs indicated that they were comfortable or very comfortable completing a WC measurement some patients may feel uncomfortable. Having another person in such close proximity may breach cultural norms. One of the interviewees did speak about feeling uncomfortable about having to pull his shirt up so a GP could listen to his chest. It may be more

appropriate to accommodate sensitivities and take a WC measurement over a shirt or another light piece of clothing.

### ***Aspect of weight management for large men requiring attention in primary care***

The men in this study demonstrated a sophisticated level of understanding of obesity causation. They were also aware of many of the physical, psychological and social consequences of being obese. In addition, they were able to identify barriers to initiating weight loss attempts and obstacles to maintaining weight loss. A key barrier for them was lack of support. All those who spoke of receiving weight management advice in primary care noted that the advice was not accompanied by on-going support. The lack of support for weight loss experienced by men in this study correlates with the finding from the survey that primary care professionals were less likely to consider providing referrals, involving the partner or providing follow up. Moreover, both GPs and PNs considered information on community resources available to support men with weight loss the most significant option for improving weight management support in primary care, possibly acknowledging they are not providing the support but being aware it is important. This finding re-emphasises the importance of addressing all components of the 5As model during a weight management consult as patients appreciate the assist and arrange features of the approach most.<sup>(259)</sup>

The men were frustrated by the paucity of individualised advice regarding weight loss. Men are not a homogenous population but generally they prefer a flexible, individualised programme where the diet is less restrictive and the focus is on exercise and performance.<sup>(537)</sup> When asked what they would like in a weight management programme most of the men in this study admitted not really knowing as they had never really given it any real conscious thought. When the question was explored further physical activity was always mentioned. Men's preference for physical activity over restrictive eating is well established.<sup>(345, 346, 388, 538)</sup> The preference by men for physical activity possibly explains why health professionals identified financial support for gym membership as an option for improving weight management support in primary care as opposed to funding to support attendance at commercial weight loss programmes which are currently supported by more evidence.<sup>(88, 90, 91)</sup> In recent years more attention has been paid to weight loss programmes specifically designed for men.<sup>(384, 489, 490, 539, 540)</sup> Participants in this

study were provided with an overview of the interventions trialled in the SHED-IT and Football Fans in Training studies. The overwhelming preference was for the model trialled in the Football Fans in Training study due primarily to its inclusion of physical activity, the choice of venue and the potential for camaraderie.

Men in the study never mentioned the lack of understanding about the causes of weight gain as a barrier to weight loss. All recognising, at a fundamental level that energy imbalance was the cause. Yet their experience of advice in primary care was hearing information around cutting back on junk food and exercising more, information they were already familiar with. Providing an obese individual with advice they are already familiar with or telling them they need to lose weight because of the consequences is not health education, it is definitely not health promotion and it does not equate to a supportive person centred approach such as the 5As,<sup>(258)</sup> motivational interviewing (MI) or in more recent times health coaching.<sup>(541, 542)</sup> All these approaches value the expertise the patient brings to the consult and are underpinned by a collaborative approach, unlike the provision of information by the health provider which maintains the power differential.<sup>(543)</sup>

The survey revealed that a level of discrimination towards larger men was present amongst a substantial minority of GPs and PNs, with the level varying dependent on the attributional descriptor used. Although the men in this study were more likely to have experienced discrimination from a family member, friend or work colleague, experiences in general practice were mentioned. It is also worth noting that in the NZ study by Russell of the primary care experiences of eight large bodied women, discrimination was frequently discussed.<sup>(41)</sup> Russell documented several incidences where the health care provider had made potentially light hearted remarks but from the perspective of the patient these were thinly veiled insults. Considering the findings from this survey, the interviews with the men and Russell's NZ study it would appear that a portion of larger adults experience poor service within NZ general practice. The majority of men who visit general practice in NZ are either overweight or obese; a fact that is not going to change in the near future. It is vital that current primary care providers and those in the future care for larger adults in ways that are appropriate so that a visit to primary care does not turn out to be a negative experience.

Many men in this study, consistent with other studies, were offended when their bodies were described by standard medical terms or the lay term fat. The terms were either considered judgemental or were viewed as barriers to discussing

behaviour change with the health care provider. Conversely, some did not find these terms unacceptable, again consistent with other studies, viewing them as motivational.<sup>(379, 380)</sup> The men in this study however, had no problems in citing a wide variety of motivators for losing weight, negating the need to use potentially offensive terms to instil motivation. The wide variety of motivators document indicates the need to determine individually the man's motivator as the literature revealed that motivators frequently varied by age.<sup>(364, 366)</sup>

Finally, both primary care providers and the men interviewed indicated that some furniture and equipment in general practice settings may be unaccommodating for larger adults, potentially affecting the quality of the patient's experience of primary care. The main limitations noted were around the provision of armless chairs in consulting rooms; the inability of many scales to accommodate larger adults and a significant lack of examination beds capable of catering for those who are significantly overweight. As Moore noted the physical limitations of the general practice can be considered by those who are obese as being symbolic of the values of those who work there.<sup>(290)</sup> At a time when national professional organisations are calling for primary care to be more proactive in addressing weight, when overweight and obesity rates are still increasing it is important that practice environments are welcoming to men of a higher weight and not creating an additional barrier to men accessing health care.

The synthesis of the two components of this study has produced some timely and significant findings for male weight management in primary care. The most substantive findings relate to the commonality of beliefs between the men interviewed and the responding GPs and PNs. Both groups had similar views regarding the appropriateness of GPs and PNs raising the topic of weight, obesity causation, personal responsibility for weight, the importance of rapport and trust over health professional body size and the need to provide weight loss programmes for men outside of general practice.

By examining health professional weight management practices and asking the men about their weight management experiences the unmet needs of larger men have become apparent. These include the lack of support for weight loss; the absence of tailored weight loss advice; the lack of an enablement approach to weight loss conversations; the use of harmful terminology and physically challenging general practice environments. While primary care was not the main source of discriminatory experiences for these men, those working in primary care need to be cognisant that

obesity is a stigmatised condition and as such they need to ensure their interactions with those living with obesity are of the highest quality.

### ***Strengths and limitations of this study***

This is the first study to use a concurrent mixed methods design to examine the beliefs, attitudes, knowledge and practices of primary care professionals in relation to obesity and weight management and the impact these factors have on the primary care experiences of large men, and as such it has some significant strengths. It provided a clear rationale for using a mixed methods approach and it satisfies the defining features of a mixed methods study by the use of both quantitative and qualitative methods to collect data, the integration of findings and in deriving inferences from the findings.<sup>(392, 394, 397)</sup> This approach has allowed the researcher to make an important contribution to the body of knowledge regarding weight management for men in NZ primary care.

The survey used in this study was long, however, it achieved a reasonable response rate considering the associated barriers to this method and the declining response rate to surveys within the sector.<sup>(437)</sup> This was potentially due to multiple factors. During the design phase of this study the lower response rates to surveys by health professionals in NZ<sup>(436)</sup> and the general decline in response rates to surveys by health professionals in recent years<sup>(435, 436)</sup> were acknowledged. As a result the sample size calculation took these factors into consideration and this study managed to gather the views of a significant number of NZ GPs and PNs to an extensive survey. In addition, all aspects of the survey design process from the formatting of the survey and the questions; to the careful wording of sensitive questions and the pilot testing of the survey, as well as carefully planning the sample size requirements were carefully considered. In addition, the saliency of the topic to the participants was another possible driver.

This study is also the first to gather such extensive information from a significant number of PNs regarding obesity and weight management within primary care. The collected views of these 735 PNs represent the largest data set of practice nurses views regarding multiple aspects of obesity management to the knowledge of the author. Practice nurses potentially have a significant role to play in the prevention and management of obesity within the setting of primary care, consequently this data set has contributed substantially to this body of knowledge.



The survey also managed to collect the views of a significant number of GPs, (n = 609). As a result a robust comparison of the views of these two groups of health professionals was able to be undertaken. Although multiple statistical differences were detected, overall mean differences were small. This finding suggests that between group differences are negligible and unlikely to contribute to differences in care. Furthermore, results from this GP survey were also able to be compared with the international literature, again revealing minimal differences.

The interviews contained within the qualitative phase provided the first opportunity for large men to share their experiences of primary care and life as a large man in contemporary NZ, to the author's knowledge. Utilising a qualitative method to gather the views of these men let the researcher acquire a range of information on individual and contextual factors that affected their experiences. The men who participated in this study were all large to a greater or less degree; but that was their only common feature. They represented a wide age range; differing scholastic achievements; they lived in assorted locations and they represented two of the main ethnicities within NZ, Pacifica and NZ European.

In view of the ever increasing prevalence of obesity amongst NZ men<sup>(3)</sup> and the fact that most will visit primary care at least once a year,<sup>(15)</sup> these findings have the potential to assist GPs and PNs improve the care and support they provide to overweight and obese male patients.

This study also has limitations. Within both components participation was voluntary. The health professionals who responded may have been those with an interest in obesity and weight management or men's health. Furthermore, the data set obtained from Medidata only contained contact details; therefore apart from gender it was not possible to compare responders with non-responders. Consequently, non-responders may differ demographically from those that participated. Response bias may be less of an issue with physician surveys, possibly due to the homogeneity of the population.<sup>(438-440)</sup> Potentially the homogeneity effect applies to nursing research as well. In addition, response bias may have been lessened by the random nature of the sample and the response rate achieved.

It needs to be acknowledged that the survey captured the views, knowledge and practices of NZ GPs and PNs at a point in time (2013). These findings may not reflect the views of GPs and PNs now as these may have been influenced by the increasing focus on obesity within the health sector and in the general media. The survey was self-report in nature and as such potentially prone to respondents not

always being entirely truthful and the influence of social desirability bias in relation to responses to sensitive questions.<sup>(544)</sup> Self-reported behaviours also have the disadvantage of not accounting for external factors, such as organisational or patient factors, that could modify the health professionals behaviour.<sup>(545)</sup> The coherence of many of the findings in this study with those from previous studies suggests a level of validity, however, it would be worthwhile if future research used either more observational or audit methods, where appropriate to establish the validity of this self-reported data.

In relation to the interviews the men who participated were also volunteers. As such they may have been those who were comfortable discussing their weight and their lived experiences of being a large man. This may account for the fact that no Maori tane (men) volunteered to take part as possibly they were whakama (shy/reserved/uncomfortable) discussing the topic. Moreover, no Asian men were recruited to the study and obesity rates are known to be rising in this population as well.<sup>(15)</sup> Consequently, it is not possible to categorically say the findings from these interviews are generalisable to all NZ men. Within this study, however, there is a significant level of agreement between the experiences and views of those who participated and those of men from other studies. This suggests that further studies may find other NZ men hold similar views and have comparable experiences.

Similar to a study by Russell,<sup>(41)</sup> these men rarely spoke of encounters with PNs, although the interviews gave them opportunities to do so. This is most probably because they did not interact with PNs on their visits to the general practice, possibly due to the structure and funding mechanisms related to general practice. In view of the fact that Russell in her thesis and the researcher in this thesis were unable to assess the experiences of larger women and men respectively in relation to PNs, this leaves an important gap in the research as these health professionals play a major role in preventive health care and in the management of chronic conditions in NZ.<sup>(40)</sup>

While neither a strength nor a limitation, a key challenge associated with this thesis was the sheer volume of published articles with relevance to the topic prior to and over the three years of the thesis. As discussed earlier obesity is a complex area, hence many of the publications did not strengthen or clarify one point of view as paramount but frequently added to the complexity.

The next chapter is the final chapter of this thesis and provides a conclusion to the study. In addition, ideas for future research are proposed.

## **Chapter 7: Conclusion and Recommendations**

This study focused on assessing the beliefs, attitudes, knowledge and practices of general practitioners and practice nurses regarding obesity and its management and determining the impact of these factors on the primary care experiences of large men. This study is both timely and significant. The results of the study come at a time when professional bodies have called for health professionals to take a more active role in obesity management and in addition, New Zealand has a high prevalence of overweight and obesity amongst its male population.

### **Conclusion**

This study provided original New Zealand knowledge regarding the beliefs, attitudes, knowledge and practices of both general practitioners and practice nurses related to obesity and specifically male obesity. Because of the response rate and the breadth of the survey this study also strengthens the current literature base which includes many small studies of limited scope. Crucially, this study has created a significant database regarding the views of practice nurses. Due to the substantial role practice nurses play in the prevention and management of chronic disease in New Zealand's primary care setting this dataset is of significant importance in understanding their future role in weight management.

This study has also promoted a conversation with large men regarding their weight management experiences in primary care. Although the experiences of men with diet, exercise and weight management have been studied before, with many themes from this study overlapping with findings from these previous studies, none were found that looked at the weight management experiences of men in primary care. As men in New Zealand are more likely to be overweight and class one obese compared to their female counterparts, understanding their experiences within primary care is crucial if the health sector is to respond appropriately to their weight management needs.

By synthesising the findings from the two data collection methods a shared model of obesity causation and responsibility emerged; a finding not evident in other studies. This finding of consensus is optimistic as it could support a cooperative approach to addressing male obesity; especially in relation to the development of solutions to support male weight management as both groups saw these as being

positioned outside of general practice. The study also highlighted areas of unmet need for overweight and obese males in primary care.

Using a qualitative approach to gather the data from men facilitated the collection of a range of information on individual factors and experiences that affect the daily lives of large men outside of primary care. These findings provide important information for general practitioners and practice nurses as they can help them to understand the context of the lives of their large male patients. The significance of social transition as a time of weight gain for these men was a particularly important finding.

In conclusion, New Zealand general practitioners and practice nurses consider obesity to be a chronic disease, characterised by complexity. They believe individuals are responsible for their weight but they think they have a role in partnering with the individual to address their weight and support weight loss. They consider they have a role in modelling healthy lifestyles and that overweight and obese men are less inclined to believe weight management advice from an overweight or obese primary care provider. A significant minority of general practitioners and practice nurses hold negative stereotypical views about larger men; however for the men interviewed the primary care setting was not the main source of their discriminatory experiences. Although general practitioners and practice nurses felt confident in their knowledge regarding healthy eating and physical activity for weight loss, the men were generally dissatisfied with the weight management advice they received, as well as the lack of support. Based on these findings it appears the most appropriate role for New Zealand general practice currently is one of awareness raising, diagnosis, support and provision of onward referral depending on the degree of adiposity. The findings also identified opportunities for the sector to enhance its responsiveness to men seeking to lose weight, thereby making it a more suitable environment for large men seeking to lose weight in the future.

## **Themes for future research**

- **Relating to primary care**
  - Primary care providers large and small spoke of the challenges in talking to large men. A qualitative study designed to explore these challenges further and document how both groups manage these encounters would assist in developing a communication toolkit for primary care;

- This study found the majority of general practitioners and practice nurses made a diagnosis of obesity by measuring body-mass index and in the case of practice nurses, waist circumference. These findings were at odds with previous New Zealand data. In view of these discrepant findings and the significance of a patient being given an obesity diagnosis in relation to them then making a weight loss attempt, an audit of the documentation of both these measurements would be valuable;
- In common with the findings of previous research this study identified that a significant minority of general practitioners and practice nurses hold unhelpful stereotypical views of larger men. Further research is required to determine if these views are implicit or explicit in nature and using this information implement appropriate interventions in undergraduate training institutions. In addition, research is required to establish if the negative attitudes evident in this study impact on the quality of care processes and health care outcomes experienced by larger men in New Zealand;
- There was evidence within the study that general practitioners and practice nurses were offering dietary advice from resources which did not appear to be supported by strong evidence. Furthermore, the men spoke of the advice they received as not being tailored to their individual needs. It would be useful to firstly determine why primary care providers use other nutritional resources than those based on scientific evidence. Secondly it would be valuable to assess the quality of weight loss advice provided to ensure it is evidence based and tailored to individual needs, as well as assessing its practical usefulness;
- The survey established that both general practitioners and practice nurses consider the components of the 5As approach as important. As this approach to weight management counselling has been shown to be of particular value in relation to weight management in primary care, it would be useful to determine the actual use of the various components in practice.

- **Relating to overweight and obese men**
  - In view of the support from the men in this study for the attributes of the male weight friendly Football Fans in Training intervention and the support from primary care providers for weight loss interventions outside of the general practice setting, it is recommended that this intervention be considered in the New Zealand context;
  - For the men in this study the impact of social transitions on body weight was striking. This is not widely discussed in the literature and as such warrants further investigation;
  - The qualitative component of this study provided a broad overview of the experiences of large men. As such, further studies are required to explore the everyday and primary care experiences of obese men of other ethnicities and to gain a clearer understanding of the influence of age. In view of the dominance of hegemonic masculinity within New Zealand society the experiences of large men of different sexual orientations needs to be understood better, as do the experiences of those men living with mental health issues and obesity.

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## Appendix A: Literature search strategy plan for papers related to health professionals

And		And	And	And	And
Key terms		Domain 1	Domain 2	Domain 3	Domain 4
General Practitioner	Obesity	Belief	Attitudes	Knowledge	Practice
<b>Or</b>	<b>Or</b>		<b>Or</b>	<b>Or</b>	<b>Or</b>
GP	Obese		Approach	Understanding	Management
<b>Or</b>	<b>Or</b>		<b>Or</b>	<b>Or</b>	<b>Or</b>
Primary care physician	Significantly overweight		Manner	Education	Treatment
<b>Or</b>			<b>Or</b>		
Family physician			Opinion		
			<b>Or</b>		
			Viewpoint		
Practice nurse					
<b>Or</b>					
Primary care nurse					
<b>Or</b>					
Family medicine nurse					

## Appendix B: Example of search string results from Ovid

1. General practitioner.mp. or General Practitioners/
2. General Practice/ or Family Practice/ or GP.mp. or Physicians, Family/
3. Primary care physician.mp. or Physicians, Primary Care/
4. 1 or 2 or 3
5. "Attitude of Health Personnel"/ or Attitude/ or Attitude.mp.
6. Opinion.mp.
7. Clinical behavior.mp.
8. Bias.mp.
9. Discrimination.mp.
10. 5 or 6 or 7 or 8 or 9
11. Diagnosis.mp. or Diagnosis/
12. Clinical management.mp.
13. Decision Making/ or Treatment decisions.mp.
14. 11 or 12 or 13
15. Obesity/ or Obesity.mp.
16. Obese.mp. or Overweight/
17. 15 or 16
18. Adult.mp. or Adult/
19. 17 and 18
20. 4 and 10 and 19
21. 4 and 14 and 19
22. from 20 keep 2-4,11,13,15,17,19-21,23,29-30,33-37,39-41,44,47-49,51,55-58,60,63,66,70,72,75,79
23. from 21 keep 10-11,17,27,37,39

24. Family Practice/ or Primary Health Care/ or Practice nurse.mp.
25. Primary Nursing/ or Primary Health Care/ or Primary care nurse.mp. or  
Community Health Nursing/
26. 24 or 25
27. 19 and 26
28. 10 and 27
29. from 28 keep 3-4,13,19,21,32-34,36-37,41,63-64,67,69,72,77,81,83,90
30. Men.mp. or Men/
31. Male/
32. 30 or 31
33. 8 and 9 and 19 and 32
34. from 33 keep 3,8
35. Primary Health Care/ or Primary care consult.mp.
36. 19 and 32 and 35
37. from 36 keep 1,6-7,9,12,22-23,27-29,37,47,50,63,72-73,76,85,89,98,106-  
107,117-118,131,134,139,142,149,151,153,160-161,167,170-171,173,183-185,199-  
200,202,205,214,219-220,224,229,231,237,253-254,256,265,270,277,281

## **Appendix B1: Summary of the quantitative studies**

**Table B1.1: Summary of the quantitative studies identified on beliefs, attitudes, knowledge and practices of primary care professionals regarding obesity excluding literature reviews**

Title, author(s), country and year	Subjects and sample size	Aim	Design method	Instrument (questionnaire)			Main results
				Development	Testing	Delivery method and return rate	
<p>What do physicians recommend to their overweight patients?</p> <p>Phelan, S., et al.<sup>(235)</sup> USA, 2009</p>	188 family physicians and internists.	To assess lifestyle recommendations for weight control .	Self-administered cross sectional survey.	Not reported.	Not reported.	Mailed out, with up to 2 reminders. 54% return rate.	<p>75.5% of physicians reported always or nearly always addressing weight control.</p> <p>Physician characteristics associated with addressing weight control: engaging in ≥150mins of physical activity weekly, and being ≥60yrs.</p> <p>Top 3 most common recommendations: increase physical activity, reduce consumption of food, reduce portion sizes.</p> <p>30% of those who returned the survey stated a weight loss outcome of between 5-10% of initial body weight</p>

Title, author(s), country and year	Subjects and sample size	Aim	Design method	Instrument (questionnaire)			Main results
				Development	Testing	Delivery method and return rate	
							would be disappointing.
Overweight and obesity in nurses, advanced practice nurses, and nurse educators. Miller, SK., et al. <sup>(178)</sup> USA, 2008	4,980 randomly selected registered nurses.	To provide a demographic assessment of nurses from 6 representative regions of the country and to assess their knowledge about obesity.	Self-administered survey.	Not reported.	Not reported.	Mailed out, with covering letter and a stamped self-addressed envelope. No reminders were sent. Return rate reported for each of the 6 regions and ranged from 8.9%-21.7%, overall rate was 15.5%.	Mean BMI of respondents ranged from 25.9-29.5. 26% of respondents used the clinical definition to differentiate between overweight and obesity. 4% failed to list one unhealthy implication of obesity, with 41% able to list five. 93% of respondents acknowledged that overweight and obesity require intervention; 76 do not pursue the topic. Need for continuing education regarding the health implications

Title, author(s), country and year	Subjects and sample size	Aim	Design method	Instrument (questionnaire)			Main results
				Development	Testing	Delivery method and return rate	
							of overweight and obesity and interventions highlighted.
Weight loss and gender: An examination of physician attitudes. Anderson, C., et al. <sup>(275)</sup> USA, 2001	700 randomly selected physicians.	To investigate whether physicians make weight loss recommendations and referrals to men and women.	Self-administered survey, based on case reports.	Researcher developed.	Not reported.	Mailed out with reminder several weeks after initial mail out. Response rate of 29.9%.	Physicians were more likely to recommend weight loss to overweight women compared to men, finding reversed for patients who were obese.  Physicians who knew their own BMI were less likely to encourage weight loss for patients who were overweight, and more likely to refer patients who were obese for treatment, than physicians who were not aware of their own BMI.
Weighing the care: physicians' reactions to the size of a patient.	122 primary care physicians.	To examine the influence of the weight of the patient on the attitudes of physicians and the	Self-administered survey, based on case	Not reported.	Pilot tested.	Mailed out, no comment regarding reminders. Response rate	A linear relationship between weight and negative attitudes

Title, author(s), country and year	Subjects and sample size	Aim	Design method	Instrument (questionnaire)			Main results
				Development	Testing	Delivery method and return rate	
Hebl, MR & Xu, J. <sup>(208)</sup> USA, 2001		treatments they prescribe.	reports.			not formally reported.	demonstrated. Length of consult negatively associated with patients of higher weight. 42% of physicians stated they would speak to obese patients about weight loss; 35% discussing it overweight patients. 31% stated they would refer an obese patient to a nutrition counsellor; with 30% indicating they would do this for overweight patients.
Obesity bias in primary care providers. Khandalavala, BN, et al. <sup>(546)</sup> USA, 2014	233 primary care professionals (physicians, physician assistants, nurse practitioners, nurses, residents/students, pharmacists, dieticians and physical	To investigate the presence of obesity bias in Midwestern primary care providers and to determine if levels of bias differ based on length of practice.	Self-completion of the Crandall 13 item Anti Fat Attitudes questionnaire which includes 3 domains: Dislike; Fear of Fat and	Reference to questionnaire provided.	Pilot tested	Participants completed the questionnaire prior to a CME session. The authors stated the questionnaire was provided to	No significant differences were found between professional groupings groups in Differences detected for the dislike domain based on



Title, author(s), country and year	Subjects and sample size	Aim	Design method	Instrument (questionnaire)			Main results
				Development	Testing	Delivery method and return rate	
	therapists/exercise professionals).		Willpower.			233 participants, this number does not equate with the number in each years of experience group: Least experienced = 67; moderately experienced = 49 and most experienced = 98.	experience levels.
Family physicians' practices and attitudes regarding care of extremely obese patients. Ferrante, JM., et al. <sup>(209)</sup> USA, 2009	500 family physicans	To assess family physicians' practices and attitudes in relation to extremely obese patients and to examine the factors influencing practices and attitudes.	Self-administered cross sectional survey	Researcher developed	Pilot tested	Mailed out. Initial mailing included a \$10 bookstore voucher. A thank-you/reminder one week after initial mailing, with 2 additional reminders if required. 53% response rate.	Negative attitudes towards obesity common, but less frequent in older physicians, and those who care for a higher volume of patients. Dealing with obesity and weight loss was seen as frustrating (66%). Treatment viewed as ineffective (51%). Weight loss drugs infrequently

Title, author(s), country and year	Subjects and sample size	Aim	Design method	Instrument (questionnaire)			Main results
				Development	Testing	Delivery method and return rate	
							<p>prescribed.</p> <p>Respondents reported patients lack discipline to lose weight (78%), patients want the easy way out (71%), patients have psychological problems (57%).</p> <p>Having <math>\geq 7\%</math> severely obese patients in a practice associated with lower knowledge of surgical interventions, and community resources.</p> <p>Less than <math>\frac{1}{2}</math> of the respondents had weighing scales able to weigh obese patients, and just over a <math>\frac{1}{3}</math> had large sized exam tables.</p>
Impact of physician BMI on obesity care	500 randomly selected primary care physicians	To examine the relationship between physician BMI and beliefs, as	How the survey was administered is	Contracted out to independent organisation	Pilot tested	Delivery method not reported. \$25 incentive for completing the	Majority of physicians initiated discussion regarding weight

Title, author(s), country and year	Subjects and sample size	Aim	Design method	Instrument (questionnaire)			Main results
				Development	Testing	Delivery method and return rate	
and beliefs. Bleich, SN., et al. <sup>(238)</sup> USA, 2012		well as, the impact of the relationship between physician and patient BMIs and provision of obesity care.	not reported			survey. Response rate 99%	loss once the patient was obese, but physicians with a normal BMI initiated the discussion at a lower levels.  Overweight and obese physicians reported lower self confidence in providing lifestyle counselling, but greater confidence in prescribing weight loss medications.  A higher percentage of normal weight physicians believed that overweight and obese patients would be less likely to believe weight loss advice from a physician who was overweight or obese.  If physicians perceived a patient's BMI to be greater than theirs,

Title, author(s), country and year	Subjects and sample size	Aim	Design method	Instrument (questionnaire)			Main results
				Development	Testing	Delivery method and return rate	
							they were more likely to record an obesity diagnosis, and have a conversation about weight loss.
National survey of US primary care physicians' perspectives about causes of obesity and solutions to improve care. Bleich, SN., et al. <sup>(226)</sup> USA, 2012	500 randomly selected primary care physicians.	To describe physician perspectives on the causes of and solutions to obesity care and to identify differences in these perspectives by number of years since completion of medical school.	Self-administered survey.	Contracted out to independent organisation. The survey tool was reviewed for content by experts in obesity field.	It was pretested for length and comprehensibility and further revisions made.	E-mail survey. \$25 incentive for completing the survey. Response rate 25.6%.	Behavioural factors most commonly cited cause of obesity followed by lack of will power, and the environment. Few differences in views of causes noted according to when physicians completed medical school.  Solutions for improving obesity care involved, including BMI as a 5 <sup>th</sup> vital sign & scales that reported BMI.  Those who had completed medical school more recently, significantly more likely to report

Title, author(s), country and year	Subjects and sample size	Aim	Design method	Instrument (questionnaire)			Main results
				Development	Testing	Delivery method and return rate	
							success in helping patients to lose weight.
How does physician BMI impact patient trust and perceived stigma? Bleich, SN., et al. <sup>(224)</sup> USA, 2013	600 non-pregnant overweight or obese adults in the USA	To evaluate whether primary care physician BMI impacts their patients' trust or perceptions of weight related stigma among a sample of overweight and obese patients.	Cross sectional survey	Contracted out to independent organisation. The survey tool was reviewed for content by experts in obesity field.	It was pretested for length and comprehensibility and further revisions made.	Internet with a 92% completion rate.	<p>Patients reported high levels of trust in the primary care physicians.</p> <p>Trust regarding weight control advice this increased with physician body weight but not significantly.</p> <p>For the measure of trust in diet advice this also increased with physician body weight, especially if the physician was overweight. In relation to physical activity again the amount of trust increased with physician body weight but not significantly.</p> <p>Predicted probability of reporting feeling judged by a primary</p>

Title, author(s), country and year	Subjects and sample size	Aim	Design method	Instrument (questionnaire)			Main results
				Development	Testing	Delivery method and return rate	
							care physician was significantly higher in patients seeing obese primary care physicians.
Family physician attitudes in managing obesity: a cross-sectional survey study. Epling, JW., et al. <sup>(104)</sup> USA, 2011	204 family physicians	To understand family physicians perceptions regarding the causes of obesity, their comfort with and accommodation of this population group and barriers to the implementation of interventions.	Self-administered cross-sectional survey	Utilised and adapted a previously published survey <sup>(103)</sup>	Not reported	Mailed out and e-mailed with one mail and one e-mail reminder 3 weeks after initial survey sent. Response rate 37%.	Behavioural factors deemed drivers of obesity. Respondents believed that obesity is a chronic disease. Self-efficacy around prescribing weight loss programmes was neutral. Perceived ability to successfully help patients to lose weight low. Frustration at system level factors such as, lack of time, and reimbursement frequently mentioned. Feelings of being unprepared to address the issues

Title, author(s), country and year	Subjects and sample size	Aim	Design method	Instrument (questionnaire)			Main results
				Development	Testing	Delivery method and return rate	
							of the obesogenic environment frequently documented.
Primary care physicians' attitudes about obesity and its treatment. Foster, GD., et al. <sup>(103)</sup> USA, 2003	5,000 randomly selected primary care physicians, (2500 men and 2500 females) in two geographically representative areas.	To assess physicians attitudes towards obese patients, causes of obesity and it's treatment. In addition to examine the factors that influence the attitudes, including physician characteristics	Self-administered survey	Researcher developed	Pilot tested	Mailed out, with covering letters and a self-addressed, stamped envelope was included. No comments regarding reminders. Response rate of 13%.	Obesity viewed as a behavioural problem and obese individuals viewed negatively. Obesity was viewed as a chronic condition. Three quarters of respondents felt that a 10% reduction in body weight would significantly improve obesity-related health outcomes.
Physician respect for patients with obesity. Huizinga, MM., et al. <sup>(173)</sup> USA, 2009	40 family physicians	To examine the relationship between physician respect and patient obesity.	Self-administered survey	Not reported	Not reported	Not reported	The patient characteristic associated with lower physician respect was higher BMI. Association remained after adjustment for other patient and physician

Title, author(s), country and year	Subjects and sample size	Aim	Design method	Instrument (questionnaire)			Main results
				Development	Testing	Delivery method and return rate	
Impact of patient obesity on the patient-provider relationship Gudzune, KA, et al. <sup>(260)</sup> USA, 2011	US civilian non-institutionalised population who were ≥ 18 yrs, had a BMI calculated and had completed the quality of care questions within the Health Tracking Household Survey.	To examine the relationship between patient obesity and patient perception of healthcare provider interaction quality.	Self-response questionnaire.	Reported elsewhere, reference provided.	Reported elsewhere.	Delivery method not reported. Of 15,197 adults 6427 returned a questionnaire. Response rate of 42%.	characteristics. Those who were class II obese reported a decreased ability to share concerns compared to those with a normal BMI (P=0.04). Those who were overweight reported significantly increased length of time with the provider compared to those with a normal BMI (P=0.04). Compared to those within a normal BMI range no overweight or obese group showed a difference in reaching a satisfactory score.
Talking to primary care patients about	General practitioners and practice nurses. No	To investigate general practitioners' and	Self-administered survey.	Researcher developed.	Not reported.	Mailed out, no comments regarding	Practice nurses were more likely to raise the issue of



Title, author(s), country and year	Subjects and sample size	Aim	Design method	Instrument (questionnaire)			Main results
				Development	Testing	Delivery method and return rate	
weight: A study of GPs and practice nurses in the UK. Michie, S. <sup>(256)</sup> UK, 2007	sample size provided.	practice nurses' communication about weight with their overweight and obese patients.				reminders. 40 general practitioners and 47 practice nurses completed the survey.	weight when an associated medical problem was present. When the issue was raised $\leq 10\%$ of health professionals followed up with possible strategies to lose weight. Concerns about raising the issue of weight more prevalent amongst general practitioners.
Practice nurses' beliefs about obesity and weight related interventions in primary care. Hoppe, R. & Ogden, J. <sup>(129)</sup> UK, 1997	Nine hundred randomly selected practice nurses.	To explore practice nurse's beliefs about obesity and their current practices. The influence of the nurses own BMI was also examined.	Self-administered survey.	Not reported.	Not reported.	Mailed out with a reminder at 6-8 weeks. Response rate of 65%.	Lifestyle factors rated largest contributor to obesity. Obesity considered preventable and treatable. Patient non-compliance considered the main reason for failure. Nurses with a high BMI rated obesity

Title, author(s), country and year	Subjects and sample size	Aim	Design method	Instrument (questionnaire)			Main results
				Development	Testing	Delivery method and return rate	
							less preventable than those with a low BMI. If a nurse worked in a weight loss clinic this had little effect on beliefs, but did impact on length of consultation, frequency of giving weight loss advice, and offering calorie controlled diets.
Who gets treatment for obesity? A survey of GPs in Scotland. Morris, SE., et al. <sup>(230)</sup> UK, 1999	1,400 general practitioners.	To examine what general practitioners do when presented with an overweight patient, what steps do they take to address the problem and what do they understand as success criteria in treatment.	Cross sectional survey; including case reports, self-administered and telephone interviews.	Researcher developed.	Pilot testing.	Mailed out with a reminder two weeks later, with the questionnaire sent again two weeks later. For non-responders to mail questionnaire a telephone interview was attempted at approximately eight weeks. Net response rate was 54.4%	<50% of respondents had read obesity related guideline. 82% felt able to provide information on the best method for weight loss. Respondents reported using other health professionals and slimming groups to manage obesity.
Health professionals' views of	General practitioners and clinical	To examine the views of health professionals in	Self-administered survey	Researcher developed, however, the	Not reported.	Mailed out with covering letter. Stamped	General practitioners were significantly more

Title, author(s), country and year	Subjects and sample size	Aim	Design method	Instrument (questionnaire)			Main results
				Development	Testing	Delivery method and return rate	
overweight people and smokers. Harvey, EL & Hill, AJ. <sup>(128)</sup> UK, 2001	psychologists. Convenience sample of 764 (670 general practitioners and 94 clinical psychologists).	relation to people who are overweight and compare these to their views of smokers.	employing a two by two, independent factorial design (health category by level of severity)	sections within the survey either used or modified questions from previously developed instruments.		addressed envelope provided and an incentive of £20 book token. Two reminder letters were sent if required. Response rate of 33.4%.	likely than clinical psychologists to attribute both overweight, and smoking to a lack of will power, genetic factors and personality. Physical inactivity rated the most important causative factor for moderate and extreme overweight. Smokers were rated as more personally responsibly, and less accepted than overweight people. Depression was viewed as an important contributor to being overweight, but not for smoking.
General practitioners' and patients' models of obesity: whose	135 general practitioners working in visiting one of nine practices across England. 900 consecutive patients	To explore GPs' and patients' models of obesity in terms of its causes, consequences and	Self-administered cross sectional questionnaire.	No information regarding the development process of the survey was	Not reported	The text suggests the surveys were hand delivered but no information is provided about	Findings suggest a mismatch between the beliefs of GPs and patients in relation to the causes,

Title, author(s), country and year	Subjects and sample size	Aim	Design method	Instrument (questionnaire)			Main results
				Development	Testing	Delivery method and return rate	
problem is it? Ogden, J et al. <sup>(248)</sup> UK, 2001	recruited from the same practices.	possible solutions.		provided.		how they were returned. Patient return rate = 67%. GP return rate = 66%.	consequences and solutions to obesity. In this study patients viewed the causes as internal attributes but the solutions were viewed as external to themselves.
Beliefs about the causes and solutions to obesity: A comparison of GPs and lay people. Ogden, J & Flanagan, Z. <sup>(423)</sup> UK, 2008	All GPs within one primary care trust in the S. of England (312). 724 members of the public in the same geographical area.	To assess the relationship between beliefs about solutions and beliefs about causes as well as the extent to which the beliefs are shared by GPs and the public.	Self-administered survey.	Not reported.	Not reported.	Mailed to GPs and distributed to members of the public via a health club, shopping mall and university. No incentives were used. 73 questionnaires returned from GPs giving a response rate of 23.4%. (A response rate of 43% is reported in the article). 311 questionnaires returned from members of the public giving a response rate of	In relation to beliefs about the causes of obesity GPs were more likely to endorse of behavioural (P=0.0001), structural (P=0.0001), social (P=0.0001) and psychological factors (P=0.0001) as causes of obesity. Lay people were more likely to endorse biological causes (P=0.0001). Regarding beliefs about solutions both groups were relatively ambivalent about medication,

Title, author(s), country and year	Subjects and sample size	Aim	Design method	Instrument (questionnaire)			Main results
				Development	Testing	Delivery method and return rate	
						43%.	surgery, counselling or policy change. GPs were more positive about the benefits of visiting the GP (P=0.03) and participating in a support group (P=).0001).
Management of obesity in primary care: nurses' practices, beliefs and attitudes. Brown, I, et al. <sup>(212)</sup> UK, 2007	Staff from 4 primary care trusts in UK, who were employed in primary care settings and involved in face to face patient care. In total sample comprised of 564 staff: 298 district nurses, 119 health visitors, 147 practice nurses.	To investigate the patterns of clinical practice, beliefs and attitudes of primary care nurses with respect to obesity management.	Self-administered survey.	Survey was designed based on previous similar research.	Two advisory groups guided the development of the survey and the survey was pre-tested. A pilot study with 32 nurses was also undertaken to enable power calculations.	Mailed survey with 2 reminders. Of the original sample of 564, 544 surveys were delivered and 398 were returned completed within 8 weeks, 72.3% response rate.	All three groups of nurses considered the provision of general advice as part of their role but more specific advice was generally confined to practice nurses. 68.9% agreed that personal choices about food and physical activity were a cause of obesity. 45.2% strongly disagreed or disagreed that obese patients were motivated to make lifestyle changes.

Title, author(s), country and year	Subjects and sample size	Aim	Design method	Instrument (questionnaire)			Main results
				Development	Testing	Delivery method and return rate	
							Only 4.3% agreed with the statement, "I do feel just a bit disgusted when faced with a patient who is obese, with only 8.2% thinking obese patients were lazier than other patients.
Obesity management: Australian general practitioners' attitudes and practices. Campbell, K., et al. <sup>(233)</sup> Australia, 2000	1,500 general practitioners, a randomly sampled from a database.	To document general practitioner attitudes and practices in relation to obesity prevention and management in overweight and obese patients.	Self-administered survey.	Researcher developed in conjunction with utilisation of a previous questionnaire used to examine dieticians attitudes and practices to obesity management.	Piloted tested, this led to 2 versions of questionnaire to reduce length of questionnaire. Version one focused on attitudes and version two on practices.	Mailed out with covering letter, a stamped return envelope. 3 weeks following initial mail out a reminder was sent. (First hundred GPs to return their completed questionnaires, received a copy of The Heart Foundation Cookbook). Response rate for attitudes questionnaire was 54% and for practices questionnaire it	More respondents felt better prepared to treat overweight patients compared to obese. Vast majority agreed a small weight loss can produce medical benefits. Two most important measures of success: improved clinical indicators, and adoption of better food, and exercise habits. Assessing the patient's dietary, and physical activity habits, and their weight history

Title, author(s), country and year	Subjects and sample size	Aim	Design method	Instrument (questionnaire)			Main results
				Development	Testing	Delivery method and return rate	
						was 51%.	were viewed important.
Are general practitioners ready and willing to tackle obesity management? Buffart, LM., et al. <sup>(227)</sup> Australia, 2008	All general practitioners registered within one of five urban and two rural Divisions of the 37 Divisions of General Practice in New South Wales. Sample size number not provided.	To investigate general practitioners knowledge, role perception and confidence to discuss adult and childhood obesity with patients, and to assess the relationship between these factors and the extent to which this issue was actually addressed in patient consultations.	Self-administered survey.	Not reported.	Not reported	Mailed out, with one reminder. Small prizes were awarded to 6 randomly selected general practitioners who had returned their survey. Response rate 40% (646).	77% of respondents felt well prepared to manage adult obesity, with 92% disagreeing that their best option was to refer overweight, and obese adults to other professionals. 47% of respondents agreed adults can reduce their BMI, and maintain the loss a year. 42% of respondents had attended education sessions on overweight and obesity impacting on confidence to manage adult overweight and obesity.
The dilemma of patient	Physicians and nurses working in	To explore physicians' and	Self-administered	Not reported.	Pilot tested.	Mailed out, two reminders	The majority of respondents in both

Title, author(s), country and year	Subjects and sample size	Aim	Design method	Instrument (questionnaire)			Main results
				Development	Testing	Delivery method and return rate	
responsibility for lifestyle change: Perceptions among primary care physicians and nurses. Jallinoja, P. et al. <sup>(240)</sup> Sweden, 2007	primary care. Sample size not provided.	nurses views on patient and professional roles in the management of lifestyle-related diseases and their risk factors.	survey.			provided. Response rate 59% overall.	professional groups felt that patients must accept the responsibility for lifestyle related decisions. Patients' unwillingness to change considered the biggest barrier to treatment. Dieters more so than those quitting smoking viewed as needing professional support for lifestyle change. Majority of respondents felt that their roles included providing information, motivating and supporting patients to make lifestyle changes, however just over half felt they had the required skills. Nurses more so than physicians



Title, author(s), country and year	Subjects and sample size	Aim	Design method	Instrument (questionnaire)			Main results
				Development	Testing	Delivery method and return rate	
							stated they felt uncomfortable intervening regarding a patient's weight or smoking. Time was the biggest barrier in relation to counselling.
Overweight and obesity: Knowledge, attitudes, and practices of general practitioners in France. Bocquier, A et al. <sup>(105)</sup> France, 2005	Private general practitioners. Stratified (age and gender) random sample of 600..	To document the knowledge, attitudes and practices regarding adult overweight and obesity of private general practitioners in Provence (Southeastern France).	Telephone survey.	Researcher developed.	Pilot tested.	Computer-assisted telephone interview system. Response rate of 100%	90% agreed that obesity is a disease. Nearly 100% agreed even a small reduction in weight can have health benefits. Approximately 30% considered obese patients to be lazier, and more self-indulgent. Attendance at professional development sessions on weight management, awareness of obesity management

Title, author(s), country and year	Subjects and sample size	Aim	Design method	Instrument (questionnaire)			Main results
				Development	Testing	Delivery method and return rate	
							<p>guidelines, being a normal weight, or having had a personal success with weight loss were all positively associated with feeling effective in the field.</p> <p>Obesity guideline awareness was low.</p> <p>Less than half of those interviewed measured the waist circumference, but BMI measurement was common, as was, undertaking a risk factor assessment of patients.</p> <p>The most common problem cited in treating obesity was lack of patient motivation.</p>
Obesity management: attitudes and practices of French general	744 general practitioners randomly selected.	To assess the attitudes and practices of general practitioners regarding obesity	Self-administered survey.	Based on the survey tool used by Campbell et al <sup>(233)</sup> . As in	Pilot tested.	Mailed out. Prior to mail out potential participants received a phone	90% of respondents considered obesity a disease.

Title, author(s), country and year	Subjects and sample size	Aim	Design method	Instrument (questionnaire)			Main results
				Development	Testing	Delivery method and return rate	
<p>practitioners in a region of France.</p> <p>Thuan, J-F &amp; Avignon, A.<sup>(36)</sup> France, 2005</p>		management.		<p>Australian study 2 questionnaires used, one to explore attitudes and one to explore practices.</p>		<p>call to ask for consent to participate. Those who agreed received the survey, a covering letter and a stamped return envelope. Reminder at 3 weeks via telephone, &amp; if required the questionnaire was re-sent. Response rate 82%.</p>	<p>Most agreed that overweight patients should also be treated irrespective of the presence, or not of risk factors.</p> <p>Nearly 100% agreed that there are important medical benefits associated with small reductions in weight.</p> <p>Confidence in patients' ability to lose and maintain weight loss was low.</p> <p>Over 70% of respondents felt health professionals hold negative views of obese.</p> <p>Referral of obese patients to other health professionals was not considered important.</p> <p>Poor compliance, and or lack of</p>

Title, author(s), country and year	Subjects and sample size	Aim	Design method	Instrument (questionnaire)			Main results
				Development	Testing	Delivery method and return rate	
							motivation of patients were the most frequently listed difficulty related to managing obesity
Dutch general practitioners' weight management policy for overweight and obese patients. Kloek, CJJ, et al. <sup>(255)</sup> Netherlands, 2014	800 registered general practitioners (GPs).	To explore GPs' policy on the management of overweight and obesity as well as factors associated with this policy.	Cross-sectional design using a self-administered questionnaire.	For the purpose of this study questions were developed and included within a larger postal survey.	Nine researchers provided reviews on the scope, length and clarity of the questionnaire and minor modifications followed.	Postal survey with one reminder. The final sample was 788 with a response rate of 39.0% (n=307).	82.9% agreed weight management part of GP's role. 53.8% agreed GPs should discuss weight even if this was not the purpose of the obese patient's consult; Weight was discussed less frequently with patients who had no weight related comorbidities. Reasons for not talking about weight: 76.9% discussed previously; 59.9% not enough time; patient lacking motivation 24.4%; afraid to negatively

Title, author(s), country and year	Subjects and sample size	Aim	Design method	Instrument (questionnaire)			Main results
				Development	Testing	Delivery method and return rate	
							influence the doctor patient relationship (23.1%); 32.8% of GPs considered themselves as suitable providers for obesity management; Reasons for not referring to dietician: lack of patient motivation, and cost of dietician.
Managing obesity: a survey of attitudes and practices among Israeli primary care physicians. Fogelman, Y. et al. <sup>(37)</sup> Israel, 2002	Family physicians. Sample size not provided.	To assess attitudes and practices regarding obesity management.	Self-administered survey.	Not reported.	Not reported.	Delivered during a CME session and collected at the end of the session. Response rate 82% (510).	Nearly three-quarters of respondents considered they had a role in weight, with less than a third felt they were influential in this area. Principal weight loss advice was to engage in physical activity. Use of weight loss medication as a strategy for weight

Title, author(s), country and year	Subjects and sample size	Aim	Design method	Instrument (questionnaire)			Main results
				Development	Testing	Delivery method and return rate	
							loss was very low, 4%. 31% of respondents considered overweight individuals to be lazier and 25% considered that they lacked will power and motivation.
General practitioners' attitude's and practices toward managing obesity. Al-Jeheidli, AH, et al. <sup>(228)</sup> Kuwait, 2007	250 primary care physicians, randomly selected.	To assess attitudes and practices of primary care physicians toward managing obesity.	Self-administered questionnaire.	Researcher developed.	Pilot tested.	Questionnaires along with an official letter were sent to the head of each primary care centre with participating primary care physicians. Response rate 80%.	85.5% of respondents believed obesity counselling was their role; ≈58% discussed obesity with asymptomatic obese patients. Principal weight loss advice was to engage in physical activity. Barriers to weight management included: lack of time and dieticians, with the least reported barrier,

Title, author(s), country and year	Subjects and sample size	Aim	Design method	Instrument (questionnaire)			Main results
				Development	Testing	Delivery method and return rate	
							lack of confidence or training. There was a statistically significant relationship between confidence and more years of experience.
Primary care physicians' knowledge and perceived barriers in the management of overweight and obesity. Sebiany, AM. <sup>(210)</sup> Saudi Arabia, 2013	All 149 primary health care physicians (PHCPs) in the Eastern Province of Saudi Arabia.	To determine the knowledge level of PHCPs in the Eastern Province of Saudi Arabia and the perceived possible barriers to managing overweight and obesity.	Self-administered, anonymous, survey.	Development of questionnaire not clear. It appears the author developed it and its content was validated by five experts.	The questionnaire was piloted with 35 family medicine residents to test its application for the main study.	Delivery method not reported. 130 surveys were returned equating to a response rate of 87%.	Respondents reported using the following as sources of information: text books 73.8%; internet 63.9%; CME 55%; medical journals 28.5%. 63.1% were aware of the correct definition of obesity. <50% of respondents were aware that low socio-economic status was a risk factor for obesity. 81.5% correctly identified that obesity increase

Title, author(s), country and year	Subjects and sample size	Aim	Design method	Instrument (questionnaire)			Main results
				Development	Testing	Delivery method and return rate	
							mortality rates. Main barriers to managing overweight and obesity were lack of training and lack of administrative support.
Longitudinal change in GPs' task perceptions, self-efficacy, barriers and practices of nutrition education and treatment of overweight. Visser, F., et al. <sup>(422)</sup> Holland, 2008	488 general practitioners.	To understand changes in task perception, perception of own ability, & perceived barriers regarding nutrition education and treatment of patients who are overweight between 1992-2007.	Self-administered survey.	Used an adjusted version of the 1992 Wageningen PCPs Nutritional Practices Questionnaire.	No	Mailed out with covering letter. Responses could be via mail or internet. Reminders sent four times, every two weeks. Final reminder included a non-response questionnaire. Response rate of 51%.	There was a statistically significant shift in respondent's view of their role. In 2007 respondents were statistically less likely to agree that people changed their habits easily. Less respondents viewed the treatment of overweight as a waste of time in 2007. Barriers did not change overtime – lack of patient motivation, lack of time



Title, author(s), country and year	Subjects and sample size	Aim	Design method	Instrument (questionnaire)			Main results
				Development	Testing	Delivery method and return rate	
<p>Study of the knowledge, attitudes and practices of physicians towards obesity management in primary care in Bahrain</p> <p>Al-Ghawi, A. &amp; Uany, R.<sup>(234)</sup> Bahrain, 2009</p>	<p>107 primary care physicians, from a cluster sample of health centres.</p>	<p>To describe the opinions of physicians in Bahrain regarding their role in obesity control, including their capabilities and limitations and to evaluate their knowledge, attitudes and practices towards obesity prevention and management in primary health care.</p>	<p>Self-administered questionnaire.</p>	<p>Researcher developed based on reviewed literature.</p>	<p>Pilot tested.</p>	<p>Mode of delivery was not specified. Response rate 90%.</p>	<p>≈ 61% agreed they had a role in obesity prevention and management. 83.5% stating they would treat overweight individuals with no comorbidities. ≈98% of physicians believed small amounts of weight loss, sustained produced health benefits. Majority used diet and physical activity for weight management with ≈64% using behavioural counselling. ≈68% considered themselves competent to treat obese adults. Training courses in obesity management significantly improved confidence to treat</p>

Title, author(s), country and year	Subjects and sample size	Aim	Design method	Instrument (questionnaire)			Main results
				Development	Testing	Delivery method and return rate	
							<p>obese patients (OR=4.6, 95% CI 1.84, 11.44, P=0.002.</p> <p>36% considered weight management in their practice to be effective.</p> <p>Barriers to weight management: short consultation times; lack of weight management clinics, absence of guidelines and low patient motivation and compliance.</p>

**Table B1.2: Summary of qualitative studies identified that addressed one of the criteria: beliefs, attitudes, knowledge or practices of primary care professionals regarding obesity excluding literature reviews**

Title, author(s), country and year	Subjects and sample size	Aim	Design method	Sampling frame	Interview schedule provided	Data analysis	Main results
<p>A qualitative study of GPs' views of treating obesity.</p> <p>Epstein, L &amp; Ogden, J.<sup>(38)</sup> UK, 2005</p>	<p>General practitioners within one primary care trust, sample size 130.</p> <p>35 agreed to participate, but decision to limit the number of participants per practice to two. 21 general practitioners selected from 15 practices.</p>	<p>To explore how general practitioners feel about obesity, within the context of their own attempts at management and their interactions with their obese patients.</p>	<p>Semi-structured interviews.</p> <p>Interviews were audiotaped and transcribed.</p>	<p>Not reported.</p>	<p>Yes</p>	<p>Interpretative phenomenological analysis.</p>	<p>General practitioners considered patients caused obesity and patients should manage weight.</p> <p>Considered patients contextualize obesity as a medical problem, and wanted the doctor fix it.</p> <p>Tension around issue of responsibility caused general practitioners to feel frustrated.</p> <p>Treatments considered ineffective.</p> <p>Tension between doctor and patient caused by differing views regarding obesity.</p>
<p>Barriers and enablers to managing obesity in general practice: a practical approach for use in implementation</p>	<p>General practitioners, practice nurses and patients with experience in weight management from 3 primary care trusts in East Midlands, England.</p>	<p>To uncover and describe the barriers and enablers to implementing NICE's recommendations for general practice teams on the management of obesity in</p>	<p>Semi-structured interviews.</p> <p>Interviews were audiotaped and transcribed.</p>	<p>Health professionals recruited from a mixture of rural and urban practices who were assessed as having</p>	<p>Overview of main questions provided.</p>	<p>Thematic data analysis.</p>	<p>Enablers:</p> <p>Knowledge and self-efficacy.</p> <p>Embedding obesity guidelines into practice procedures and localisation of guideline.</p> <p>For the patients trust was a key enabler.</p> <p>Barriers:</p>

Title, author(s), country and year	Subjects and sample size	Aim	Design method	Sampling frame	Interview schedule provided	Data analysis	Main results
<p>activities.</p> <p>Gunther, S., et al.<sup>(236)</sup> UK, 2012</p>	<p>Provisional sample size of 12 healthcare professionals and 8-10 patients</p>	<p>adults</p>		<p>different commitment to obesity management as indicated by recording of body-mass index.</p>			<p>Obesity viewed as a non-medical issue.</p> <p>Inconsistent approach to obesity management within practices.</p> <p>Lack of time and counselling skills.</p> <p>Stigma of weight resulted in patients being reluctant to raise issue in the consult.</p>
<p>Primary care nurses' attitudes, beliefs and own body size in relation to obesity management.</p> <p>Brown, I. &amp; Thompson, J.<sup>(131)</sup> UK, 2007</p>	<p>15 Primary care nurses.</p>	<p>To explore primary care nurses' attitudes, beliefs and perceptions of own body size in relation to giving patients advice about obesity.</p>	<p>Semi structured interviews. Interviews were audio-recorded and transcribed.</p>	<p>Using respondents from a previous postal survey about obesity management a list of 48 potential interviewees was generated divided into high, medium and low BMI. 15 agreed to be part of the study.</p>	<p>Yes</p>	<p>Pragmatic framework approach.</p>	<p>Raising obesity as an issue – evidenced in every interview and expressed as being a potentially awkward, difficult, and uncomfortable.</p> <p>Complexity of obesity – participants acknowledged there was a myriad causal factors and how they tried to steer a balanced course.</p> <p>Effects of own body size:- Low BMI appeared to intensify sensitivities surrounding weight discussions. Nurses with higher BMIs were self-consciousness about their size and not being a good role model. Also had negative experiences. A</p>

Title, author(s), country and year	Subjects and sample size	Aim	Design method	Sampling frame	Interview schedule provided	Data analysis	Main results
							<p>high BMI was also associated with ability to develop a rapport with patients.</p> <p>Those with a high BMI tended to be more judgemental about obese people.</p>
<p>Practice nurses and obesity: professional and practice-based factors affecting role adequacy and role legitimacy.</p> <p>Nolan, C. et al.<sup>(231)</sup>. UK, 2012</p>	<p>46 practice nurses from 19 practices, 22 agreed to take part.</p>	<p>To identify factors impacting on practice nurses' role adequacy and legitimacy regarding obesity.</p>	<p>Semi structured face to face interviews. Interviews were digitally recorded and transcribed.</p>	<p>Purposive to achieve maximum variation of practice size and location.</p>	<p>Yes. Based on one previously used for an earlier study with general practitioners.</p>	<p>Thematic analysis.</p>	<p>Professional factors impacting on role adequacy and legitimacy: Believe that weight management is part of the practice nurses role.</p> <p>Communication skills and ability to build rapport, steer conversation onto topic and encourage patients.</p> <p>Attendance at weight management training.</p> <p>Low awareness and use of guidelines.</p> <p>Perceived lack of experience in motivating patients.</p> <p>Certain times are more legitimate for raising topic.</p> <p>Lack of knowledge and availability of referral options and culturally</p>

Title, author(s), country and year	Subjects and sample size	Aim	Design method	Sampling frame	Interview schedule provided	Data analysis	Main results
							<p>appropriate resources.</p> <p>Believe impact on outcome limited.</p> <p>Patients are responsible for their lack of success.</p> <p>Practice factors impacting on role adequacy and legitimacy:</p> <p>Support for taking extra time for weight management.</p> <p>Ambivalence about the efficacy of interventions.</p> <p>Perceived lack of priority for topic within practice.</p> <p>Lack of time available and workload.</p> <p>Lack of clarity on protocols and roles within the practice.</p>
<p>Tackling obesity: the challenge of obesity management for practice nurses in primary care.</p> <p>Phillips, K et al. <sup>(273)</sup> UK, 2014</p>	<p>Nurses were included if they were a practice nurse working in one of two health board areas providing health care to two distinct populations. More than one nurse</p>	<p>To explore how practice nurses manage obesity and to identify good practice and explore barriers to achieving effective management.</p>	<p>Semi-structured face to face interviews; Interviews were conducted, anonymised and transcribed by the lead</p>	<p>No age, gender or experience sampling criteria applied.</p>	<p>Yes; it was piloted with a practice nurse and two questions adapted.</p>	<p>Thematic analysis</p>	<p>Major themes and sub-themes that emerged from the data analysis:</p> <p>Who are nurses discussing weight with?</p> <p>Wide range of patients.</p> <p>How are nurses discussing weight?</p> <p>Nurses feel skilled in assessing readiness to</p>

Title, author(s), country and year	Subjects and sample size	Aim	Design method	Sampling frame	Interview schedule provided	Data analysis	Main results
	<p>from a practice could participate. 18 agreed to participate.</p>		<p>author.</p>				<p>change. Use personal experiences to demonstrate empathy. Term obese considered acceptable within a good patient relationship. What is being discussed with patients? Calories in versus calories out concept of weight loss advice was the mainstay.</p>
<p>Physicians' beliefs about discussing obesity: results from focus groups. Alexander, SC. et al.<sup>(249)</sup> USA, 2007</p>	<p>Family physicians and internists. 11 family physicians and 6 internists took part.</p>	<p>To examine perceptions of obesity, how clinicians viewed guidelines for treatment of obesity, why weight-loss discussions are not occurring regularly and how they talk to their patients about weight loss.</p>	<p>Focus groups. Participants were informed they would receive lunch and \$40 for their time. Focus groups transcribed.</p>	<p>Not reported</p>	<p>Yes</p>	<p>Grounded theory</p>	<p>Five key themes were reported. Theme one: responsibility. Related to whose responsibility was obesity. Theme two: barriers. Lack of resources, low outcome expectations, lack of training, low self-efficacy, and vagueness of guidelines. Theme three: target populations. Which populations should have their weight addressed. Theme four: introducing the topic. Noted to be challenging; easier if the patient had co-morbidities. Theme five: talking about</p>

Title, author(s), country and year	Subjects and sample size	Aim	Design method	Sampling frame	Interview schedule provided	Data analysis	Main results
							obesity. This included providing basic knowledge, and referring to other health professionals.
<p>A qualitative study on patients' and physicians' visions for the future management of overweight and obesity.</p> <p>Heintze, C. et al.<sup>(35)</sup> Germany, 2011</p>	<p>70 General practitioners working in solo practices were invited to participate.</p> <p>123 consecutive overweight patients from the same practices were approached to participate.</p>	<p>To gain an understanding of the visions of general practitioners and patients regarding the future management of obesity.</p>	<p>In-depth semi-structured interviews. Interviews were tape-recorded and transcribed.</p>	<p>Purposeful sampling of the original cohort of patients who filled in a questionnaire followed by theoretical sampling to select a group for interview.</p>	<p>No</p>	<p>Mayring's qualitative content analysis</p>	<p>Three high level key themes emerged but sub-themes differed between the two groups. High level themes were:</p> <ul style="list-style-type: none"> <li>• General presentation of the problem;</li> <li>• Prerequisites for good weight management;</li> <li>• Multimodal management options.</li> </ul> <p>Despite differences, the findings showed a significant level of agreement between the two groups.</p>
<p>General practitioners' and district nurses' conceptions of the encounter with obese patients in primary health care.</p> <p>Hansson, LM. et</p>	<p>General practitioners and district nurses, drawn from 57 primary health care centres. In total 10 general practitioners and 10 district nurses took part in the study.</p>	<p>To describe how general practitioners and district nurses conceive their encounters with patients who are obese in primary health care.</p>	<p>Semi-structured interviews. Interviews were tape-recorded and transcribed.</p>	<p>Yes, included as variables were, age, gender and years of experience.</p>	<p>Main questions provided.</p>	<p>Phenomenographic approach.</p>	<p>Five key themes with sub-themes emerged</p> <p>Adequate primary health care.</p> <p>Promoting lifestyle change.</p> <p>Need for competency.</p> <p>Adherence to new habits.</p> <p>Understanding patient attitudes.</p>



Title, author(s), country and year	Subjects and sample size	Aim	Design method	Sampling frame	Interview schedule provided	Data analysis	Main results
al. <sup>(232)</sup> . Sweden, 2011							
Attitudes towards obesity treatment in GP training practices: a focus group study. Jochemsen-van der leeuw, HGA et al. <sup>(250)</sup> Holland, 2011	First and third year GP-trainees, GP trainers and teachers. Each grouping participated in distinct focus groups. Purposive sampling utilised, third name on list of each grouping invited.	To assess the factors that influence the willingness and ability of GP trainees to provide lifestyle interventions for overweight and obese patients	Focus groups which were audiotaped and verbatim transcribed. Descriptions of discussions and notes of the observer were used in the analysis.	Included, gender, age, clinical experience and ethnic background.	Key questions provided.	Thematic analysis.	Four themes emerged: Responsibility Attitude Interventions Barriers Differences exist between 1 <sup>st</sup> and 3 <sup>rd</sup> year trainees, however, feelings of competence did not increase during course of GP training.
General practitioner opinion of weight management interventions in New Zealand. Claridge, R., et al. <sup>(33)</sup> New Zealand, 2014	GPs in the Wellington region. 12 GPs were recruited.	To explore GP opinion of weight management interventions in one region of New Zealand.	Semi-structured interviews which were audio-taped and transcribed.	Sampling was purposive and participants were recruited via existing connections and random calling.	Provided in web version.	Inductive thematic analysis.	Five themes emerged: GP perceptions of what they can do. The roots of the obesity problem. Why the GP doesn't succeed. Primary care interventions; Bariatric surgery.

**Table B1.3: Summary of the initial mixed method studies that addressed one of the criteria beliefs, attitudes, knowledge and practices of primary care professionals regarding obesity, excluding literature reviews**

Title, author(s), country and year	Subjects and sample size	Aim	Design method	Sampling frame	Interview schedule provided	Data collection and analysis	Main results
<p>The art and complexity of primary care clinicians' preventive counselling decisions: obesity as a case study. Sussman, AL. et al.<sup>(239)</sup> USA, 2006</p>	<p>Family practitioners, paediatricians, nurse practitioners, physician assistants and internists, all of whom were members of a clinical network.  Twenty of the twenty-two contacted were interviewed with an additional ten taking part in focus groups. 146 of the 195 sample completed the survey, 75% response rate.</p>	<p>To determine what factors influence the clinicians' decisions to include preventive counselling in the brief primary care encounter.</p>	<p>Sequential mixed methods, including, individual in-depth interviews, focus groups and a survey.</p>	<p>For qualitative components included clinician training, available resources, and practice and cultural aspects.</p>	<p>Link to interview schedule and survey provided</p>	<p><b>In-depth interviews:</b> used immersion/crystallisation process. Data collection continued until there was data saturation. <b>Focus groups:</b> there were two focus groups which were used to refine, confirm or disconfirm interpretations from interviews, as well as providing new data. <b>Survey:</b> researcher developed survey, which was piloted with 13 clinicians for further refinement. Survey was mailed out using standard techniques. Three periodic draws for prize of \$75 gift certificate were used as response incentives. Data entered into an Access database. Correlation and regression analyses performed.</p>	<p>Factors identified fell into 2 categories: <b>Setting the stage factors</b> (before the encounter) comprising clinician, patient and external factors. These factors are reasonably stable, such as, the clinicians values. <b>As the door opens (for the encounter) factors</b> comprised the same three groups of factors but in this context they are more dynamic and less stable, for example, the patient's agenda.</p>
<p>Barriers to obesity management: a pilot study of primary care clinicians. Forman-Hoffman, V. et</p>	<p>Primary care physicians from Iowa City Veteran's Affairs Medical Centre and</p>	<p>To describe weight management practices of clinicians.</p>	<p>Sequential mixed methods, including focus groups</p>	<p>For focus groups not reported. All primary care physician</p>	<p>Interview schedule for focus groups not</p>	<p><b>Focus groups:</b> three focus groups conducted with 3 participants each. Thematic analysis of data. <b>Survey:</b> researcher developed</p>	<p>≥40% providers were overweight, most reported trying to lose weight in the past.</p>

Title, author(s), country and year	Subjects and sample size	Aim	Design method	Sampling frame	Interview schedule provided	Data collection and analysis	Main results
al. <sup>(106)</sup> USA, 2006	Bettendorf Community Based Out-Patient Clinic. Sample size 97, response rate 57%.	<p>To examine the relative importance of provider and system level barriers to the effective management of obesity.</p> <p>To study whether barriers and or personal weight management practices of clinicians impact care for obese patients.</p>	followed by a survey.	assistants and physicians at the Iowa and Bettendorf sites were eligible to complete survey.	reported. Survey tool not available.	<p>47 item survey which was pre-tested.</p> <p>Survey's provided in person to clinicians at normally scheduled meetings. Data was double entered and imported into SPSS version 10. Results provided as simple descriptive statistics.</p>	<p>85.5% considered obesity a disease.</p> <p>Dietary vigilance by clinicians positively associated with recording obese patients BMI.</p> <p>Clinician reported calculation of patient BMI was low with only 19% stating they always calculated BMI.</p> <p>Provider level barrier to obesity care was lack of knowledge; system level barriers included lack of obesity management education, and lack of comprehensive weight management services.</p> <p>Group appointments, patients completing a readiness to change questionnaire prior to the appointment, and ability to refer obese patients to</p>

Title, author(s), country and year	Subjects and sample size	Aim	Design method	Sampling frame	Interview schedule provided	Data collection and analysis	Main results
							other health professionals were considered to be useful additions to a service.

**Table B1.4: Summary of literature reviews identified on beliefs, attitudes knowledge and practices of primary care professionals regarding obesity**

Title, author(s), country and year	Review question/purpose	Databases searched	Key search terms	Number of studies included	Assessment of methodological quality	Summary findings	Recommendations for future research
Health care professionals' attitudes about obesity: An integrative review. Budd, GM. et al. <sup>(213)</sup> USA, 2011	To understand the obesity attitudes of health care providers over time health professions	PubMed OVID PSYCHINFO Proquest CINHAL	Health care professionals Obesity Overweight Discrimination Stigma	15	No formal method reported	Studies reviewed revealed that health professional populations studied varied, as did the results reported and consequent conclusions.  Overall, older health care professionals showed less bias towards obese patients. Active health professionals, and or those who specialise in weight management are less biased.	Establish if the bias seen in health care professionals towards obesity impacts on quality of care delivered.  Examine the impact of health professionals' biased attitudes on patients' feelings of discrimination.  Develop and test interventions to reduce bias.
The	To examine the	Ovid	Doctor	12	Yes using the	Self-efficacy was	Further examination of the

<p>relationship between health professional's weight status and attitudes towards weight management: a systematic review.</p> <p>Zhu, D, et al.<sup>(214)</sup> UK &amp; China, 2011</p>	<p>relationship between health professionals' weight status and their attitudes towards weight management.</p>	<p>MEDLINE EMBASE PsycINFO CINHAL Cochrane Library Chinese databases searched included: Chinese Biomedical database VIP Chinese Science Journals Database Chinese Academic Journals Full-text Database</p>	<p>Dietician Nurse Physiotherapist Psychologist Weight Attitude</p>		<p>reporting guidelines recommended by the EQUATOR Network for different study designs.</p>	<p>most frequently studied. Studies described weight appropriate GPs feeling more effective at managing weight.</p> <p>A significant inverse correlation found between positive outcome expectations and weight status.</p> <p>Nurses with a lower BMI score more likely to have negative attitudes towards obese.</p> <p>Physicians with a normal BMI feel compelled to educate obese patients.</p> <p>Female health professionals less likely to report negative attitudes towards obese.</p>	<p>relationship between health professionals' weight status and their attitudes towards weight management.</p>
<p>Beliefs and practices of healthcare providers regarding obesity: a systematic review.</p>	<p>To review the main results of studies on beliefs, attitudes, and practices of health care providers regarding obesity.</p>	<p>EBSCO-Host, ScienceDirect, PsychInfo, PubMed, SciELO</p>	<p>Obesity Beliefs Health care professionals General practitioners Attitudes</p>	<p>13</p>	<p>No formal method reported.</p>	<p>Knowledge about obesity, its management and treatment generally lacking; findings were not comparable across all studies.</p>	<p>Expand research into the beliefs, attitudes, knowledge, and practices of health professionals other than general practitioners.</p>

Teixeira, FV et al. <sup>(130)</sup> Portugal, 2012			Practices Health Physicians Family Practitioners			Attitudes towards obese individuals tended towards ambivalent/negative.  Doctors did not feel adequately prepared to counsel obese patients, but reluctant to refer the patient on.	
Physician attitudes, beliefs and barriers towards the management and treatment of adult obesity: A literature review.  Hayden, MJ. et al. <sup>(215)</sup> Australia, 2008	To gain an understanding about physician attitudes, beliefs, knowledge and barriers towards adult patients who are overweight and obese.	PubMed Medline Embase	Obesity Obese Weight Overweight Physicians GP(s) General practitioner Family practitioners Family physician Primary care physician PCP Attitude(s) Belief(s) Barrier(s) Perception(s) Bias Knowledge	39	Not formally reported.	Findings were mixed.  Low self-efficacy regarding their ability to treat patients for obesity.  Physicians view obesity as the patients' responsibility, but also a medical issue.  For patients who meet criteria for weight loss surgery, referral is rare.  Between a half and three-quarters of physicians refer patients to other health professionals for treatment, with referral to weight loss programmes occurring in 35%- 54% of cases.	No recommendations for future research were made, however, areas to be addressed included the need to:  Improved identification and assessment of patients with weight issues.  Improved knowledge regarding realistic weight management outcomes.  Improved attitudes, and understanding of the nature of the disease, and available treatments.  Enhanced education and up- skilling regarding weight management.  Raise awareness of guidelines

<p>Patients' and professionals' experiences and perspectives of obesity in health-care settings: a synthesis of current research.</p> <p>Mold, F. et al.<sup>(216)</sup> UK, 2011</p>	<p>To undertake a synthesis of studies examining the views and experiences of both obese people in relation to their health care provision and health care professionals in providing care to obese patients.</p>	<p>Medline, PubMed CINHAL Social science citations</p>	<p>Obesity Body size Body image Body weight Overweight Stigma Bias Discrimination Inequalities Access</p>	<p>30</p>	<p>Yes, with critical appraisal considerations including the methodological and analytical soundness of the research.</p> <p>The use of a formal tool was not referred to.</p>	<p>Health professionals hold negative views towards obese patients; however, their views are less negative than those of the general population.</p> <p>Health professionals are more accepting of overweight people compared to smokers.</p> <p>Doctors appear to spend less time with obese patients, the finding did not hold true for nurses.</p> <p>Discussing obesity is challenging for health professionals</p> <p>.</p>	<p>No recommendations provided</p>
<p>Nurses' attitudes towards adult patients who are obese: literature review.</p> <p>Brown, I.<sup>(211)</sup> UK, 2006</p>	<p>To gain an understanding about nurses' attitudes (and directly related beliefs) towards adult patients who are overweight or obese and the methods by which these have been studied.</p>	<p>Ovid WebSPIRs CINAHL Medline AMED British Nursing Index EMBASE PsychINFO BIOSIS</p>	<p>Nurse(s);Nursing; Nurses Health visitor(s); Health visiting Health professional(s); health care worker(s) Obese; obesity, overweight, fat, heavy; large; plump; size; weight</p>	<p>11</p>	<p>Not formally reported</p>	<p><b>Findings from the qualitative studies</b> suggest that negative attitudes are common amongst nurses, but these are moderated by other feelings, beliefs, and attitudes.</p> <p>Ambivalence was another key theme.</p> <p><b>Findings from the quantitative</b></p>	<p>To be able to link health care quality and outcomes for obese patients to attitudes (positive and negative).</p> <p>Determining the obese patient's perceptions of their health care experience, as well as their quality of life.</p>

			Attitude(s); perception(s); belief(s); view(s); bias(is); prejudice(s); stigma; stereotype(s); stereotyping; anti-fat			<b>studies:</b> Negative views apparent, some linked to perceived characteristics of obese people. Some variables were seen to influence nurse's attitudes including, age, gender, BMI of nurse, effect varied.	
Obesity, stigma, and responsibility in health care: A synthesis of qualitative studies. Malterud, K. & Ulriksen, K. <sup>(217)</sup> Norway, 2011	To synthesize qualitative research findings on experiences and attitudes about obesity and stigma in health care using meta- ethnography.	MEDLINE, ISI Web of Knowledge, EMBASE, CINAHL, PsycINFO and AMED	Obesity Stigma	13	A negotiated quality assessment was conducted and was guided by a checklist covering the aim of the study, reflexivity, methods and design, data collection and sampling, theoretical framework, methods of analysis, results, discussion and presentation.	Provision of advice that is appropriate can be perceived as patronising; Challenges of meeting the needs of those whose bodies do not meet weight norms; Standards of interpersonal respect were surpassed and legitimised. Resulting in patients experiencing contempt. Differing views between patients and health providers regarding responsibility for obesity.	None made.

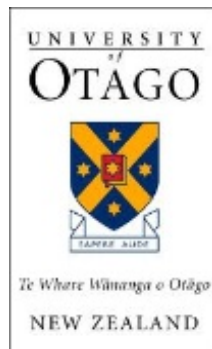


<p>Interaction between primary health care professionals and people who are overweight or obese: A critical review.</p> <p>Walsh, MAF. &amp; Fahy, KM. <sup>(229)</sup> Australia, 2011</p>	<p>To examine the interaction between primary health care professionals and overweight or obese patients, and the subsequent effect on management strategies.</p>	<p>MEDLINE PubMed Scopus CINHAL PsychINFO Social Work</p>	<p>Overweight Obese Obesity Morbidly obese Morbid obesity Primary health care professional Nurse Doctor Medical practitioner Patient Client Person Interaction Communication Patient education</p>	<p>5</p>	<p>Not formally reported</p>	<p>Papers reviewed pointed to the underdiagnoses of overweight and obesity, in part a result of health professionals wanting to preserve the relationship with the patient;</p> <p>Low rates of weight loss counselling, more likely in those who had a comorbidity.</p> <p>Low levels of confidence in ability to provide weight loss counselling and pessimism related to obese patients motivation to lose weight.</p> <p>Inadequate weight management education.</p>	<p>The patient experience of weight loss counselling in primary care.</p>
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## Appendix C: Literature search strategy plan for papers related to obese men's experiences in primary care

And	And	And	And
Idea 1	Idea 2	Idea3	Idea 4
Men	Health care experiences	Discrimination	Primary care
<b>Or</b>	<b>Or</b>	<b>Or</b>	<b>Or</b>
Males	Perceptions of care	Stigma	General practice
<b>Or</b>		<b>Or</b>	<b>Or</b>
Adult		Prejudice	Family practice
<b>Or</b>			<b>Or</b>
Obese			General practitioner
<b>Or</b>			<b>Or</b>
Obesity			Family physician
Or			<b>Or</b>
Overweight			Practice nurse
			<b>Or</b>
			Primary care nurse
Women			
<b>Or</b>			
Female			

# Appendix D1: Introduction and information sheet, GP Survey, 1<sup>st</sup> mail out



## Introduction and Information Sheet

My name is Fiona Doolan-Noble and I am a PhD student with the Department of Primary Health Care and General Practice, in Wellington. I am undertaking a research project about obesity in male patients attending New Zealand general practice.

Obesity is a common and important practice issue and the prevalence of both overweight and obesity in men are increasing. By completing the enclosed questionnaire you will assist us to understand how obesity is diagnosed in primary health care, what is offered to the overweight and obese to assist with weight management and how obesity and the obese individual are regarded.

**YOUR TIME:** This is a tick box survey and **will take at most 10-15 minutes of your time**. In appreciation of your time you can choose to enter a draw for one of two **mini i-pads** if you return the survey within the first three weeks. All respondents can choose to enter a draw for one of **five \$100 fuel vouchers**. If you wish to enter the draw provide your contact details after the demographic questions.

**CME POINTS:** Completion of this survey allows you to claim 1 credit under the CME category “practice improvement activities: IFHC project, IMMP, etc.” The survey title The Management of Obese Men in New Zealand General Practice can be recorded in “Notes”.

**WHY OBESITY IN MEN?** Obesity rates are the same in NZ men as well as NZ women, however, obese men are more likely than their female counterparts to be diagnosed with diabetes and to be pre-diabetic. It is therefore important to

understand what happens when obese and overweight men engage with primary health care.

**Ethics Approval:** This project has been approved by Multi-Region Ethnics Committee **MEC/12/EXP/041**

**WHY YOU?** Your name was randomly chosen from a database managed by Medidata. We are very keen to receive responses from all selected, ensuring the views are representative of NZ general practitioners. This survey is anonymous – no personal information will be linked to your responses. Your candid responses to questions will be appreciated. Your code will only be used to distribute the prizes. The key linking your name to your code will be destroyed after the prize draws.

**HOW TO RESPOND:** You can return this survey by post (in the prepaid envelope provided), or if you would like to complete it online go to <https://www.surveymonkey.com/s/GPOBESSURV>. Remember to enter your personal code from the front of your survey.

**THE RESULTS:** Results of this study will be shared with health professionals in a variety of ways including: articles in academic journals and presentations at conferences. If you would like to see a summary of the results you can visit <http://www.otago.ac.nz/wellington/departments/primaryhealthcaregeneralpractice/> from October 2013 onwards.

Thank you very much for the valuable contribution you are making to New Zealand health research. If you have any questions please feel free to contact the primary investigator in the first instance.

We look forward to hearing back from you.

Regards Fiona

**Primary Investigator**

Fiona Doolan-Noble  
[Fiona.doolan-noble@otago.ac.nz](mailto:Fiona.doolan-noble@otago.ac.nz)

021 372 328

**Supervisory Team**

Dr Tom Love  
[tlove@srgexpert.com](mailto:tlove@srgexpert.com)

04 915 7590

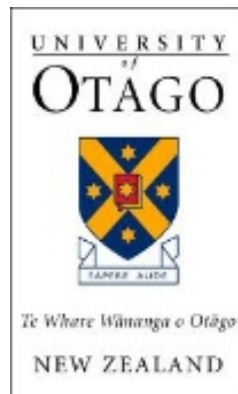
Dr Sue Pullon  
[Sue.pullon@otago.ac.nz](mailto:Sue.pullon@otago.ac.nz)

04 385 5539

Professor Tony Dowell  
[tony.dowell@otago.ac.nz](mailto:tony.dowell@otago.ac.nz)

04 385 5539

## Appendix D2: Introduction and information sheet, PN Survey, 1<sup>st</sup> mail out



### Introduction and Information Sheet

My name is Fiona Doolan-Noble and I am a PhD student with the Department of Primary Health Care and General Practice, in Wellington. I am undertaking a research project about obesity in male patients attending New Zealand general practice.

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**PROFESSIONAL DEVELOPMENT CREDITS:** Completion of this survey allows you to claim one hour professional development. A certificate for your portfolio will be e-mailed to you on receipt of the survey and provision of an e-mail address.

**WHY OBESITY IN MEN?** Obesity rates are the same in NZ men as well as NZ women, however, obese men are more likely than their female counterparts to be diagnosed with diabetes and to be pre-diabetic. It is therefore important that we

understand what happens to obese and overweight men when they engage with the primary health care.

**ETHICS APPROVAL:** This project has been approved by Multi-Region Ethics Committee **MEC/12/EXP/041**

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**HOW TO RESPOND:** You can return this survey by post (in the prepaid envelope provided), or if you would like to complete it online go to <https://www.surveymonkey.com/s/PNOBESSURV> Remember to enter your personal code from the front of your survey.

**THE RESULTS:** Results of this study will be shared with health professionals in a variety of ways including: articles in academic journals and presentations at conferences. If you would like to see a summary of the results, you can visit <http://www.otago.ac.nz/wellington/departments/primaryhealthcaregeneralpractice/> from October 2013 onwards.

Thank you very much for the valuable contribution you are making to New Zealand health research. If you have any questions please feel free to contact the primary investigator in the first instance. We look forward to hearing back from you.

Regards Fiona

**Primary Investigator**

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[Fiona.doolan-noble@otago.ac.nz](mailto:Fiona.doolan-noble@otago.ac.nz)  
021 372 328

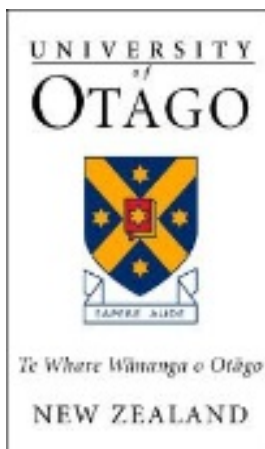
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Professor Tony Dowell  
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04 385 5539

## Appendix E1: Introduction and information sheet, GP Survey, 2<sup>nd</sup> mail out



### Introduction and Information Sheet

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My name is Fiona Doolan-Noble and I am a PhD student with the Department of Primary Health Care and General Practice, in Wellington. I am undertaking a research project about obesity in male patients attending New Zealand general practice.

If you did not return the survey after the first mail out can I ask you to please consider completing the survey this time. As this is the first survey of its kind in New Zealand, it is important to be able to have as much confidence in the findings as possible, hence this second mail out. We have already had a strong response, but as you are aware increased numbers always contribute to more reliable results.

Obesity is a common and important practice issue and the prevalence of both overweight and obesity in men are increasing. By completing the enclosed questionnaire you will assist us to understand how obesity is diagnosed in primary health care, what is offered to the overweight and obese to assist with weight management and how obesity and the obese individual are regarded.

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We look forward to hearing back from you.

Regards Fiona

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04 385 5539

## Appendix E2: Introduction and information sheet, PN Survey, 2<sup>nd</sup> mail out



### Introduction and Information Sheet

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04 385 5539

## Appendix F: Ethics Approval letter



Multi-region Ethics Committee  
c/- Ministry of Health  
PO Box 5013  
1 the Terrace  
Wellington  
Phone: (04) 816 2403  
Email: [multiregion\\_ethicscommittee@moh.govt.nz](mailto:multiregion_ethicscommittee@moh.govt.nz)

20 March 2012

Fiona Doolan-Noble  
PO Box 311  
Hokitika

Dear Ms Doolan-Noble

Ethics ref: **MEC/12/EXP/041** (please quote in all correspondence)  
Study title: How do the attitudes, and beliefs of health professionals in general practice regarding obesity affect the care provided to, and the experiences of New Zealand men who are significantly overweight?

This study was given expedited ethical approval by the Chair of the Multi-region Ethics Committee on 16 March 2012.

### Approved Documents

- Expedited Review of Observational Studies Application Form signed and dated 7 March 2012 by Fiona Doolan-Noble

This approval is valid until 30 November 2012, provided that Annual Progress Reports are submitted (see below).

### Amendments and Protocol Deviations

All significant amendments to this proposal must receive prior approval from the Committee. Significant amendments include (but are not limited to) changes to:

- the researcher responsible for the conduct of the study at a study site
- the addition of an extra study site
- the design or duration of the study
- the method of recruitment
- information sheets and informed consent procedures.

Significant deviations from the approved protocol must be reported to the Committee as soon as possible.

### Annual Progress Reports and Final Reports

The first Annual Progress Report for this study is due to the Committee by 20 March 2013. The Annual Report Form that should be used is available at [www.ethicscommittees.health.govt.nz](http://www.ethicscommittees.health.govt.nz). Please note that if you do not provide a progress report by this date, ethical approval may be withdrawn.

A Final Report is also required at the conclusion of the study. The Final Report Form is also available at [www.ethicscommittees.health.govt.nz](http://www.ethicscommittees.health.govt.nz).

Statement of compliance

The committee is constituted in accordance with its Terms of Reference. It complies with the [Operational Standard for Ethics Committees](#) and the principles of international good clinical practice.

The committee is approved by the Health Research Council's Ethics Committee for the purposes of section 25(1)(c) of the [Health Research Council Act 1990](#).

We wish you all the best with your study.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Emma Phelan', written in a cursive style.

Emma Phelan  
Administrator  
Multi-region Ethics Committee

## Appendix G: Medical Survey questions



### The management of obese men in New Zealand General Practice

For information regarding this survey please read the information sheet provided.

Please complete each of the questions in this survey and feel free to add comments in spaces provided.

Please note the questions mainly seek to gain an understanding of your views/thoughts/opinions.

## Section one

### Prevention and management of obesity

**1.1 Rate your agreement on the scale with the statement: “weight management is a function of the role of a general practitioner (GP) and a practice nurse (PN)”.**

	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree	FOR OFFICE USE ONLY
Weight management is part of the role of a GP	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
Weight management is part of the role of a PN	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	

**1.2 Rate your agreement on the scale provided with the statement, “obesity is a chronic disease”.**

Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree	FOR OFFICE USE ONLY
<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	

**1.3 Rate your agreement on the scale with the statement, “individuals are responsible for their obesity and therefore the management of their weight loss”.**

Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree	FOR OFFICE USE ONLY
<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	

**Please add any other comments related to this section of the survey you wish, in the space provided below:**



## Section two

### YOUR TRAINING RELATED TO OVERWEIGHT AND OBESITY MANAGEMENT

<b>2.1 How would you rate the obesity management education you received during your medical training?</b>	Very poor <input type="checkbox"/> <sub>1</sub>	Poor <input type="checkbox"/> <sub>2</sub>	Fair <input type="checkbox"/> <sub>3</sub>	Good <input type="checkbox"/> <sub>4</sub>	Very good <input type="checkbox"/> <sub>5</sub>	FOR OFFICE USE ONLY
---	--	---	---	---	--	---------------------

<b>2.2 How would you rate your knowledge of:</b>	Very poor	Poor	Fair	Good	Very good	FOR OFFICE USE ONLY
Healthy eating for weight loss	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
Physical activity for weight loss	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
Weight loss medications	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
Surgical options for weight loss	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
Community resources to support people trying to lose weight	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	

<b>2.3 How would you rate your competence to provide the following to obese men?</b>	Very poor	Poor	Fair	Good	Very good	
Counselling about diet for healthy weight loss	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
Counselling about exercise/physical activity for healthy weight loss	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
Information on and role of subsidised weight loss medications	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	

<b>2.4 In the last 5 years have you completed a CME/learning activity session on obesity management?</b>					FOR OFFICE USE ONLY
<input type="checkbox"/> <sub>1</sub> No					
<input type="checkbox"/> <sub>2</sub> Yes					
<b>2.5 Have you undertaken specific training or been specifically taught how to examine obese male patients since qualifying?</b>					
<input type="checkbox"/> <sub>1</sub> No					
<input type="checkbox"/> <sub>2</sub> Yes					
<b>2.6 On a scale of 1 to 5 how comfortable are you examining the obese abdomen? (Comfortable in this instance does not relate to competence in examination, but to your level of discomfort when undertaking the examination).</b>					
Very uncomfortable <input type="checkbox"/> <sub>1</sub>	Uncomfortable <input type="checkbox"/> <sub>2</sub>	Neutral <input type="checkbox"/> <sub>3</sub>	Comfortable <input type="checkbox"/> <sub>4</sub>	Very comfortable <input type="checkbox"/> <sub>5</sub>	
<b>2.7 Do you use guidelines to assist you in providing weight management advice?</b>					
<input type="checkbox"/> <sub>1</sub> No					
<input type="checkbox"/> <sub>2</sub> Yes					
<b>2.8 If yes, which guidelines do you refer to most?</b>					
.....					
.....					
.....					
.....					
<b>2.9 Please list other sources of information you access to assist you with the management of obesity.</b>					

Please add any other comments related to this section of the survey you wish, in the space provided below:

## Section three

### YOUR VIEWS REGARDING OBESITY AND MEN OF A HIGHER WEIGHT

**3.1 Please rate the extent to which you think each of these factors contribute to obesity in men.**

	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree	FOR OFFICE USE ONLY
<b>Food related influences:</b> <ul style="list-style-type: none"> <li>• Overeating</li> <li>• A diet high in fat</li> <li>• Poor nutritional knowledge</li> <li>• Repeated dieting</li> </ul>						
	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
<b>Activity related influences</b> <ul style="list-style-type: none"> <li>• Physical inactivity</li> <li>• Too many hours watching TV</li> </ul>						
	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
<b>Biological influences</b> <ul style="list-style-type: none"> <li>• Genetic factors</li> <li>• Metabolic defect</li> <li>• Endocrine defect</li> </ul>						
	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
<b>Psychological influences</b> <ul style="list-style-type: none"> <li>• Depression</li> <li>• Risk taking tendencies</li> </ul>						
	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
<b>Societal influences</b> <ul style="list-style-type: none"> <li>• The environment</li> <li>• Socio-economic determinants</li> <li>• Cultural determinants</li> <li>• Food insecurity*</li> <li>• Lack of supportive legislation, e.g. fat tax</li> </ul>						
	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
<b>Personal influences</b> <ul style="list-style-type: none"> <li>• Lack of will power</li> <li>• Lack of motivation</li> <li>• Lack of understanding regarding the causes of obesity</li> <li>• Lack of health literacy</li> </ul>						
	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	

\*Food insecurity refers to the lack of availability of food and one's inability to access nutritious food.

**3.2 Rate your agreement on the scale with the idea that general practitioners ought to be role models for their patients by:**

	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree	FOR OFFICE USE ONLY
Maintaining a healthy weight	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
Exercising regularly	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	

**3.3 Please tick one of the boxes below to rate your views of statements A and B.**

A. How likely is it that obese patients will trust weight loss advice from an overweight or obese general practitioner, compared to a normal weight general practitioner?	FOR OFFICE USE ONLY
<input type="checkbox"/> <sub>1</sub> Less Likely	
<input type="checkbox"/> <sub>2</sub> As Likely	
<input type="checkbox"/> <sub>3</sub> More Likely	
B. How likely is it that obese patients will trust weight loss advice from a normal weight general practitioner, compared to an overweight or obese general practitioner?	
<input type="checkbox"/> <sub>1</sub> Less Likely	
<input type="checkbox"/> <sub>2</sub> As Likely	
<input type="checkbox"/> <sub>3</sub> More Likely	

**3.4 Using the scale provided please rate the risk of a non-smoking obese male suffering from each of the listed health problems, compared to a non-smoking male individual of normal weight.**

	Same risk	Mildly increased risk	Moderately increased risk	Highly increased risk	FOR OFFICE USE ONLY
CHD	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	
Stroke	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	
Hypertension	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	
Type 2 diabetes	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	
Depression	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	
Colorectal cancer	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	
Gout	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	
Other chronic musculoskeletal problems, e.g. osteoarthritis	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	
Sleep apnoea	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	
Erectile dysfunction	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	

**Please rate your views regarding the importance of the following weight management goals for obese males.**

	Unimportant	Of little importance	Moderately important	Important	Very important	FOR OFFICE USE ONLY
Improvement in clinical indicators of health, e.g. blood pressure lowering and improvements in lipid profile	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
Adoption of improved food and exercise habits irrespective of weight loss	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
Improved body image and self-confidence irrespective of weight loss	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
A weight loss 5-10% of initial body weight	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
Weight loss to the BMI range 18.5-24.9	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
Managing no further weight gain over time	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	

**3.5 Please rate your agreement or disagreement with the following 8 statements using the scale provided.**

	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree	FOR OFFICE USE ONLY
Dealing with obesity and weight loss in men is professionally frustrating	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
Behavioural interventions for men who are obese are often ineffective	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
I am pessimistic that obese male patients will be successful in losing weight	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
Pharmaceutical support for weight loss makes no real difference in male obese patients	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
Male obese patients want an easy way out	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	

Male obese patients lack discipline to lose weight	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
A man's weight is his responsibility	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
It is easier to talk to men about their excess weight than women	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	

**3.6 Most people throughout society possess unflattering views of those who are obese.  
Using the scale provided, please convey how you, yourself, perceive obese men.**

							FOR OFFICE USE ONLY
Self-conscious	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	Assured	
Ugly/repellent	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	Attractive	
Noncompliant	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	Compliant	
Weak-willed	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	Strong willed	
Lazy	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	Industrious	
Sloppy	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	Neat	
Repugnant	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	Pleasant	

**Please add any other comments related to this section of the survey you wish, in the space provided below:**

## Section four

### DIAGNOSIS, ASSESSMENT AND MANAGEMENT

#### 4.1 Using the scale provided indicate your frequency of using each of the diagnostic measurements listed to diagnose obesity in males?

	Never	Rarely	Sometimes	Often	Always	FOR OFFICE USE ONLY
Weight	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
BMI	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
Waist to hip ratio	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
Waist circumference	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
Comparison with ideal weight	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
Appearance	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
Other, please specify:						

#### 4.2 When counselling an obese male patient how important do you consider the strategies listed below to be? Use the scale to document your ratings for each option.

	Not important	Quite important	Very important	FOR OFFICE USE ONLY
Documenting the patient's BMI and waist circumference	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	
Assessing the patient's weight history	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	
Assessing the patient's dietary habits	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	
Assessing the patient's physical activity habits	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	
Assessing patients' readiness for change	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	
Assessing the patient's expectations of weight management/loss	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	
Assessing the patient's definition of a successful outcome	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	
Determining goals, problem solving barriers to reaching goals and for relapse prevention	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	
Ability to refer patients to other health care professionals	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	
Involving the man's partner or whanau/family member of his choice in the consultation	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	
Reviewing your patients' progress until goal weight is achieved	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	
Other important reason, please specify:				



**4.3 Under what conditions do you discuss weight with male patients? Please tick the box of your choice for each option.**

		FOR OFFICE USE ONLY
If he is overweight and is at risk of becoming obese	No <input type="checkbox"/> <sub>1</sub> Yes <input type="checkbox"/> <sub>2</sub>	
If he is obese	No <input type="checkbox"/> <sub>1</sub> Yes <input type="checkbox"/> <sub>2</sub>	
If he is at risk of developing a weight related chronic disease	No <input type="checkbox"/> <sub>1</sub> Yes <input type="checkbox"/> <sub>2</sub>	
Teachable moments – when he presents with a condition affected by his obesity	No <input type="checkbox"/> <sub>1</sub> Yes <input type="checkbox"/> <sub>2</sub>	
When he wants to discuss it	No <input type="checkbox"/> <sub>1</sub> Yes <input type="checkbox"/> <sub>2</sub>	
If he is a new patient	No <input type="checkbox"/> <sub>1</sub> Yes <input type="checkbox"/> <sub>2</sub>	
Other situation, please specify:		

**4.4 Using the scale provided rate why you might not spend time counselling an obese male patient.**

	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree	FOR OFFICE USE ONLY
Compared to women, men are not receptive to discussing the topic	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
I haven't had much success with weight loss with my male obese patients	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
Few men are motivated to make the lifestyle changes needed	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
Few men have the personal or community resources to be able to deal with this	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
There is a lack of male specific weight loss programmes available in my area	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
Other reason, please specify:						

**4.5 What would help you offer an enhanced weight management service to your obese male patients? Please tick the box of your choice on the scale for each option.**

	Not at all	A little	Somewhat	Very	Crucial	FOR OFFICE USE ONLY
More male specific weight loss resources	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
Education for staff on cultural beliefs and values related to weight, for men of different ethnicities	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
More access to Maori/Pacific male weight loss community programmes	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
Funding to support patients to attend a commercial weight loss programme	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
Funding to support membership at a gym or similar for patients	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
Additional nursing resources	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
Improved availability of male nurses	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
Availability of dietician clinics on site	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
Easier access to psychology services	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
Up to date list of community resources available to support male obese patients	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
Equipment/furniture that accommodated obese patients better	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
Education on specific approaches to discussing the topic of excess weight	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
More funding for public bariatric surgery	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	
Other, please specify:						

**Please add any other comments related to this section of the survey you wish, in the space provided below:**

## Section five

### YOUR PRACTICE ENVIRONMENT

<b>5.1 How many patients on average do you see each week? Please tick <u>ONE</u> of the options:</b>	FOR OFFICE USE ONLY
<50 <input type="checkbox"/> <sub>1</sub>	
50 -99 <input type="checkbox"/> <sub>2</sub>	
100 -150 <input type="checkbox"/> <sub>3</sub>	
>150 <input type="checkbox"/> <sub>4</sub>	

<b>5.2 Rate your agreement on the scale with the statement, “obesity prevention and management is prioritised in my general practice/health centre”.</b>					FOR OFFICE USE ONLY
Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree	
<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	

<b>5.3 Within your practice are the following available?</b>	<b>No</b>	<b>Yes</b>	FOR OFFICE USE ONLY
<b>Extra-large BP cuffs</b>	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	
<b>Armless waiting room chairs</b>	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	
<b>Armless chairs in your clinic rooms</b>	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	
<b>Scales for obese patients</b>	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	
<b>Large size examination tables</b>	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	
<b>Other equipment, please specify:</b>			

**Please add any other comments related to this section of the survey you wish, in the space provided below:**

## Section six

### ABOUT YOU

The following questions are asked to enable analysis of your responses to the previous questions. Please answer **all** questions by ticking the relevant answer or providing the answer if required

<b>6.1</b> Gender	Male <input type="checkbox"/> <sub>1</sub> Female <input type="checkbox"/> <sub>2</sub>
<b>6.2</b> Ethnicity (You may tick more than one)	Māori <input type="checkbox"/> <sub>1</sub> New Zealand European <input type="checkbox"/> <sub>2</sub> Samoan <input type="checkbox"/> <sub>3</sub> Cook Island Maori <input type="checkbox"/> <sub>4</sub> Tongan <input type="checkbox"/> <sub>5</sub> Niuean <input type="checkbox"/> <sub>6</sub> Chinese <input type="checkbox"/> <sub>7</sub> Indian <input type="checkbox"/> <sub>8</sub> Other such as DUTCH, JAPANESE, TOKELAUAN <sub>9</sub> . Please state: .....
Date of birth: .....	
<b>6.3</b> Number of years working in general practice (Please state in years)	
<b>6.4</b> As with the general population, many people working in the health sector are overweight or obese. How would you rate yourself?	Underweight <input type="checkbox"/> <sub>1</sub> Normal weight <input type="checkbox"/> <sub>2</sub> Overweight <input type="checkbox"/> <sub>3</sub> Obese <input type="checkbox"/> <sub>4</sub>
<b>6.5</b> How active do you consider yourself to be: <b>(Definitions below)</b>	Sedentary <input type="checkbox"/> <sub>1</sub> Relatively inactive <input type="checkbox"/> <sub>2</sub> Relatively active <input type="checkbox"/> <sub>3</sub> Highly active <input type="checkbox"/> <sub>4</sub>
<b>6.6</b> Have you previously attempted to lose weight?	No <input type="checkbox"/> <sub>1</sub> (Thank you, you have finished) Yes <input type="checkbox"/> <sub>2</sub> (Go to question 6.9)
<b>6.7</b> If <b>yes</b> , highlight technique/s used	Decreasing calorie intake <input type="checkbox"/> 1 Increasing physical activity <input type="checkbox"/> 2 Reducing fat intake <input type="checkbox"/> 3 Very low calorie diet/meal replacement method <input type="checkbox"/> 4 Medication <input type="checkbox"/> 5 Reducing alcohol consumption <input type="checkbox"/> 6

- **Sedentary – No sports or leisure time physical activities each week**
- **Relatively inactive – Take part in some sports or leisure time physical activity, but less than 2.5 hours per week**
- **Relatively active – Take part in at least 2.5 hours of sports or leisure time physical activity, but less than 5 hours each week**
- **Highly active – Take part in at least 5 hours of sports or leisure time physical activity each week**

**Please add any other comments related to this section of the survey you wish, in the space provided below:**

Thank you for taking the time to complete and submit this survey. Your insight and information are very valuable to this study and will add to the robustness of the findings.

Should you have any further questions or concerns about this survey or any of its questions please contact: Fiona Doolan-Noble at 021 372 328 or [fiona.doolan-noble@otago.ac.nz](mailto:fiona.doolan-noble@otago.ac.nz)  
Please return your completed survey in the pre-paid envelope provided.

**If you wish to enter the draw for one of five \$100 fuel vouchers, please provide one of the following contact details below:**

Cell phone number:.....

E-mail-address:.....

## **Appendix H: Overview of survey questions for consideration for survey tool**



Demographic questions	Second part of question	Rating
Gender		
Ethnicity	New Zealand European Māori Samoan Cook Island Maori Tongan Niuean Chinese Indian other such as <i>DUTCH, JAPANESE, TOKELAUAN</i> . Please state:	
Age		Years
Number of years working general practice		Years
Do you work full-time or part-time		Full-time or part-time
BMI or height and weight		Height and weight can be provided in either imperial or metric units
Please tick the term which best describes you	Underweight Normal weight Overweight Obese	If you have identified yourself as overweight or obese which of the following statements best reflects your feelings about your weight: 1. I recognise that I am technically overweight or obese, but I am comfortable and not interested in weight reduction. 2. I lack the discipline to change diet/exercise habits but I know I should. 3. I eat a healthy diet and exercise regularly, but cannot lose excess weight.
Please state the average amount of physical activity per week in minutes you complete.....	To what intensity do you exercise?	Light Moderate Vigorous

Have you previously attempted to lose weight? Yes No	If yes, highlight technique used 1. decreasing calorie intake 2. increasing physical activity 3. reducing fat intake 4. VLCD 5. Medication 6. Reducing alcohol consumption	Were you Successful short and long term Successful short term but not long term Not successful
--	--	--

<b>Practice environment questions</b>	
Estimate of the % of enrolled population that is overweight and obese	
Estimated % of patients seen of excess body weight per week	
Average number of patients seen per week	<50 50-99 100-149 150 or over  Alternative numbers in another paper (CAMPBELL) ≤100 100-150 ≥150
Type of practice	Solo GP 2 3 4 5 6 or more GPs
Practice setting	Rural

<p>Is your practice a:</p> <p>Is your practice part of a Maori provider</p>	<p>Town City Other</p> <p>Teaching practice Non-teaching practice</p> <p>Yes/No</p>
<p>Availability of suitable equipment</p>	<p>Extra-large BP cuffs Armless waiting room chairs Armless chairs in all clinic rooms Scales for obese patients Large size examination tables Extra-large gowns</p>

<b>Knowledge</b>		
<p>How do you differentiate between someone who is overweight and someone who is obese? (MILLER)</p>		
<p>List at least 3 but up to 5 serious health risks of obesity (MILLAR)</p>		
<p>How would you rate your obesity management training in medical or nursing school (BLEICH)</p>		<p>1= Very poor 2 = Poor 3 = Fair 4 = Good</p>

<b>Knowledge</b>		
		5 = Very good
Rate your knowledge of: 1. Healthy eating for weight loss 2. Physical activity for weight loss 3. Weight loss medications 4. Surgical techniques for weight loss 5. Community resources to support people trying to lose weight. (FERRANTE)		1-5 likert scale
I am competent to... (BLEICH)	Counsel about diet for healthy weight loss Counsel about exercise/physical activity for healthy weight loss Prescribe/discuss weight loss medications	1 = strongly disagree 2 = disagree 3 = somewhat agree 4 = agree 5 = strongly agree  (this question's responses were analysed by BMI of respondent)
These factors are important causes of obesity (EPLING) (FOSTER)	Physical inactivity Overeating High fat diet Genetic factors Poor nutritional knowledge Psychological problems Repeated dieting (weight cycling) Restaurant eating Lack of will power Metabolic defect Endocrine disorder	1 = strongly disagree 2 = disagree 3 = somewhat agree 4 = agree 5 = strongly agree

<b>Knowledge</b>		
Have you completed a CME/CNE session on obesity management? (BOCQUIER)		Yes/No
Have you undertaken training in how to examine an obese patient? (BOCQUIER)		Yes/No
Are you familiar with the 2009 NZ Weight management guidelines		Yes/No
Have you completed the associated F.A.B. on line training programme?		Yes/No

<b>Attitudes/opinions and beliefs about obesity and its treatment/management</b>		
Attitudinal questions (FERRANTE)	<ol style="list-style-type: none"> <li>1. Dealing with obesity and weight loss is frustrating</li> <li>2. Treatment of obesity is often ineffective</li> <li>3. I am pessimistic that patients will be successful in losing weight</li> <li>4. Patients lack discipline to lose weight</li> <li>5. Patients want an easy way out</li> <li>6. Patients do not have the time to exercise</li> </ol>	1-5 likert scale
Physicians should be role models for their patients by... (BLEICH)	<p>Maintaining a healthy weight</p> <p>Exercising regularly</p>	<p>1 = strongly disagree</p> <p>2 = disagree</p> <p>3 = somewhat agree</p> <p>4 = agree</p> <p>5 = strongly agree</p> <p>(this question's responses were analysed by</p>

<b>Attitudes/opinions and beliefs about obesity and its treatment/management</b>		
		BMI of respondent)
<p>Likelihood overweight/obese patients will trust weight loss advice from overweight/obese doctors?</p> <p>Likelihood overweight/obese patients will trust weight loss advice from normal weight doctors (BLEICH)</p>	<p>More likely As likely Less likely</p> <p>More likely As likely Less likely</p>	Analysed by BMI of respondents
<ol style="list-style-type: none"> <li>1. I believe it is necessary to educate obese patients on the health risks of obesity</li> <li>2. Obesity is a chronic disease</li> <li>3. I make accommodations for obese patients</li> <li>4. Obesity is associated with serious medical conditions</li> <li>5. Physicians should be role models by maintaining a normal weight</li> <li>6. A 10% reduction in body weight is sufficient to significantly improve obesity related health complications</li> <li>7. I would spend more time working on weight management issues if my time was reimbursed appropriately</li> <li>8. I feel competent in prescribing weight loss programmes for obese patients</li> <li>9. Most obese patients are well aware of the health risks of obesity</li> <li>10. Medications to treat obesity should be limited to the short term (3 months) use</li> <li>11. Most obese patients could reach a normal</li> </ol>		<p>Scale 1-5 1= strongly disagree 5 = strongly agree</p>

<b>Attitudes/opinions and beliefs about obesity and its treatment/management</b>		
<p>weight (for height) if they were motivated to do so</p> <p>12. Most obese patients will not lose a significant amount of weight</p> <p>13. I have negative reactions towards the appearance of obese patients</p> <p>14. If a patient meets the appropriate criteria for obesity surgery I would recommend evaluation by a surgeon</p> <p>15. Medications to treat obesity should be used chronically</p> <p>16. I am usually successful in helping obese patients to lose weight</p> <p>17. For most obese patients long term maintenance of weight loss is impossible</p> <p>18. It is acceptable to use scare tactics to obtain compliance of the obese patient</p> <p>19. I feel uncomfortable when examining an obese patients</p> <p>20. It is difficult for me to feel empathy for obese patients</p> <p>(EPLING) (FOSTER)</p>		
<p>Attributes of obese individuals assessed using opposing adjectives at each end of a likert scale</p> <p>(FOSTER)</p>	<p>Awkward...Graceful</p> <p>Unattractive...Attractive</p> <p>Ugly...Handsome/Beautiful</p> <p>Non compliant...Compliant</p> <p>Weak willed – Strong willed</p> <p>Lazy...Industrious</p> <p>Sloppy...Neat</p>	

<b>Attitudes/opinions and beliefs about obesity and its treatment/management</b>		
	Unpleasant...Pleasant Dishonest...Honest	
Beliefs of efficacy to obesity treatment compared to 10 other chronic conditions (FOSTER)	Hypertension Asthma Coronary artery disease Hyperlipidemia Diabetes Depression Osteoarthritis Cigarette smoking Alcoholism Drug addiction	1 = more effective 2 = equally effective 3 = less effective
Information provided via medical charts re 3 patients who are normal weight, overweight and obese. A series of statements ranked on a likert scale are then provided (HEBL)  Respondents are also asked to document the time they would spend with the 3 patients as well as list the medical tests/treatments/interventions they would recommend for each case	How healthy is this patient Patient takes care of themselves Patient is self disciplined Level of strictness in the medical advice I would give Serious of the patient's health problem Seeing this patient would feel like a waste of my time This sort of patient would make me like my job Amount of patience I would have Extent to which this patient would annoy me Personal desire I have to help this patient Likelihood that the patient would follow my advice I believe that patient would benefit from	1-9 Likert scale 1 = Not at all 5 = Somewhat 9 = Extremely



<b>Attitudes/opinions and beliefs about obesity and its treatment/management</b>		
	counselling My overall positivity toward the patient	
Weight management is part of my role as a GP or PN (FOGELMAN)		1 = strongly disagree to 9 –strongly agree
Overweight people tend to be more lazy than normal weight people Overweight people lack willpower and lack motivation compared to normal weight people Counselling on weight reduction is easy Accurate nutritional and calorie labelling of food would contribute to weight reduction Weight reducing medication is indicated when BMI less than 30, even in the absence of other risk factors Medications are effective in retaining weight loss even after discontinuation (FOGELMAN)		Agree – disagree
Views regarding various aspects of weight management (THUAN)	<ol style="list-style-type: none"> <li>1. Obesity (BMI≥30kg/m<sup>2</sup>) should be considered a disease</li> <li>2. Only adults who are obese (BMI≥30kg/m<sup>2</sup>) should be offered treatment for weight loss</li> <li>3. Treatment of overweight (BMI≥25-29.9kg/m<sup>2</sup>) should only be offered treatment when other risk factors, such as type 2 diabetes and hypertension are present</li> <li>4. Small weight loss 5-10% BW can produce important medical benefits</li> <li>5. Only a small percentage of people with</li> </ol>	<p>Strongly disagree</p> <p>Disagree</p> <p>Neutral</p> <p>Agree</p> <p>Strongly agree</p> <p>Usually done</p>

Attitudes/opinions and beliefs about obesity and its treatment/management		
Views of the importance of various objectives in weight management (THUAN)	<p>excess BW can reduce their weight and maintain that loss</p> <ol style="list-style-type: none"> <li>6. Counselling patients who need to lose weight is professionally rewarding</li> <li>7. I would only offer advice regarding weight control when a patient requests it</li> <li>8. I am professionally well prepared to treat patients with excess BW</li> <li>9. Health professionals hold negative attitudes towards obese patients</li> </ol> <ol style="list-style-type: none"> <li>1. Improvement in indicators of risk (waist circumference, BP, lipid profile...)</li> <li>2. Treating comorbidities like diabetes, hypertension, sleep apnoea</li> <li>3. Adoption of improved food and exercise habits irrespective of weight loss</li> <li>4. Improved body image and self confidence irrespective of weight loss</li> <li>5. Small weight loss that is sustained over time</li> <li>6. For some patients maintenance of present BW over time</li> <li>7. Weight loss to the health range (BMI20-24.9kg/m<sup>2</sup>)</li> </ol> <ol style="list-style-type: none"> <li>1. Seeing patients together with a spouse or significant other</li> </ol>	<p>Very important Quite important Not important</p>

Attitudes/opinions and beliefs about obesity and its treatment/management		
<p>GPs perceptions of the importance of different approaches to weight management and use of these approaches(T</p>	<ol style="list-style-type: none"> <li>2. Evaluating and treating eating disorders</li> <li>3. Referring patient to a nutrition specialist</li> <li>4. Referring patient to a dietitian</li> <li>5. Referring patient to a psychologist or a psychiatrist when psychological difficulties are at the forefront</li> <li>6. Remaining involved in the assessment of your patient's progress when he is referred to another health professional</li> <li>7. Reviewing your patient's progress frequently (every 3-6 weeks) for the first few months</li> <li>8. Reviewing your patients progress for several years</li> <li>9. Use of behaviour based approaches for example motivational interviewing</li> </ol>	<p>Very important Quite important Not important Usually done</p>
<p>GPs perceptions of the importance of different approaches to obesity prevention and use of these approaches (THUAN) Physicians respect for obese patients (HUIZINGA)</p>	<ol style="list-style-type: none"> <li>1. Obesity prevention should target every patient (even those with a normal BMI)</li> <li>2. Patients at risk of obesity should be the primary target of obesity prevention (family history, smoking cessation, pregnancy...)</li> <li>3. General advice to increase physical activity in daily life is a primary target of obesity prevention</li> <li>4. General advice to lower excess calories intake (through reduction of fat and alcohol intake) is a primary target of obesity</li> </ol>	<p>Strongly disagree Disagree Neutral Agree Strongly agree</p>

Attitudes/opinions and beliefs about obesity and its treatment/management		
<p>GPs attitudes towards overweight and obesity (BOCQUIER)</p>	<p>Physicians were asked to rank their level of respect for a patient</p> <ol style="list-style-type: none"> <li>1. Obesity is a disease</li> <li>2. Normal weight is important for health</li> <li>3. For overweight and obese patients even small weight loss can produce health benefits</li> <li>4. Most overweight patients should be treated for weight loss</li> <li>5. Only obese patients should be treated for weight loss</li> <li>6. Obesity management is necessary in the long term</li> <li>7. GP's role is to refer overweight and obese patients to other health professionals rather than attempt to treat them themselves</li> <li>8. GPs should be role models and maintain normal weight</li> <li>9. I feel well prepared to manage overweight and obese patients</li> <li>10. Treating overweight and obese patients is professionally gratifying</li> </ol>	<p>Usually done</p> <p>5 point Likert scale used with 2 categories created:</p> <p>Score 4-5 = high respect, much more or more than average</p> <p>Score 1-3 = Low respect average or less than average patient</p> <p>Points 1-10 used a 6 point likert scale from 1 not important to 6 extremely important</p> <p>Points 11-13 used a 4 point likert scale from not at all to strongly</p>

<b>Attitudes/opinions and beliefs about obesity and its treatment/management</b>		
<p>GPs beliefs about obesity risk factors and consequences and their perception of success in the management of weight problems (BOCQUIER)</p>	<p>11. Obese people are lazier and more self indulgent than normal weight people  12. Overweight people are lazier and more self indulgent than normal weight people  13. Only a small percentage of overweight and obese people can lose weight and maintain this lose</p> <p><b>Risk factors</b></p> <ol style="list-style-type: none"> <li>1. Eats too much fat</li> <li>2. Eats too much</li> <li>3. Eats too much sugar</li> <li>4. Insufficient physical activity</li> <li>5. Genetic factors</li> <li>6. Repeated dieting</li> <li>7. Stress, anxiety and depression</li> <li>8. Hormonal problems</li> <li>9. Low income and unemployment</li> </ol> <p><b>Consequences</b></p> <ol style="list-style-type: none"> <li>1. Medical problems</li> <li>2. Psychological problems</li> <li>3. Social problems</li> </ol> <p><b>Success indicators in weight problems management</b></p> <ol style="list-style-type: none"> <li>1. Adoption of healthier diet and exercise habits</li> <li>2. Weight loss to normal BMI</li> <li>3. Improvement of body image and self</li> </ol>	<p>Likert scale 1-6 with 1 = not important and 6 = very important. Results presented as means with standard deviations</p>

<b>Attitudes/opinions and beliefs about obesity and its treatment/management</b>		
	<p>confidence</p> <p>4. Even small weight loss but long lasting</p> <p>5. Improvement in clinical indicators</p>	
<p>Task perception health education (VISSER) (PRACTICE)</p> <p>Perception adoption of healthy behaviours and nutrition (VISSER)</p> <p>Perception of own influence on health and nutritional behaviour (VISSER)</p>	<p>I think health education is part of my task as a GP</p> <p>I think I should give attention to personal prevention in contact with patients even if the patient does not explicitly ask for it</p> <p>I think nutritional education is part of my task as a GP</p> <p>I think I should examine patients with elevated risks on disease, even if there are no complaints (preventive anticipation)</p> <p>People with health problems have difficulties adjusting their lifestyle</p> <p>People with health problems have difficulties adjusting their nutritional habits</p> <p>As a GP I have little influence on the lifestyle of people with health problems</p> <p>As a GP I have little influence on the nutritional habits of people with health problems</p>	

<b>Attitudes/opinions and beliefs about obesity and its treatment/management</b>		
<p>Attitude regarding treatment of overweight (VISSER)</p> <p>Barriers to addressing overweight (VISSER)</p>	<p>Treatment of overweight is not a waste of time I think I am successful in the treatment of overweight</p> <p>Lack of knowledge Lack of knowledge and skills Lack of training I don't feel confident on this topic</p>	
<p>Perceptions of patient's responsibilities in the treatment of adult obesity (Note the paper compared the scoring of these with physician and nurses perceptions re responsibility re dyslipidaemia, hypertension, type 2 diabetes and smoking) (JALLINOJA)</p>	<p>A key barrier to treatment is patient's insufficient knowledge of the risks of the condition</p> <p>A key barrier to treatment is patients' unwillingness to change lifestyle</p> <p>Patient's must be assign responsibility for self care</p> <p>Lifestyle change is a central part of treatment</p> <p>A person attempting to lose weight needs support from a health care professional</p>	<p>Always Nearly always Seldom Never</p>

Attitudes/opinions and beliefs about obesity and its treatment/management		
<p>Physician and nurses perceptions of their tasks in lifestyle counselling (JALLINOJA)</p>	<ol style="list-style-type: none"> <li>1. My task is to give information on lifestyle related risks</li> <li>2. My task is to motivate and support the patient in his/her lifestyle change</li> <li>3. My task is to make the patient follow the given lifestyle instructions</li> <li>4. I have sufficient skills for lifestyle counselling</li> <li>5. I feel uneasy intervening in an obese patients weight</li> <li>6. I have been able to help many of my patients to change their lifestyle to a healthier one</li> <li>7. Our current work schedule is too hectic to allow us to tackle a patient's life situation</li> </ol>	<p>Totally agree Partially agree In between Partially disagree Totally disagree</p>
<p>Views regarding various aspects of weight management (CAMPBELL)</p>	<ol style="list-style-type: none"> <li>1. Adults with a body weight within the healthy range BMI 20- 24.9kg/m<sup>2</sup> should be encouraged by GPs to maintain their weight</li> <li>2. Most adults with a body weight above the healthy range <math>\geq 25</math> should be offered treatment for weight loss</li> <li>3. Only adults who are obese BMI 30 or over should be offered treatment for weight loss</li> <li>4. Treatment of overweight should be offered when other risk factors such as type 2 diabetes are present</li> <li>5. Small weight losses can produce important medical benefits</li> <li>6. Only a small percentage of people who are</li> </ol>	<p>1= strongly disagree 2 = disagree 3 = neutral 4 = agree 5 = strongly agree</p>



Attitudes/opinions and beliefs about obesity and its treatment/management		
<p>Views of the importance of various outcomes as measures of success in weight management (CAMPBELL)</p>	<p>overweight can reduce and maintain that loss</p> <p>7. GP time would be best spent in this area by preventing overweight in the first instance</p> <p>8. Counselling patients who need to lose weight is generally professionally rewarding</p> <p>9. The best role for a GP is to refer overweight and obese patients to other health professionals rather than attempt to treat them themselves</p> <p>10. I would only offer advice regarding weight control when a patient requests it</p> <p>11. I am professionally well prepared to treat patients who are overweight 25-29.9kg.m<sup>2</sup></p> <p>12. I am professionally well prepared to treat patients who are obese BMI over 30</p> <p>13. Improvement in clinical indicators of health</p> <p>14. Adoption of improved food and exercise habits irrespective of weight loss</p> <p>15. Improved body image and self confidence irrespective of weight loss</p> <p>16. Small weight loss that is sustained over time</p> <p>17. Maintenance of present body weight over time</p> <p>18. Weight loss to a healthy range BMI20-24.9</p>	<p>Not important</p> <p>Quite important</p> <p>Very important</p> <p>(reported as % of respondents)</p>

<b>Attitudes/opinions and beliefs about obesity and its treatment/management</b>		
<p>GPs perceptions of the importance of different approaches to weight management and the use of these approaches (CAMPBELL)</p>	<ol style="list-style-type: none"> <li>1. Assessing patient's weight history</li> <li>2. Assessing patient's dietary habits</li> <li>3. Assessing patients physical activity habits</li> <li>4. Assessing patients' readiness for change at first contact</li> <li>5. Assessing the home environment for supportive structures/partner</li> <li>6. Assessing the patients' expectations of weight management/loss</li> <li>7. Assessing the patients' definition of successful outcome for weight management</li> <li>8. Seeing patients together with a spouse or significant other</li> <li>9. Referring patients to other health care professionals</li> <li>10. Reviewing your patients progress for more than 6 months</li> <li>11. Reviewing your patients' progress for more than two years</li> </ol>	<p>Perceived importance Not important Quite important Very important (Usually done (%))</p>
<p>GPs perceptions of the importance of different weight management advice and provision of this advice (CAMPBELL)</p>	<ol style="list-style-type: none"> <li>1. Specific advice to eat fewer calories</li> <li>2. Specific advice to reduce total fat intake</li> <li>3. Specific advice to reduce dairy foods</li> <li>4. Specific advice to reduce red meat</li> <li>5. Specific advice to reduce alcohol</li> <li>6. Specific advice to increase bread and cereal consumption</li> <li>7. Specific advice to increase fruit and vegetable consumption</li> <li>8. General advice to do more exercise or be</li> </ol>	<p>Perceived importance Not important Quite important Very important (Usually done (%))</p>

<b>Attitudes/opinions and beliefs about obesity and its treatment/management</b>		
	<p>more active</p> <p>9. Advice to incorporate low intensity, long duration activity such as walking into present lifestyle</p> <p>10. Practice advice regarding shopping and cooking to achieve dietary goals</p> <p>11. Advice to keep an eating awareness diary</p> <p>12. Advice to join a commercial slimming group</p> <p>13. Advice to join a community slimming group</p>	
<p>I am usually successful in helping obese patients to lose weight (VISSER)</p>		<p>1 = strongly disagree 2 = disagree 3 = somewhat agree 4 = agree 5 = strongly agree</p> <p>(this question's responses were analysed by BMI of respondent)</p>
<p>Ratings of causative factors for both overweight and obesity (HARVEY)</p> <p>(Refer to original validated questionnaires BAOP scale, ATOP scale and the AFA questionnaire)</p>	<p>Physical inactivity</p> <p>External stressors leading to overeating</p> <p>Deperssion leading to overeating</p> <p>Mood changes leading to overeating</p> <p>Interpersonal factors</p> <p>Food addiction</p> <p>Genetic factors</p> <p>Personality</p> <p>Lack of will power</p>	<p>-3 I strongly disagree -2 I moderately disagree -1 I slightly disagree +1 I slightly agree +2 I moderately agree +3 I strongly agree</p>

Attitudes/opinions and beliefs about obesity and its treatment/management		
<p>ATOP scale used in this study but slightly reworded</p>	<p>Repeated dieting  A person's socioeconomic status (add in culture)  A person's age  A person's gender  Metabolic defects  Fat cell defects</p> <p><u>ATOP below</u>  Obese people are as happy as non-obese people  Most obese people fee that they are not as good as other people  Most obese people are more self-conscious than other people  Obese workers cannot be as successful as other workers  Most non-obese people would not want to marry anyone who is obese  Severely obese people are usually untidy  Obese people are usually sociable  Most obese people are not dissatisfied with themselves  Obese people are just as self-confident as other people  Most people feel uncomfortable when they associate with obese people  Obese people are often less aggressive than</p>	<p>-3 I strongly disagree  -2 I moderately disagree  -1 I slightly disagree  +1 I slightly agree  +2 I moderately agree  +3 I strongly agree</p>

<p><b>Attitudes/opinions and beliefs about obesity and its treatment/management</b></p>		
	<p>non-obese people</p> <p>Most obese people have different personalities than non-obese people</p> <p>Very few obese people are ashamed of their weight</p> <p>Most obese people resent normal weight people</p> <p>Obese people are more emotional than non-obese people</p> <p>Obese people should not expect to lead normal lives</p> <p>Obese people are just as healthy as non-obese people</p> <p>Obese people are just as sexually attractive as non-obese people</p> <p>Obese people tend to have family problems</p> <p>One of the worst things that could happen to a person would be for him/her to become obese</p>	
<p>I believe nutrition has an important role to play in the management of disease</p> <p>If a patient is in need of healthy eating advice I can offer this</p> <p>I have been successful in treating overweight patients</p> <p>Patients are generally willing to make the dietary changes I recommend</p> <p>(MORRIS)</p>		<p>Data presented as number and percentages of those (GPs) who answered positively</p>

<b>Attitudes/opinions and beliefs about obesity and its treatment/management</b>		
<p>Prevention of obesity needs to be a greater priority than treatments</p> <p>If a patient is in need of weight loss, I can readily advice on the best method</p> <p>An overweight patient needs supportive family and friends involved in his/her treatment</p> <p>In the treatment of hypertension a low salt diet is indicated routinely</p> <p>(MORRIS)</p> <p>Morris paper provided 2 case studies</p>	<p>Case 1</p> <p>Female</p> <p>38 yrs old</p> <p>Patient for 15 yrs</p> <p>Issue of weight raised during a routine consultation</p> <p>BMI 37.2</p> <p>Tried dieting but regains weight</p> <p>Case 2</p> <p>Female</p> <p>50 yrs</p> <p>Patient for 35 yrs</p> <p>Presenting with a blood pressure of 180/105</p> <p>Weight control groups and hypnotherapy have not prevented weight gain</p>	<p>Data presented as number and percentages of those (GPs) who answered positively to statements concerning key components of the SIGN guidelines</p> <p>GPs are asked to provide a list of other professionals they would partner with in the care of each patient, provided the set of information you would record at the initial consultation and how they would define a successful intervention – BP lowering, realistic weight loss, improved quality of life etc.</p>



Attitudes/opinions and beliefs about obesity and its treatment/management		
	<p><b>Solutions to obesity</b>            Preventability of obesity            Treatability of obesity            Benefits of weight loss</p> <p><b>Reasons patients fail to lose weight</b>  <b>To what extent do you feel that failure to lose weight is due to:</b></p> <ul style="list-style-type: none"> <li>• Inadequacy of current weight loss methods</li> <li>• Patient non-compliance</li> <li>• Patient lack of motivation</li> </ul> <p><b>Outcomes of giving weight loss advice</b>            How confident are you that patients will follow the advice</p> <p>How confident are you that patients will lose weight</p> <p>Counselling self efficacy and perceived success</p>	<p>1 = not at all            7 = extremely</p> <p>1 = Not at all            7 = Completely</p> <p>1 = Not at all            7 = Completely</p>



Practices/Behaviour			
<p>Weight loss strategies recommended (PHELAN) (Also included in the Fogelman paper although list shorter)</p>	<p>Increase physical activity Reduce consumption of fast food Reduce portion sizes Reduce soda consumption Eat a low calorie diet Suggest a specific type of physical activity Recommend a specific intensity of physical activity Recommend locations to which the individual can go to engage in physical activity Decrease the fat content of the diet Refer to a dietitian for individual counselling Consume breakfast Weigh themselves regularly Use fat and / or calorie modified food Provide in office educational materials Refer to a commercial programme Follow a specific calorie goal Eat a modified low carbohydrate diet Record food intake in a diary Decrease television viewing Eat a Mediterranean diet</p>		<p>1 = minimal importance 4 moderate importance 7 = of great importance</p>



Practices/Behaviour			
Provision of 3 case studies of different BMI (ANDERSON)	<ol style="list-style-type: none"> <li>1. This person should lose weight</li> <li>2. The physician should strongly encourage this person to lose weight</li> <li>3. The physician should provide treatment and or referral to this person.</li> <li>4. The likelihood of this person maintaining long term weight loss</li> <li>5. The physician should inform the patient about the probability of maintaining long term weight loss</li> <li>6. The physician should discourage the patient from dieting and instead encourage more acceptance</li> </ol>	<p>11 possible treatment options were also provided for the 3 case studies and the respondents were asked whether each treatment was appropriate or inappropriate for 3 case studies. Options included:</p> <p>Refer to other health care professional who specialises in weight loss; refer to a dietician or nutritionist; refer to a commercial programme provider, suggest an increased frequency or intensity of physical activity, suggest a reduction in calorie intake; suggest a reduction in saturated fat intake; refer to a self help group; suggest a very low calorie diet, refer for surgery, refer to a mental health professional, prescribe medication, or option 12 - other</p>	<p>Statements 1, 2, 3, 5, 6 scored using likert scale of 1 = strongly disagree to 9 –strongly agree            Statement 4 1 = low likelihood to 9 high likelihood</p>
Strategies that would improve care for obese patients (FERRANTE)	<p>Improved access to dietitians and nutritionists</p> <p>List of community resources to refer obese patients</p> <p>Office personnel who are sensitive to their needs</p> <p>Dietitian on site</p> <p>Education on motivation skills</p> <p>Equipment/furniture that accommodated them</p> <p>Better counselling tools</p>		<p>1 not at all            2 a little            3 somewhat            4 Very            5 Crucial</p>

Practices/Behaviour			
	Case manager to help coordinate health care Education on specific examination techniques Placing scales in private area Reminder system for preventive exams Specialists who deals just with obese patients Ongoing support programmes		
Provision of patient BMI body image (BLEICH)	Respondents asked for which image they would diagnose obesity and for what image they would commence weight loss counselling		This was analysed by the physicians own BMI to provide an indication of the influence of the relationship between physician BMI and patient BMI on obesity care
GP practices in the field of adult overweight and obesity management (BOCQUIER)	<b>Diagnosis methods</b> <ol style="list-style-type: none"> <li>1. Weight without reference to height</li> <li>2. BMI</li> <li>3. Waist to hip ratio</li> <li>4. Waist circumference</li> <li>5. Comparison with ideal weight</li> <li>6. Appearance</li> </ol> <b>Weight management advice and tools</b> <ol style="list-style-type: none"> <li>1. Eat less during meals</li> <li>2. Eat less fat</li> <li>3. Don't eat between meals</li> <li>4. Eat less sugar</li> </ol>		4 point likert scale 1= Never or rarely, 2 = Sometimes, 3 = often and 4 = Always or almost always

Practices/Behaviour			
	<ol style="list-style-type: none"> <li>5. Eat more fruit and vegetables</li> <li>6. Consume fewer caloric drinks</li> <li>7. Definitely avoid specific foods</li> <li>8. Follow a personalised low calorie diet</li> <li>9. Follow a commercial diet</li> <li>10. Exercise</li> <li>11. Do more exercise in every day life</li> <li>12. Leaflets on healthy behaviour</li> <li>13. Food diary</li> <li>14. Nutritional education</li> </ol>		
<p>Objectives and strategies in the field of overweight and obesity management (BOCQUIER)</p>	<p><b>Usual weight loss objective for overweight and obesity management</b></p> <ol style="list-style-type: none"> <li>1. No weight gain</li> <li>2. Weight loss of 5-15% of initial weight and its maintenance</li> <li>3. Weight loss of greater than 15% of initial weight and its maintenance</li> <li>4. Weight loss to the normal BMI range</li> </ol> <p><b>Management strategies</b></p> <ol style="list-style-type: none"> <li>1. Drug treatment</li> <li>2. Behavioural therapy</li> <li>3. Inclusion of a spouse or a</li> </ol>		<p>4 point likert scale with 1 = never or rarely to 4 = always or almost always</p>

Practices/Behaviour			
	close relative in the management		
Noticing patients overweight and provision of guidance of treatment (VISSER)	<p>How often do you notice your patients weight</p> <p>If I think someone should lose weight, I always discuss what might be the causes of their overweight</p> <p>If I think someone should lose weight, I always discuss the best way</p> <p>If I think someone should lose weight and they don't want to I always point to the health risks</p> <p>I advise all heavy patients to lose weight</p> <p>I advise patients with overweight to lose weight only if their complaint or disease indicates to slim</p>		<p>1=never 6 = always</p> <p>1 = not applicable 4 = fully applicable</p> <p>1 = not applicable 4 = fully applicable</p> <p>1 = not applicable 4 = fully applicable</p> <p>1 = not applicable 4 = fully applicable</p> <p>1 = not applicable 4 = fully applicable</p>
When you see an overweight patient in clinic, how often do you raise the issue of being overweight? (MICHIE) Questionnaire also included open	When there is no identified medical problem	100% 80% 50% 20% 0%	

Practices/Behaviour			
ended questions about how they raise the issue, and whether the respondents had any concerns about raising the issue	When there is an identified medical problem	100% 80% 50% 20% 0%	

# Appendix I: Analysis of the questions from the survey

## Section one

### Question 1.1

This will be analysed by the following variables:

- GP/PN
- Age
- Self reported BMI
- Self reported level of physical activity
- Years of working in general practice

Why: all the listed variables may impact on whether or not this is viewed as a facet of the role of the GP or PN.

### Question 1.2

This will be analysed by the following variables:

- GP/PN
- Female GP/Male GP
- Years working in general practice

Why: all the variables listed may impact on the perception of the individual regarding the importance of weight management within their practice



## Section two

### Question 2.1

This will be analysed by the following variables:

- GP/PN
- Age

Why: the different professional groups may have different educational experiences related to weight management and this experience may also differ by age of the person as obesity only started to become a population issue in the mid 1980s.

### Question 2.2

This will be analysed by the following variables:

- GP/PN
- Age
- Questions 2.4 and 2.6

Why: knowledge may vary across professional groups and with age. Also those who have attended CME or use guidelines more may feel more knowledgeable.

### Question 2.3

This will be analysed by the following variables:

- GP/PN
- Gender
- Questions 2.4 and 2.6

Why: competence may vary by professional grouping, also one or other gender may feel more able to provide counselling to men of a significantly higher weight.

Competency may also be related to attendance at CME as well as awareness and understanding of guideline content.

#### Question 2.4

This will be analysed by the following variables:

- GP/PN
- Age
- Self reported BMI and physical activity level

Why: Professional groups may have differing levels of attendance, younger GPs and PNs maybe more aware of the issue of obesity and may be more likely to attend.

The lifestyle of the health professional as measured by the surrogate markers of BMI and physical activity level may impact on their decision to attend or not.

#### Question 2.5

This will be analysed by the following variables:

- GP/PN
- Age

Why: these two variables may show differing levels of awareness related to the challenges of examining a person of a significantly higher weight. Nurse may be less inclined to attend such as session as they may feel they are less likely to be called upon to examine a person of significantly higher weight.

#### Question 2.6

This will be analysed by the following variables:

- GP/PN

- Question 1.2

Why: it is well established that nurses are more likely to follow guidelines than doctors so it will be interesting in this case to see if that holds true. Also the level of priority given to obesity management and prevention within a practice may also relate to awareness of the guidelines.

### **Section three**

#### Question 3.1

This will be analysed by the following variables:

- GP/PN
- Ethnicity
- Age
- By self reported BMI and physical activity level (questions 6.6 and 6.7)
- By dieting history and method (questions 6.8 and 6.9)

Why: a person's professional group may influence their views regarding the causes of obesity as may their ethnicity. Potentially older individuals may have differing views and the views of those of a higher BMI and/or are less active may differ from those within a normal BMI and or who are active. In addition those who have dieted in the past may also hold differing views from those who haven't dieted.

#### Question 3.2

This will be analysed by the following variables:

- By GP/PN
- Age
- Gender

- By question 3.3
- By self-reported BMI and physical activity level (questions 6.6 and 6.7)
- By dieting history (question 6.8)

Why: The concept that the health professional should be a role model for their patient could well differ between professional groups, the age of the respondent and their gender. It may also differ by the BMI and physical activity level of the individual as well as their dieting history experience. Note this question hasn't been asked in the literature, however, through 10 years of experience as a cardiac rehabilitation nurse I am aware there was an expectation from the patients and other staff that I would eat healthily and be physically active. In addition those who think patients are as likely to trust advice from an overweight or obese GP/PN may be less likely to think they ought to be role models.

### Question 3.3

This will be analysed by the following variables:

- GP/PN
- Self-reported BMI
- By 3.2

Why: GPs and PNs may hold differing views regarding whether or not a patient would trust weight loss advice from an overweight or obese GP or PN. In addition those who self report a raised BMI may also hold views that differ from those within the normal BMI range (may have to analyse by overweight, class1 and class2 obese). Those who do not think GP/PNs need to be role models may also hold views that differ from those who think they should.

### Question 3.4

This will be analysed by the following variables:

- GP/PN
- Gender
- Self-reported BMI
- By awareness of guidelines – question 2.6
- By self-reported previous attempts to lose weight

Why: views on the benefits of the weight management goals may vary dependent on professional grouping, possibly by gender and self reported BMI. If a person is aware of the guidelines you would assume they would tick boxes related to goals documented in the guidelines. Those who have previously tried to lose weight may also hold different views about goals.

### Question 3.5

This will be analysed by the following variables:

- GP/PN
- Gender
- Age
- Years working in general practice

Why: responses may vary by professional grouping or gender. Older individuals as well as those who have working in general practice for longer may hold more pragmatic views compared to those who are younger or less experience in the sector.

### Question 3.6

This will be analysed by the following variables:

- GP/PN
- Gender
- Age
- Ethnicity
- By self reported BMI and physical activity level

Why: responses may vary due to one or other professional group being more critical.

Those of the same gender may be more critical than those of the opposite gender.

Those of an ethnicity that is not dominant ethnicity may hold less pejorative views compared to the dominant group, as may those who are themselves overweight or obese. Older professionals maybe less judgemental than those who are younger.

#### Question 3.7

This will be analysed by the following variables:

- GP/PN
- By attendance at CME/CNE/learning activity session

Why: awareness of the complications may vary by professional group or by those who have attended further education on obesity compared to those who have not.

#### Question 3.8

This will be analysed by the following variables:

GP/PN

The views of physicians in the current literature are mixed but show a tendency to consider obesity as a chronic condition. The views of PNs in relation to whether or not they consider it to be a disease has not been assessed in the current literature.

## Section four

### Question 4.1

This will be analysed by the following variables:

- GP/PN
- Gender
- By attendance at CME/CNE/learning activity session
- By awareness of examination techniques for the obese individual

Why: one or other professional grouping may be more or less confident in taking measurements, females may be less likely to feel comfortable taking personal body measurements of men of a significantly higher weight. Those who have attended further education maybe more aware of the importance of one or more of the measurements and those who have been trained in examination techniques for obese males may feel more comfortable in taking the measurements.

### Question 4.2

This will be analysed by the following variables:

- GP/PN
- By attendance at CME/CNE/learning activity session
- By awareness of the guideline

Why: views and beliefs may vary depending on professional group, whether the individual has attended a CME/CNE session or whether or not the individual is aware of the recommendations within the current guidelines.

#### Question 4.3

This will be analysed by the following variables:

- GP/PN
- Gender
- By self reported BMI and physical activity level
- By attendance at CME/CNE/learning activity session
- By workload (question 5.1)

Why: awareness of when to raise the issue of weight may vary by all the variables listed. The current literature in particular cites the weight of the health professional as a key driver of whether a patient's weight is raised during a consultation. Those practitioners with a higher workload maybe less likely to tick as many yes options.

#### Question 4.4

This will be analysed by the following variables:

- GP/PN
- By length of time working in general practice
- By age

Why: opinions may differ by professional group. Those who are older or who have worked in general practice longer may have a more pragmatic attitude.

#### Question 4.5

This will be analysed by the following variables:

- GP/PN
- Ethnicity
- Gender



Why: views of the two professional groups may vary as might the views of male and female health professionals. Those health professionals whose ethnicity is different from the dominant ethnic group may hold different views to their counter parts who belong to the dominant group.



7. Was the survey easy to follow? No  Yes

8. Format of the survey.

a. Would you prefer the survey double sided with a staple in the left hand top corner (same as you have now)? No  Yes

b. Would you prefer the survey single sided with a staple in the left hand top corner? No  Yes

c. Would you prefer the survey in booklet form? No  Yes

9. If the survey was printed on coloured paper would you be less likely to forget to complete it/lose it in your in-tray? No  Yes

10. If there was an incentive linked to this survey what would be your preference?  
Please tick one of the options.

a. Entry into a draw to win \$500 fuel vouchers?

b. All respondents to receive a \$5 Robert Harris (or similar) voucher on return of a completed survey.

c. A \$5 Robert Harris (or similar) voucher to be sent out with the initial survey

d. Ability to nominate one of three charities, for example a food bank in Christchurch, the SPCA or the National Heart Foundation to receive a \$5 on your behalf?

e. Other  Please specify:

## Appendix K: Usability assessment feedback

Thirty-two participants (general practitioners, practice nurses, rural nurse specialists or nurse practitioner) completed the survey and the usability assessment form. Not all participants completed each of the usability form questions.

1. *How did you find the length of the survey?* OK 59.4% (n=19); Too long 22% (n=7); did not answer 19% (n=6)
  
2. *Were there any questions you did not feel comfortable answering?* No 40.6% (n=13); Yes 25% (n=8); did not answer 34% (n=11)
  - a. If yes, which ones
    - Questions 4.4 and 3.6. Didn't understand some questions e.g. 3.1 and last three.
    - 3.6
    - 3.5 and 3.6 – I don't like generalisations
    - 3.4 importance to whom? For what? –confusion. And maintenance of present body weight strange option, they are obese!. 3.6 do you want my perceptions?
    - 3.6 Unsure of actual question and it required answers I didn't think were necessary
    - Section 1 and section 5
  - b. Why did you feel uncomfortable answering this/these questions?
    - Didn't really know the answers and so felt like I was guessing
    - Can only be answered by reference to stereotypes, therefore borders on meaningless.
    - 3.6 requires me to make a judgement, I would like to think I don't make them, I don't think of people as fat or not. Assumes I do. 3.7 – do you mean “increased risk” or “difference in risk – need to define for clarity. But question 4.3 it was obvious to me that best practice is yes.
  
3. *Do the answer choices fit with your experience in the matter?* No 9% (n=3); yes 50% (n=16); did not answer 41% (n=13)

- a. If no, which questions contained answer choices that did not fit with your experience; please list.
- Very small proportion of Maori and Pacific Islanders in my practice. I work in isolation and I can't offer services that are not there.
  - Question 3.1 I have no idea what "the built environment is or means similarly food insecurity which had no boxes by it to tick.
  - Question 3.7 headings need to be changed to high risk .....low risk
  - Question 3.4 BMI 29 = recovery from obesity
4. *Do any of the questions require you to think too long or hard before responding?* No 56% (n=18); Yes 9% (n=3); did not answer 34% (n=11)
- 3.6, 4.4 and 3.5. Also not clear if pharmaceuticals are safe, available etc.
  - 5.1 – probably a meaningless guesstimate and even if I was at medtech we do not reliably code for overweight/obesity
5. *Have any other important issues been overlooked?* No 47% (n=15); Yes 16% (n=5); did not answer 38% (n=12)
- a. If yes, please specify what.
- Addressed ethnicity issues but only touched on resources to manage the problem.
  - The psychology of weight loss. Not necessarily overlooked however I feel its importance wasn't well represented.
  - The socio-economic resources of the patient.
  - Food addiction
  - What resources are currently available in the practice for examination and education.
  - Consideration of whether obesity is a disease or not.
6. *Were the instructions clear?* No 6% (n=2); Yes 56% (n=18); did not answer 38% (n=12)
- a. If no, which instructions were unclear?
- i. Generally yes, took a while to understand the term likert, probably don't need to name it.

- ii. 3.6 is that my personal view of the patient or my view of the patients likely assessment? Probably a bit meaningless if the latter.
- iii. 3.6 took a little bit long to work out how the rating went as the format was slightly different
- iv. The answers/options were too many in some cases i.e.3.6 and 4.5.
- v. Question 5.6 needs % not boxes and 5.7 √ or x how to answer
- vi. Difficult to see which box immediately not close enough to question
- vii. Question 2.2 change option surgical techniques for weight loss to surgical options for weight loss
- viii. 3.1 change current main stem to, please rate the extent to which you think these factors contribute to obesity.
- ix. Option one under question 3.5 should read, dealing with obesity and weight loss in men is professionally frustrating.
- x. Question 3.7 need to reword the current main stem.
- xi. Question 4.3, last option doesn't follow on perhaps reword as, not with new male patients.
- xii. Question 4.5 the option the option, funding to support attendance at commercial weight loss programmes or at a gym could be considered as two separate options
- xiii. Question 6.11 are very low calorie diets and meal replacements the same thing?

**Note feedback vii to xiii all from one person**

- 7. *Was the survey easy to follow?* No 0%; Yes 56% (n=18); did not answer yes or no 43% (n=14)
- 8. Format of the survey.
  - a. Would you prefer the survey double sided with a staple in the left hand top corner (same as you have now)? No 12% (n=4), Yes 38% (n=12)
  - b. Would you prefer the survey single sided with a staple in the left hand top corner? No 31% (n=10), Yes 9% (n=3)
  - c. Would you prefer the survey in booklet form? No 31% (n=10), Yes 9% (n=3)

9. *If the survey was printed on coloured paper would you be less likely to forget to complete it/lose it in your in-tray?* No 25% (n=8); Yes 16% (n=5); did not answer 63% (n=20)

- Possibly e-mail the survey with reminders or send to administrator to give out and collect in envelope and return.

10. If there was an incentive linked to this survey what would be your preference?  
Please tick one of the options.

The preferred option was option d, Ability to nominate one of three charities, for example a food bank in Christchurch, the SPCA or the National Heart Foundation to receive a \$5 on your behalf?

Feedback on this question also included the following:

- A combination of both c, a \$5 Robert Harris or similar voucher to be sent out with initial survey and d, see above;
- D option is a nice idea but it would depend on the charities listed as options

11. Other comments

- a. Need brief introduction to the survey and that some are attitudinal questions, therefore no right or wrong answers;
- b. Good to do it as part of a CME session as we did as time has already been given;
- c. Enjoyed the process, survey of own beliefs and knowledge and then ability to compare with the literature;
- d. I wonder if you are trying to cover too much – knowledge and attitudes rather than one or the other. But good luck with it anyway;
- e. Use word scale and not phrase, likert scale;
- f. After all relevant questions add other and please specify;
- g. Could some items be collapsed?

## Appendix L1: Recruitment poster West Coast

**Belt getting tighter? Clothes not fitting as well? Not happy with your weight? Is your shape closer to the orange and red shapes? If you have answered yes to these questions and you are male, aged 18 years or older, we would like to hear from you.**



This University of Otago study is seeking to understand various aspects of living life as a “big” man in New Zealand today.

If you think you can assist us, Fiona is going to be in the Hokitika and Greymouth areas on 19<sup>th</sup>, 20<sup>th</sup>, 21<sup>st</sup> to 22<sup>nd</sup> November. Please contact Fiona on 021 372 328 or e-mail on [fiona.doolan-noble@otago.ac.nz](mailto:fiona.doolan-noble@otago.ac.nz) to arrange an interview. It is anticipated interviews will take approximately 45-60mins and you will receive a token of appreciation for your time.

Who are we? Fiona Doolan-Noble is a PhD candidate and former Hokitika resident. She is supervised by Dr Tom Love, Professor Tony Dowell and Associate Professor Sue Pullon.





## Appendix L2: Recruitment poster Auckland

# BIG MAN - WE WANT TO HEAR YOUR THOUGHTS



- **Receive a \$30 FUEL VOUCHER!**
- Talk to a researcher over the phone for 45-60 minutes
- Answer **15 questions** about what it is like to be an overweight adult male in New Zealand
- 100% private and fully confidential
- To find out if you qualify call/text Dane Fuller on 021 117 67 17



# Appendix M: Interviewee Consent Form



Department of Primary Health Care and General Practice  
School of Medicine and Health Sciences  
University of Otago  
Wellington

An exploratory study of how the attitudes and beliefs of health professionals in general practice regarding obesity affect the care provided to, and the experiences of New Zealand men who are significantly overweight.

## Interviewee Consent Form

- I have read and understood the Information Sheet provided for participants taking part in this exploratory study designed to look how the attitudes and beliefs of health professionals in general practice impact on the care provided to and the experiences of New Zealand men who are overweight.
- I have had the opportunity to have the details of the study explained to me.
- Any questions I have had, have been answered to my satisfaction
- I understand that all information and identities will be kept confidential in written reports, in all published documents and by other parties involved in the research
- I understand that the transcript of this interview will initially be kept in password protected files on the researcher's computer and then in a secure archive at Wellington School of Medicine for ten years following completion of the research after which time they will be destroyed.
- I understand that taking part in this study is voluntary and that I may withdraw at any time

I understand that I may ask further questions at any time and I know who to contact to do so.

I.....(Full Name) hereby consent to take part in this study

Signature: .....Date:.....

Project explained by: .....

Project role:.....

Signature: .....Date:.....

Researcher: Fiona Doolan-Noble, 021 372 328 or [fionadn@xtra.co.nz](mailto:fionadn@xtra.co.nz)

# Appendix N: Interview Participant's Information Sheet

## Participant Information Sheet

---

You are invited to take part in a research study as part of a PhD thesis. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss with others if you wish. Please ask if there is anything that is not clear or if you would like more information.

### **Who is conducting the research?**

Fiona Doolan-Noble, PhD Candidate at the Department of Primary Health Care and General Practice, University of Otago, Wellington.

### **Who will supervise the research?**

This piece of research is co-supervised by:

- Dr. Thomas Love, Department of Primary Health Care and General Practice, University of Otago, Wellington
- Dr. Sue Pullon, Department of Primary Health Care and General Practice, University of Otago, Wellington
- Professor Tony Dowell, Department of Primary Health Care and General Practice, University of Otago, Wellington

### **Title of the Research**

How do the attitudes and beliefs of health professionals in general practice regarding obesity affect the care provided to, and the experience of New Zealand men who are overweight?

### **Why have I been invited?**

You have been invited to take part as you responded to an advert or you were approached by the researcher as you met the criteria for possible inclusion.

### **What would I be asked to do if I took part?**

You will be invited to take part in an interview that will last between 45-60 minutes. The interviewer will ask a variety of questions related to what it is like living as a large man in New Zealand and about your experiences of interacting with your general practitioner or practice nurse.

### **What happens to the data collected?**

The discussion will be electronically recorded, transcribed and studied. Transcripts will initially be kept in password protected files on the researcher's computer and then in a secure archive at Wellington School of Medicine for ten years, after which time they will be destroyed by a university approved destruction service.

### **Can I get to see the transcription?**

Yes, the researcher (Fiona) will be happy e-mail the transcription to you if you wish.

**How is confidentiality maintained?**

No identifiable data is kept with the transcriptions.

**What happens if I do not want to take part or if I change my mind?**

It is up to you to decide whether or not to take part. If you decide to take part you are still free to withdraw at any time without giving a reason.

**Will I be paid for participating in the research?**

A gift voucher will be provided to all participants.

**Will the outcomes of the research be published?**

The research will be published.

**Who has reviewed the proposal?**

The research proposal has been reviewed and approved by the Department of Primary Health Care and General Practice, University of Otago, Wellington.

**Ethical approval**

Ethical approval for this study was given by the Multi Region Ethics Committee. The study reference number is MEC/12/EXP/041

**Complaints**

If you have any queries about the research you would prefer to raise with someone other than the researcher, you should contact either of the co-supervisors. Contact details for the co-supervisors are:

- Dr. Tom Love, 021 440 334, [tlove@srgexpert.com](mailto:tlove@srgexpert.com)
- Dr. Sue Pullon, 027 4368 621, [sue.pullon@otago.ac.nz](mailto:sue.pullon@otago.ac.nz)
- Professor Tony Dowell, 021 270 1617, [tony.dowell@otago.ac.nz](mailto:tony.dowell@otago.ac.nz)

**Contact for further information**

Fiona Doolan-Noble, 6 Thornicroft Road, RD2, Waitati, Dunedin. Cell-phone: 021 372 328. E-mail: [fionadn@xtra.co.nz](mailto:fionadn@xtra.co.nz)

Thank you for considering being part of this research study. If you take part in the study you will be provided with a copy of this participant information sheet and a copy of your signed consent form.

## **Appendix O: Interview guide**

- Introduce self, role in research and place of interviews within the study.
- Ask if the participant has any further questions;
- Get participant to complete demographic information sheet;
- Collect consent form from participant;
- Explain use of digital recorder;
- Reassure participants that no one will be identified in the thesis or within any papers published as a result of this aspect of the study.

	Questions	Prompts	Observations/Reflections
1	Can you tell me what is positive about being a “big” man in New Zealand today?	Sports Employment	
2	So if those are the good things, are there aspects that are not so good?	Health Appearance Clothing (added following piloting of interview schedule)	
3	How satisfied are you with your current size and body shape?	Do you like your size but wish you how your body was put together (composition) was different?	
4	Has your general practitioner or practice nurse ever discussed your weight with you?	<p>How was that for you?</p> <p>Did they raise the topic of your weight in relation to other health care interventions such as a cardiovascular risk assessment, was it raised in relation to why you were having a consultation or was it just brought up in the conversation?</p> <p>Did they take any measurements? For example your height/weight/waist circumference? How was that for you?</p> <p>Do you think it is appropriate for your general practitioner or practice nurse to discuss your weight with you?</p> <p>How did they refer to your weight? (Weight, excess weight, fat, obesity)</p> <p>Did they offer you any advice and if yes what was it and was it useful?</p>	

	Questions	Prompts	Observations/Reflections
		Did they offer you any support and if yes what was it?	
5	Views regarding GPs and PNs	Do you think your GP and practice nurse should be good role models by maintaining a healthy weight and exercising regularly?  If an overweight GP or PN gave you advice to lose weight would you trust that advice?	
6	Has your general practice got the equipment/furniture of the right size to meet your needs?	BP cuffs Scales Examination tables Chairs without arms (Note this question may not be relevant dependent on the size of men interviewed)	
7	Have you ever had an experience when someone has made you feel humiliated because of your weight?	Can you tell me about that experience?  Have you ever experienced a humiliating situation within a health care setting?  If yes can you tell us about that, for example how did it leave you feeling/has it put you off seeking health care?	
8	Can you tell me at what stage in your life did you first notice you were gaining weight?	Try to establish if weight gain happened at a point of social transition – leaving home; first full time job; getting married; starting a family.	
9	At that time what do you think caused your weight gain?	Eating too much Lack of opportunity to exercise Eating the wrong foods Too much alcohol	

	Questions	Prompts	Observations/Reflections
		<p>Lack of understanding around what you were eating</p> <p>Lack of ability to afford healthy kai</p> <p>The environment not being conducive to maintaining a healthy weight – too many fast food outlets or lack of opportunities to be physically active</p> <p>Personal factors – lack of motivation, will power</p>	
10	Do you think carrying excess weight has any negative consequences on your health?	<p>Physically</p> <p>Mentally</p> <p>Socially</p>	
11	Since gaining weight have you ever tried to lose weight?	<p>What motivated you to try? Explore desire to be more athletic, look good, health concern or other.</p> <p>How did you try to lose weight? Explore whether they joined a commercial weight loss programme, (&amp; if not why not; is it perceived as a women's thing) did they join a gym; did they do it alone or did they enlist support and if so from whom?</p> <p>What strategies were involved – increased physical activity, restrictive eating, reducing fat and or alcohol intake?</p> <p>What were your goals in relation to addressing your weight? (Improved body image; to generally improve lifestyle; to get weight to a normal BMI; to improve a health problem or to stop gaining weight)</p>	
12	If you haven't tried to lose weight is it because you are happy with your size and shape or are there barriers that seem difficult to overcome?	<p>Could you tell me about the barriers?</p>	



	<b>Questions</b>	<b>Prompts</b>	<b>Observations/Reflections</b>
13	What features would a weight loss programme have to offer to attract you to consider taking part?	If unsure provide examples from programmes that have targeted men and explore.	
14	What are the current recommendations regarding a healthy diet and the frequency and length of time you should be physically active for each day?	Do these messages connect with you or not?	
15	Overall who do you think is responsible for your health and well-being?	Explore response.	

Is there any other aspect of your life as a big man that you think is pertinent to this research and we have not discussed?

Thank you for your time.

## **Appendix P: Possible questions for focus group and associated rationale**

	<b>Draft questions for interviews</b>	<b>Prompts</b>	<b>Rational for question</b>
1	How satisfied are you with your current size and body shape?	For example do you like your size but wish you were more muscular?	Men's body image perception is multidimensional, in that men not only consider the size of their body's but also its composition, muscularity versus adiposity
2	Can you tell me what are the good things about being a "big" man in New Zealand today?	The term big man is present in the sociological literature	The sociological literature points to men preference for being larger in that it is associated with presence, strength and power. Also we don't know if there are any other positives men feel are associated with being large.
3	So if those are the good things, what are the not so good things?		With this question keen to see if men raise health concerns including HRQoL, mental health issues, stigmatisation and whether their size limits them in any way.
4	Do you think health promotion messages around healthy eating and physical activity are relevant to men?		Literature suggests that most men are cynical re such messages and frequently don't believe them.
5	Can you tell me at what stage in your life did you first notice you were gaining weight?	Try to establish if weight gain happened at a point of social transition – leaving home; first full time job; getting married; starting a family.	The literature discusses these times of social transition as when men remember gaining weight
6	At that time what do you think caused your weight gain?	Eating too much Lack of opportunity to exercise Eating the wrong foods Too much alcohol Lack of understanding around what you were eating Lack of ability to afford healthy kai The environment not being conducive to maintaining a healthy weight – too many fast food outlets or lack of opportunities to be physically active Personal factors – lack of motivation, will power	Men mainly blame weight gain on decreases of physical activity

	<b>Draft questions for interviews</b>	<b>Prompts</b>	<b>Rational for question</b>
7	Do you think carrying excess weight has any negative consequences on your health?	Physically Mentally Socially	The literature points to men having a limited understanding of the consequences of excess weight?
8	Since gaining weight have you ever tried to lose weight?	<p>What motivated you to try? Explore desire to be more athletic, look good, health concern or other.</p> <p>How did you try to lose weight? Explore whether they joined a commercial weight loss programme, (&amp; if not why not; is it perceived as a women's thing) did they join a gym; did they do it alone or did they enlist support and if so from whom?</p> <p>What strategies were involved – increased physical activity, restrictive eating, reducing fat and or alcohol intake?</p> <p>What were your goals in relation to addressing your weight? (Improved body image; to generally improve lifestyle; to get weight to a normal BMI; to improve a health problem or to stop gaining weight)</p>	<p>Motivators to lose weight vary by age with men.</p> <p>The literature states that men are less likely to join a group or enlist support.</p> <p>Men tend to focus on increasing physical activity.</p> <p>Men tend to focus on the functionality of their body</p>
9	If you haven't tried to lose weight is it because you are happy with your size and shape or are there barriers that seem difficult to overcome and if so could you tell me what these are?		The literature suggests that dieting is perceived as a female activity and men are not comfortable with the group format

	<b>Draft questions for interviews</b>	<b>Prompts</b>	<b>Rational for question</b>
10	Has your general practitioner or practice nurse ever discussed your weight with you?	<p>How was that for you?</p> <p>Did they raise the topic of your weight in relation to other health care interventions such as a cardiovascular risk assessment, was it raised in relation to why you were having a consultation or was it just brought up in the conversation?</p> <p>Did they take any measurements? For example your height/weight/waist circumference? How was that for you?</p> <p>Do you think it is appropriate for your general practitioner or practice nurse to discuss your weight with you?</p> <p>How did they refer to your weight? (Weight, excess weight, fat, obesity)</p> <p>Did they offer you any advice and if yes what was it and was it useful?</p> <p>Did they offer you any support and if yes what was it?</p> <p>Do you think it is appropriate that your GP or nurse talks to you about your weight?</p>	<p>The literature suggests that primary care health professionals usually wait to discuss weight till there is a weight related comorbidity or the person has become obese.</p> <p>The words used are very relevant as words such as obese and fat have less acceptance than weight or excess weight</p> <p>Women talk about advice being given but nothing that they hadn't tried before themselves.</p>

	<b>Draft questions for interviews</b>	<b>Prompts</b>	<b>Rational for question</b>
11	Views regarding GPs and PNs	Do you think your GP and practice nurse should be good role models by maintaining a healthy weight and exercising regularly?  If an overweight GP or PN gave you advice to lose weight would you trust that advice?	
12	Has your general practice got the equipment/furniture of the right size to meet your needs?	BP cuffs Scales Examination tables Chairs without arms (Note this question may not be relevant dependent on the size of men interviewed)	With 70% of NZ men being overweight or obese general practice needs to have equipment and furniture that can meet their needs. The responses to the survey suggest this is not always the case.
13	Have you ever had an experience when someone has made you feel humiliated because of your weight?	Can you tell me about that experience?  Have you ever experienced a humiliating situation within a health care setting?  If yes can you tell us about that, for example how did it leave you feeling/has it put you off seeking health care?	We know nothing about obese men's experience of stigma in relation to primary care
14	What features would a weight loss programme have to offer to attract you to consider taking part?	Support to increase your physical activity; support with nutrition; understanding food labels etc  Would you want to have support provided: One on one – face to face, or via the internet In a group programme with other men In your work place Within your family group	There is some evidence emerging from Australia and UK re different acceptable approaches to the provision of weight management interventions for men.
15	Overall who do you think is responsible for your health and well-being?		Literature suggests that men think they are.

## Appendix Q: Poster for focus group

**Belt getting tighter? Clothes not fitting as well? Not happy with your weight? If this describes you and you are male, aged 18 years or older, we would like to hear from you.**



This University of Otago study is seeking to understand various aspects of living as a large man in New Zealand today.

To date the experiences of large women have been well documented but this is not the case for large men.

We would like to invite you to assist us in developing questions that are appropriate and acceptable to men like you and would assist us to understand life for large men.

Who are we? Fiona Doolan-Noble is a PhD student & Dane Fuller is an experienced focus group facilitator and

For more information please contact Fiona on: 021 372 328



## Appendix R: Demographic collection sheet for interviews

### Information about you

**Age range:** please tick the appropriate box

18-24 yrs	
25-34yrs	
35-44 yrs	
45-54 yrs	
55-64 yrs	
65-74 yrs	
75+ yrs	

**Education** Where did you finish your education? Please tick one

High school	
Trade school	
Polytechnic	
University	

**Other; please specify:**.....

**Occupation:**.....

**Marital status:** please tick one of the boxes below.

- Single/divorced/widower
- Married/co-habiting no children
- Married/co-habiting with children

**Ethnicity** (you may state more than one).....

**Your size**

- Height (in feet and inches or cms):.....
- Weight (in stones and pounds or kilograms):.....

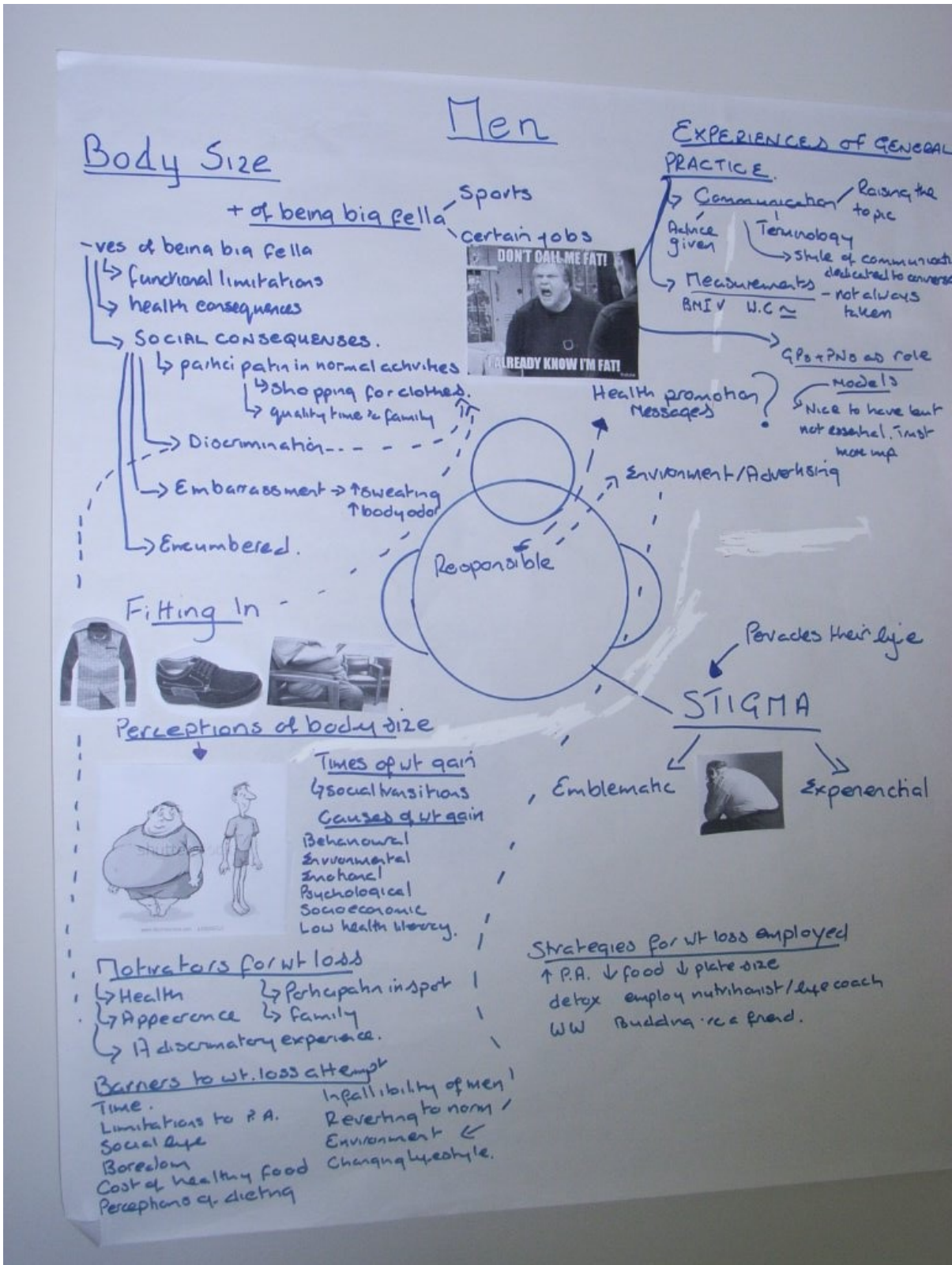


## Appendix S: Emergent key points

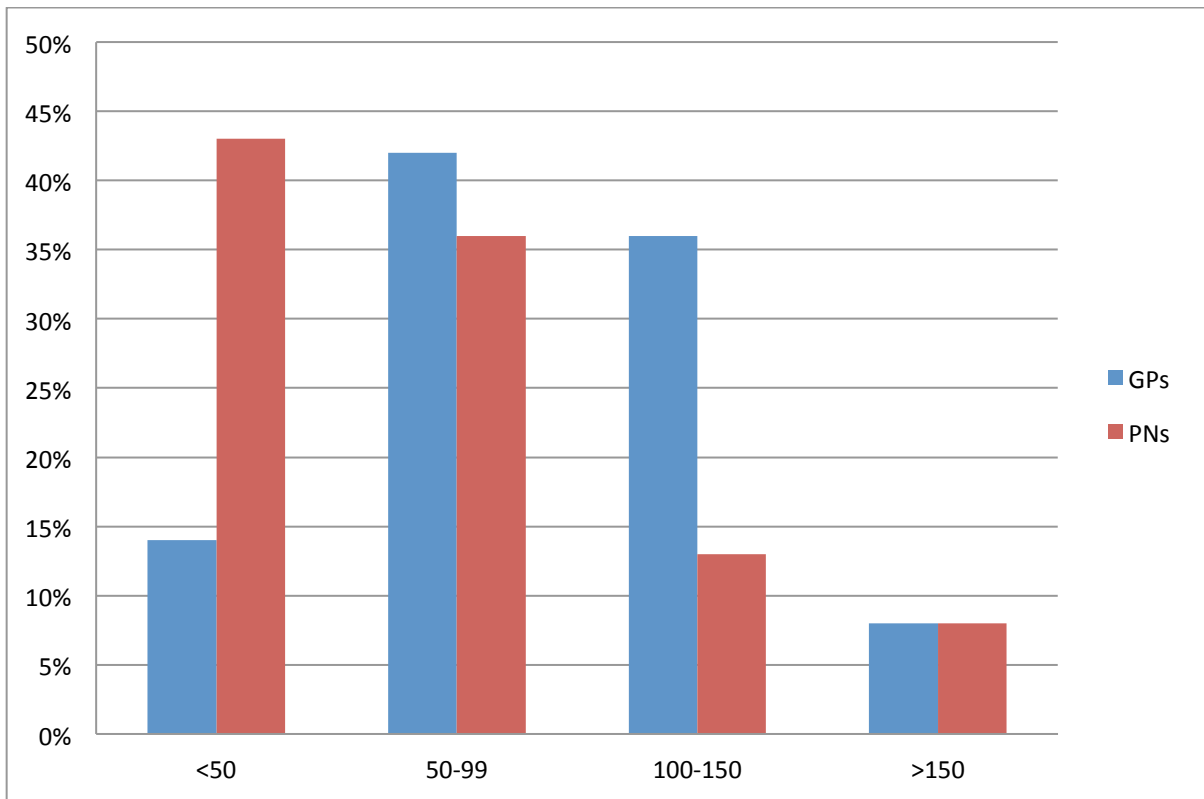
- Their weight is their responsibility and their fault and no one else is to blame = buck stops with me. This sits alongside a general consensus (but not entire agreement) that government should not intervene with fat tax, removing GST of healthy food etc;
- Not too bothered about the size of the GP or PN as long as their advice is sound;
- Restrictive eating is not attractive to men but for those who have tried to lose weight there is a realisation that restrictive eating is necessary as you have to do a lot of exercise to lose the same amount of weight;
- Size was seen as a positive for some jobs that required strength and presence – gaoler; fencer etc;
- Most didn't see any benefits to being big, felt it was associated with negative status and you were viewed as being unhealthy;
- Long work days, a focus on being provider for a family meant less time for self and focusing on own health;
- Negative physical consequences that emerged that I haven't seen in the literature were around things that make exercise more difficult such as chaffing and rubbing, men spoke about the increased problem of sweating and smelling more when you were larger and feeling self-conscious about that. The embarrassment about going swimming when you are larger was also mentioned;
- Lethargy was also frequently mentioned as was huffing and puffing;
- There was a strong theme about not thinking about their weight or size and frequently getting a surprise when they saw a photograph and realised how much bigger they were than those around them;
- All found it difficult to articulate what they would want from a weight loss programme;
- While some could recall health promotion messages related to nutrition and physical activity, these messages were not felt to resonate with men;

- A mixed response to the issue of stigma and the impact of jocular comments from mates;
- When you are large people feel they have the right to comment on your size as it is visible; poke you in the tummy when you are playing pool;
- Some didn't mind the GP calling them fat as they felt that was what they were;
- Practical issues that were mentioned were buying clothes and shoes; finding cars to accommodate your size and the amount of space your clothes took up/weighed when you travelled;
- A couple of the interviewees spoke about using food for comfort in times of stress and this surprised me as I thought comfort eating was a female practice;
- The other overwhelming sense I got supplemented by a few off the cuff comments from the men and supported by the literature is that men don't think about health and even less about their weight, though most agreed there was increasing pressure from society to be seen as healthy and therefore not overweight. They didn't feel any need to look like the males on the covers of Men's Health;
- One man spoke of inability to access life insurance due to BMI;
- Generally feel indestructible and it is not until health issues emerge that you contemplate you might not be.

# Appendix T: Original mind map of themes from interviews



## Appendix U: Number of patients seen weekly by responding GPs and PNs



**Appendix V: Questions where analysis by gender and BMI  
resulted in statistical differences within GP cohort**

**Table V.1: Questions where analysis by gender resulted in statistical difference**

Question	Males N (%)	Male GP Mean	Females N (%)	Female GP mean	Difference in mean score	Confidence limits around mean difference	Median value	P-value
GPs who agreed or strongly agreed that individuals are responsible for their obesity and therefore the management of their weight loss	220 (71.4)	3.873	200 (67.6)	3.689	-0.184	-0.346 -0.022	4.0 (both groups)	0.026
GPs who rated their knowledge of community resources for weight loss as good or very good	116 (37.7)	3.198	131 (44.3)	3.344	0.146	0.007 – 0.287	3.0 (both groups)	0.040
GPs who are comfortable or very comfortable examining an obese abdomen	227 (73.7)	3.935	164 (55.4)	3.571	-0.364	-0.519 -0.210	4.0 (both groups)	0.000
GPs who agreed or strongly agreed that a diet high in fat contributes to obesity in males	258 (83.8)	4.104	276 (93.2)	4.307	0.204	0.068 – 0.339	4.0 (both groups)	0.003
GPs who agreed or strongly agreed that metabolic defects contribute to obesity in males	150 (48.7)	3.260	154 (52.0)	3.429	0.169	0.003-0.336	3.0 Male 4.0 Female	0.046
GPs who agreed or strongly agreed that behavioural interventions for men who are obese are often ineffective	181 (58.8)	3.429	133 (44.9)	3.196	-0.233	-0.405 -0.060	4.0 Male 3.0 Female	0.008

Question	Males N (%)	Male GP Mean	Females N (%)	Female GP mean	Difference in mean score	Confidence limits around mean difference	Median value	P-value
GPs who agreed or strongly agreed that they are pessimistic that obese male patients will be successful in losing weight	127 (41.2)	3.120	97 (32.8)	2.922	-0.198	-0.369-0.026	3.0 (both groups)	0.024
GPs who agreed or strongly agreed that pharmaceutical support for weight loss makes no real difference in male obese patients	180 (58.4)	3.507	119 (40.3)	3.241	-0.266	-0.433 -0.098	4.0 Male 3.0 Female	0.002
GPs who agreed or strongly agreed that male obese patients lack the discipline to lose weight	97 (31.5)	2.987	53 (17.9)	2.696	-0.291	-0.442 -0.140	3.0 (both groups)	0.000
GPs who agreed or strongly agreed that a man's weight is his responsibility	192 (62.3)	3.571	165 (55.8)	3.338	-0.234	-0.398 -0.070	4.0 (both groups)	0.005
GPs who agreed or strongly agreed that it is easier to talk to men about their excess weight than women	85 (27.6)	2.906	55 (18.6)	2.706	-0.200	-0.354 -0.046	3.0 (both groups)	0.011
GPs who thought an obese patient would be less likely to trust weight loss advice from an overweight or obese GP compared to a normal weight GP	209 (67.9)	1.286	180 (60.8)	1.385	0.099	0.003 - 0.197	1.0 (both groups)	0.045
GPs who rated a weight loss of 5-10% of initial body weight as an important or very important goal:	216 (70.1)	3.773	225 (76.1)	4.000	0.227	0.061 – 0.039	4.0 (both groups)	0.007

Question	Males N (%)	Male GP Mean	Females N (%)	Female GP mean	Difference in mean score	Confidence limits around mean difference	Median value	P-value
GPs who considered obese males ugly	116 (37.7)	2.539	134 (45.3)	2.399	-0.140	-0.272 -0.009	3.0 (both groups)	0.0370
GPs who rated determining goals, problem solving etc as important or very important	189 (61.4)	2.562	229 (77.4)	2.713	0.151	0.053 – 0.250	3.0 (both groups)	0.003
GPs who rated the ability to refer to other health professionals as important or very important:	107 (34.7)	2.231	150 (50.7)	2.412	0.182	0.072 – 0.291	2.0 Male 3.0 Female	0.001
GPs who rated involving the man's partner or whanau member as important or very important:	114 (37.0)	2.250	144 (48.7)	2.389	0.139	0.028 – 0.249	2.0 (both groups)	0.014
GPs who said they would discuss weight with a male patient if he was overweight and is at risk of becoming obese	267 (86.7)	1.854	234 (79.1)	1.777	-0.077	-0.144 -0.10	2.0 (both groups)	0.025
GPs who considered funding to support patients to attend a commercial weight loss as very important or crucial in the support of male obese patients:	134 (43.5)	3.166	177 (59.8)	3.449	0.284	0.102 - 0.466	3.0 Male 4.0 Female	0.002
GPs who considered funding to support membership at a gym or similar for obese patients very important or crucial in the support of male obese patients	154 (50.0)	3.325	205 (69.3)	3.703	0.378	0.212 – 0.544	3.5 Male 4.0 Female	0.000



<b>Question</b>	<b>Males N (%)</b>	<b>Male GP Mean</b>	<b>Females N (%)</b>	<b>Female GP mean</b>	<b>Difference in mean score</b>	<b>Confidence limits around mean difference</b>	<b>Median value</b>	<b>P-value</b>
GPs who considered availability of dietician clinics on site as very important or crucial in the support of male obese patients	159 (51.6)	3.347	186 (62.0)	3.578	0.230	0.064 – 0.065	4.0 (both groups)	0.007
GPs who considered easier access to psychology services as very important or crucial in the support of male obese patients	119 (38.6)	3.107	148 (50.0)	3.382	0.275	0.103 – 0.446	3.0 Male 4.0 Female	0.002
GPs who considered a up to date list of community resources to support male obese as very important or crucial in the support of male obese patients	166 (53.9)	3.448	219 (74.0)	3.824	0.376	0.221 – 0.531	4.0 (both groups)	0.000
GPs who agreed or strongly agreed that obesity prevention and management was prioritised in their general practice	159 (51.6)	3.448	134 (45.4)	3.294	-0.154	- 0.302 -0.006	4.0 Male 3.0 Female	0.041

**Table V.2: Questions where analysis by self-reported weight resulted in statistical difference**

Question	Normal weight N (%)	Mean normal weight	Overweight N (%)	Mean overweight GPs	Difference in mean score	Confidence limits around mean difference	Median	P-value
GPs who agreed or strongly agreed that weight management is part of the role of the a PN	402 (87.6)	4.107	135 (94.4)	4.322	-0.215	-0.419 -0.011	4.0 (both groups)	0.09
GPs who agreed or strongly agreed that individuals are responsible for their obesity and therefore the management of their weight loss	328 (71.5)	3.834	90 (62.9)	3.608	0.226	0.035–0.417	4.0 (both groups)	0.020
GPs who agreed or strongly agreed that poor nutritional knowledge contributes to obesity in males	417 (90.9)	4.257	121 (84.6)	4.084	0.173	0.017–0.330	4.0 (both groups)	0.030
GPs who agreed or strongly agreed that lack of supportive legislation contributes to obesity in males;	184 (40.1)	3.200	44 (30.8)	2.944	0.256	0.038–0.475	3.0 (both groups)	0.022
GPs who agreed or strongly agreed that lack of will power contributes to male obesity	296 (64.5)	3.706	81 (56.7)	3.420	0.286	0.107–0.466	4.0 (both groups)	0.002
GPs who agreed or strongly agreed that lack of motivation contributes to obesity in males	376 (81.9)	3.967	105 (73.4)	3.699	0.268	0.101–0.435	4.0 (both groups)	0.002

<b>Question</b>	<b>Normal weight N (%)</b>	<b>Mean normal weight</b>	<b>Overweight N (%)</b>	<b>Mean overweight GPs</b>	<b>Difference in mean score</b>	<b>Confidence limits around mean difference</b>	<b>Median</b>	<b>P-value</b>
GPs who agreed or strongly agreed that lack of understanding the causes of obesity contributes to obesity in males	340 (74.1)	3.819	93 (65.0)	3.601	0.218	0.045-0.391	4.0 (both groups)	0.014
GPs who agreed or strongly agreed that lack of health literacy contributes to obesity in males	340 (74.1)	3.839	87 (60.8)	3.532	0.307	0.145-0.470	4.0 (both groups)	0.000
GPs who agreed or strongly agreed that GPs should be role models for their patients by maintaining a healthy weight	385 (83.9)	4.059	110 (76.9)	3.776	0.283	0.107-0.459	4.0 (both groups)	0.002
GPs who agreed or strongly agreed that GPs should be role models for their patients by exercising regularly	392 (85.4)	4.094	121 (84.6)	3.895	0.199	0.024-0.373	4.0 (both groups)	0.026

**Appendix W: Statistically significant differences based on  
self-reported body size in PN cohort**

Question	Normal weight PNs N (%)	Normal weight PNs Mean	Overweight PNs N (%)	Overweight PNs Mean	Difference in mean score	Confidence limits around mean difference	Median	P-value
<b>PNs who agree or strongly agree “Individuals are responsible for their obesity and therefore the management of their weight loss”</b>	328 (67.2)	3.734	137 (58.1)	3.517	0.217	0.061-0.372	4.0	0.006
<b>PNs who agree or strongly agree socio-economic determinants contribute to obesity in men</b>	427 (88.5)	4.141	217 (92.0)	4.275	-0.134	-0.258 -0.01	4.0	0.035
<b>PNs who agree or strongly agree that PNs ought to be roles for their patients by maintaining a healthy weight</b>	436 (89.3)	4.148	185 (78.4)	3.822	0.326	0.193-0.458	4.0	0.000
<b>PNs who agree or strongly agree PNs ought to be roles for their patients by exercising regularly</b>	427 (87.5)	4.096	190 (80.5)	3.843	0.253	0.115-0.391	4.0	0.000
<b>PNs who agree or strongly agree that male obese patients lack discipline to lose weight</b>	123 (25.2)	2.775	35 (14.8)	2.576	0.198	0.048-0.348	3.0	0.01

Question	Normal weight PNs N (%)	Normal weight PNs Mean	Overweight PNs N (%)	Overweight PNs Mean	Difference in mean score	Confidence limits around mean difference	Median	P-value
<b>PNs who rated their knowledge of healthy eating for weight loss as good or very good</b>	443 (90.8)	4.305	203 (86.0)	4.165	0.140	0.028-0.252	4.	0.014
<b>PNs who rated their knowledge of physical activity for weight loss as good or very good</b>	445 (91.2)	4.289	208 (88.1)	4.161	0.128	0.013-0.243	4.0	0.029
<b>PNs who rated their competence in providing counselling about diet for weight loss to obese men as good or very good</b>	367 (75.2)	3.887	157 (66.5)	3.737	0.150	0.025-0.275	4.0)	0.019
<b>PNs who rated their competence in providing counselling about physical activity for weight loss to obese men as good or very good.</b>	375 (76.9)	3.918	162 (68.6)	3.788	0.130	0.006-0.253	4.0	0.039
<b>PNs who think it is <u>less likely</u> that obese patients will trust weight loss advice from an overweight or obese PN compared to a normal weight PN</b>	369 (75.6)	1.225	122 (51.7)	1.483	-0.258	-0.343 -0.173	1.0	0.000

Question	Normal weight PNs N (%)	Normal weight PNs Mean	Overweight PNs N (%)	Overweight PNs Mean	Difference in mean score	Confidence limits around mean difference	Median	P-value
<b>PNs who think it is <u>more likely</u> that obese patients will trust weight loss advice from a normal weight PN compared to an overweight or obese PN</b>	289 (59.2)	2.523	104 (44.1)	2.301	0.222	0.116-0.328	3.0 normal weight PNs 2.0 overwgt PNs	0.000
<b>PNs who scored obese men as a 1-2 on a 5 point scale Ugly (1) – Attractive (5)</b>	183 (37.5)	2.500	53 (22.5)	2.703	-0.203	-0.340 -0.067	3.0	0.004
<b>PNs who scored obese men as a 1-2 on a 5 point scale: Repugnant (1) – Pleasant (5)</b>	96 (19.7)	2.883	22 (9.3)	3.064	-0.180	-0.342 -0.019	3.0	0.028
<b>PNs who consider assessing the patient's dietary habits to be very important</b>	455 (93.2)	2.904	210 (89.0)	2.818	0.086	0.010-0.161	3.0	0.026
<b>PNs who consider assessing the patient's physical activity habits to be very important</b>	448 (91.8)	2.889	204 (86.4)	2.792	0.097	0.020-0.174	3.0	0.014
<b>PNs who think reviewing the patient's progress until goal weight is achieved is very important</b>	368 (75.4)	2.721	163 (69.1)	2.614	0.107	0.015-0.199	3.0	0.023

<b>Question</b>	<b>Normal weight PNs N (%)</b>	<b>Normal weight PNs Mean</b>	<b>Overweight PNs N (%)</b>	<b>Overweight PNs Mean</b>	<b>Difference in mean score</b>	<b>Confidence limits around mean difference</b>	<b>Median</b>	<b>P-value</b>
<b>PNs who would discuss a patient's weight if he is overweight and at risk of becoming obese</b>	413 (84.6)	1.832	175 (74.2)	1.720	0.112	0.043-0.180	2.0	0.001
<b>PNs who consider more funding for bariatric surgery to be very important or crucial to the management of male obesity in general practice</b>	175 (35.9)	3.066	105 (44.5)	3.271	-0.206	-0.394 -0.018	3.0	0.032



## **Appendix X: Statistically significant inter-group differences**

**Table X.1: Statistically significant differences between general practitioners and practice nurses in relation to beliefs**

Question	GPs N (%)	GP mean	PNs N (%)	PN mean	Difference in mean score	Confidence limitations around mean difference	Median	P-value
GPs or PNs who agree or strongly agree with the statement "individuals are responsible for their obesity and therefore the management of their weight loss"	423 (70)	3.780	470 (64)	3.654	0.126	0.017-0.234	4.0	0.024

**Table X.2: Statistically significant differences between general practitioners and practice nurses in relation to training, knowledge, self-efficacy and information sources**

Question	GPs N (%)	GP mean	PNs N (%)	PN mean	Difference in mean score	Confidence limitations around mean difference	Median	P-value
GPs or PNs who rate their knowledge of healthy eating for weight loss as good or very good	453 (74)	3.939	657 (89)	4.263	-0.314	-0.398 -0.229	4.0	0.000
GPs or PNs who rate their knowledge of weight loss medications as good or very good	386 (63)	3.647	139 (19)	2.746	0.901	0.803-1.000	4.0 GPs 3.0 PNs	0.000
GPs or PNs who rate their knowledge of surgical options for weight loss as good or very good	386 (63)	3.691	217 (30)	3.057	0.634	0.539-0.730	4.0 GPs 3.0 PNs	0.000
GPs or PNs who rate their knowledge of community resources to support people with weight loss as good or very good	249 (41)	3.271	461 (63)	3.687	-0.416	-0.511 -0.321	3.0 GPs 4.0 PNs	0.000

Question	GPs N (%)	GP mean	PNs N (%)	PN mean	Difference in mean score	Confidence limitations around mean difference	Median	P-value
GPs or PNs who rate their competence to provide counselling about diet for healthy weight loss as good or very good	387 (64)	3.700	534 (73)	3.842	-0.143	-0.231 -0.054	4.0	0.002
GPs or PNs who rate their competence to provide information on the role of weight loss medications as good or very good	300 (49)	3.388	82 (11)	2.472	0.915	0.8145-1.016	3.0 GPs	0.000
							2.0 PNs	
GPs and PNs who reported they used guidelines to assist them with the provision of weight management advice	156 (26)	1.245	414 (56)	1.533	0.289	-0.343-0.235	1.0 GPs	0.000
							2.0 PNs	

**Table X.3: Statistically significant differences between general practitioners and practice nurses in relation to the causes and consequences of obesity and perceptions of obese males**

Question	GPs N (%)	GP mean	PNs N (%)	PN mean	Difference in mean score	Confidence limitations around mean difference	Median	P-value
GPs or PNs who agree or strongly agree that a diet high in fat contributes to obesity in males	538 (88)	4.204	704 (95)	4.386	-0.183	-0.268 -0.097	4.0	0.000
GPs or PNs who agree or strongly agree that genetic factors contribute to obesity in males	504 (83)	3.977	497 (68)	3.721	0.256	0.166-0.346	4.0	0.000
GPs or PNs who agree or strongly agree that metabolic defects contribute to obesity in males	489 (50)	3.345	382 (52)	3.472	-0.127	-0.231 -0.024	4.0	0.016

<b>Question</b>	<b>GPs N (%)</b>	<b>GP mean</b>	<b>PNs N (%)</b>	<b>PN mean</b>	<b>Difference in mean score</b>	<b>Confidence limitations around mean difference</b>	<b>Median</b>	<b>P-value</b>
GPs or PNs who agree or strongly agree that endocrine defects contribute to obesity in males	210 (35)	3.035	345 (47)	3.411	-0.376	-0.480 -0.482	3.0	0.000
GPs or PNs who agree or strongly agree that depression contributes to obesity in males	462 (76)	3.818	589 (80)	3.962	-0.144	-0.232 -0.056	4.0	0.001
GPs or PNs who agree or strongly agree that risk taking tendencies in men contributes to obesity in males	173 (28)	3.048	273 (37)	3.220	-0.170	-0.274 -0.071	3.0	0.0008
GPs or PNs who agree or strongly agree that the environment contributes to obesity in males	460 (76)	3.897	521 (71)	3.791	0.106	0.001-0.211	4.0	0.05
GPs or PNs who agree or strongly agree that lack of supportive legislation e.g. sugar and fat taxes contributes to obesity in males	230 (38)	3.136	185 (25)	2.906	0.230	0.110-0.350	3.0	0.000
GPs or PNs who agree or strongly agree that a lack of will power contributes to obesity in males	381 (63)	3.636	515 (70)	3.822	-0.186	-0.290 -0.082	4.0	0.000
GPs or PNs who agree or strongly agree that a lack of motivation power contributes to obesity in males	486 (80)	3.905	630 (86)	4.074	-0.169	-0.262 -0.076	4.0	0.000
GPs or PNs who agree or strongly agree that a lack of understanding regarding the causes of obesity contributes to obesity in males	440 (72)	3.773	616 (84)	4.008	-0.235	-0.334 -0.136	4.0	0.000

<b>Question</b>	<b>GPs N (%)</b>	<b>GP mean</b>	<b>PNs N (%)</b>	<b>PN mean</b>	<b>Difference in mean score</b>	<b>Confidence limitations around mean difference</b>	<b>Median</b>	<b>P-value</b>
GPs or PNs who agree or strongly agree that lack of health literacy contributes to obesity in males	433 (71)	3.767	564 (77)	3.897	-0.130	-0.229 -0.031	4.0	0.010
GPs or PNs who consider the risk of CHD to be moderately or highly increased by presence of obesity in non-smoking males	489 (80)	3.028	645 (88)	3.306	-0.303	-0.396 -0.209	3.0 GPs	0.000
							4.0 PNs	
GPs or PNs who consider the risk of stroke to be moderately or highly increased by presence of obesity in non-smoking males	474 (78)	2.949	647 (88)	3.306	-0.357	-0.450 -0.264	3.0	0.000
GPs or PNs who consider the risk of hypertension to be moderately or highly increased by presence of obesity in non-smoking males	537 (88)	3.261	683 (93)	3.474	-0.212	-0.301 -0.124	3.0 GPs	0.000
							4.0 PNs	
GPs or PNs who consider the risk of depression to be moderately or highly increased by presence of obesity in non-smoking males	372 (61)	2.604	508 (69)	2.797	-0.193	-0.296 -0.091	3.0	0.000
GPs or PNs who consider the risk of colorectal cancer to be moderately or highly increased by presence of obesity in non-smoking males	346 (57)	2.496	495 (67)	2.752	-0.257	-0.3612 -0.151	3.0	0.000

Question	GPs N (%)	GP mean	PNs N (%)	PN mean	Difference in mean score	Confidence limitations around mean difference	Median	P-value
GPs or PNs who consider the risk of chronic musculoskeletal conditions to be moderately or highly increased by presence of obesity in non-smoking males	542 (89)	3.286	599 (82)	3.154	0.132	0.035-0.229	3.0	0.009
GPs or PNs who consider the risk of erectile dysfunction to be moderately or highly increased by presence of obesity in non-smoking males	452 (74)	2.888	584(80)	3.052	-0.163	-0.265 -0.061	3.0	0.002

**Table X.4: Statistically significant differences between general practitioners and practice nurses in relation to weight management practices and improvement options for male weight management**

Question	GPs N (%)	GP mean	PNs N (%)	PN mean	Difference in mean score	Confidence limitations around mean difference	Median	P-value
GPs and PNs who often or always undertake the diagnostic measurement BMI	551 (91)	4.374	632 (86)	4.245	0.130	0.029-0.231	5.0 GPs	0.013
							4.0 PNs	
GPs and PNs who often or always undertake the diagnostic measurement waist to hip ratio	94 (15)	2.299	116 (16)	2.128	0.171	0.039-0.303	2.0	0.011
GPs and PNs who often or always undertake the diagnostic measurement waist circumference	293 (48)	3.397	518 (71)	3.869	-0.472	-0.595 -0.349	3.0 GPs	0.000
							4.0 PNs	

Question	GPs N (%)	GP mean	PNs N (%)	PN mean	Difference in mean score	Confidence limitations around mean difference	Median	P-value
GPs and PNs who say they will discuss weight if a male patient is obese	584 (96)	1.985	667 (91)	1.888	0.097	0.029-0.165	2.0	0.005
GPs and PNs who say they will discuss weight if a male patient is a new patient	295 (48)	1.465	410 (56)	1.528	-0.063	-0.122 -0.004	1.0 GP	0.035
							2.0 PN	
GPs and PNs who consider assessing a patient's weight history to be very important	285 (47)	2.368	468 (64)	2.574	-0.206	-0.278 -0.134	2.0 GPs	0.000
							3.0 PNs	
GPs and PNs who consider assessing the patient's dietary habits to be very important	492 (81)	2.762	674 (92)	2.872	-0.110	-0.167 -0.054	3.0	0.000
GPs and PNs who consider assessing the patient's physical activity habits to be very important	493 (81)	2.764	662 (90)	2.856	-0.092	-0.149 -0.035	3.0	0.002
GPs and PNs who consider assessing the patient's readiness for change to be very important	490 (80)	2.757	654 (89)	2.841	-0.084	-0.143 -0.025	3.0	0.005
GPs and PNs who consider assessing the patient's expectations of weight management/loss to be very important	400 (66)	2.599	561 (76)	2.722	-0.123	-0.187 -0.059	3.0	0.000
GPs and PNs who consider assessing the patient's definition of a successful outcome to be very important	376 (62)	2.552	565 (77)	2.722	-0.171	-0.237 -0.105	3.0	0.000
GPs and PNs who consider determining goals, problem solving etc to be very important	422 (69)	2.634	613 (83)	2.788	-0.154	-0.217 -0.091	3.0	0.000
GPs and PNs who consider the ability to refer	259 (43)	2.317	481 (65)	2.592	-0.275	-0.0347 -0.203	2.0 GPs	0.000

Question	GPs N (%)	GP mean	PNs N (%)	PN mean	Difference in mean score	Confidence limitations around mean difference	Median	P-value
obese patients to other health care professionals to be very important							3.0 PNs	
GPs and PNs who consider involving the man's partner or whanau to be very important	259 (43)	2.314	453 (62)	2.559	-0.246	-0.317 -0.174	2.0 GPs	0.000
							3.0 PNs	
GPs and PNs who consider reviewing an obese patient's progress until goal weight is achieved to be very important	319 (52)	2.442	539 (73)	2.684	-0.243	-0.311 -0.174	3.0	0.000
GPs and PNs who consider improvement in clinical indicators to be an important or very important goal	475 (78)	4.066	678 (92)	4.456	-0.390	-0.492 -0.288	4.0 GP	0.000
							5.0 PN	
GPs and PNs who consider the adoption of improved food and exercise habits irrespective of weight loss to be an important or very important goal	525 (86)	4.245	692 (94)	4.527	-0.282	-0.379 -0.185	4.0 GP	0.000
							5.0 PN	
GPs and PNs who consider improved body image and self-confidence irrespective of weight loss to be an important or very important goal	440 (72)	3.911	628 (85)	4.234	-0.323	-0.431 -0.215	4.0	0.000
GPs and PNs who consider a weight loss of 5-10% of initial body weight to be an important or very important goal	445 (73)	3.879	571 (78)	4.038	-0.160	-0.271 -0.048	4.0	0.005
GPs and PNs who consider weight loss to the BMI range of 18.5-24.9 to be an important or very important goal	138 (24)	2.773	334 (47)	3.308	-0.534	-0.658 -0.410	3.0	0.000



Question	GPs N (%)	GP mean	PNs N (%)	PN mean	Difference in mean score	Confidence limitations around mean difference	Median	P-value
GPs and PNs who consider managing no further weight gain over time to be an important or very important goal	437 (72)	3.875	598 (81)	4.102	-0.227	-0.345 -0.109	4.0	0.000
GPs and PNs who agree or strongly agree they haven't had much success with weight loss with male obese patients	163 (27)	2.816	99 (13.47)	2.5864	0.230	0.131-0.328	3.0	0.000
GPs and PNs who agree or strongly agree that few men are motivated to make the lifestyle changes needed	146 (16)	2.698	138 (19)	2.524	0.174	0.073-0.275	3.0 GP	0.0007
							2.0 PN	
GPs and PNs who agree or strongly agree that there are a lack of male specific weight loss programmes available in my area	245 (40)	3.120	268 (37)	3.000	0.130	0.012-0.238	3.0	0.030
GPs and PNs who consider more male specific weight loss resources to be very important or crucial to better meet the needs of male obese patients	285 (47)	3.320	456 (62)	3.622	-0.302	-0.404 -0.199	3.0 GP	0.000
							4.0 PN	
GPs and PNs who consider education for staff on cultural beliefs and values related to weight for men of different ethnicities to be very important or crucial to better meet the needs of male obese patients	232 (38)	3.085	431 (59)	3.527	-0.441	-0.554 -0.328	3.0 GP	0.000
							4.0 PNs	
GPs and PNs who consider more access to Maori/Pacific male weight loss community programmes to be very important or crucial to better meet the needs of male obese patients	335 (55)	3.386	473 (65)	3.641	-0.255	-0.373 -0.137	4.0	0.000

Question	GPs N (%)	GP mean	PNs N (%)	PN mean	Difference in mean score	Confidence limitations around mean difference	Median	P-value
GPs and PNs who consider funding to support patients attend commercial weight loss programmes to be very important or crucial to better meet the needs of male obese patients	311 (51)	3.294	437 (60)	3.561	-0.267	-0.3871-0.146	4.0	0.000
GPs and PNs who consider funding to support membership at a gym or similar to be very important or crucial to better meet the needs of male obese patients	362 (59)	3.506	504 (69)	3.732	-0.226	-0.337 -0.116	4.0	0.000
GPs and PNs who consider additional nursing resources to be very important or crucial to better meet the needs of male obese patients	288 (47)	3.327	397 (54)	3.463	-0.136	-0.246 -0.026	3.0 GP	0.016
							4.0 PN	
GPs and PNs who consider equipment to better accommodate obese patients to be very important or crucial to better meet the needs of male obese patients	73 (12)	3.624	208 (28)	3.875	-0.251	-0.354 -0.147	4.0	0.000
GPs and PNs who consider education on specific approaches to discussing the topic of excess weight to be very important or crucial to better meet the needs of male obese patients	251 (41)	3.133	483 (66)	3.706	-0.573	-0.681 -0.465	3.0 GP	0.000
							4.0 PN	
GPs and PNs who consider more funding for public bariatric surgery to be very important or crucial to better meet the needs of male obese patients	332 (55)	3.457	284 (39)	3.128	0.329	0.200-0.457	4.0 GP	0.000
							3.0 PN	

