Provider experiences of delivering nutrition focussed lifestyle interventions for adults with metabolic syndrome and obesity: a qualitative systematic review

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Executive summary

Background

Globally, the prevalence of chronic disease is increasing and there is strong evidence to indicate that the development of conditions can be prevented or delayed through modification of behavioural risk factors, such as diet and exercise. Chronic disease prevention and care typically occurs in primary health care settings and primary health care providers are expected to play a significant role in the management of lifestyle risk factors, such as high body weight. However, there are many barriers to the implementation of lifestyle management strategies.

The experiences of primary care providers in discussing nutrition and weight-based issues with people with lifestyle risk factors are important in helping to identify gaps in service delivery, and this kind of information can be captured through qualitative research. As such, examining literature that investigates primary care providers' experiences in delivering nutrition focussed lifestyle interventions through a qualitative systematic review may provide useful insights that can inform future delivery of such interventions.

Objectives

The objective of this qualitative systematic review is to synthesise the best available evidence on primary care provider experiences of delivering nutrition focussed lifestyle interventions to adult patients with metabolic syndrome and obesity.

Methods

This review considered studies that included providers of nutrition-focussed lifestyle interventions in primary health care, including registered nurses, general practitioners and allied health clinicians. Provider experiences including congruence with role, approach and willingness to discuss lifestyle issues, perceived effectiveness and client acceptability of lifestyle interventions were considered, in addition to any other experiences. Primary health care settings including general practice, family medical services, community health and private allied health services in high income countries were considered.

The search strategy aimed to locate both published and unpublished studies, from 2000. All studies which met the inclusion criteria were retrieved and assessed by two reviewers for methodological quality. The standard Joanna Briggs Institute (JBI) Critical Appraisal Checklist for Qualitative Research was used.

Data was extracted using a standardised JBI data extraction form. Data extraction was completed for all studies, regardless of their methodological quality. Data extracted included specific details about the populations, context, culture, geographical location, study methods and the phenomena of interest. Qualitative research findings were pooled using the JBI System for the Unified Management, Assessment and Review of Information (JBI SUMARI) meta-aggregation approach, which involved the synthesis of findings to generate statements based on similarity in meaning which could be used to inform decision making.

Results

From the 23 papers which were included in the review, five synthesised findings were generated from 15 categories and 172 findings. The five synthesised findings were: i) Primary care providers may have varying levels of confidence in their own knowledge and skills regarding "obesity management", which may be impacted by education and training, with some experiencing uncertainty regarding the effectiveness of the interventions and strategies they are recommending to their patients; ii) There are complexities surrounding obesity and "weight management", and as such primary care providers may search for opportunities to address weight related issues in a sensitive way so as to be able to deliver important messages whilst maintaining positive relationships with patients; iii) Although primary care providers are aware of the importance of patient centred care and patient autonomy, if patients are unsuccessful with their weight management attempts, the professionals may assign blame to the patients due to perceived poor motivation and compliance; iv) Practice nurses and pharmacists feel well-placed and often responsible for providing early intervention weight management, however, referral to a dietitian is the preferred approach for further care when this service is available; and v) Primary care providers can identify the importance of weight management and would like to address lifestyle related issues with patients, however, some do not feel well supported at the organisational level to be able to do this consistently.

Conclusions

These findings highlight the challenges faced by primary care providers when attempting to address issues of weight and lifestyle in their practice, including lack of education and

training, poor confidence in themselves, lack of confidence in the effectiveness of the intervention and limited organisational support.

Keywords

Primary health care; obesity; metabolic syndrome; nutrition

Thesis declaration

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

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I acknowledge the support I have received for my research through the provision of an Australian Government Research Training Program Scholarship.

Name: Elsie Patterson Date:

Signed …….

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Chapter 1: Introduction

Chronic disease risk factors and metabolic syndrome

Chronic or non-communicable diseases (NCDs) are the leading cause of global mortality.[1] Chronic conditions, including cancer, type 2 diabetes, stroke, heart disease and pulmonary issues contributed to 40.5 million deaths in 2016, accounting for 71% of global deaths.[2] Management of these chronic conditions, including their preceding risk factors, contributes significantly to the health care burden.

Chronic conditions are long-term, complex and multi-causal, and are most prevalent in older adults. A diverse range of biomedical, behavioural, socio-economic and environmental factors influence the development of NCDs.[1] Biomedical risk factors associated with NCD development include insulin resistance, hypertension, impaired glucose tolerance, dyslipidemia and high body weight.[3] Metabolic syndrome is the diagnostic term given to a "cluster" of these risk factors.[4,5] Insulin resistance and abdominal obesity are the underlying pathophysiological cause.[4,6] Metabolic syndrome is associated with increased risk of type 2 diabetes (T2DM) and cardiovascular disease (CVD) development.[7]

Biomedical risk factors in general and metabolic syndrome more specifically are influenced by genetic, early life influences and behavioural risk factors.[8] Behavioural risk factors, commonly referred to as "lifestyle risk factors", include physical inactivity, poor nutrition, smoking and alcohol consumption.[9,10] Almost one third (29%) of the overall disease burden and disability adjusted life years (DALY) lost are attributed to physical inactivity, poor nutrition, smoking and harmful alcohol consumption.[11]

There is strong evidence that the development of T2DM and CVD can be delayed or prevented through appropriate modification of behavioural risk factors.[12-15] A systematic review of the impact of physical activity on CVD, cancer and all-cause mortality found that physically active participants, when completing at least one other health behavioural goal, were half as likely to experience a CVD event compared to inactive participants.[16] Additionally, dietary modifications such as the Mediterranean diet are associated with improved cardiovascular outcomes and reductions in CVD[17,18] Dietary interventions focusing on increasing intake of dietary fibre, unsaturated fats and reducing added sugar have also been associated with delays in the development or overall prevention of T2DM.[19]

Primary care settings

Primary health care (PHC) is the foundation of community-level health care in high income countries.[20,21] Five key concepts define PHC, which include: i) providing the first care contact, ii) provision of comprehensive care for a variety of health issues, iii) continuity of care, iv) patient-centred care, and v) care coordination.[22] PHC settings are the first point of call and the most commonly utilised health care option for many people in high income countries as they are universally accessible.[21,22] PHC interventions can include health promotion, illness prevention, as well as the treatment of the sick/unwell, for example, chronic disease management.[21]

Due to the high disease burden of chronic conditions, including T2DM and CVD, prevention and management of these conditions are a key priority for the PHC sector.[23] Services are often centred around a general practitioner (GP), with additional supports and services provided by practice nurses (PN) and allied health.[21] Because of this structure, primary care providers play an important role in chronic disease prevention and management.[23] PCPs support patients with or at risk of chronic disease through the development of management plans which often include interventions from appropriate allied health specialists, including dietitians and exercise professionals.[21]

Patient centred care (PCC) is a key component of PHC. Although there is no universally accepted definition, PCC can be described as coordinated, personalised care that is respectful, compassionate and responsive.[24,25] Across all definitions, there is an accepted view that each patient is recognised as a unique person and that all care provided is respectful of their personal values and preferences.[26] Health care provision has evolved from the traditional paternalistic approach where the 'doctor knows best' philosophy is dominant, to patient centred models which have been adopted by policy makers and the World Health Organization (WHO).[26-28] Key components of patient centred care include respect, emotional support, communication, continuity of care, care coordination and inclusion of family and carers in decision making.[28] PCC is a foundation of safe, high quality health care and is associated with increased patient satisfaction, improved relationships between patients and clinicians, enhanced quality of life, reduced health care utilisation and improved clinical outcomes. [29,30]

PHC settings include general practice, community health centres and private allied health services across government, non-government and private sectors.[21,31] Community pharmacy settings can also be considered within the primary health sector.[31] PHC settings in high income countries, including Australia, New Zealand, the United States of America, the

United Kingdom and some parts of Asia and Europe, are characterised by many similarities. Commonalities include the use of care that is centred around a GP, as well as integration with other nursing and allied health professionals.[32] However, in many high income countries, there are considerable variations in aspects of service delivery, including continuity of care, coordination of care and comprehensiveness of care. Countries outside of Europe including Australia, New Zealand and Canada perform better than many European countries due to the strength of their PHC systems and structures.[20]

Lifestyle interventions

Lifestyle interventions focus on promoting individual behaviours that support improved health in order to manage or improve control of the physiological variables associated with chronic disease development.[33] Promotion of healthy lifestyles within the PHC settings is supported by national guidelines and health policy; however, implementation of strategies and interventions is inconsistent, slow and highly dependent on the setting.[34,35]

The WHO recommends that health professionals complete lifestyle screening (physical activity, nutrition, etc.) with patients at every primary care consultation.[36] Provision of brief counselling support to at-risk patients is also included within this recommendation.[37] Despite this, health professionals do not always provide this level of support due to a variety of barriers.[38] Interventions to support healthy lifestyle range from brief discussions (such as the 5As approach, discussed below) through to structured, multidisciplinary programs. Strategies have demonstrated effectiveness in research settings, however, few have been translated into mainstream PHC practice.[39-42] Despite the evidence to support healthy lifestyle promotion, the impact of these interventions on at-risk populations is dependent on their use in practice.[38]

The 5As approach (Ask, Assess, Advise, Assist, Arrange) is well utilised across different facets of health promotion, including smoking cessation.[43] This approach is endorsed by the Royal Australian College of General Practice (RACGP) in Australia and provides a structured approach for PHC providers to raise and discuss lifestyle related behaviours, such as smoking, nutrition, alcohol and physical activity, in their practice.[44] Within this approach, providers may use strategies such as motivational interviewing, provision of education resources, and referral to specialist providers including dietitians and exercise professionals for individual care.[43-45] Brief interventions such as the 5As are implemented frequently by PHC providers and although they promote regular communication and follow-up, there is limited evidence that they are successful in achieving ongoing behaviour change.[43,46,47]

Group programs are also utilised in PHC to support lifestyle modifications. Typically, these interventions are based on behaviour or cognitive change theories such as the Theory of Planned Behaviour, Social Cognitive Theory or Transtheoretical Model.[48] Lifestyle modification programs can incorporate education around health topics and physical activity sessions, and generally have involvement from multi-disciplinary teams.[49-53] Evaluation of such programs indicates that participants demonstrate improvements to biomedical parameters and self-reported health behaviours. In patients with CVD risk factors and metabolic syndrome, participation in lifestyle modification programs has demonstrated short-term improvements in body mass index (BMI), waist circumference, blood pressure and some lipid measures.[13,54,55] Studies generally do not follow up participants beyond 12 months, therefore evidence of long term success is limited.

Overweight and obesity

Overweight and obesity are terms, or labels, that are given to ranges of weight, as defined by the Body Mass Index tool.[56] These terms identify weight ranges that are above a 'healthy weight' and contribute to increased health risks.[5,56] High body weight is associated with higher all-cause mortality and is a specific risk factor for a variety of chronic conditions, including T2DM, CVD and some cancers.[56,57]

There is some debate as to whether obesity should be classified as a disease or remain as a risk factor.[58] Obesity has been recognised as a disease by a variety of professional bodies including the American Medical Association and WHO.[59] The classification is controversial for a number of reasons; it is widely understood that some people with a BMI classified as obese can otherwise be healthy, whereas some people with a BMI within the healthy range can have excess visceral fat and be unhealthy. Furthermore, the 'obesity paradox' describes how some people with overweight or obese BMI can have better improved health outcomes than those in a normal BMI range.[59] Obesity as a disease presents complexities when trying to assign a definition beyond BMI ranges. Having a disease diagnosis can assist patients to access treatment through increased funding and resources, however there are concerns that labelling could contribute to discrimination and harm to individuals.[58,60]

The public health approach to addressing obesity is well-established and includes policy and guidelines, as well as public health campaigns.[61] In Australia, there have been a number of mass media campaigns which have attempted to promote healthy weight and lifestyle; similar campaigns have been delivered in other high income countries.[62-64] Despite the widespread use of public health campaigns, the evidence to support their effectiveness is

limited.[62,65,66] Furthermore, there are a number of potential ethical concerns associated with the delivery of mass media campaigns, including unintended negative effects (such as an increase in unhealthy behaviours) and the inadvertent disadvantaging of vulnerable groups.[61] There is also a suggestion that these types of campaigns can potentially have negative effects on health due to the way body shape and size are targeted.[61,67]

It is well established that genetic, environmental, social and economic factors, as well as individual behaviours contribute to the body mass or size of an individual.[68] Social determinants including level of education, income, housing, transportation, geographical location, as well as overconsumption of energy dense foods, physical inactivity, high stress levels and poor sleep patterns all contribute to poor health outcomes. [69] Despite the wide variety of contributing factors, many providers believe that obesity is an individual problem that results from poor motivation and lack of self-control.[70] It is hypothesised that the concept of lack of personal control being the cause of obesity can result in weight bias.[71]

Weight stigma and healthcare

Stigma can be described as the labelling, stereotyping and discrimination in a power-driven context.[72] Weight stigma can be classified as direct, indirect or environmental. Examples of direct weight stigma can include verbal abuse or discrimination when eating or exercising, while indirect stigma may be feeling embarrassed when eating or exercising in public or being ignored in retail settings. Examples of environmental stigma may include unsuitable public seating or equipment and facilities that do not accommodate bigger bodies.[73] It is well documented that people with larger bodies experience all types of stigma relating to their body weight or size in the workplace, and social and healthcare settings.[71,72] Weight stigma has direct and observable consequences on service delivery for larger bodied patients, translating to poor mental and physical health outcomes.[74,75] People who experience weight stigma can blame themselves for these experiences on and avoid settings where they perceive they may experience stigma.

Patients who have experienced weight stigma are more likely to avoid seeking health care altogether.[72,76] Higher BMI patients report feeling ignored and mistreated by HCPs and are three times more likely to report that they have been denied appropriate medical care when compared to ‘normal BMI’ patients.[71,72] For patients, perceptions or experiences of biased treatment may contribute to avoidance of care, poor adherence to treatment, mistrust of health professionals and stress.[76,77] Higher weight patients who disengage from PHC are less likely to engage in preventative health screening, such as cancer screening, due to

perceived disrespectful and negative treatment, embarrassment with having their weight measured, and medical equipment that is too small and inappropriate.[78] Doctors also have confirmed encountering issues with inappropriate equipment, challenges with patient refusal, and fear and lack of certainty about specific techniques more appropriate for larger bodies.[79] There is evidence to indicate that weight stigma triggers physiological and behavioural adaptations associated with poor health outcomes, including psychological stress, maladaptive eating behaviours and exercise avoidance.[80]

Many healthcare providers hold strong negative beliefs and apply stereotypes about people with obesity.[71,76,81] Beliefs can relate to laziness, lack of willpower, discipline, intelligence and non-compliance to treatment. These beliefs can contribute to providers treating patients with less respect and time, as well as providing less treatment options.[77] There is clear evidence that many GPs and PNs hold negative stereotypes and biases, even those specialising in obesity-related issues.[82-84] There is emerging evidence that similar attitudes exist in nutrition or exercise professionals.[85,86] These allied health professionals are particularly relevant and important to consider in the context of obesity management. A systematic review of weight bias among nutrition and exercise professionals found evidence of weight bias in the majority of articles included, indicating that weight bias, fat phobia and negative attitudes are common across both professions.[81]

Effective communication between patients and providers is an essential component of establishing and maintaining therapeutic relationships. The terminology and language used by providers can impact perceptions and experiences of weight stigma, how an individual responds to public health initiatives and accesses treatment, as well as how an individual feels about their health.[87] The use of stigmatising terminology when referring to people with higher BMI contributes to the broader weight bias that exists within healthcare settings. As PCPs are encouraged to have discussions with patients about weight, it is important to understand the power of language in providing unbiased care.

A number of studies have investigated preferences for weight related language and conversations amongst larger-bodied adolescents and adults, as well as health professionals.[80,88,89] Preferences varied across gender, BMI and previous experiences of stigma. The terms ‘weight’, ‘weight problem’, ‘unhealthy weight’, ‘plus size’ and ‘high BMI’ are generally more desirable terms and were associated with being the least stigmatising. These terms were considered by some to be weight neutral, whilst ‘obese’ and ‘morbidly or extremely obese’ were the least desirable terms or associated with the highest blame.[80,88,89] ‘Fat’ was generally also considered to be highly stigmatising and blaming, however, this term

has been 'reclaimed' by some feminist groups and may be considered by some as an acceptable and appropriate term.[88,90]

Patient experiences of lifestyle interventions

Patient experiences of health service delivery, specifically healthy lifestyle interventions, can inform best practice models of care, thus ensuring that patients' needs are met. Patients generally demonstrate high acceptability of healthy lifestyle interventions, including brief recommendations from PHC providers and more intensive group programs. Patients perceive nutrition care to be a component of GP-delivered chronic disease management and prevention, often preferring such care to be delivered by a regular GP instead of a nutrition professionals.[91-93] In recent studies conducted on chronic disease patients in PHC, patients often describe GPs and other providers as motivators, role models and trusted mentors. Patients feel the information provided by them was accurate and that their support enabled them to achieve their health goals.[52,54,94,95]

Within group-based lifestyle interventions, participants value the holistic nature of the programs which enable them to address multiple lifestyle issues at once, for example, diet and exercise.[52] The social aspect of group programs id also very important, facilitating social connectedness.[94] Despite high acceptability for both individual and group lifestyle interventions, patients can experience negative emotional responses. Patients report feeling like providers don't always treat them with respect and their weight related issues were not given enough time and priority in appointments.[95] Feelings of shame, embarrassment and frustration amongst participants who 'didn't perform' (i.e. lose weight) are also commonly reported.[52,54,96]

Factors including low motivation, commitment and poor self-efficacy are also apparent, with participants reporting reluctance to change and feeling helpless.[95,96] Some participants articulate that their primary motivation was wanting to show that while they were compliant with behaviour change activities, they feared that their 'non-compliance'" would be identified through weights and measurements. Unsurprisingly, these participants report ongoing challenges, low enjoyment of healthy lifestyle activities and a lack of control over their health.[96] Patient related barriers and factors were often 'blamed' for lack of success in relation to weight management.[82] Barriers often cited include lack of motivation, previous experiences of 'failure', experiences of weight related stigma and the cost of accessing health services.[97,98]

Primary health care providers

PCPs hold diverse perceptions about their role within healthy lifestyle promotion.[99] Some providers feel as though lifestyle interventions are a core component of their work, whilst others feel the opposite.[100,101] PCPs, including physiotherapists, nurses, occupational therapists, dietitians and pharmacists feel as though they have the skills and confidence to promote healthy lifestyle interventions to patients and also feel as though it is feasible within their roles to do so. Despite this, some PCPs have limited knowledge or recall of the content consisting of clinical practice guidelines for the management of weight and obesity.[102]

Nurses have an evolving role in PHC in response to reducing pressure on the hospital system, practitioner shortages and increasing clinical load.[103,104] As a result, nurses are taking on increased responsibility for chronic disease prevention and management, as well as health promotion.[100,101] A systematic review of nurse-delivered interventions to manage "obesity related" chronic disease found that these interventions were effective for improving biomedical factors (blood pressure, weight, cholesterol), dietary and physical activity behaviours as well as quality of life measures and readiness for change.[33]

Many PHC providers perceive promotion of healthy lifestyle to be an important part of their role, however, they experience various barriers to implementing or delivering such interventions. Barriers often cited include time constraints, lack of guidelines, provider weight bias, lack of appropriate training, lack of reimbursement, fear of damaging provider-patient relationships and limited options or referrals to specialist providers (e.g. dietitians).[51,98,105-109] PHC providers have varying levels of skills or training in lifestyle interventions. A systematic review of GP-led nutrition interventions concluded that GPs were able to effectively provide interventions which supported improvements to nutrition and eating behaviours. However, the clinical significance and consistency of these outcomes varied between studies.[110]

Providers also experience varying levels of confidence and belief in the effectiveness of interventions, particularly those focused on weight management.[51,106,111] In recent studies of medical management of obesity in PHC, providers often describe feeling pessimistic about weight management interventions as they were considered too difficult for patients to achieve and sustain.[82,112,113] Providers also describe highly individual reasons why patients failed at these interventions, including lack of willpower and little knowledge, as well as making excuses and being unable to accept responsibility. Some providers also discuss feeling frustrated and hopeless when discussing weight with patients and often avoided such conversations in favour of addressing immediate health concerns.[114] As a result, weight management was often seen as 'unrewarding work'.

Qualitative methodology, systematic reviews and evidence-based healthcare

Qualitative research methods can be used to address questions about experiences, attitudes and perceptions of individuals or groups. Within healthcare research, qualitative methods can provide depth of knowledge that is often not obtained or understood through quantitative methods.[115] Many qualitative approaches are interpretive, and within this paradigm, the world or reality is understood through people's subjective experiences and social contexts.[116] As reality is embedded within the researcher's social context, interpretation occurs through sense-making rather than hypothesis testing. Interpretations are located in a particular context and setting, and research methodologies specific to this paradigm include phenomenology, ethnography, grounded theory and descriptive designs.[53]

Common interpretive methodologies include phenomenology, grounded theory and ethnography. Phenomenological studies focus on the commonality of lived experiences within a specific group of people in order to describe the nature of the phenomenon of interest.[117] Grounded theory research methods seek to generate theories that are 'grounded' in data that has been gathered in an ongoing process of data collection and iterative analysis.[118] Ethnographic studies seek to understand the social meaning that exists within a culture or cultural group. Within ethnographic research, the researcher becomes immersed in the cultural group and data is collected through a series of observations and interviews.[119] In comparison to these interpretive approaches, qualitative descriptive studies are characterised by lower levels of interpretation and inference.[120] Within these methodologies, various methods are used to collect data, including interviews, focus group discussions or field work. These methods enable the collection of rich descriptive data about a phenomenon of interest.[53]

Similar to quantitative research, results from a single qualitative study should not be used to guide practice; qualitative research findings should be synthesised to develop recommendations for practice and policy.[121] Qualitative evidence synthesis refers to the methods used to undertake systematic reviews of qualitative evidence, and include thematic synthesis, narrative synthesis, realist synthesis, content analysis, meta ethnography and meta aggregation.[121,122]

Qualitative methods and data, particularly qualitative synthesis and systematic reviews, are increasingly used in evidence-based healthcare research and practice. Evidence-based healthcare can be defined as '*decision-making that considers the feasibility, appropriateness, meaningfulness and effectiveness of healthcare practices. The best available evidence, the context in which care is delivered, the individual patient and the*

professional judgement and expertise of the health professional inform this process.'[123(p.62)] Qualitative research, particularly qualitative synthesis, represents the person-centred experiences of healthcare users and provides important insights into how patients and communities perceive their own health and experiences with the health system. Qualitative data can provide a greater level of understanding about the feasibility, meaningfulness and appropriateness of healthcare practices and interventions and as a result, these findings can be a valuable contribution to health services planning.[124]

Researcher's perspective

The location or perspective of the researcher is a critical component and consideration when conducting qualitative research. The author of this dissertation (EP) is a dietitian working in primary health care. Her core role involves coordinating a healthy lifestyle project in the rural PHC space, targeting people with metabolic risk factors and chronic disease. She has also previously worked as a community dietitian at a rural Aboriginal community controlled health organisation.

As a dietitian, EP practises from a 'Health at Every Size', weight inclusive framework. Her interest in this topic arose from engagement with primary care providers to promote healthy lifestyle programs where she became aware of the often negative way in which PCPs refer to patients at a higher body weight. Additionally, in the rural setting, PCPs are often required to work under a broadened scope and may be more likely to be involved in providing general weight or healthy lifestyle recommendations due to reduced availability and access to a wide variety of health professionals.

EP completed the systematic review as part of Master of Clinical Science program with the Joanna Briggs Institute. She also has previous research experience through an honours research program which was completed during her Bachelor of Nutrition and Dietetics at the University of the Sunshine Coast in 2014-2015.

Chapter 2: Methods

Review question

The question of this review was: what are the experiences of primary health care providers in delivering nutrition-focussed, lifestyle modification interventions for patients with obesity, metabolic syndrome or those at high risk of metabolic syndrome?

Inclusion criteria

Participants

The review considered studies that included providers of lifestyle modification interventions in primary health care, including registered nurses, general practitioners and allied health clinicians, including but not limited to dietitians, exercise physiologists or therapists, pharmacists and occupational therapists.

Indigenous or culturally specific health workers, including Aboriginal health workers or practitioners, were excluded due to the different strategies and approaches employed by these clinicians to engage patients and deliver primary health services.

Phenomena of interest

This review considered studies that explored primary health care providers' experiences of delivering nutrition-focussed, lifestyle modification interventions for adult patients with obesity or metabolic syndrome. Patients at high risk of developing metabolic syndrome were also considered for inclusion, such as those who exhibit one or more risk factors, including abdominal obesity, insulin resistance, hypertension and hyperlipidemia.

Provider experiences included but were not limited to willingness to discuss weight or lifestyle concerns with patients, approach to weight and lifestyle focussed conversations with patients, content or primary focus of weight/lifestyle focussed conversations, clinician self-efficacy, perceived effectiveness of weight loss or dietary interventions, perceived client acceptability of the intervention, beliefs about congruence with clinician role and capacity to deliver interventions.

Nutrition focussed interventions included but were not limited to provision of nutrition education materials, disease-specific dietary management strategies, including those targeted at weight loss, and general recommendations about food choices or eating patterns. Nutrition interventions that were delivered secondary to a physical activity intervention were also considered for inclusion.

Context

This review considered studies that were conducted in primary health care settings in high resource countries. For this review, high resource countries were defined as per the World Bank income groupings, based on gross national income per capita.[25] Primary health care settings included but were not limited to general practice, family medical services, community health services and private allied health services.

Indigenous or culturally specific health settings, such as Aboriginal community controlled health organisations, were excluded due to the different approaches and strategies used in these settings to promote patient engagement and deliver primary health services.

Types of studies

This review considered studies that focussed on qualitative data and utilised interpretive methodologies including, but not limited to, designs such as phenomenology, grounded theory, ethnography and qualitative descriptive studies. Critical methodologies including action research were also considered. Studies that utilised mixed methods approaches were also considered for inclusion. Data collection methods included but were not limited to face-to-face interviews, phone interviews and focus groups.

Studies published in all languages were considered for inclusion. Studies published prior to 1 January 2000 were excluded to reflect current practice in primary health care.

Methods

This systematic review was conducted in accordance with the Joanna Briggs Institute methodology for systematic reviews of qualitative evidence.[26]

Search strategy

The search strategy aimed to locate both published and unpublished studies. An initial limited search of PubMed and CINAHL was undertaken to identify articles on the topic. The

text words contained in the titles and abstracts of relevant articles, and the index terms used to describe the articles were used to develop a full search strategy for PubMed (Appendix I).

The search strategy, including all identified keywords and index terms, were adapted for each included information source.

The reference lists of all studies selected for critical appraisal were screened for additional studies. Forward citation searching methods were also utilised, in which Google Scholar was used to check for studies that had cited the studies included for critical appraisal.

Information sources

The databases that were searched included PubMed (NCBI), CINAHL (EBSCO), Web of Science (Clarivate Analytics) and Scopus (Elsevier B.V.).

The search for unpublished studies included Google Scholar, ProQuest Dissertations and Theses and WorldWideScience.org. Searches conducted in Google Scholar included keywords that were representative of the primary search terms included in each domain of the search strategy: “metabolic syndrome”, “cardiometabolic risk”, “lifestyle modification”, “healthy lifestyle intervention”, “provider experience” and “health professional experience”. Searches conducted in Google Scholar were limited to the first 20 pages of search results.

The final search strategies for PubMed, CINAHL, Web of Science and Scopus are included in Appendix I.

Study selection

All identified citations were collated and uploaded into Endnote (Clarivate Analytics, PA, USA) following the search, and duplicates were removed. Two independent reviewers screened titles and abstracts for assessment against the inclusion criteria for the review. Potentially relevant studies were retrieved in full and their citation details were imported into the Joanna Briggs Institute System for the Unified Management, Assessment and Review of Information (JBI SUMARI).[27] Studies that were excluded on reading full text are listed in Appendix II. Two independent reviewers assessed in detail the full text of selected citations against the inclusion criteria. Reasons for exclusion of full text studies that did not meet the inclusion criteria were recorded and reported in the systematic review. All disagreements between reviewers were resolved through discussion without the need for a third reviewer to be involved. The results of the search were reported in full in the final systematic review and

presented in a Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) flow diagram.[28]

Assessment of methodological quality

Two independent reviewers critically appraised the methodological quality of eligible studies using the standard Joanna Briggs Institute Critical Appraisal Checklist for Qualitative Research.[29] No authors were contacted to request further information about the included papers. Disagreements between reviewers were resolved through discussion without the need for a third reviewer. The results of critical appraisal were reported in narrative form and in a table.

Data extraction and synthesis were completed for all studies, regardless of the results of their methodological quality. The quality of included studies was considered and reported on in this review.

Data extraction

Two independent reviewers extracted data from the studies included in the review using the standardized Joanna Briggs Institute data extraction tool. The data extracted included specific details about the populations, context, culture, geographical location, study methods and phenomena of interest (i.e. provider experiences of delivering lifestyle modification interventions which included a nutrition component for adult patients with obesity or metabolic syndrome). Findings, and their illustrations, were extracted and assigned a level of credibility. The three levels of credibility include Unequivocal (U), where findings and accompanying illustrations are clearly associated beyond a reasonable doubt; Credible (C) where findings and associated illustrations lack clear association and are open to challenge; and Not Supported (NS), where findings aren't supported by the data. Disagreements between reviewers were resolved through discussion.[124]

When deciding on our level of extraction of findings, as most of the studies were qualitative descriptive in nature, they provided more descriptive categories rather than highly abstracted/conceptual/interpretive themes. For these qualitative descriptive papers, we therefore extracted their final categories (or themes). However, for the few papers that were more theoretically driven and aligned to classical qualitative inquiry methodologies (such as phenomenology or grounded theory), we extracted at the subtheme or second order analyses/findings level as these were more closely aligned with the level of abstraction of the findings from the qualitative descriptive studies.

Data synthesis

Qualitative research findings were pooled using JBI SUMARI with the meta-aggregation approach.[26] This involved the aggregation or synthesis of findings to generate a set of statements that represented that aggregation, through assembling the findings and categorizing these findings on the basis of similarity in meaning. These categories were then subjected to a synthesis in order to produce a single comprehensive set of synthesised findings that can be used as a basis for evidence-based practice.

Assessing confidence in the findings

The final synthesised findings were graded according to the ConQual approach for establishing confidence in the output of qualitative research synthesis and presented in a Summary of Findings.[30]

The Summary of Findings includes the major elements of the review and details of how the ConQual score is developed. Included in the Summary of Findings are the title, population, phenomena of interest and context for the specific review. Each synthesised finding from the review is presented, along with the type of research informing it, scores for dependability and credibility, and the overall ConQual score.

Chapter 3: Results

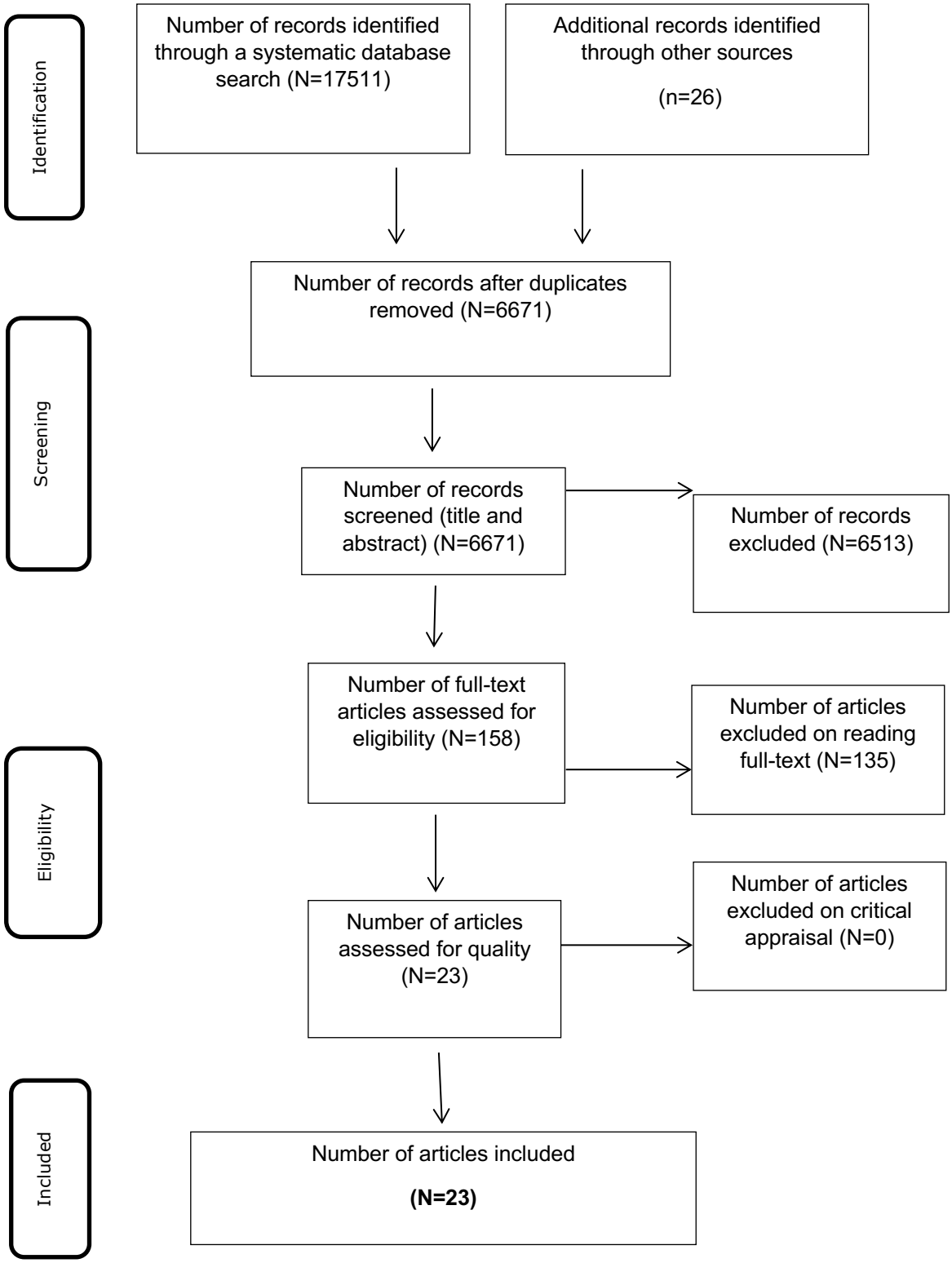
Search results

A comprehensive search was conducted between 29 May 2019 and 5 June 2019, identifying a total of 17,511 titles. Of this, 7454 were identified through the primary databases including PubMed (1097 titles), Scopus (2359 titles), Web of Science (3749 titles) and CINAHL (249 titles). An additional 10,057 were identified by searching other databases, including Google Scholar (9110 in the first 20 pages searched), ProQuest Dissertations and Theses (368 titles) and World Wide Science (579 titles).

There were 837 duplicates identified by the duplicate function in Endnote. Titles were also hand searched for duplicates. These titles were screened by title and abstract for relevance and 158 were retrieved as full-text articles. After assessment of full-text articles, 23 met the inclusion criteria and progressed to critical appraisal.

The reference lists of each of the 23 papers were hand searched for additional papers that were not identified in the initial search (n=26 were identified, however none were suitable for inclusion). Forward citation searching was also completed for each of the included papers. No additional studies were located. Critical appraisal was completed by two reviewers and it was concluded that all papers should be included.

The PRISMA flow diagram is depicted in Figure 1.



From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). *P*referred *R*eporting *I*tems for *S*ystematic Reviews and *M*eta-*A*nalyses: The PRISMA Statement. PLoS Med 6(6): e1000097. doi:10.1371/journal.pmed1000097

Figure 1: Search results and study selection

Description of included studies

Study characteristics

Of the 23 studies included, two were conducted in Scotland[109,125], one in Wales[111], four in Canada[107,126-128], two in New Zealand[112,129], three in Sweden[82,101,130], two in the USA[98,113], six in Australia[51,105,106,108,131,132], one in Singapore[133], one in Ireland[134] and one in the UK.[100]

The PHC services included general or family medical practices [100,106-109,111,112,131,134], PHC practices [82,98,105,130], community pharmacies [125,129,132], private/municipal healthcare centres [101] and community health teams.[51] Some studies were conducted across multiple settings including private family practice, university affiliated services, community health services, nurse-led clinics and non-profit or public health care.[113,126-128,133]

The majority of study participants were practice or district nurses and general practitioners. [82,98,105,109,126-128,131,134] Some studies were conducted with GPs only[106,108,112,133] or nurses only.[100,101,111,130] Three studies were conducted with community pharmacists.[125,129,132] Some studies were conducted on multidisciplinary PCPs, including dietitians, mental health clinicians and/or non-specified allied health practitioners.[51,107,113]

The phenomena of interest included perceptions of obesity, and strategies and attitudes towards weight management[82,98,109,111,112,126,128,133], nutrition care practices[127], role and experiences of pharmacists in weight management[125,129,132], experiences of delivering health promotion and lifestyle interventions[101], experiences integrating weight management into practice[107,131], priorities for weight management[113], factors influencing confidence and behaviour in obesity management[106], development of theory for lifestyle counselling for people with mobility disability[130], attitudes and barriers towards addressing lifestyle risk factors,[51,105,108,134] and perceptions of role adequacy in nurses working in obesity management.[100]

A descriptive summary of the included studies is included in Appendix III.

Methodological quality

The 23 studies included in the review were of varying methodological design and quality. All studies which met inclusion criteria were included, regardless of methodological quality. The included studies were predominantly of qualitative descriptive design [98,101,106,109,111-

[113,126,127,129,130,133], but also mixed methods [107,135], grounded theory[136] and phenomenographic design.[82] All studies were published papers.

Very few studies rated strongly in critical appraisal criteria relating to congruity between stated philosophical perspective and research methodology. Similarly, few studies satisfactorily discussed the cultural or theoretical position of the researcher, and the influence of the researcher on the research and vice-versa were often unclear or not stated.

All studies demonstrated congruity between the research methodology and the research question, data collection methods, data analysis methods and interpretation of results. Generally, participant voices were adequately represented, ethical approval was clearly stated in all except one paper[133], and the conclusions reached by the authors flowed from the analysis interpretation of data.

Disagreements about critical appraisal criteria between reviewers were resolved effectively through discussion. The main sources of incongruence between the reviewers arose through different approaches to the critical appraisal criteria. The first author favoured the use of clear ‘yes’/’no’ responses, however, the second reviewer tended to favour the unclear response. Upon discussion, it was concluded that ‘unknown’ was the most appropriate response for most of the disagreements.

The critical appraisal summary is shown in Appendix IV.

Review findings

From the 23 papers which were included in the review, five synthesised findings were generated from 15 categories and 172 findings. The synthesised findings and the categories which underpinned them are described below.

As the findings were assigned levels of credibility, one finding was considered to be not supported and was excluded from further synthesis.

The findings extracted from each paper are presented in Appendix V.

Synthesised finding 1

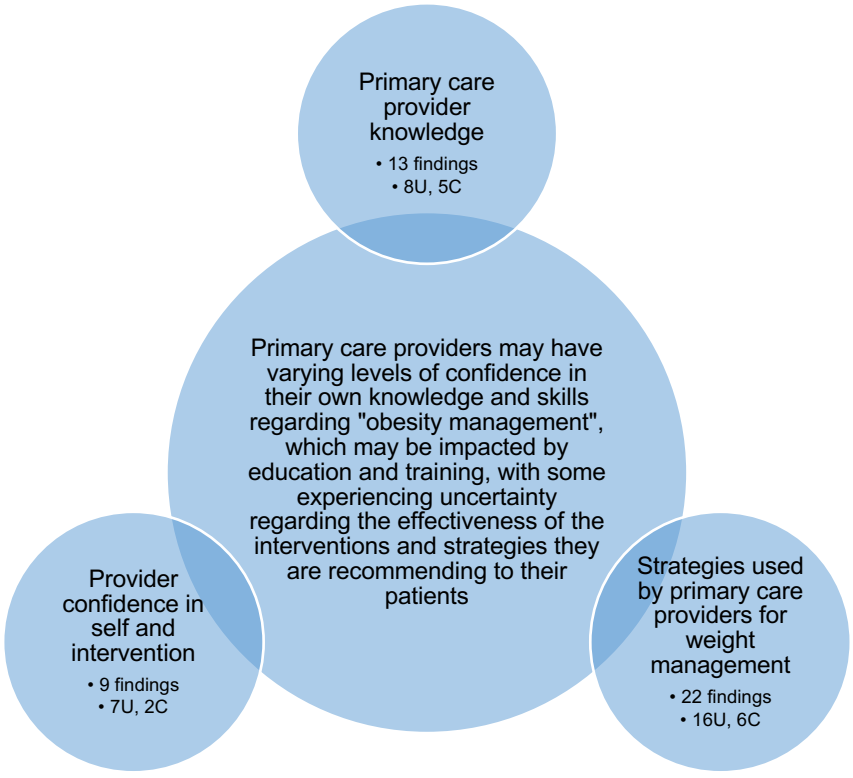


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Figure 2: Synthesised finding 1

PCPs utilise weight management interventions, including encouraging exercise, energy-restricted diets and goal setting in their practice, however, some feel that these interventions are not very effective or do not bring about the desired outcomes for their patients. Primary

care providers feel that they do not have acceptable levels of knowledge to provide appropriate information and guidance to patients. This finding was generated by the aggregation of three categories, underpinned by 44 findings.

Category 1: Primary care provider knowledge

The first category, PCP knowledge, describes how providers perceived their own level of knowledge around weight management and discussing nutrition related issues with patients. This category was underpinned by 13 findings, of which eight were unequivocal and five were credible.

Some providers felt as though 'weight loss' was as simple as modifying energy intake and output. For example, one provider said, "*I think that's the whole point of the thing – diet and exercise, that's it in a nutshell. It is nothing else. It's calories in, calories out – energy in, energy out, that's it, it's not rocket science.*"[129(p.368)]

It was common for PCPs to implement general, non-specific exercise recommendations for patients, for example, "…*walk five times a week for an hour*…"[108(p.475)] and feel as though this is adequate. Despite this perception about the simplicity of obesity management, some PCPs felt that they did not have adequate levels of knowledge in relation to providing specific lifestyle advice, either nutrition or physical activity related.

Issues and advice relating to diet were sometimes seen as more complex than exercise, with providers feeling unsure about which foods or diet to recommend to patients. Exercise was also seen as not being as effective as dietary changes for weight loss, despite having other benefits.

PCPs generally felt that they had received inadequate training or education to effectively address lifestyle issues in their practice. As more patients presented with high body weight, PCPs perceived the issue of obesity to be beyond their control and did not feel like their knowledge is sufficient to provide appropriate care.

"My knowledge is…bad and getting worse, I think it's (obesity) a huge crisis, that's exponentially expanding. I see it getting worse, I'd say 50% are obese, I don't have the details of prevalence in our community. I sometimes wonder (pause and staring in to space) do we have enough knowledge to be skilled enough to provide the care? Most providers don't have the time or the knowledge to address obesity, but I think there should be more of a medical education and awareness of obesity for all of us." [98(p.92)]

In contrasting, providers who had attended additional training felt that they had more appropriate knowledge and skills to manage obesity.

"*I probably may be more effective because I'm quite comfortable…I give that bit of extra time and I've had a bit of extra training, so I have a bit more at my fingertips to offer them in that short intervention.*"[100(p.357)]

Category 2: Provider confidence in self and intervention

The second category, provider confidence in self and intervention, describes how PCPs felt about their ability to implement weight management interventions, and also how effective these interventions were in achieving 'weight loss'. This category was underpinned by nine findings, of which seven were unequivocal and two were credible.

Weight management interventions were not perceived to be effective for many patients, however, providers felt a sense of responsibility to try and promote behavioural change or 'do something' for their patients. Providers also described having low confidence in their ability to support and empower clients with weight loss when they acknowledged the lack of effectiveness of the intervention. Providers often tried to suggest strategies that they thought might be effective, however, they did not feel that these translated into weight loss very often.

"I don't want to be falsely saying…'I really believe if you do this this would be effective'…I just think if people have put on weight often their body's fighting to get back up to that weight…and I know some people lose weight and they do keep it off with a lot of effort but I think the majority of people put it back on…So I don't feel confident empowering people."[106(p.3)]

Category 3: Strategies used by primary care providers for weight management

The third category, strategies used by PCPs for weight management, describes the different interventions discussed or implemented by providers in practice to try and support patients with weight loss or improved nutrition. This category was underpinned by 22 findings, of which 16 were unequivocal and six were credible.

Strategies discussed by providers included providing support and motivational interviewing, setting goals, providing dietary or physical activity advice or educational materials, commercial weight loss products and routine management and follow-up. Strategies relating to modification of diet and exercise were highlighted as the best or most common way to 'manage obesity'. Diet or nutrition related strategies including general healthy eating or healthy lifestyle advice and provision of education materials were common strategies.

"*I was saying 'you've got a weight problem and obviously the cholesterol is raised, you need to perhaps lose some weight…eat healthily, eat more vegetables and do exercise regularly, all you need to do is start walking and eating regularly.' So basically I gave her information."*[105(p.7)]

Some providers noted that patients wanted "*quite a prescriptive diet plan*"[111(p.55)] rather than general information that they could transfer to their own situation. Providers saw it as their role and used different strategies to guide, motivate or direct patients towards lifestyle changes. Some providers believed that using 'scare tactics' was an effective and appropriate strategy to motivate patients to improve their health. For example, one provider said, *"I sometimes say: 'Heart disease, do you want that? Or diabetes?' I try and scare them a little bit and if I find out that their mother diet of a heart attack, I can use that."*[82(p.6)]

Motivational interviewing and counselling strategies that promote sustainable or realistic goal setting were also common. One provider said, "*I try to get them to be active on a daily basis. Walking a short distance to work or using the stairs. It's important that they begin changing their behaviour slowly."*[82(p.5)]

Synthesised finding 2

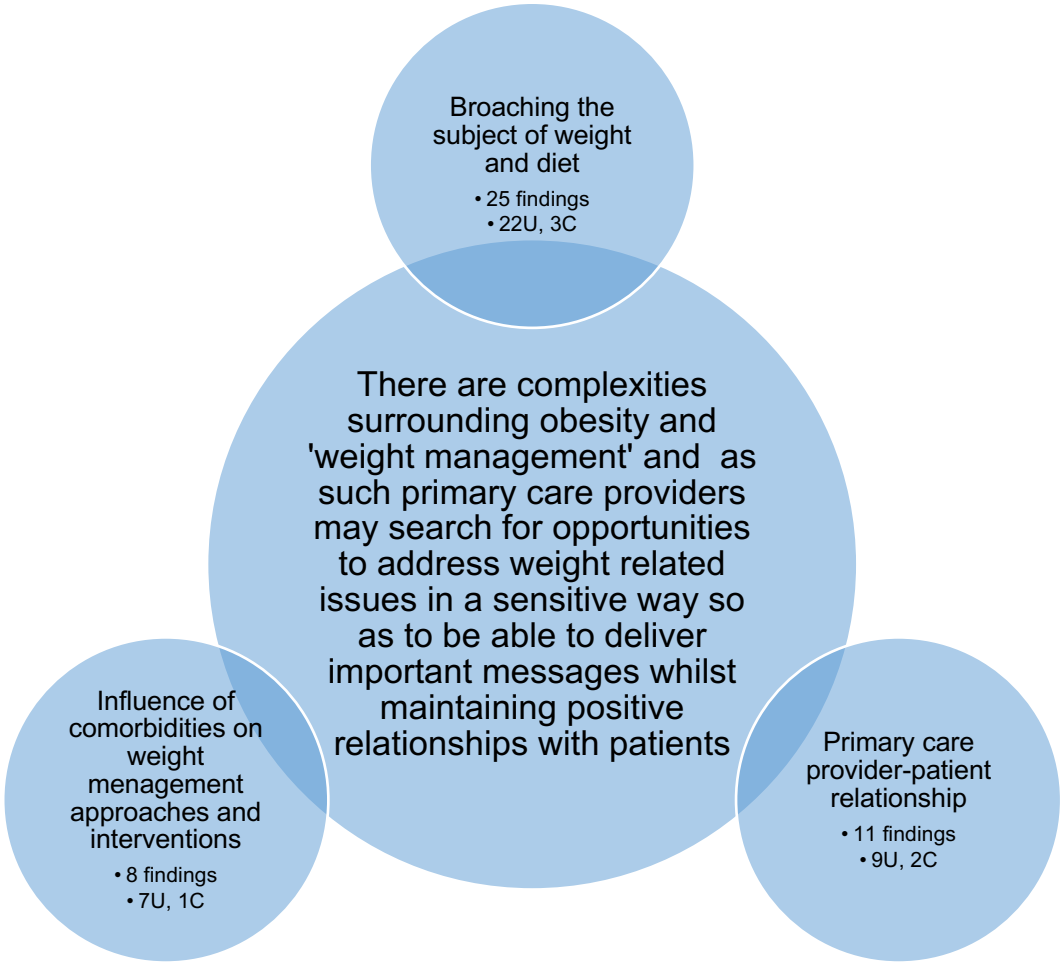

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Figure 3: Synthesised finding 2

PCP's are aware that 'obesity' can be a sensitive topic to address with patients and is often part of a complex 'patient health environment', therefore they search for and attempt to address issues sensitively. This synthesised finding was developed from three categories, underpinned by 44 findings.

Category 1: Broaching the subject of weight and diet

The first category, broaching the subject of weight and diet, was underpinned by 25 findings, of which 22 were unequivocal and three were credible. This category describes how PCPs felt about broaching weight related issues with patients and the strategies used to approach such discussions in practice.

Generally, providers were aware that weight or nutrition issues could be sensitive topics to address with patients and many expressed the fear of embarrassing patients.

"*No one wants to hurt or embarrass or insult their patient. For a lot of them [GP's and practice staff] broaching that topic sensitively is not easy.*"[131(p.3)]

Some providers actively avoided bringing up weight related topics until 'something goes wrong' or the health status of the patient declined. For example, one provider said, "*I think it's such a sensitive topic that it tends to be reactive rather than proactive, unless things are going on when the health is declining, we know that their meds [medicines] are going up and we get a chance to sit down and talk to them about other things*"[129(p.369)]

PCPs felt like there were some situations where it was more appropriate to bring up weight related issues than others. Some providers tried to align conversations about weight with other health concerns, risk factors or procedures (for example, taking a blood pressure measure) or utilised screening tools to create opportunities to discuss weight and diet. For example, one provider said, "*Quite commonly if we're doing chronic disease management - diabetes, hypertension, lipid control – those types of things come up very early in conversation. Some people associate weight discussion as a negative thing, instead of something that carries them forward into a positive role for their health management.*"[127(p.4)]

In some settings where health providers were required to have health dialogues with all patients over a certain age, it felt like information was being forced upon people who were not ready to receive them which made providers feel embarrassed or uncomfortable. Providers also mentioned discussing weight in different ways, depending on the patient's history. For example, patients presenting for the first time with weight concerns were provided with general nutrition advice, whereas people with a longstanding history were often referred to external programs or services.

Category 2: The influence of comorbidities on weight management approaches and interventions

The second category, the influence of comorbidities on weight management approaches and interventions, describes how PCPs perceived the influence of other mental and physical health conditions on their approach to weight management. This category was underpinned by eight findings, of which seven were unequivocal and one was credible.

Comorbidities or co-existing conditions were seen as both a barrier and an opportunity for discussions about weight and nutrition. On one hand, providers acknowledged that it could be inappropriate to discuss weight when patients presented with other health conditions that were a 'priority'. For example, if patients were struggling to manage one health condition or

behaviour, providers might have felt that it was not appropriate to discuss weight. One provider said, "*…for example the lady I saw this week could have been like a good 10, 20 pounds that she could lose, then it was her first visit so am I going to approach that on her first visit for smoking cessation when she's already struggling with that? I find that's one mountain, if you throw everything in the same visit, they're going to be like who's that crazy lady, I'm not going back.*"[107(p.328)]

Additionally, some providers saw comorbidities as an opportunity to commence a discussion about weight.

"*The presence of a concomitant disease seemed to lift the negativity and ambiguity that existed about managing obesity and the GPs in particular were much more prepared to take an active role in weight management in such patients.*"[109(p.250)]

Providers felt that the approach taken was appropriate to the consultation and where the patient was at.

Category 3: Primary care provider-patient relationship

The third category**,** PCP-patient relationship, describes how the relationship between the provider and the patient influenced how weight-related conversations occurred in practice. This category was underpinned by 11 findings of which nine were unequivocal and two were credible.

Providers felt that long-term relationships with patients facilitated discussions about weight. Providers that met with patients regularly felt that they had better or more opportunities to discuss weight and that they had a stronger base of knowledge about the patient because they 'know what makes them tick'.

"*It has to be a long-term relationship. Often it's very short encounters, but I've noticed that I can get further with the patients I meet repeatedly.*"[82(p.4)]

Providers felt that they needed to know patients fairly well to bring up weight related conversations – "*readiness to change can be very threatening to patients…you need to know them fairly well to bring that discussion up.*"[131(p.3)]

Providers also perceived their own weight or health concerns to affect how they responded to patients. Providers with larger bodies felt uncomfortable telling their patients to lose weight, whilst those with smaller bodies found it difficult to understand the experiences of their patients.

"*It's hard for me to convey these messages when they look at you and say 'You don't know what it's like.' And it's true, I don't know what it's like to be overweight, or to lose weight.*"[131(p.4)]

Synthesised finding 3:

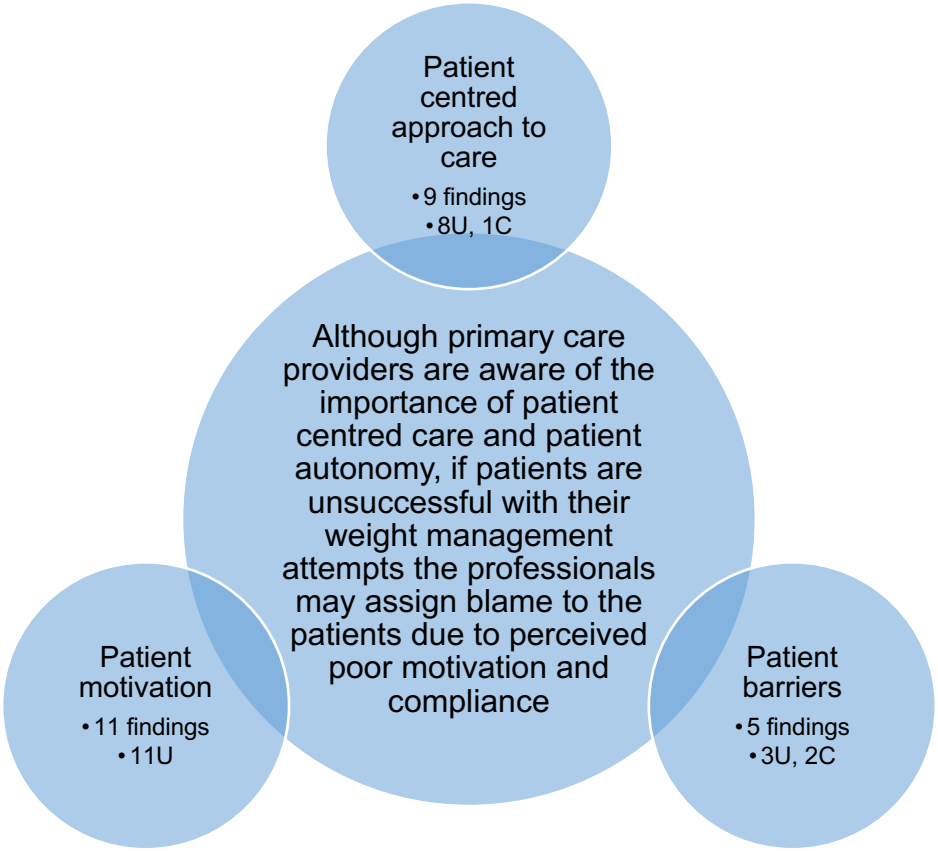

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Figure 4: Synthesised finding 3

PCPs highlight the importance of developing individualised plans and strategies that meet the needs of patients, described as providing patient centred care. However, it is also clear that PCPs blame patients when they are unable to lose weight and believe they are non-compliant and lack motivation. This synthesised finding was developed from three categories, underpinned by 25 findings.

Category 1: Patient centred approach to care

The first category, patient centred approach to care, describes the importance providers place on considering the needs of the individual when developing strategies. This category was informed by nine findings, of which eight were unequivocal and one was not supported.

PCPs acknowledged that there was variability among individuals, therefore, a 'one size fits all' approach to weight management or nutrition was deemed not effective or appropriate.

"*I find weight is often one of those things where there's so many different things involved, you've really got to try and work out what are the things that are going to be useful here because they're not the same thing I use on someone else.*"[112(p.216)]

Some providers discussed providing patients with a number of options and letting them decide which was the most suitable or achievable for them at the time. Often this was considered when there were multiple, co-occurring risk factors or conditions. Providers tried to make an assessment of the person's ability and capacity at the time of the appointment and give advice based on that.

"*I'd try to sort out what the patient had in mind, maybe he or she wants to do the lot all together as a package, we'd have to come to some agreement as to how the patients wants to address it. But it needs to be patient-orientated where possible.*"[105(p.7)]

Category 2: Patient barriers

The second category, patient barriers, describes provider perceptions of what barriers exist for patients in weight management. This category was underpinned by five findings of which three were unequivocal and two were credible.

Different eating habits in relation to socio-cultural background was brought up as a barrier for behaviour change for some patients. For example, one provider said, "*There are quite a lot here that come from Asia and the Mediterranean and they often have dinner very late and have particular eating habits. It's very difficult to make them change things.*"[82(p.7)]

Providers also felt that income and access to resources were barriers.

'*It depends how accessible certain resources are for the patient. Transportation is a major issue for many of the patients. If they live close to the CHC then I would refer them to the dietitian here. Some of them don't have access to the internet. If they're tech savvy then I would refer them to the services that are online or I would print it up from them.*"[128(p.173)]

Providers also considered internal barriers to behaviour change. One provider noted that some patients may try to be evasive or not tell the truth about their dietary habits.

"*They often say 'I don't understand it, I don't eat anything', but actually we know they do.*"[82(p.7)]

This may also indicate that PCPs considered some patients to be inherently untrustworthy and did not believe what they are telling them in relation to their dietary or lifestyle behaviours.

Category 3: Patient motivation

The third category, patient motivation, describes how PCPs perceive patients' self-efficacy or motivation to make changes to their lifestyle and health. This category was underpinned by 11 findings, of which all were unequivocal.

Some PCPs held the belief that patient motivation equalled 'successful weight loss' and that, as a result, patients were responsible for their own success. There was an underlying theme that patients wanted to lose weight but they did not want, or were not motivated enough, to change their behaviours.

"*Patients are sensitive. If they aren't open to the discussion (and I can usually tell), I don't go there. Some people are just not approachable. They are not motivated, and that is the key to success. And sometimes, even if they are motivated, they just fall off…the wagon you know. They have repeated weight loss failures and they usually give up. Compliance is just as important as motivation. I had one patient who was so motivated and that's why she was so successful*."[98(p.95)]

PCPs highlighted how they tried to get a sense of how motivated the patient was to make changes, however, some providers experienced frustration when they felt that they were repeating the same messages and advice, yet clients continued to gain weight.

"*I've been seeing them for four years and tell them the same thing every time, and their weight has not gone down, but gone up*."[113(p.249)]

Some providers also felt that they did not have the time to try and motivate the 'unmotivated' when they had so many competing priorities. Providers perceived that patients lost confidence in themselves when they were unable to lose weight and became disappointed with themselves.

"*There comes a time when you get so disappointed with yourself because you just can't lose weight. You think you've done everything, and you still can't like yourself. You lose confidence.*"[82(p.8)]

Synthesised finding 4

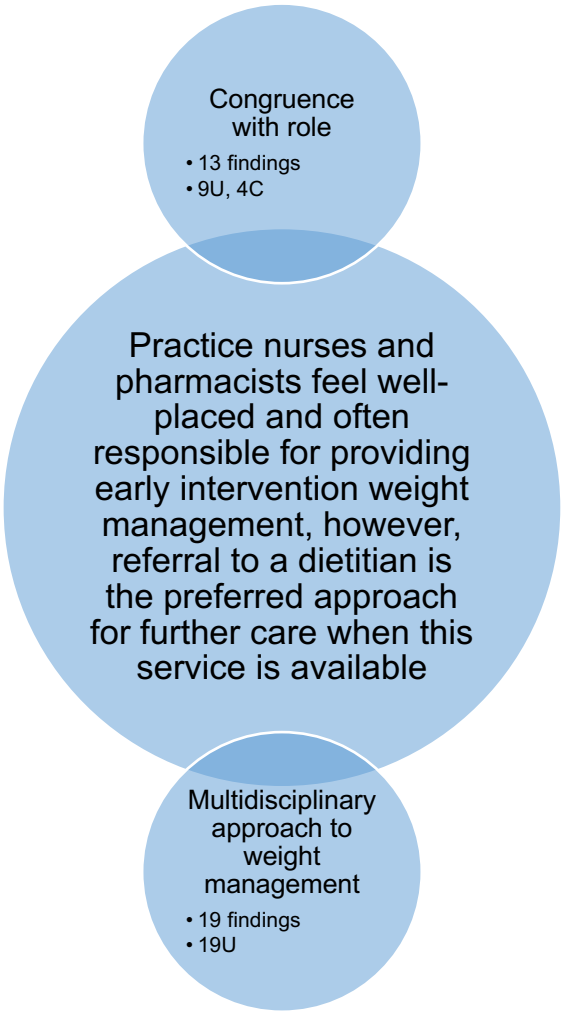

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Figure 5: Synthesised finding 4

In general, PNs are considered to be the most appropriate provider for having early discussions with patients about weight, however, referral to a dietitian is seen as the best option for more complex patients. Pharmacists also consider themselves well placed to deliver weight management advice. This finding was developed from two categories and underpinned by 32 findings.

Category 1: Congruence with role

The first category, congruence with role, describes how healthy lifestyle interventions align with the role description/understanding of PCPs. This category highlights the differences between the three primary professions that were included in the studies: PNs, GPs and

pharmacists. This category was underpinned by 13 findings of which nine were unequivocal and four were credible.

In general, nurses working in the PHC setting were perceived to be well-placed to deliver healthy lifestyle interventions. It was perceived that they had more time than GPs, who felt that "*overweight is not our responsibility*".[82(p.4)]

"*We very much leave it to the practice nurse. I do not think it is a GP's job to be doing the hands on work – it is my responsibility to make sure it has been tackled by someone else.*"[109(p.249)]

Nurses, particularly those who had received additional training or had an 'active interest', felt that weight management or healthy lifestyle interventions were a key component of their role. Nurses saw health promotion as a key component of chronic disease management.

"*Nurses are probably a bit more oriented towards this kind of work, and I think they can do a lot. They have more time to go through things, and they're highly competent. Anyway, the ones we have, have taken an active interest.*"[82(p.6)]

Pharmacists experienced conflicting views or perceptions about providing weight management or lifestyle advice to clients. On one hand, pharmacist felt that they were well placed to discuss weight or healthy lifestyle approaches with patients/clients as they felt they were very accessible and approachable in comparison to other health professions. On the other hand. There was also a perception amongst pharmacists that they were hesitant to promote 'weight management services' as doctors were wary of what pharmacists did due to the commercial aspect of their services and also because they were unsure if these services had been provided by another health professional.

"I'm a bit uneasy about promoting it too much so that it isn't seen as just another way of making money…doctors are very suspicious of what pharmacists do."[132(p.715)]

The role of the pharmacist was not discussed by other clinicians.

Category 2: Multidisciplinary approach to weight management

The second category, multidisciplinary approach to weight management, describes how PCPs utilise or access other clinicians to support patients with weight management or healthy lifestyle interventions. This category was underpinned by 19 unequivocal findings.

Within this category, a team or multi-disciplinary approach was discussed frequently and encompassed the utilisation of the GP and nurse, as well as dietitians and physiotherapists. Providers felt that having multiple clinicians reinforcing the same advice to patients within the context of the multidisciplinary team was seen as a positive factor and part of being a team.

"*…you have to have multi-professional collaboration with a physiotherapist and dietitian. You can't do it yourself, there has to be collaboration around it all.*"[130(p.6)]

Referral to a dietitian was seen as a strategy or intervention to offer to patients who presented with risk factors. Dietitians were perceived to be a valuable evidence-based resource that was useful to have on-site or located within a practice. Other PCPs felt it was helpful to have a dietitian to advise on complex cases and provide support to the PNs. Referrals to on-site healthy lifestyle groups which covered diet and exercise education and support were offered to patients when these services were available

The cost of accessing dietetic services was seen as a barrier for some patients.

"It's mostly referring to the programs we have here. We have the Healthy YOU class so I refer to that or ask if they have done that. These programs go through diet, exercise and behaviour change. If they are not interested in a group session, I refer directly to the dietitian."[128(p.171)]

Referrals to commercial weight management services, such as Weight Watchers, were discussed by some providers but not seen as a good option.

"*I don't really refer to Weight Watchers and that sort of thing because I wouldn't want to go against anything that the dietitian recommends.*"[128(p.171)]

Pharmacists highlighted the importance of a multi-disciplinary team in 'managing weight' or chronic disease risk but felt that they were not included. Some pharmacists said that other health professionals did not communicate with them about patients and that they did not have the knowledge of or access to the appropriate referral pathways for them to be involved.

"*We'd like to, but I think the only reason we don't [refer patients] is because we don't know how. It's not easy. We've got no phone numbers, they never contact us. If they were more proactive and saying 'hey, did you know what we do? These are the sort of patients you can refer', then we might be more proactive…what would be really helpful is to refer patients to dietitians, nutritionists and exercise specialists. To be able to refer people would be excellent but we don't have a referral pathway.*"[129(p.369)]

Synthesised finding 5

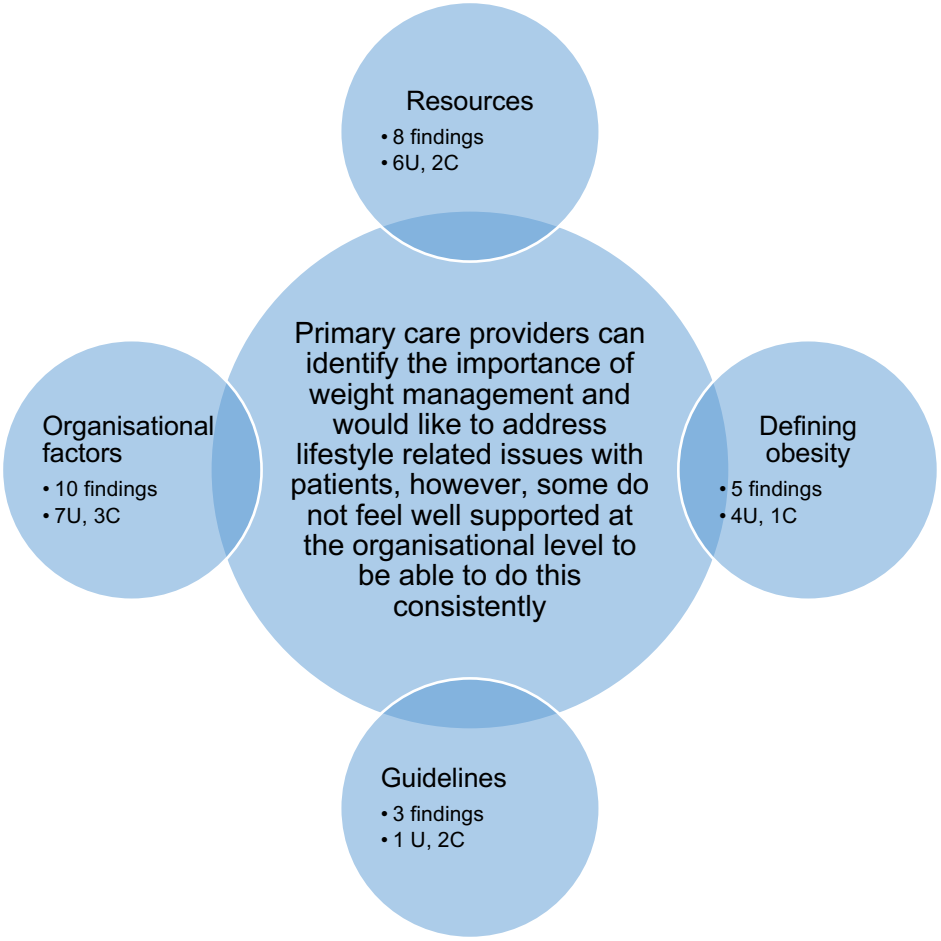

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Figure 6: Synthesised finding 5

Providers are aware of how important it is to discuss weight related issues with their patients, however, they experience challenges in doing this consistently. Organisational barriers include lack of remuneration schemes, short appointment times and low priority within the practice. This finding was developed from four categories and underpinned by 26 findings.

Category 1: Resources

The first category, resources, describes how time and remuneration can act as barriers to PCPs providing lifestyle interventions to patients. This category was underpinned by eight findings, of which six were unequivocal and two were credible.

Time was highlighted as one of the biggest barriers to PCPs discussing weight and lifestyle issues with patients. Clinicians described how they often had a short amount of time with

patients which only allowed them to address the presenting health concern. This lack of time was further highlighted when PCPs were seeing new patients. Issues of lifestyle or preventative health were seen as something to address only if there was extra time.

"*It depends…on how much time I have so if this is a patient I have never seen before and I've been booked for 10 or 15 minutes with them and they have a number of issues but what they're there for is their cough, I probably won't bring it up.*"[107(p.328)]

Remuneration was also highlighted as both a barrier and facilitator for PCPs to discuss lifestyle issues. A lack of remuneration schemes limited a provider's willingness to discuss weight or lifestyle, whilst incentives and remuneration schemes increased the likelihood of providers having discussions about these issues.

"*I work four hours a week in a fee for service model and have I ever talked about weight management? Very rare because it's designed for more acute conditions and because it is not incentivised…In the FHT (Family Health Team) we have regular diabetes sessions. In this setting, we get incentivised to see diabetic patients every 3 months and we talk about weight then.*"[126(p.245)]

In many cases, these limitations were seen as being imposed by practice management or organisational factors that were out of the PCPs' control. This was particularly relevant for pharmacists due to the commercial nature of their setting. Pharmacists were unlikely to provide lifestyle or weight loss related advice if they were not going to be remunerated for that.

"*The trouble with pharmacy is that commercial aspect to it where you aren't going to do something for nothing. I mean that sounds pretty horrible and harsh but do you know what I'm getting at. If you're going to be selling a product or a programme or whatever, then it's gonna (sic) take some time and there's gotta (sic) be a remuneration for the time you spend, and that's the difficult part I see.*"[129(p.369)]

Category 2: Defining obesity

The second category, defining obesity, describes how PCP's see obesity at a broader, societal level. This category was underpinned by five findings, of which four were unequivocal and one was credible.

PCPs described how obesity was seen as a cultural or societal norm due to the high number of patients presenting with larger bodies. PCPs highlighted some of the environmental factors that may have impacted on someone's health and felt that any impact on obesity would be achieved through a 'societal shift' rather than through the efforts of doctors alone.

"*I suppose with the large percentage of those being overweight they think it's the norm…sometimes people do find it hard to eat healthily because unhealthy food is so much more accessible, so much cheaper and so much more convenient.*"[129(p.367)]

"Probably if we're going to impact on obesity with any great success, I think we're going to have to do it through other means, other than doctors. I think it has to be a kind of general society shift through education in a broad sense, but that is a major challenge."[109(p.251)]

Body Mass Index (BMI) was typically used to classify obesity, however, this was seen as inadequate due to the inability for the measure to differentiate between different body shapes and sizes.

"*I think it's very subjective. I mean classically we have used body mass index, which I think, you know, is a grossly inadequate measure because it doesn't…reflect you know the kind of different body types and that sort of thing.*"[112(p.214)]

Category 3: Guidelines

The third category, guidelines, describes PCP awareness of clinical practice guidelines in relation to obesity management. This category was underpinned by three findings, of which one was unequivocal and two were credible.

There was a general sense that PCPs felt that there was a lack of appropriate guidelines to follow within their practice or that the guidelines available were inappropriate for use in practice.

"*Well we certainly saw the SIGN guidelines (on weight management) and were horrified. There were aspects of the SIGN guidelines that we found quite unacceptable, particularly the recommendation to use appetite suppressants. I think that was one of the less successful SIGN guidelines.*"[109(p.251)]

Category 4: Organisational factors

The fourth category, organisational factors, describes organisational level factors that influence the delivery of healthy lifestyle interventions in PHC settings. This category was underpinned by 10 findings, of which four were unequivocal and six were credible.

PCPs perceived that 'overweight and obesity' should be given more priority in their practice, however, they felt that time and resources were dedicated to diseases over prevention.

"*There are so many other things in primary care that are paramount that not everyone is thinking of weight and nutrition as really important things to assess but it should be another*

vital sign because it's so important. People can gain weight and it can increase their risk for other diseases in a short amount of time."[126(p.244)]

This was also felt specifically at the level of the practice, where other tasks and processes were given priority over addressing 'overweight and obesity'.

Some PCPs felt that this was related to poor organisational structures. PCPs knew about the importance of health promotion but felt that there was no overarching scheme, strategy or policy to support or guide this at the practice level.

"*Our organisation (study site) doesn't seem to promote much in terms of obesity management. I think we all need more training on the issue from the top, but I suppose there is lack of resources. I am not aware of any policy, practice guideline or organisational assistance for my obese patients. I think the only program is the bariatric program. Obesity management should be discussed at our quarterly provider meeting."*[98(p.94)]

Pharmacists felt there was low demand/clientele for weight management in their setting.

Table1: ConQual Summary of Findings

Title: Provider experiences of delivering nutrition focussed lifestyle interventions for adults with metabolic syndrome and obesity: a qualitative systematic review					
Population: Primary healthcare providers					
Phenomena of interest: Experiences of delivering nutrition focussed, lifestyle interventions for adult patients with metabolic syndrome or obesity					
Context: Primary healthcare settings in high income countries					
Synthesised finding	**Type of research**	**Dependability**	**Credibility**	**ConQual Score**	**Comments**
Primary care providers may have varying levels of confidence in their own knowledge and skills regarding 'obesity management', which may be impacted by education and training, with some experiencing uncertainty regarding the effectiveness of the interventions and strategies they are recommending to their patients	High – qualitative	Downgrade 1 – Moderate	44 findings: 31U, 13C Downgrade 1 - Low	Low	Mix of U and C findings, therefore, downgrade 1 Of 18 primary studies, 2 addressed all 5 dependability questions; 2 addressed 4 dependability questions and 12 addressed 3 dependability questions
There are complexities surrounding obesity and 'weight management' and as such primary care providers may search for opportunities to address weight related issues in a sensitive way so as to be able to deliver important messages whilst maintaining positive relationships with patients	High – qualitative	Downgrade – Moderate	44 findings: 38U, 6C Downgrade 1 - Low	Low	Mix of U and C findings, therefore, downgrade 1 Of 20 primary studies, 2 addressed all 5 dependability questions; 5 studies addressed 4 dependability questions and 13 studies addressed 3 dependability questions
Although primary care providers are aware of the importance of patient	High – qualitative	Downgrade – Moderate	25 findings: 22U, 3C	Low	Mix of U and C findings, therefore, downgrade 1

centred care and patient autonomy, if patients are unsuccessful with their weight management attempts the professionals may assign blame to the patients due to perceived poor motivation and compliance			Downgrade 1		Of 13 primary studies, 2 addressed all 5 dependability questions; 5 addressed 4 dependability questions and 6 addressed 3 dependability questions.
Practice nurses and pharmacists feel well-placed and often responsible for providing early intervention weight management, however, referral to a dietitian is the preferred approach for further care when this service is available	High – qualitative	Downgrade – moderate	32 findings: 28U, 4C Downgrade 1	Low	Mix of U and C findings, therefore, downgrade 1 Of 16 primary studies, 1 addressed all 5 dependability questions, 3 addressed 4 dependability questions and 12 addressed 3 dependability questions
Primary care providers can identify the importance of weight management and would like to address lifestyle related issues with patients, however, some do not feel well supported at the organisational level to be able to do this consistently	High – qualitative	Downgrade – Moderate	26 findings: 18U, 8C Downgrade 1	Low	Mix of U and C findings, therefore, downgrade 1 Of 13 primary findings, 1 addressed all 5 dependability questions, 2 addressed 4 dependability questions and 10 addressed 3 dependability questions

U: Unequivocal; C: Credible

Chapter 4: Discussion

This systematic review of qualitative evidence was undertaken to gain further understanding about the experiences of PCPs in delivering nutrition focussed, lifestyle interventions to adult patients with metabolic syndrome or obesity. This systematic review was based on a comprehensive search and provides the first qualitative systematic review on the experience of PCPs. The number of studies identified (23) can be seen as encouraging, as there does exist a significant body of literature investigating this important topic. The 23 papers included in the meta-synthesis contributed 172 findings which were developed in to 15 categories and five synthesised findings which are illustrated below.

Figure 7: Synthesised findings

The first synthesised finding identified that providers do not always feel confident discussing weight and diet with patients and they also can feel as though their recommendations are not particularly effective in achieving weight loss (Figure 7). The findings of this review highlighted that some providers felt that they did not have adequate knowledge or had not received appropriate training to discuss weight and/or diet with patients. These apparent knowledge gaps have been reported on extensively across nursing and medical research.[137-140] Within this research, lack of nutrition knowledge is identified as a primary barrier to providing patients with appropriate nutrition care and assessment, particularly within chronic disease management. Poor nutrition knowledge may be related to insufficient inclusion of nutrition and dietary education within undergraduate health and medical training. It is well documented that inclusion of nutrition related curricula, particularly within medical schools, is vastly inadequate. Medical students may only have the opportunity to access between 15 to 24 hours of nutrition education within their total undergraduate studies, which is well below international recommendations.[141-143]

When considering the content of recommendations given to patients about their weight or diet, providers encouraged patients to engage in physical activity, energy-restricted diets and goal setting in order to manage their weight and/or diet. In general, the type of information provided was very general, or non-specific to the patient, for example, “walk five times a week for an hour”, which providers often felt was adequate.[108(p.475)] In clinical practice, recommendations relating to reducing dietary energy intake and increasing energy output through physical activity were the main ones given by providers in relation to weight management in practice and research.[144,145] This is demonstrated by the perception that the concept or theory behind losing weight was simple – clearly illustrated by one provider as “energy in, energy out, that’s it, it’s not rocket science”.[129(p.368)]

These recommendations are consistent with an overarching “Weight Normative Approach” which is dominant in western healthcare settings.[146] A weight normative approach has an emphasis on weight, often weight loss, when considering overall health and wellbeing.[146] For example, in the Clinical Practice Guidelines for the Management of Overweight and Obesity in Adults, Adolescents and Children in Australia, it is “strongly recommended” that all patients who have a BMI greater than 30 are provided with weight loss and nutrition related interventions.[147(p.40)] The same recommendation is included in the US Preventive Services Taskforce guidelines.[148] Having such a dominant focus on weight management may compromise the provision of ethical health care that upholds the principles of beneficence and non-maleficence.[146] This can create a dilemma for the health professional: despite extensive evidence that weight loss is not sustainable for many people and its pursuit can contribute to adverse health outcomes[149-152], a weight normative approach which encourages

weight loss provides the underlying governance or guidance for many professional recommendations.

It was very apparent that many providers considered weight loss to be the primary measure of success, which aligns with existing literature and healthcare culture.[153] In this review, improvements to other biomedical parameters, such as blood pressure and blood lipids, or behaviour change were discussed far less often than weight loss. Despite this, there is evidence to support an alternative framework which was not discussed by any of the studies included in this review. This framework is called Health at Every Size (HAES) and focuses on evidence-based interventions that enhance health and wellbeing, regardless of the patient's body weight, and is based on the assumption that all individuals are capable of achieving improvements to health, independent of weight, when given access to non-stigmatising health care.[146,153]

The principles promoted within the HAES framework underpin a broad range of clinical interventions, which can be termed 'non-dieting', weight inclusive or intuitive eating.[153] In the published literature, these interventions are often delivered by a multidisciplinary team of nutrition, exercise and/or mental health professionals, and can follow similar formats to traditional weight management programs, including education sessions or workshops and group exercise.[154-156] In comparison to conventional weight loss or weight management interventions, HAES interventions encourage body acceptance and support intuitive eating and embodied movement.[153]

There is substantial evidence which supports the use of HAES approaches in improving dietary intake, attitudes towards eating, physical activity behaviour, physical capacity and some biomedical parameters.[154,157-159] These interventions have also led to significant improvement in psychological symptoms, including body dissatisfaction, body image and health related quality of life.[154,160] HAES interventions have been associated with longer term, sustained improvements across these parameters when compared to usual care.[160] Nevertheless, there is belief amongst critics of HAES that acceptance of body weight and size will lead to weight gain as a result of disregarding dietary recommendations. However, evidence from a number of randomised controlled trials which have been conducted on HAES interventions have shown that these interventions do not result in weight gain.[154,157,158] This is in direct contrast to restrictive dietary behaviour which can contribute to weight gain over time.[153]

Despite the evidence to support HAES interventions, this approach was not mentioned in any of the research included in this review. The evidence from this systematic review highlights that amongst PCPs, most notably GPs and PNs, as most of the research had

been conducted in these professions, a weight-centric approach may be dominant over a weight inclusive or health centric approach. Within HAES focused research, the role of the medical practitioner or nurse is often unclear or unstated. Furthermore, there appears to be a considerable lack of evidence on the acceptability or implementation of such approaches by GPs and PNs. Despite a lack of published research in this area, it may be concluded that having knowledge of HAES approaches would be extremely valuable for PCPs, particularly GPs and PNs, who have regular engagement with patients of all body sizes. Broadening the knowledge and understanding of alternatives to conventional weight management could enable PCPs to provide clients with options for patient centred care. This conclusion is also supported by a position statement from the Royal Australasian College of Physicians in 2018 which recommended a shift towards 'optimising health and managing treatable risk factors at any weight'.[161,162(p.5)]

The second synthesised finding highlighted how PCPs approach conversations about weight and diet in their practice, considering the effect these conversations can have on their patients (Figure 7). The findings of this review highlighted that PCPs were aware that discussing weight issues with patients could be very sensitive and many expressed a level of fear of potentially causing distress or embarrassment to the patient. It is clear from the broader literature that patients can experience a range of responses to these discussions, including high levels of stress or feelings of being judged.[76,95,163,164] Providers may avoid these discussions altogether, which can make patients feel as though they are unworthy of medical time.[164]

The interaction between the patient and provider, particularly during the early stages of the consult, is important for establishing rapport and trust.[165] In a previous study, patients have identified that the most important actions providers can take to reduce patient anxiety and build trust in the therapeutic relationship include avoiding judgemental language and behaviours and asking patients for input about their treatment goals and preferences.[166] Such actions can alleviate anxiety and stress, enable patients' involvement in decision-making about their care and increase adherence to treatment; all of which are important elements of chronic disease management.[28]

Based on the evidence synthesised in this review, it would appear that providers are making attempts to build trust and rapport with patients, however, use of language that could be perceived as being judgemental or stigmatising may prevent effective rapport-building between providers and patients. Within clinical practice and the published literature, PCPs typically demonstrate a commitment to providing patient centred care and are unlikely to intentionally discriminate against patients. Behaviours that emanate from negative attitudes

are considered ‘enacted stigma’ and can be explicit (conscious and reflective of a person’s beliefs about a person) or implicit (automatic and can occur in contrast to explicit attitudes).[76] PCPs may hold explicit and implicit negative opinions about people with obesity which can affect the quality of care. Findings from other studies have identified that PCPs engage in less patient centred communication, have less respect for, and allocate their time differently in consultations with patients with obesity.[167-169] For example, one study identified that PCPs would spend 28% less time with patients with larger bodies compared to those in ‘normal’ weight categories and were more likely to rate the patient encounter as a ‘waste of time’.[169] PCPs may also overattribute symptoms to obesity and may fail to consider diagnostic or treatment options that may be offered to patients in ‘normal’ weight categories.[170]

The impact of weight-stigmatising language and behaviour on patient care is clear, therefore there is a need for an approach to reduce this amongst health professionals. Findings from a systematic review which focused on weight bias reduction in health professionals identified four primary approaches that commonly utilised in such interventions. These approaches included: i) an intellectual understanding of weight, weight-related bias, obesity and stigma through provision of basic information; ii) having empathy for the lived experience for people with larger bodies by focusing on their emotions; iii) self-awareness of attitudes and bias through self-reflection; and iv) the influence of trusted leaders to support changes in attitudes and behaviours. Although insufficient evidence was synthesised in the review to support one approach over the other, the authors identified that multi-faceted approaches that promoted positive attitudes, beliefs and skills regarding obesity during student training might provide an opportunity for further research.[84]

In this review, providers also reported that discussing weight or nutrition related issues was easier with long-term patients. It is well documented that relationship continuity is associated with improved outcomes, including increased patient satisfaction and treatment adherence.[171,172] For patients, having a continuous relationship with a GP offers psychosocial security, enables the GP to obtain specialist knowledge about the patient’s health condition and behaviours, and supports the provision of holistic care.[171,173] Although relationship continuity is widely supported by professional bodies, the structure of a medical practice or organisation can make this very challenging for patients, for example, in the case of episodic care provided at walk-in or drop-in clinics.[171] This creates challenges for GPs in being able to provide and receive patient centred care to patients.

The third synthesised finding discussed the provision of patient centred care in the context of weight management (Figure 7). Providers felt that it was highly important to provide care that met the needs of the individual patient and due to high levels of variability amongst patients,

a “one size fits all” approach was not effective or appropriate. This is consistent with the principles of patient centred care, particularly the provision of personalised support and enabling or supporting patients to make decisions about their health.[24,25] The findings of this review showed that, despite this, some PCPs assumed that low rates of patient success with regard to weight loss were in relation to poor patient compliance, lack of motivation or laziness. These views are surprisingly common within healthcare settings – in one study, over 50% of primary care physicians held negative, stigmatising attitudes toward people with higher body weight, specifically, that they were “awkward, unattractive, ugly and noncompliant”.[174(p.1174)] Such beliefs are perpetuated by GPs, nurses, dietitians, psychologists and obesity specialists.[74,175-177]

Many health providers believe that individuals are responsible for becoming obese, which indicates a lack of understanding about the multi-causal nature of obesity and the complex environmental, genetic and social determinants.[74,174] In a number of studies, GPs and PNs reported beliefs that obesity was caused by unhealthy diet and insufficient exercise, and that it was the responsibility of the individual to manage their weight. Furthermore, these PCPs expressed frustration that patients were unable to comply with lifestyle recommendations, or made excuses about their weight.[74,178] Despite strong evidence that weight loss interventions are ineffective in the long term for most people, [179-181] the belief that individuals are responsible for these outcomes remains. Whilst there is belief amongst some that weight loss success is a result of motivation and commitment to appropriate diet and exercise interventions, there is substantial evidence which supports the belief that weight loss interventions are generally ineffective. Long term studies document that, regardless of the level of compliance to a prescribed diet or exercise intervention, the majority of participants regain most of the weight that was lost during treatment.[179-182] After weight loss, one to two thirds of weight lost is regained within one year and almost all is regained with five years.[180] Overall, there is minimal support for the belief that diets lead to sustainable weight loss. Therefore, uptake and implementation of alternative approaches, such as those which align with HAES principles and the focus on promoting health without the expectation of weight loss, could support the provision of patient centred care in PHC settings.

These underlying beliefs or attitudes held by providers are noted and experienced by patients. Over two thirds of people with higher body weight report experiencing weight-based stigma from their healthcare provider.[183] Experiences of weight stigma are linked with body shame, healthcare stress and healthcare avoidance, and can also instigate physiological and behavioural changes which are associated with further weight gain.[71,76,184] In light of this, there seems to be a ‘disconnect’ between what PCPs consider to be patient centred care and the beliefs and attitudes some have towards to their patients. Principles of patient

centred care include treating patients with compassion, dignity and respect, which is in complete contrast to the reported experiences of weight bias and stigma amongst patients.[185] Experiences of weight stigma can have a significant impact on the health and wellbeing of patients and while these consequences may be unintended, PCPs have a responsibility to provide respectful and inclusive care to all patients.

The fourth synthesised finding identified which PCPs were identified as being best-placed and responsible for delivering lifestyle interventions (Figure 7). There was a strong belief from GPs that PNs were the most appropriate providers to discuss lifestyle related issues with patients. It was perceived that PNs had more time to spend with patients and were able provide better quality care as a result. This is supported by findings in the broader literature. Nurses are often involved in healthy lifestyle support and management in primary care settings.[82],[100] In Australia, guidelines for obesity management promote the role of nurses in providing general advice about healthy lifestyle, assessing weight, initiating discussions about weight management, referring to allied health professionals for additional support, and monitoring and assessing patient progress.[147]

In this review, dietitians were identified by other PCPs as a valuable resource, particularly when they were located within the practice or primary care setting. Dietitians are considered to be the key professional group involved in weight management and to deliver these services predominantly in outpatient and primary care settings alongside chronic disease management.[186,187] Current guidelines also recommend referral to a dietitian for high intensity lifestyle interventions and advocating for their role within a multidisciplinary team.[147,188] A systematic review of the effectiveness of dietetic consultations in PHC has demonstrated that dietetic intervention contribute to significant improvements in both dietary quality and clinical indicators (cholesterol, glycaemic control and triglycerides), as well as anthropometric outcomes.[189] Dietitians may also be more likely to consider weight inclusive approaches to their practice in comparison to other PCPs. In a sample of Australian dietitians, the majority (84.5%) held positive attitudes towards a weight inclusive approach, while a much smaller group (53.9%) held positive attitudes about a conventional weight management approach. The majority of this sample also felt that weight neutral practice was a professionally responsible practice and the most helpful way to support larger-bodied clients.[161] Despite having opportunities for accessing dietitians, some patients prefer to receive nutrition advice from their GP, rather than a specific nutrition professional, for example, a dietitian, as they perceive GPs to be a valid and reliable source of information.[92,93]

The structure of the health care system can also inhibit access to appropriate nutrition guidance. Within the Medicare system in Australia, there are limited funded services available in PHC for patients with lifestyle risk factors, such as high body weight or metabolic syndrome, without a diagnosed chronic disease.[190,191] Other high-income countries including New Zealand and the United Kingdom also experience limitations such as having a low proportion of the dietetic workforce based in PHC.[192,193] Therefore, although referral to a dietitian may be indicated based on clinical practice guidelines, current models of care present challenges in supporting access to these services for all patients. As a result, GPs and practice nurses often provide care to patients with lifestyle risk factors.

Pharmacists also felt that they were well placed to discuss lifestyle issues as they had regular contact with their patients and were accessible, without the need for an appointment. This is consistent with findings of previous studies.[125,129,132,194] It is interesting to note that the role of pharmacists was not discussed by other providers. Evidence indicates that that pharmacists were not considered to be 'part of the team' in weight management. This may be because pharmacists are not always located within PHC settings, such as a general practice. Providers identified that collaboration was facilitated by co-location and having direct contact was more supportive of multidisciplinary action.[195] It appears that pharmacists were only considered as members of the multidisciplinary team in PHC settings when patients had complex medical comorbidities where medication interactions might be a concern.[195] In such scenarios, doctor-nurse-pharmacist triads are the most common team and might not be the most suitable multidisciplinary team for patients seeking care for weight management or risk factors which may be less complex. It is worthy to note that pharmacists are not mentioned in the Australian guidelines for obesity management as being a component multidisciplinary teams.[147]

The fifth synthesised finding identified that providers would like to spend more time with patients to address weight and other lifestyle risk factors but did not feel well supported to do so at the organisational level (Figure 7). There were a number of organisational level barriers that were consistently discussed by PCPs, including time, remuneration and priority within the practice or organisation. It is broadly acknowledged in clinical practice and published research that PCPs understand the importance and value of interventions that address weight or nutrition issues.[196] Despite this understanding, lack of time, in the form of short medical appointments, and lack of compensation, in the form of sub-optimal remuneration schemes, have been identified in the literature as the strongest barriers to providing adequate nutrition guidance in primary care settings.[109,128,176,196]

Providers also discussed lack of knowledge or availability of appropriate policies and guidelines, within both their practice settings and 'obesity management' more broadly. There are a variety of clinical practice guidelines for obesity management, including Clinical Practice Guidelines for the management of overweight and obesity in adults, adolescents and children (Australia), Clinical Guidelines for Weight Management (New Zealand) and National Institute for Health and Care Excellence guidelines for preventing excess weight gain (UK).[147,197,198] The use and uptake of these guidelines are difficult to capture, however, some research indicates that use and uptake of them are low, which aligns with the findings of this review. It is estimated that only 10-30% of patients with high body weight have had exposure to treatment based on guidelines, which may indicate low usage or acceptability of these guidelines by PCPs.[199] When comparing the content of these guidelines, it is interesting to note that none of them include any alternative approaches to conventional weight management, such as HAES or weight-neutral practices. It would likely be beneficial for clinical practice guidelines to include recommendations for a HAES aligned approach to address weight related issues with patients in PHC.

Quality of the evidence

In general, the primary studies included in this review were of low quality, which is not entirely uncommon for qualitative research. For the majority of the papers, the philosophical perspective which informed the methodology, the perspective of the researcher and the influence of the researcher on the research (and vice versa) were unclear or unstated. These are important factors which inform the dependability of the research findings. Furthermore, there were some credible findings which were extracted from the primary studies, which contributed to lower credibility of the overall synthesised findings. As a result, the synthesised findings were all downgraded to low quality using the ConQual approach (Table 1).

Limitations of the review

There are a number of limitations. Although a systematic search was conducted and all efforts were made to locate and identify appropriate studies, it is possible that some studies may have been missed. Additionally, studies that have been published and indexed since the search was conducted may also have been missed. Furthermore, as titles and abstracts were only screened by one reviewer, potentially relevant studies may have been erroneously excluded, potentially contributing to selection bias.

The quality of the evidence was a considerable limitation of this review. Findings from ConQual demonstrated that the studies included had low credibility and dependability, which contributed to the level of evidence of the synthesised findings being downgraded (Table 1).

Strengths of the review

Despite its limitations, this review had a number of strengths. The review followed the structured JBI methodology for qualitative systematic reviews. A comprehensive search of published and unpublished literature was also conducted using eight electronic databases and grey literature sources. This review process followed an *a priori* protocol (published), including critical appraisal of each selected paper by two reviewers using the standardised JBI critical appraisal instrument.

The ConQual approach was used to grade confidence in the synthesised Summary of Findings. Despite the low quality of the research studies included as indicated by the low ConQual score, participant voices were generally very strong and consistent themes and findings could be easily extracted (Table 1).

Conclusion

The objective of this qualitative systematic review was to synthesise the best available evidence on primary care provider experiences of delivering nutrition focussed lifestyle interventions for adult patients with metabolic syndrome and obesity. A comprehensive search of the literature identified 23 papers from which evidence was extracted using the standard JBI approach to qualitative synthesis.

These synthesised findings highlight how PCPs have limited confidence in themselves and in the effectiveness of the interventions they are recommending to their patients. PCPs acknowledge the complexities of addressing issues of weight and nutrition in their practice

and look for opportunities to discuss these topics in a sensitive way to maintain relationships with their patients. Although providers are aware of the importance of patient centred care and autonomy, some may blame patients for unsuccessful weight loss attempts due to poor motivation and compliance. In general, PNs and pharmacists are identified as being the most suitable for providing early intervention weight management, while dietitians are preferred for further care. Despite PCPs identifying the importance of weight management, they are not well supported at the organisational level to implement interventions consistently and effectively.

These findings highlight the challenges faced by PCPs when attempting to address issues of weight and lifestyle in their practice, including lack of education and training, confidence in themselves and confidence in the effectiveness of the intervention, and limited organisational support.

This research is important on a number of fronts. Within the current healthcare system, there is increased reliance and usage of primary care services to reduce the burden on tertiary health care settings. The burden of chronic diseases and the associated risk factors are increasing and PCPs are expected to address complex health conditions, including obesity, with limited specialised training and organisational support. This review provides insights into the gaps and barriers that may exist for providers in PHC settings when addressing issues related to weight or diet. These findings may also provide guidance regarding future practice strategies and research opportunities.

Implications and recommendations for practice

The findings of this review suggest that:

- PCPs can play a significant role in lifestyle risk factor management.
- PCPs may benefit from having additional training and support in lifestyle management, particularly in weight-inclusive care.
- PCPs may also benefit from having a structured approach to weight and/or lifestyle discussions to improve confidence and consistency of practice.
- Dietitians play an extremely important role in lifestyle management in PHC and should be encouraged and supported to work in PHC settings.
- Pharmacists could play a bigger role within lifestyle management beyond provision of medication

Implications and recommendations for research

The review also highlights some methodological limitations and knowledge gaps:

- Further implementation research investigating the broader role of dietitians in PHC, for example, in dietitian-led clinics.
- More rigorous qualitative research and reporting about the role of the pharmacist as a health promoter and member of the multidisciplinary team.
- Further implementation research on screening and early intervention practices for other PCPs using a weight-inclusive approach.
- Further studies investigating approaches and strategies to reduce weight-stigmatising language and behaviour in PHC settings.

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194. Blenkinsopp A, Anderson C, Armstrong M. Community pharmacy's contribution to improving the public's health: the case of weight management. International Journal of Pharmacy Practice. 2008; 16(3):123-5.
195. Saint-Pierre C, Herskovic V, Sepúlveda M. Multidisciplinary collaboration in primary care: a systematic review. Fam Pract. 2017; 35(2):132-41.
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Appendix I: Search strategies

PubMed

Search	Query	Records retrieved
1	"Life Style"[mh] OR "life style"[tiab] OR "lifestyle"[tiab] OR "Healthy Lifestyle"[mh] OR "healthy lifestyle"[tiab] OR "Weight Reduction Programs"[mh] OR "weight reduction programs"[tiab] OR "lifestyle modification*"[tiab] OR "lifestyle risk factor management"[tiab] OR "life style program"[tiab] OR "lifestyle program"[tiab] OR "lifestyle intervention"[tiab] OR "life style intervention"[tiab] OR "lifestyle education"[tiab] OR "diabetes education program"[tiab] OR "diabetes prevention*"[tiab] OR "nutrition counselling"[tiab] OR "supervised physical activity"[tiab] OR "Obesity Management"[mh] OR "obesity manage*"[tiab]	175,592
2	"Metabolic Syndrome"[mh] OR "metabolic syndrome"[tiab] OR "cardiovascular risk*"[tiab] OR "cardiometabolic risk*"[tiab] OR "Prediabetic State"[mh] OR "prediabet*"[tiab] OR "Insulin Resistance"[mh] OR "insulin resistance"[tiab] OR Obesity[mh] OR obesity[tiab] OR Overweight[mh] OR overweight[tiab] OR Hypertension[mh] OR Hyperlipidemias[mh]	707,966
3	"Allied Health Personnel"[mh] OR "allied health personnel"[tiab] OR Nurses[mh] OR nurs*[tiab] OR Nutritionist[mh] OR nutritionist[tiab] OR dietitian[tiab] OR "Physical Therapists"[mh] OR "physical therapists"[tiab] OR Physicians[mh] OR "Patient Care Team"[mh] OR "Primary Health Care"[mh] OR "primary health care"[tiab] OR "General Practitioners"[mh] OR "general pract*"[tiab] OR "Physicians, Family"[mh] OR "Family physicians"[tiab] OR "Nurse Practitioner"[mh] OR "Community Health Centers"[mh] OR "community health center*"[tiab]	874,983
4	"Health Knowledge, Attitudes, Practice"[mh] OR "Health knowledge, attitudes, practice"[tiab] OR "Attitude of Health Personnel"[mh] OR "attitude of health personnel"[tiab] OR "physician attitudes"[tiab] OR beliefs[tiab] OR experience*[tiab] OR attitude*[tiab] OR challenge*[tiab] OR "Qualitative Research"[mh] OR "Focus Groups"[mh] OR "Grounded Theory"[mh] OR phenomenology[tiab] OR "Interviews as Topic"[mh] OR interview [tiab] OR "group interview"[tiab]	1,943,123
5	#1 AND #2 AND #3 AND #4	1163
	Limited to studies published after 2000	1097

CINAHL

	Search terms	Results
1	MH “life style changes” OR TI “lifestyle change*” OR AB “lifestyle change*” OR TI “life style change*” OR AB “life style change*” OR TI “lifestyle modification” OR AB “lifestyle modification” TI “life style modification” OR AB “life style modification” OR TI “lifestyle risk factor management” OR AB “lifestyle risk factor management” OR TI “life style risk factor management” OR AB “life style risk factor management” OR TI “lifestyle program” OR AB “lifestyle program” OR TI “life style program” OR AB “life style program” OR MH “health education” OR TI “health education” OR AB “health education” OR TI “obesity therapy” OR AB “obesity therapy”	44,692
2	MH “Metabolic syndrome X” OR TI “Metabolic syndrome*” OR AB “Metabolic syndrome*” OR MH “Glucose metabolism disorders+” OR TI “Glucose metabolism disorder*” OR AB “Glucose metabolism disorder*” OR MH insulin resistance+ OR MH “cardiovascular risk factors” OR TI “cardiovascular risk factor*” OR AB “cardiovascular risk factor*” OR TI “cardiometabolic risk” OR AB “cardiometabolic risk” OR MH “diabetes mellitus, type 2” TI diabet* OR AB diabet* OR TI hyperlipidemia* OR AB hyperlipidemia* OR MH obesity OR TI obes* OR AB obes*	302,835
3	MH “allied health personnel+” OR TI “allied health personnel” OR AB “allied health personnel” OR MH nurses+ OR TI nurse* OR AB nurse* OR TI dietitian OR AB dietitian OR TI “physical therapist” OR AB “physical therapist” OR TI “occupational therap*” OR AB “occupational therap*” OR TI clinician OR AB clinician OR MH “physician, family” OR TI “general practitioner” OR AB “general practitioner” OR MH ”primary health care” OR MH “community health centers” OR MH “community health nursing” OR MH “nursing care”	649,787
4	MH “allied health personnel/pf” OR MH “attitude of health personnel+” OR TI attitude* OR AB attitude* OR TI barriers OR AB barriers OR TI belief* OR AB belief* OR TI perspective* OR AB perspective* OR TI perception* OR AB perception* OR MH “attitude to obesity” OR MH “nurse attitudes” OR TI “nurse attitudes” OR AB “nurse attitudes”	385,622
6	1 AND 2 AND 3 AND 4	261
	Limited to studies published after 2000	249

Web of Science

Search	Query	Records retrieved
1	TS=(Life Style OR life style OR lifestyle OR Healthy Lifestyle OR healthy lifestyle OR Weight Reduction Programs OR weight reduction programs OR lifestyle modification* OR lifestyle risk factor management OR life style program OR lifestyle program OR lifestyle intervention OR life style intervention OR lifestyle education OR diabetes education program OR diabetes prevention* OR nutrition counselling OR supervised physical activity OR Obesity Management OR obesity manage*)	216,764
2	TS=(Metabolic Syndrome OR metabolic syndrome OR cardiovascular risk* OR cardiometabolic risk* OR Prediabetic State OR prediabet* OR Insulin Resistance OR insulin resistance OR Obesity OR obesity OR Overweight OR overweight OR Hypertension OR Hyperlipidemias)	1,039,853
3	TS=(Allied Health Personnel OR allied health personnel OR Nurses OR nurs* OR Nutritionist OR nutritionist OR dietitian OR Physical Therapists OR physical therapists OR Physicians OR Patient Care Team OR Primary Health Care OR primary health care OR General Practitioners OR general pract* OR Physicians, Family OR Family physicians OR Nurse Practitioner OR Community Health Centers OR community health center*)	937,256
4	TS=(Health Knowledge, Attitudes, Practice OR Health knowledge, attitudes, practice OR Attitude of Health Personnel OR attitude of health personnel OR physician attitudes OR beliefs OR experience* OR attitude* OR challenge* OR Qualitative Research OR Focus Groups OR Grounded Theory OR phenomenology OR Interviews as Topic OR interview OR group interview)	4,161,595
5	#1 AND #2 AND #3 AND #4	3901
	Limited to studies published after 2000	3749

SCOPUS

Search	Query	Records retrieved
1	TITLE-ABS-KEY("Life Style") OR TITLE-ABS-KEY("lifestyle") OR TITLE-ABS-KEY("Healthy Lifestyle") OR TITLE-ABS-KEY("Weight Reduction Programs") OR TITLE-ABS-KEY("lifestyle modification*") OR TITLE-ABS-KEY("lifestyle risk factor management") OR TITLE-ABS-KEY("life style program") OR TITLE-ABS-KEY("lifestyle program") OR TITLE-ABS-KEY("lifestyle intervention") OR TITLE-ABS-KEY("life style intervention") OR TITLE-ABS-KEY("lifestyle education") OR TITLE-ABS-KEY("diabetes education program") OR TITLE-ABS-KEY("diabetes prevention*") OR TITLE-ABS-KEY("nutrition counselling") OR TITLE-ABS-KEY("supervised physical activity") OR TITLE-ABS-KEY("Obesity Management")	226,798
2	TITLE-ABS-KEY("Metabolic Syndrome") OR TITLE-ABS-KEY("cardiovascular risk*") OR TITLE-ABS-KEY("cardiometabolic risk*") OR TITLE-ABS-KEY("Prediabetic State") OR TITLE-ABS-KEY("prediabetes") OR TITLE-ABS-KEY("Insulin Resistance") OR TITLE-ABS-KEY("insulin resistance") OR TITLE-ABS-KEY("Obesity") OR TITLE-ABS-KEY ("Overweight") OR TITLE-ABS-KEY("Hypertension") OR TITLE-ABS-KEY("Hyperlipidemia")	1,329,294
3	TITLE-ABS-KEY("Allied Health Personnel") OR TITLE-ABS-KEY (Nurses) OR TITLE-ABS-KEY(Nutritionist) OR TITLE-ABS-KEY(dietitian) OR TITLE-ABS-KEY("Physical Therapists") OR TITLE-ABS-KEY("physical therapists") OR TITLE-ABS-KEY(Physicians) OR TITLE-ABS-KEY("Patient Care Team") OR TITLE-ABS-KEY("Primary Health Care") OR TITLE-ABS-KEY("General Practitioners") OR TITLE-ABS-KEY("Physicians, Family") OR TITLE-ABS-KEY("Family physicians") OR TITLE-ABS-KEY("Nurse Practitioner") OR TITLE-ABS-KEY("Community Health Centers")	1,247,573
4	TITLE-ABS-KEY("Health Knowledge, Attitudes, Practice") OR TITLE-ABS-KEY("Health knowledge, attitudes, practice") OR TITLE-ABS-KEY("Attitude of Health Personnel") OR TITLE-ABS-KEY("attitude of health personnel") OR TITLE-ABS-KEY("physician attitudes") OR TITLE-ABS-KEY(beliefs) OR TITLE-ABS-KEY(experience) OR TITLE-ABS-KEY(attitude) OR TITLE-ABS-KEY(challenge) OR TITLE-ABS-KEY("Qualitative Research") OR TITLE-ABS-KEY("Focus Groups") OR TITLE-ABS-KEY("Grounded Theory") OR TITLE-ABS-KEY(phenomenology) OR TITLE-ABS-KEY("Interviews as Topic") OR TITLE-ABS-KEY(interview) OR TITLE-ABS-KEY("group interview")	4,465,365
5	#1 AND #2 AND #3 AND #4	2525
	Limited to studies published after 2000	2359

Appendix II: Excluded studies on reading full text articles

1. Akinlua JT, Meakin R, Bashir I, Freemantle N. Beliefs about hypertension among primary health care workers and clients in Nigeria: A qualitative study. PLoS One. 2018; 13(12):e0209334.
   Reason for exclusion: Not a high resource country

2. Alageel S, Gulliford MC, McDermott L, Wright AJ. Implementing multiple health behaviour change interventions for cardiovascular risk reduction in primary care: A qualitative study. BMC Fam Pract. 2018; 19(1).
   Reason for exclusion: Not specific to diet or nutrition interventions

3. Ali H, Bernsen R, Baynouna L. Barriers to weight management among emirati women: A qualitative investigation of health professionals' perspectives. Int Q Community Health Educ. 2008; 29(2):143-59.
   Reason for exclusion: Provider perspective not explored

4. Asselin J, Osunlana AM, Ogunleye AA, Sharma AM, Campbell-Scherer D. Challenges in interdisciplinary weight management in primary care: lessons learned from the 5As Team study. Clin Obes. 2016; 6(2):124-32.
   Reason for exclusion: Focused on patients with chronic disease, not obesity or metabolic syndrome

5. Banerjee ES, Herring SJ, Hurley KE, Puskarz K, Yebernetsky K, LaNoue M. Overcoming Obesity: A Mixed Methods Study of the Impact of Primary Care Physician Counseling on Low-Income African American Women Who Successfully Lost Weight. Am J Health Promot. 2018; 32(2):374-80.
   Reason for exclusion:Target population

6. Bell RA, Kravitz RL. Physician counseling for hypertension: what do doctors really do? Patient Educ Couns. 2008; 72(1):115-21.
   Reason for exclusion: Quantitative methodology

7. Bennett WL, Gudzune KA, Appel LJ, Clark JM. Insights from the POWER practice-based weight loss trial: a focus group study on the PCP's role in weight management. J Gen Intern Med. 2014; 29(1):50-8.
   Reason for exclusion: Provider experience not explored

8. Berendsen BA, Kremers SP, Savelberg HH, Schaper NC, Hendriks MR. The implementation and sustainability of a combined lifestyle intervention in primary care: mixed method process evaluation. BMC Fam Pract. 2015; 16:37.
   Reason for exclusion: Process evaluation; not specific to provider experiences of delivering patient care

9. Bergqvist A, Karlsson M, Foldemo A, Wardig R, Hultsjo S. Preventing the development of metabolic syndrome in people with psychotic disorders--difficult, but possible: experiences of staff working in psychosis outpatient care in Sweden. Issues Ment Health Nurs. 2013; 34(5):350-8.
   Reason for exclusion: Not specific to primary health care setting

10. Bize R, Cornuz J, Martin B. Opinions and attitudes of a sample of Swiss physicians about physical activity promotion in a primary care setting. Schweiz Z Med Traumatol. 2007; 55(3):97-100.
Reason for exclusion: Not specific to diet or nutrition interventions

11. Blackburn M, Stathi A, Keogh E, Eccleston C. Raising the topic of weight in general practice: perspectives of GPs and primary care nurses. BMJ Open. 2015; 5(8).
Reason for exclusion: Not specific to obesity or metabolic syndrome

12. Blane DN, Macdonald S, Morrison D, O'Donnell CA. The role of primary care in adult weight management: qualitative interviews with key stakeholders in weight management services. BMC Health Serv Res. 2017; 17.
Reason for exclusion: Phenomena of interest is not focused on provider experience

13. Bonner C, Jansen J, McKinn S, Irwig L, Doust J, Glasziou P, et al. How do general practitioners and patients make decisions about cardiovascular disease risk? Health Psychol. 2015; 34(3):253-61.
Reason for exclusion: Not diet or nutrition focused intervention

14. Booth AO, Nowson CA, Huang N, Lombard C, Singleton KL. Evaluation of a brief pilot nutrition and exercise intervention for the prevention of weight gain in general practice patients. Public Health Nutr. 2006; 9(8):1055-61.
Reason for exclusion: Quantitative methodology

15. Bouma AJ, van Wilgen P, Baarveld F, Lemmink K, Diercks RL, Dijkstra A. A Cross-sectional Analysis of Motivation and Decision Making in Referrals to Lifestyle Interventions by Primary Care General Practitioners: A Call for Guidance. Am J Lifestyle Med. 2019; 13(3):301-11.
Reason for exclusion: Quantitative methodology

16. Bringedal B, Aasland OG. Doctors' use and assessment of a fee-for-service lifestyle advice scheme. Tidsskr. Nor Laegeforen. 2006; 126(8):1036-8.
Reason for exclusion: Quantitative methodology

17. Brown I, Thompson J. Primary care nurses' attitudes, beliefs and own body size in relation to obesity management. J Adv Nurs. 2007; 60(5):535-43.
Reason for exclusion: Not diet or nutrition focused intervention

18. Burton A, Osborn D, Atkins L, Michie S, Gray B, Stevenson F, et al. Lowering cardiovascular disease risk for people with severe mental illnesses in primary care: A focus group study. PLoS ONE. 2015; 10(8).
Reason for exclusion: Not diet or nutrition focused intervention

19. Carroll J, Winters P, Fiscella K, Williams G, Bauch J, Clark L, et al. Process Evaluation of Practice-based Diabetes Prevention Programs: What Are the Implementation Challenges? Diabetes Educ. 2015; 41(3):271-9.
Reason for exclusion: Quantitative methodology

20. Chang T, Llanes M, Gold KJ, Fetters MD. Perspectives about and approaches to weight gain in pregnancy: a qualitative study of physicians and nurse midwives. BMC Pregnancy Childbirth. 2013; 13.
Reason for exclusion: Not specific to obesity or metabolic syndrome

21. Chapman GE, Sellaeg K, Levy-Milne R, Ottem A, Barr SI, Fierini D, et al. Canadian dietitians' approaches to counseling adult clients seeking weight-management advice. J Am Diet Assoc. 2005; 105(8):1275-9.

Reason for exclusion: Not specific to primary health setting

22. Christenson A, Johansson E, Reynisdottir S, Torgerson J, Hemmingsson E. Shame and avoidance as barriers in midwives' communication about body weight with pregnant women: A qualitative interview study. Midwifery. 2018; 63:1-7.
Reason for exclusion: Not specific to obesity or metabolic syndrome

23. Chu PN. Identifying High-Value Lifestyle Interventions for Cardiovascular Disease Prevention. Graduate School of Arts & Sciences: Harvard University 2016.
Reason for exclusion: Quantitative methodology

24. Cochrane AJ, Dick B, King NA, Hills AP, Kavanagh DJ. Developing dimensions for a multicomponent multidisciplinary approach to obesity management: a qualitative study. BMC Public Health. 2017; 17(1):814.
Reason for exclusion: Provider experience not explored

25. Cook S, Drum ML, Kirchhoff AC, Jin L, Levie J, Harrison JF, et al. Providers' assessment of barriers to effective management of hypertension and hyperlipidemia in community health centers. J Health Care Poor Underserved. 2006; 17(1):70-85.
Reason for exclusion: Quantitative methodology

26. Coppell KJ, Abel SL, Freer T, Gray A, Sharp K, Norton JK, et al. The effectiveness of a primary care nursing-led dietary intervention for prediabetes: a mixed methods pilot study. BMC Fam Pract. 2017; 18(1):106.
Reason for exclusion: Phenomena of interest was not about provider experiences of delivering care; focused on implementation at the level of the practice

27. Coupe N, Cotterill S, Peters S. Tailoring lifestyle interventions to low socio-economic populations: a qualitative study. BMC Public Health. 2018; 18.
Reason for exclusion: Not specific to primary health care setting

28. Crosson JC, Heisler M, Subramanian U, Swain B, Davis GJ, Lasser N, et al. Physicians' perceptions of barriers to cardiovascular disease risk factor control among patients with diabetes: Results from the Translating Research into Action for Diabetes (TRIAD) study. J Am Board Fam Med. 2010; 23(2):171-8.
Reason for exclusion: Patients with diabetes, not obesity or metabolic syndrome

29. Cunningham E. What Strategies do Registered Dietitian Nutritionists Use to Assess a Patient's/Client's Weight Loss Readiness? J Acad Nutr Diet. 2016; 116(12):2036.
Reason for exclusion: Commentary/review paper, not primary qualitative research

30. Dolor RJ, Ostbye T, Lyna P, Coffman CJ, Alexander SC, Tulsky JA, et al. What are physicians' and patients' beliefs about diet, weight, exercise, and smoking cessation counseling? Prev Med. 2010; 51(5):440-2.
Reason for exclusion: Not diet or nutrition focused intervention

31. Durack-Bown I, Giral P, d'Ivernois JF, Bazin C, Chadarevian R, Benkritly A, et al. Patients' and physicians' perceptions and experience of hypercholesterolaemia: a qualitative study. Brit J Gen Pract. 2003; 53(496):851-7.
Reason for exclusion: Not diet or nutrition focused intervention

32. Epstein L, Ogden J. A qualitative study of GPs' views of treating obesity. Brit J Gen Pract. 2005; 55(519):750-4.
Reason for exclusion: Focused on general obesity management, not nutrition specific

33. Ferrante D, Konfino J, Linetzky B, Tambussi A, Laspiur S. Barriers to prevention of cardiovascular disease in primary care settings in Argentina. J Public Health. 2013; 33(4):259-66.
Reason for exclusion: Phenomena of interest was higher-level implementation of guidelines, not provider experiences of delivering individual care

34. Fhärm E, Johansson EE, Rolandsson O. 'Aiming for the stars'—GPs' dilemmas in the prevention of cardiovascular disease in type 2 diabetes patients: focus group interviews. Fam Pract. 2009; 26(2):109-14.
Reason for exclusion: Focused on type 2 diabetes, not obesity or metabolic syndrome

35. Flannery C, McHugh S, Kenny LC, O'Riordan MN, McAuliffe FM, Bradley C, et al. Exploring obstetricians', midwives' and general practitioners' approach to weight management in pregnant women with a BMI ≥25 kg/m 2: A qualitative study. BMJ Open. 2019; 9(1).
Reason for exclusion: Not primary health care focused

36. Forman-Hoffman V, Little A, Wahls T. Barriers to obesity management: a pilot study of primary care clinicians. BMC Fam Pract. 2006; 7:35.
Reason for exclusion: Quantitative methodology

37. Fortin M, Chouinard MC, Bouhali T, Dubois MF, Gagnon C, Belanger M. Evaluating the integration of chronic disease prevention and management services into primary health care. BMC Health Serv Res. 2013; 13.
Reason for exclusion: Quantitative methodology

38. Franklin BA, Vanhecke TE. Counseling patients to make cardioprotective lifestyle changes: Strategies for success. Prev Cardiol. 2008; 11(1):50-5.
Reason for exclusion: Commentary paper

39. Funk LM, Jolles SA, Greenberg CC, Schwarze ML, Safdar N, McVay MA, et al. Primary care physician decision making regarding severe obesity treatment and bariatric surgery: a qualitative study. Surg Obes Relat Dis. 2016; 12(4):893-901.
Reason for exclusion: Not diet or nutrition specific

40. Funk LM, Jolles SA, Voils CI. Obesity as a disease: has the AMA resolution had an impact on how physicians view obesity? Surg Obes Relat Dis. 2016; 12(7):1431-5.
Reason for exclusion: Not diet or nutrition focused intervention

41. George CE, Ramadas D, Norman G, Mukherjee D, Rao T. Barriers to cardiovascular disease risk reduction: Does physicians' perspective matter? Indian Heart J. 2016; 68(3):278-85.
Reason for exclusion: Not high income country

42. Gidlow CJ, Ellis NJ, Cowap L, Riley V, Crone D, Cottrell E, et al. A qualitative study of cardiovascular disease risk communication in NHS Health Check using different risk calculators: protocol for the RIsk COmmunication in NHS Health Check (RICO) study. BMC Fam Pract. 2019; 20.
Reason for exclusion: Study protocol

43. Goodfellow J, Agarwal S, Harrad F, Shepherd D, Morris T, Ring A, et al. Cluster randomised trial of a tailored intervention to improve the management of overweight and obesity in primary care in England. Implement Sci. 2016; 11(1).
Reason for exclusion: Quantitative methodology

44. Gotwals B. Self-Efficacy and Nutrition Education: A Study of the Effect of an Intervention with Faith Community Nurses. J Relig Health. 2018; 57(1):333-48.
Reason for exclusion: Quantitative methodology

45. Gray J, Hoon EA, Afzali HHA, Spooner C, Harris MF, Karnon J. Is the Counterweight Program a feasible and acceptable option for structured weight management delivered by practice nurses in Australia? A mixed-methods study. Aust J Prim Health. 2017; 23(4):348-63.
Reason for exclusion: Phenomena of interest is not about provider experiences of delivering individual patient care

46. Gunther S, Guo F, Sinfield P, Rogers S, Baker R. Barriers and enablers to managing obesity in general practice: a practical approach for use in implementation activities. Qual Prim Care. 2012; 20(2):93-103.
Reason for exclusion: Not specific to primary health care setting

47. Hafez D, Nelson DB, Martin EG, Cohen AJ, Northway R, Kullgren JT. Understanding type 2 diabetes mellitus screening practices among primary care physicians: a qualitative chart-stimulated recall study. BMC Fam Pract. 2017; 18(1):50.
Reason for exclusion: Phenomenon of interest focused on type 2 diabetes screening, not diet or nutrition focused

48. Hagemann LA. The Implementation Gap Between Evidence-Based Guidelines and Primary Care Providers' Provision of Care for Adult Obese Individuals. UNLV Theses, Dissertations, Professional Papers, and Capstones: University of Nevada, LAs Vegas; 2017.
Reason for exclusion: Quantitative methodology

49. Hallberg I, Ranerup A, Bengtsson U, Kjellgren K. Experiences, expectations and challenges of an interactive mobile phone-based system to support self-management of hypertension: Patients' and professionals' perspectives. Patient Prefer Adherence. 2018; 12:467-76.
Reason for exclusion: Not focused on face to face interventions with patients

50. Hardin J. Everyday translation: health practitioners' perspectives on obesity and metabolic disorders in Samoa. Crit Public Health. 2015; 25(2):125-38.
Reason for exclusion: Not high income country

51. Hayes S, Wolf C, Labbé S, Peterson E, Murray S. Primary health care providers' roles and responsibilities: A qualitative exploration of 'who does what' in the treatment and management of persons affected by obesity. J Commun Healthc. 2017; 10(1):47-54.
Reason for exclusion: Not diet or nutrition focused intervention

52. Heideman WH, Rongen FC, Bolleurs C, Govers E, Kroeze W, Steenhuis IHM. Facilitators and barriers to a dietitian-implemented blended care weight-loss intervention (SMARTsize): a qualitative study. J Hum Nutr Diet. 2019; 32(3):338-48.
Reason for exclusion: Not specific to patients with obesity or metabolic syndrome

53. Helmink JHM, Kremers SPJ, Van Boekel LC, Van Brussel-visser FN, Preller L, De Vries NK. The BeweegKuur programme: A qualitative study of promoting and impeding factors for successful implementation of a primary health care lifestyle intervention for overweight and obese people. Fam Pract. 2012; 29(SUPPL. 1):i68-i74.

Reason for exclusion: Not specific to provider experiences of providing individual care

54. Henderson E. Obesity in primary care: a qualitative synthesis of patient and practitioner perspectives on roles and responsibilities. Br J Gen Pract. 2015; 65(633):e240-7.
Reason for exclusion: Not primary qualitative research

55. Hernandez J. Storied experiences of nurse practitioners managing prehypertension in primary care. J Am Assoc Nurse Pract. 2012; 24(2):89-96.
Reason for exclusion: Not diet or nutrition focused intervention

56. Holmberg C, Sarganas G, Mittring N, Braun V, Dini L, Heintze C, et al. Primary prevention in general practice - views of German general practitioners: a mixed-methods study. BMC Fam Pract. 2014; 15.
Reason for exclusion: Not diet or nutrition focused intervention

57. Holt RI, Hind D, Gossage-Worrall R, Bradburn MJ, Saxon D, McCrone P, et al. Structured lifestyle education to support weight loss for people with schizophrenia, schizoaffective disorder and first episode psychosis: the STEPWISE RCT. Health Technol Assess. 2018; 22(65):1.
Reason for exclusion: Quantitative methodology

58. Holton S, East C, Fisher J. Weight management during pregnancy: a qualitative study of women's and care providers' experiences and perspectives. BMC Pregnancy Childbirth. 2017; 17(1):351.
Reason for exclusion: Not specific to patients with obesity or metabolic syndrome

59. Huang J, Yu H, Marin E, Brock S, Carden D, Davis T. Physicians' weight loss counseling in two public hospital primary care clinics. Acad Med. 2004; 79(2):156-61.
Reason for exclusion: Not diet or nutrition focused intervention

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Reason for exclusion: Not specific to primary health care settings

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Reason for exclusion: Not specific to obesity or metabolic syndrome

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Reason for exclusion: Not high resource setting

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Reason for exclusion: Not diet or nutrition focused intervention

64. Jansen J, McKinn S, Bonner C, Irwig L, Doust J, Glasziou P, et al. General practitioners' decision making about primary prevention of cardiovascular disease in older adults: A qualitative study. PLoS ONE. 2017; 12(1).
Reason for exclusion: Not diet or nutrition focused intervention

65. James S, Halcomb E, Desborough J, McInnes S. General practice nurse perceptions of their communcation on lifestyle risk. Austr Nurs Midwifery J. 2018; 25(8):35-.
Reason for exclusion: Not diet or nutrition specific intervention

66. Jansink R, Braspenning J, van der Weijden T, Elwyn G, Grol R. Primary care nurses struggle with lifestyle counseling in diabetes care: a qualitative analysis. BMC Fam Pract. 2010; 11:7p-p.
Reason for exclusion: Diabetes focus, not metabolic syndrome or obesity

67. Jay M, Chintapalli S, Squires A, Mateo KF, Sherman SE, Kalet AL. Barriers and facilitators to providing primary care-based weight management services in a patient centered medical home for Veterans: a qualitative study. BMC Fam Pract. 2015; 16.
Reason for exclusion: Setting

68. Jebb S, Sritharan N. The nurse's role in promoting weight loss and encouraging healthier lifestyles. Prof Nurse. 2005; 20(7):25-7, 9.
Reason for exclusion: Commentary paper – not primary research

69. Jortberg BT, Fernald DH, Hessler DM, Dickinson LM, Wearner R, Connelly L, et al. Practice Characteristics Associated with Better Implementation of Patient Self-Management Support. J Am Board Fam Med. 2019; 32(3):329-40.
Reason for exclusion: Not diet or nutrition specific intervention

70. Kandula NR, Moran MR, Tang JW, O'Brien MJ. Preventing diabetes in primary care: Providers' perspectives about diagnosing and treating prediabetes. Clin Diabet. 2018; 36(1):59-66.
Reason for exclusion: Focused on medical management of pre-diabetes, not diet or nutrition specific intervention

71. Katz S, Feigenbaum A, Pasternak S, Vinker S. An interactive course to enhance self-efficacy of family practitioners to treat obesity. BMC Med Educ. 2005; 5(1):4.
Reason for exclusion: Not diet or nutrition specific intervention

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Reason for exclusion: Focused on childhood obesity, not adults

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Reason for exclusion: Not diet or nutrition specific intervention

74. Kim KK, Yeong LL, Caterson ID, Harris MF. Analysis of factors influencing general practitioners' decision to refer obese patients in Australia: a qualitative study. BMC Fam Pract. 2015; 16:45.
Reason for exclusion: Phenomenon of interest is the referral process, not a nutrition intervention

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Reason for exclusion: Not diet or nutrition specific intervention

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Reason for exclusion: Quantitative methodology

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Reason for exclusion: Not diet or nutrition specific intervention

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Reason for exclusion: Quantitative methodology

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Reason for exclusion: Not diet or nutrition specific intervention

80. Lok KY, Chan RS, Sea MM, Woo J. Nutritionist's variation in counseling style and the effect on weight change of patients attending a community based lifestyle modification program. Int J Environ Res Public Health. 2010; 7(2):413-26.
Reason for exclusion: Provider experience not explored in sufficient depth

81. Luig T, Anderson R, Sharma AM, Campbell-Scherer DL. Personalizing obesity assessment and care planning in primary care: patient experience and outcomes in everyday life and health. Clin Obes. 2018; 8(6):411-23.
Reason for exclusion: Patient, not provider experience

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Reason for exclusion: Provider experience not explored

83. Lumley E, Homer CV, Palfreyman S, Shackley P, Tod AM. A qualitative study to explore the attitude of clinical staff to the challenges of caring for obese patients. J Clin Nurs. 2015; 24(23-24):3594-604.
Reason for exclusion: Focused on leg ulceration, not diet or nutrition specific

84. Mahony G, Haracz K, Williams LT. How mental health occupational therapists address issues of diet with their clients: A qualitative study. Aust Occup Ther J. 2012; 59(4):294-301.
Reason for exclusion: Not specific to primary health care settings

85. Malatzky C, Glenister K. Talking about overweight and obesity in rural Australian general practice. Health Soc Care Community. 2019; 27(3):599-608.
Reason for exclusion: Not diet or nutrition specific intervention

86. Maindal HT, Bonde A, Aagaard-Hansen J. Action research led to a feasible lifestyle intervention in general practice for people with prediabetes. Prim Care Diabetes. 2014; 8(1):23-9.
Reason for exclusion: Organisational level; not specific to provider experience of providing individual care

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Reason for exclusion: Process evaluation; not specific to provider experience of providing individual care

88. Manuel KM, Johnson AA. Physician knowledge, attitude, and practice in the treatment of obese patients. The FASEB Journal. 2011; 25(1_supplement):789.2-.2.
Reason for exclusion: Quantitative methodology

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Reason for exclusion: Not specific to primary health setting or patients with obesity or metabolic syndrome

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Reason for exclusion: Focused on technology intervention, not about provider experience of delivering individual care

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Reason for exclusion: Not specific to primary health care setting

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Reason for exclusion: Commentary paper

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Reason for exclusion: Not diet or nutrition specific intervention

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Reason for exclusion: Orgaisational level; not about provider experience of delivering individual care

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Reason for exclusion: Not high resource setting

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Reason for exclusion: Quantitative methodology

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Reason for exclusion: Orgaisational level; not about provider experience of delivering individual care

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Reason for exclusion: Provider perspective not explored

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Reason for exclusion: Chronic condition focus, not specific to metabolic syndrome or obesity

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Reason for exclusion: Not specific to obesity or metabolc syndrome

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Reason for exclusion: Quantitative methodology

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Reason for exclusion: Not diet or nutrition specific intervention

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Reason for exclusion: Not secific to obesity or metabolic syndrome

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Reason for exclusion: Not diet or nutrition specific intervention

105. Presseau J, Sniehotta FF, Francis JJ, Campbell NC. Multiple goals and time constraints: Perceived impact on physicians' performance of evidence-based behaviours. Implement Sci. 2009; 4(1).
Reason for exclusion: Not specific to diet or nutrition

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Reason for exclusion: Provider experience not explored

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Reason for exclusion: Organisational level; not about provider experience of providing individual care

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Reason for exclusion: Not diet or nutrition specific intervention

109. Schwingel A, Galvez P. Divine Interventions: Faith-Based Approaches to Health Promotion Programs for Latinos. J Relig Health. 2016; 55(6):1891-906.
Reason for exclusion: Provider experiences not explored

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Reason for exclusion: Not high resource setting

111. Setchell J, Watson BM, Gard M, Jones L. Physical Therapists' Ways of Talking About Overweight and Obesity: Clinical Implications. Phys Ther. 2016; 96(6):865-75.
Reason for exclusion: Not specific to primary health care settings

112. Silwer L, Wahlstrom R, Lundborg CS. Views on primary prevention of cardiovascular disease - an interview study with Swedish GPs. BMC Fam Pract. 2010; 11.
Reason for exclusion: Not diet or nutrition focused

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Reason for exclusion: Process evaluation; not focused on provider experiences of delivering individual care

114. Smith DM, Cooke A, Lavender T. Maternal obesity is the new challenge; a qualitative study of health professionals' views towards suitable care for pregnant women with a Body Mass Index (BMI) >/= 30 kg/m(2). BMC Pregnancy Childbirth. 2012; 12:157.
Reason for exclusion: Not specific to primary health care settings

115. Smith E, Bradbury K, Scott L, Steele M, Little P, Yardley L. Providing online weight management in Primary Care: a mixed methods process evaluation of healthcare practitioners' experiences of using and supporting patients using POWeR. Implement Sci. 2017; 12.
Reason for exclusion: Online intervention; not face to face

116. Snow SK. The nurse practitioner's experience with obese patients. University of Missouri - Kansas City; 2006. pp. 129
Reason for exclusion: Not diet or nutrition specific

117. Sonntag U, Brink A, Renneberg B, Braun V, Heintze C. GPs' attitudes, objectives and barriers in counselling for obesity-a qualitative study. Eur J Gen Pract. 2012; 18(1):9-14.
Reason for exclusion: Not diet or nutrition specific intervention

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Reason for exclusion: Not specific to primary health care setting

119. Stephen C. Evaluation of a nurse-led hypertension management intervention in Australian general practice: The IMPRESS Intervention. Aust Nurs Midwifery J. 2016; 24(2):36.
Reason for exclusion: Not diet or nutrition specific intervention

120. Sturgiss E, Haesler E, Elmitt N, van Weel C, Douglas K. Increasing general practitioners' confidence and self-efficacy in managing obesity: a mixed methods study. BMJ Open. 2017; 7(1):e014314.
Reason for exclusion: Not diet or nutrition specific intervention

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Reason for exclusion: Provider experience not explored

122. Swanson E, Primack C. Behavior Modification: A Patient and Physician's Perspective. Adv Ther. 2017; 34(3):765-9.
Reason for exclusion: Single case study

123. Tanneberger A, Ciupitu-Plath C. Nurses' Weight Bias in Caring for Obese Patients: Do Weight Controllability Beliefs Influence the Provision of Care to Obese Patients? Clin Nurs Res. 2018; 27(4):414-32.
Reason for exclusion: Not specific to primary health care setting

124. Teixeira FV, Pais-Ribeiro JL, Maia A. A qualitative study of GPs' views towards obesity: are they fighting or giving up? Public Health. 2015; 129(3):218-25.
Reason for exclusion: Not diet or nutrition specific intervention

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Reason for exclusion: Phenomena of interest focused on comparison between public and private settings

126. Terre L, Hunter C, Poston WS, Haddock CK, Stewart SA. Treatment of obesity in the primary care setting: are we there yet? Eat Disord. 2007; 15(2):135-43.
Reason for exclusion: Quantitative methodology

127. Thabault PJ, Burke PJ, Ades PA. Intensive behavioral treatment weight loss program in an adult primary care practice. J Am Assoc Nurs Pract. 2016; 28(5):249-57.
Reason for exclusion: Not diet or nutrition specific intervention

128. van der Pligt P, Campbell K, Willcox J, Opie J, Denney-Wilson E. Opportunities for primary and secondary prevention of excess gestational weight gain: General Practitioners' perspectives. BMC Fam Pract. 2011; 12:124.
Reason for exclusion: Not secific to obesity or metabolic syndrome

Venditti EM, Kramer MK. Diabetes Prevention Program community outreach: perspectives on lifestyle training and translation. Am J Prev Med. 2013; 44(4 Suppl 4):S339-45.
Reason for exclusion: Diabetes focused

129. Ware LJ, Williams S, Bradbury K, Brant C, Little P, Hobbs FDR, et al. Exploring weight loss services in primary care and staff views on using a web-based programme. Inform Prim Care. 2012; 20(4):283-8.
Reason for exclusion: Not focused on face to face interventions

130. Washington Cole KO, Gudzune KA, Bleich SN, Cheskin LJ, Bennett WL, Cooper LA, et al. Providing prenatal care to pregnant women with overweight or obesity: Differences in provider communication and ratings of the patient-provider relationship by patient body weight. Patient Educ Couns. 2017; 100(6):1103-10.
Reason for exclusion: Quantitative methodology

131. Wennberg AL, Hamberg K, Hörnsten T. Midwives' strategies in challenging dietary and weight counselling situations. Sex Reprod Healthc. 2014; 5(3):107-12.
Reason for exclusion: Not obesity or metabolic syndrome focused

132. Whitaker KM, Wilcox S, Liu J, Blair SN, Pate RR. Patient and Provider Perceptions of Weight Gain, Physical Activity, and Nutrition Counseling during Pregnancy: A Qualitative Study. Women's Health Issues. 2016; 26(1):116-22.
Reason for exclusion: Not obesity or metabolic syndrome focused

133. Whittemore R, Melkus GD, Alexander N, Zibel S, Visone E, Muench U, et al. Implementation of a lifestyle program in primary care by nurse practitioners. J Am Acad Nurs Pract. 2010; 22(12):684-93.
Reason for exclusion: Focused on program implementation, not provider perspective of delivering individual care

134. Wills J, Kelly M, Frings D. Nurses as role models in health promotion: Piloting the acceptability of a social marketing campaign. J Adv Nurs. 2019; 75(2):423-31.
Reason for exclusion: Not inclusive of face to face diet or nutrition interventions

135. Zieck MRM, Um IS, Chaar BB. The future of weight management in pharmacy education - Perspectives of new generation pharmacists. Curr Pharm Teach Learn. 2018; 10(5):596-601.
Reason for exclusion: Perspectives of students not primary care providers; also not nutrition focused

Appendix III: Characteristics of included studies

Study	Methods for data collection and analysis	Country	Phenomena of interest	Setting/context/ culture	Participant characteristics and sample size	Description of main results
Mercer and Tessier[109]	Qualitative descriptive study using semi-structured interviews. Data were analysed using a continuous and iterative approach.	Scotland	GP and PN perceptions of obesity and their strategies and attitudes towards weight management.	Participants were recruited within the Greater Glasgow Health Board.	n=20 (10 general practitioners [GPs] and 10 practice nurses [PNs]), including 3 males and 17 females. All participants were below 55 years with 12-28 years of experience (GPs) and 6-25 years of experience (PNs).	Themes identified: - Obesity management in primary care (responsibilities, attitudes and motivation), current obesity management issues and themes (routine management, lifestyle changes, commercial slimming club, concomitant disease, gender, guidelines, weight-modifying drugs); - Improving weight management: barriers and needs (needs at the level of the primary care setting, needs at the level of the individual/family/society).
Phillips, Wood[111] .	Semi-structured face to face interviews were conducted. Thematic analysis	Wales	Opinions and experiences of PNs managing obesity, including elements	Nurses working in general practice across two local health	n = 18, all female, most had 10-20 years of experience (61%)	Three major themes and associated sub-themes were identified which included:

	was conducted after interviews were conducted, anonymised and transcribed.		of good practice and barriers to effective management, including how the topic of obesity was broached and what the consultation included.	boards in regions of South Wales.	and most had a specific interest in obesity management (78%). Some had training in brief interventions (44%).	- Who are nurses discussing weight with; - Who is primary care seeing (opportunities to discuss weight with patients, priority patients to target); - How are nurses discussing weight (approaching the subject, relationships with patients, risk language used in discussion, strategies for discussing weight, guiding or directing patients to make lifestyle changes, monitoring patients); - What is being discussed with patients (dietary advice given, exercise advice given).
Aboueid, Bourgeault [126]	Individual semi-structured interviews were used to collect data and a thematic analysis approach was used for coding the data.	Canada	Nutrition care practices of nurse practitioners and general practitioners in multi-disciplinary primary care practices.	Multi-disciplinary, primary health care settings in Ontario, Canada.	n= 20 (n=7 GPs and 13 nurse practitioners), 16 females, 4 males, most (n=9) had between 6-15 years of professional experience.	Themes identified included attitude toward the role of nutrition in weight management, effects of having a dietitian on site, electronic medical records, duration of visits, family physicians'

						and nurse practitioners' remuneration schemes.
Gray, Chamberlain [129]	Face to face, semi-structured interviews were used and data were thematically analysed using an inductive approach.	New Zealand	Views of community pharmacists about their role in weight management, including perceived barriers and facilitators.	Community pharmacies in Greater Wellington, New Zealand.	n=11 (women n=7), aged 23-60, professional experience ranged from 18 months to over 30 years, 5 worked in independently owned pharmacies and 6 in franchises.	Four key themes were identified which included perceptions of obesity; perceptions of weight management treatment options; the unique position of the community pharmacist and barriers to involvement.
Lundberg, Jong [101]	Data were collected using individual semi-structured interviews. Data were analysed using a qualitative manifest content analysis where established categories were complete and mutually exclusive.	Sweden	Experiences of district nurses delivering health promotion and lifestyle interventions among patients with cardiovascular risk factors	District nurses working within primary health care in private or municipal healthcare centres.	n=12, all women aged 28-64 (median age 43), work experience of 1-34 years (median time 14 years), district nurses working within primary health care, Swedish-speaking, all with basic training in Motivational Interviewing.	12 subcategories and 5 categories were revealed. The five categories included: - Health Promotion Practice (HPP) as a core essence of the district nurses work; - Primary HPP processes used; - Tools supporting the motivation to change in patients; - Facilitators and obstacles for successful lifestyle interventions; - Dissatisfaction and

						satisfaction in the practical work.
Asselin, Osunlana[107]	A convergent mixed methods design was used for this study. Semi-structured interviews were utilised for the qualitative component. A thematic analysis approach was used to determine themes within qualitative data.	Canada	Experiences of primary healthcare providers in integrating weight management in to their practice.	Urban primary healthcare network in Edmonton, Canada (partnerships of family medical practices).	n=29, including 7 mental health clinicians, 7 dietitians and 15 nurse practitioners. All included participants spent the majority of their time delivering one on one patient care in the clinic setting.	5 main categories or themes were identified which included: I don't really see weight management visits as such; it can be inappropriate to bring it up; time can be a challenge; instead I focus on issues related to weight indirectly; there are so many places to start the conversation.
Nemeth, Rice[113]	Semi-structured, individual interviews were used to collect data from participants. A hybrid approach to analysis was used which involved deductive coding of *a priori* concepts and an inductive cycle to capture new ideas.	USA	Priorities and preferences for addressing weight management and cardiovascular risk reduction in primary care practice.	Primary care practices including private family practice, university affiliated health care practices and non-profit health care in South Carolina.	n= 29, all health care providers from 8 practices, demographics provided for practices, not individual participants.	Themes included providers' frustration with addressing an important priority, and providers perceiving many patient barriers and cultural differences related to weight management. Barriers and facilitators were also highlighted (Table 3).
Hansson, Rasmussen[82]	Individual interviews used. Data analysis was completed in accordance with the	Sweden	GPs' and district nurses' perceptions of their encounters with obesity in	Primary healthcare	n=20, participants were included from 19 different primary health care	Five descriptive categories emerged which illustrated GP's and DN's conceptions of

	phenomenographic approach using 4 steps.		primary healthcare settings, including experiences of meeting patients with obesity and perceptions about how care is working for patients with obesity.	settings in Sweden.	centres, median age was 51 years, median experience was 10.5 years.	obese patients in primary health care which included adequate primary health care, promoting lifestyle change, need for competency, adherence to new habits and understanding patient attitudes. Descriptive categories had multiple sub-themes and were illustrated with direct quotes.
Ashman, Sturgiss[106]	Face to face interviews were conducted by lead researcher. Data were analysed independently by two researchers and coded using social cognitive theory as a guiding framework.	Australia	Factors influencing confidence and behaviour in obesity management in GP's who were recruited for a pilot study of the Change Program. A social cognitive theoretical perspective was used to explore GP self-efficacy in overweight and obesity management.	General practices located in rural New South Wales and urban Australian Capital Territory.	n= 12, all GPs, male (n=4) and female (n=8) aged 31-60 years with experience of 4-30 years, 2 GPs practised in rural locations and 10 were located in urban practices.	Five main themes emerged which included skills and knowledge, structure to approach and follow-up, the GP-patient relationship, acknowledging barriers to weight loss and prior experience and outcomes expectations.

Holmgren, Sandberg[130]	Face to face interviews conducted at public health nurses' workplaces. First 3 interviews were conducted and analysed by open coding (coding participants own words, line by line, questioning the data and narratives during the process and refining interview questions). Next 3 interviews conducted with new questions. Codes generated concepts, compared continuously during analysis.	Sweden	Development of theory in accomplishment and adaptation of lifestyle counselling for people with mobility disability by public health nurses.	Rural and urban primary health care settings in southern Sweden, targeting nurses with formal public health qualifications (master's level).	n=10, 9 female and 1 male public health nurse, aged 40-58 with work experience of 3-22 years	Five categories were identified which included person-centredness in the situation, experience and knowledge, strengthening conditions, access to other professionals, prioritisation in everyday work. Sub-categories were also identified for each category.
Lee, Tung[133]	Qualitative descriptive study which used focus groups and in-depth individual interviews. Data were analysed iteratively based on grounded theory.	Singapore	Current methods and approaches used by primary care providers in obesity counselling and alignment with the 5As approach.	Participants were recruited from both public and private primary healthcare settings in Singapore. Focus group discussions and	n=50 (female n=21) aged 25-40 (n=23) and 41-56 (n=27), predominantly Chinese ethnicity (n=38), private GP (n=30) or polyclinic doctor (n=20),	The emergent themes were grouped under each domain of the 5As: - Ask (asking permission to discuss weight management or explore readiness to change); - Assess (evaluation of health status and root

				interviews were conducted from March 2015 toFebruary 2016.	most had 1-10 years of experience (n=25) or 11-20 years (n=18).	causes of weight gain); - Advise (informing at-risk individuals of the risk of obesity and treatment options); - Agree (respectful negotiation, including goal setting and behaviour modification, to achieve best outcomes); - Assist (enhancement of facilitators, reduction of barriers in weight management and arrangement of reviews to keep the conversation going).
Claridge, Gray[112]	Semi-structured interviews were conducted, predominantly in GPs' consulting rooms. Inductive thematic analysis was used to analyse qualitative information from interviews.	New Zealand	Viewpoints of GPs in Wellington region on weight management in primary care settings with a focus on perspectives on obesity, weight management principles, weight management	General practice in Wellington region	n= 12, all GPs, male (n=7), female (n=5), age 31-60 (n=7), 60+ (n=5),10+ years of practice (n=9), predominantly working in urban settings (n=10).	Five key themes and 18 sub-themes were identified from GP interviews. These themes include: - What the GP can do (identify the issue, the unique position of the GP, education, support and motivation); the roots of the obesity problem (societal and individual); - Why the GP does not succeed (patient factors:

			interventions and bariatric surgery.			patient motivation, acknowledgment, readiness, stigma around obesity and weight management and high variability among patients; resource factors: those within the practice and external resources); - Primary care interventions (calorie restricted diet, exercise, behavioural therapy, medication andcommercial weight loss programs); - Bariatric surgery (negative opinions, positive assessments, access to surgery and appropriateness of surgery).
Laws, Kirby[51]	Semi-structured interviews used for qualitative component of this mixed methods study.	Australia	Primary care clinicians' attitudes and beliefs towards addressing and managing lifestyle risk factors in primary care settings - focused on SNAP (smoking,	Three community health teams from two different area health services in New South Wales. Team 1 - metropolitan, generalist	n=22,mostly 35+ years (n=18), mean 21 years in profession, 8 years in community health, all female, mostly registered	Key themes identified include congruence with clinician role, perception of client acceptability, beliefs about capabilities, perceived effectiveness of risk factor intervention and clinicians' own lifestyle. Themes were

			nutrition, alcohol and physical activity). Interview guide included: how addressing SNAP fits with job role, approach to addressing SNAP in role, work priority to address SNAP, confidence to address SNAP, barriers and enablers, support and resources required.	community nursing, Team 2 - multi-disc from rural area.	nurses (n=16) and allied health (n=5).	compared between high and low implementers of lifestyle change interventions.
Bornhoeft[98]	Data were collected using semi-structured interviews, conducted in a private area within the practice environment. Socio-demographic data analysed using descriptive statistics (frequencies and percentages). Thematic analysis was used for analysis of	USA	Perceptions, attitudes and behaviours of primary care providers, including GPs and nurse practitioners, towards obesity management. Interview questions included: knowledge and thoughts on obesity, where/how knowledge about obesity was	12 different study sites, all hospital-owned primary care practices.	n=12, general practitioners (n=6), nurse practitioners (n=6), predominantly Caucasian (83%) and mostly women (70%), most providers had more than 10 years of experience in primary health care (67%), whilst the remaining 33% had 4-6 years of	Themes include provider centred obstacles, organisational obstacles and provider perception of patient obstacles. Sub-themes were also identified under each theme.

	qualitative information.		obtained, comfort discussing with patients, thoughts on primary/secondary prevention, personal and professional beliefs about obesity and comorbidities, ideal obesity management – what does it look like and who is on the team, examples of effective management, awareness of organisational supports, thoughts on weight stigma.		experience, majority aged 30-50 years (66 7%).	
Um, Armour[132]	Semi-structured interviews were thematically analysed using a grounded theory approach.	Australia	Pharmacists' views and experiences of weight management services in the community pharmacy setting.	Metropolitan Sydney community pharmacies.	n=20, all pharmacists working in Sydney, participants involved in provision of one or more pharmacy-based weight management programs (n=16).	Five main themes were identified which included the perceived role of the pharmacist in weight management, balancing marketing and credibility. Models include: product versus service, vision for training modules and

						factors influencing provision of service.
Howes, Warnecke[108]	Focus groups were used to collect data. Data analysis was conducted as an interpretive qualitative enquiry where thematic analysis was used.	Australia	Barriers to assessing and managing lifestyle risk factors amongst hypertensive patients in Australian general practice settings.	General practices within the Southern Division of General Practice, Australia.	n=30, including GPs (n=19) and registrars (n=11),majority were aged 36-45 years, female (n=21).	Themes/categories identified include knowledge, self-efficacy, consultative style, patient characteristics, and organisational and systemic issues.
Mazza, McCarthy[131]	Semi-structured telephone interviews were used to collect data, conducted until data saturation was reached. Data were analysed via thematic coding that used deductive techniques to classify responses within themes. Theoretical Domains Framework was used as the coding framework. Two researchers coded transcripts independently before cross-	Australia	Exploration and identification of attitudes of GPs and practice staff (including PNs and practice managers) towards the implementation of obesity/overweight guidelines (National Health and Medical Research Council) in general practice, particularly focused on barriers and enablers.	Participants were recruited from general practice clinics in inner-Eastern Melbourne.	GPs (n=13) and practice staff (n=17), demographic data was not collected/presented.	Five theoretical domains were identified which include environmental context and resources, knowledge, emotion, beliefs about consequences, and motivation and goals.

	checking and final interpretation.					
Lambe and Collins[134]	Qualitative descriptive study using focus groups. Descriptive analysis was completed using Kruger's framework analysis approach.	Ireland	Barriers to behavioural risk factor management and strategies to promote healthy lifestyle choices as experienced by GPs and PNs in an Irish general practice setting.	Participants were recruited from Irish general practices across urban and rural locations. Focus groups were conducted between May and June 2007. Interviews were conducted in a hotel conference room and a meeting room within a general practice.	n=56, at focus groups, aged 30-64 years.	Four key themes were identified from the focus groups: attitudes to lifestyle counselling, barriers to lifestyle counselling, approaches to lifestyle counselling, and a national program.
Aboueid, Jasinska[128]	Individual semi-structured interviews were used to collect data. Data were analysed using a conventional content analysis approach.	Canada	Understanding of weight management approaches used by primary care providers working in team settings and how they assess the most suitable approach for a patient.	Nurse practitioners and GPs working in family health teams, nurse-practitioner led clinic and community health centres in Ontario, Canada.	n=20, all primary care providers (including n=13 nurse practitioners and n=7 family physicians), female (n=16), experience in profession ranged from <5years (n=6), 6-15 (n=9), 15-25 (n=2) and 25+	Six themes were identified which illustrated the weight management approaches used by PCPs, which include: referral to a dietitian or on-site programming, referral to outpatient weight loss programs, referral to Weight Watchers, providing educational

					(n=3), participants were mainly recruited from nurse practitioner led clinics (n=8) and some were recruited from family health teams (n=3) and community health centres (n=3).	resources, bariatric surgery and anti-obesity drugs.
Aboueid, Bourgeault[12][7]	Qualitative descriptive study using individual semi-structured interviews. An integrated approach was used to analyse data where the interview questions and deductive codes were informed by a literature review, whilst the inductive codes emerged from the data.	Canada	Understanding of the experiences of primary care providers working in weight management in multidisciplinary primary care settings.	Multidisciplinary primary health care settings in Ontario, Canada. These included community health centres, nurse-practitioner led clinics and family health teams. Data were collected between fall 2016 and winter 2017.	n=20, family physicians (n=7) and nurse practitioners (n=13), female (n=16) and male (n=4),generally, participants had 6-15 years' experience in the profession (n=9) or <5 years (n=6).	Key themes identified include: screening, approaching the topic of nutrition, dietetic referrals (approaches to the dietetic referral, instances in which a dietetic referral was provided) and reinforcing healthy eating advice. Sub-theme level abstraction was only provided for one theme – dietetic referrals. Key enablers (chronic disease diagnosis, patients showing interest, dietitian on site, out of normal range blood test markers, having access to handouts, trusting

						relationship with the patient, the whole family having obesity) and barriers (lack of time, patients not open to discussion, lack of rapport with clients, competing demands, patients perceiving they already know what they need to change, low comfort level of provider in addressing nutrition, patients not understanding the implications of excess body weight) to approaching the topic of nutrition were also discussed.
Ampt, Amoroso[10][5]	Individual semi-structured interviews were used to collect data. Data were thematically analysed.	Australia	Factors influencing the decision of PCPs to screen for SNAP (smoking, nutrition, alcohol and physical activity) risk factors.	Primary care settings in Sydney, Australia.	n= 16, including 15 GPs (n= 7 males) and 1 PN.	Seven themes were identified which include: behaviour of GPs, assessment, motivating the patient, giving advice and educating the patient, arranging follow-up appointments, referring to other personnel and agencies,

						and managing multiple SNAP risk factors.
Nolan, Deehan[100]	Semi-structured interviews and a thematic approach was used for analysis.	United Kingdom	Perceptions of role adequacy and role legitimacy amongst PNs who manage obesity in general practice settings	PNs working in general practice settings in Lambeth, Lewisham and Southwark.	n=22, all PNs across 16 different practices, female (n=21).	Predictors of the PN's role adequacy and legitimacy were categorised into 2 primary themes, which include: professional factors and practice factors. Sub-themes within these categories were illustrated and categorised as those which positively affect role adequacy and legitimacy and those which negatively affect the same. Positive factors include: the belief that weight management is part of their chronic disease management and health promotion function and belief in own communication skills. Negative factors include: low awareness and use of National Institute for Health and Care Excellence guidelines

						and lack of knowledge of referral options.
Weidmann, MacLure[125]	Semi-structured, one on one telephone interviews were used to collect data. A thematic approach was used for data analysis.	Scotland	Beliefs and experiences of pharmacists and medicine counter assistants working in community pharmacy weight management services.	Registered community pharmacies in North-East Scotland.	n= 51, pharmacists (n=31), aged under 29 years (n=20), 40-49 (n=10) or 50-59 (n=10); female (n= 40), mostly under 10 years in current role (n=44).	Five primary themes were identified which illustrated the perspectives of pharmacists regarding domains of professional practice involved in weight management. These include:d awareness and knowledge, motivation, acceptance and beliefs, skills and practicalities.

Appendix IV: Critical appraisal results of included studies

Citation	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Aboueid, Bourgeault [127]	U	Y	Y	Y	Y	U	Y	Y	Y	Y
Ampt, Amoroso [105]	U	Y	Y	Y	Y	Y	U	Y	Y	Y
Lambe and Collins [134]	U	Y	Y	Y	Y	U	U	Y	Y	Y
Mazza, McCarthy [131]	U	Y	Y	Y	Y	U	U	Y	Y	Y
Howes, Warnecke [108]	U	Y	Y	Y	Y	U	Y	Y	Y	Y
Um, Armour [132]	U	Y	Y	Y	Y	N	N	Y	Y	Y
Asselin, Osunlana [107]	U	Y	Y	Y	Y	U	U	Y	Y	Y
Bornhoeft [98]	U	Y	Y	Y	Y	U	Y	Y	Y	Y
Lundberg, Jong[101]	U	Y	Y	Y	Y	U	U	Y	Y	Y
Gray, Chamberlain [129]	U	Y	Y	Y	Y	U	U	Y	Y	Y
Laws, Kirby [51]	Y	Y	Y	Y	Y	U	U	Y	Y	Y
Aboueid, Bourgeault [126]	U	Y	Y	Y	Y	U	U	Y	Y	Y
Claridge, Gray [112]	U	Y	Y	Y	Y	U	U	Y	Y	Y
Phillips, Wood [111]	U	Y	Y	Y	Y	N	N	Y	Y	Y
Lee, Tung [133]	U	Y	Y	Y	Y	U	U	Y	U	Y
Weidmann, MacLure [125]	U	Y	Y	Y	Y	N	N	Y	Y	Y
Nolan, Deehan [100]	U	Y	Y	Y	Y	U	U	Y	Y	Y

Holmgren, Sandberg [130]	Y	Y	Y	Y	Y	U	Y	Y	Y	Y
Ashman, Sturgiss [106]	U	Y	Y	Y	Y	Y	Y	Y	Y	Y
Hansson, Rasmussen [82]	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Nemeth, Rice [113]	U	Y	Y	Y	Y	Y	Y	Y	Y	Y
Aboueid, Jasinska [128]	U	Y	Y	Y	Y	U	Y	Y	Y	Y
Mercer and Tessier [109]	U	Y	Y	Y	Y	U	U	Y	U	Y
%	13.04	100.0	100.0	100.0	100.0	17.39	34.78	100.0	91.3	100.0

Y: yes; N: no
JBI critical appraisal checklist for qualitative research:
Q1. Is there congruity between the stated philosophical perspective and the research methodology?
Q2. Is there congruity between the research methodology and the research question or objectives?
Q3. Is there congruity between the research methodology and the methods used to collect data?
Q4. Is there congruity between the research methodology and the representation and analysis of data?
Q5. Is there congruity between the research methodology and the interpretation of results?
Q6. Is there a statement locating the researcher culturally or theoretically?
Q7. Is the influence of the researcher on the research, and vice- versa, addressed?
Q8. Are participants, and their voices, adequately represented?
Q9. Is the research ethical according to current criteria or for recent studies, and is there evidence of ethical approval by an appropriate body?
Q10. Do the conclusions drawn in the research report flow from the analysis, or interpretation, of the data?

Appendix V: List of study findings, with illustrations

Claridge R, Gray L, Stubbe M, Macdonald L, Tester R, Dowell AC. General practitioner opinion of weight management interventions in New Zealand. J Prim Health Care. 2014; 6(3):212-20.	
Finding	Patient acknowledgement, motivation and readiness (U)
Illustration	I can talk from now until the cows come home about what they should do, but it's up to the person to understand that they need to do it and that they can change
Finding	Stigma around obesity and weight management (U)
Illustration	I think they wrongly perceive it as a personal insult or by implication that you're saying that they're either greedy or lazy or both
Finding	High variability among patients (U)
Illustration	I find weight is often one of those things where there's so many different things involved, you've really got to try and work out what are the things that are going to be useful here because they're not the same thing I use on someone else
Finding	Identify the issue (U)
Illustration	I think it's very subjective. I mean classically we have used body mass index, which I think, you know, is a grossly inadequate measure because it doesn't ...reflect you know the kind of different body types and that sort of thing.
Finding	The unique position of the GP (U)
Illustration	People seem to be quite accepting of me talking about weight, whereas in other social settings you could never discuss someone's weight
Finding	Bringing up topic in context of other health condition (U)
Illustration	...being obese has a whole lot of medical complications. It's got tons of social implications but it's the medical ones that we

	tend to. We are on safe ground I suppose with medical implications
Finding	Focus on long term, sustainable, manageable changes in lifestyle (U)
Illustration	I suppose the one that keeps weight off over a period of time, and that usually means a management that somebody's taken on rather than something that they do that it works and they walk away from it, yeah, and I suppose it's changing someone's behaviour. That's the successful weight management, if you can get them not to buy the [soft fizzy drink] in the first place, it's gonna help.
Finding	Support and motivation (U)
Illustration	And the big thing is motivating the patient, motivating the person in front of you to believe that they can do it.
Finding	Societal (C)
Illustration	I'm so overawed by the overweight people that that becomes my norm… that's my bell-shaped curve.
Finding	Individual (U)
Illustration	Well the first steps are to identify what they're eating and what their issues are with eating, whether they're eating for psychological reasons, or they're eating too, far too many calories because they don't understand the basics of nutrition, or because there is a social situation where they can't avoid eating lots…
Finding	Within the practice (U)
Illustration	We're quite lucky to be supported by a multidisciplinary team here, with a focus on weight reduction.
Finding	External resources (U)
Illustration	I've referred people to 'active families' and 'green prescription'. Within the community we've got resources, like the physios [physiotherapists] do exercise classes…the community centre and they run yoga classes, we've got walking groups in the

	community…there's actually quite a lot going on that the practice can kind of feed people in to.
Finding	Calorie restricted diet (C)
Illustration	Well, that's eating less food isn't it really? In the end, that's all there is.
Finding	Exercise (U)
Illustration	I say to patients 'exercise has got many, many health benefits'. I think compared to the appropriate dietary changes, it's pretty lousy as a weight loss intervention.
Finding	Behavioural therapy (U)
Illustration	I don't know anybody who has used CBT [cognitive behavioural therapy] for weight loss. I suppose in theory it could be useful.
Finding	Commercial weight loss programmes (U)
Illustration	I've not seen people really sustain weight loss when they've been on programmes.
Hansson LM, Rasmussen F, Ahlstrom GI. General practitioners' and district nurses' conceptions of the encounter with obese patients in primary health care. BMC Fam Pract. 2011; 12.	
Finding	Overweight needs to be prioritised (U)
Illustration	We have no resources and that's why we can't do anything. There's no time. We should actually devote more time to prevention but it's all about diseases.
Finding	Lack of distinct guidelines and evidence (C)
Illustration	I feel like I don't have much to offer medically. It's very general advice at best, and a recommendation to try Weight Watchers or something like that. For those who've tried everything, it might be a referral for surgical treatment.
Finding	Co-operate for knowledge-based care (U)
Illustration	Well, what we have, and I think is very positive, is access to a dietitian, helpful doctors, a social welfare officer and a nurse

	competent in cognitive therapy. I think we can solve this in-house.
Finding	Continuity and long term support (U)
Illustration	It has to be a long term relationship. Often it's very short encounters, but I've noticed that I can get further with the patients I meet repeatedly.
Finding	Overweight not our responsibility (U)
Illustration	I don't think you should take it for granted that we're the ones to intervene. We're trained in medical care. Overweight and obesity are more of a societal problem.
Finding	Small steps and realistic goals (U)
Illustration	I try to get them to be active on a daily basis. Walking a short distance to work or using the stairs. It's important that they begin changing their behaviour slowly
Finding	Raise awareness (U)
Illustration	I think these general health questionnaires about smoking, physical activity, diet and alcohol are a way of approaching the weight issue. They might not even have thought about the fact they don't eat vegetables every day
Finding	Individually based solutions (U)
Illustration	It's obvious that it has to be adapted to the individual. It's very personal what work, how old they are etc. It may not even be a question of how much food they eat, but what and when they eat
Finding	Facilitate motivation (U)
Illustration	I sometimes say: "Heart disease, do you want that? Or diabetes?" I try to scare them a little bit and if I find out that their mother died of a heart attack, I can use that
Finding	Respectful encounters (U)
Illustration	It's very much a question of comforting words or, so to speak, off-loading the blame. You need the right psychological feeling for

	meeting these individuals and their giant dilemma
Finding	Staff with active interest (U)
Illustration	The nurses are probably a bit more oriented towards this kind of work, and I think they can do a lot. They have more time to go through things, and they're highly competent. Anyway, the ones we have have taken an active interest.
Finding	Knowledge about diet and counselling (U)
Illustration	Our basic and further education has to become much better. First, there's all this discussion about what diet to recommend, and second, about how to get people to do what you tell them
Finding	Overcome deep seated habits (U)
Illustration	It's not so easy to change old routines. I think most people know how to eat, but it's one thing to know how and another to actually do it
Finding	Motivation to change (U)
Illustration	Patients want to lose weight but they don't want to change. Start walking instead of taking the bus, and eat less, that's all there is to it. Or the motivation might be there but they don't really want to do it, only if they think it's important
Finding	Evasive behaviour (C)
Illustration	They often say 'I don't understand it, I don't eat anything', but actually we know they do
Finding	Trusting in care (C)
Illustration	I think a lot of them believe that someone else is going to do the job for them...They put the responsibility on me, I'm the one who's going to fix it so they lose weight. I try to talk them out of it, but some don't listen
Finding	Lack of self-confidence (U)
Illustration	There comes a time when you get so disappointed with yourself, because you just can't lose weight. You think you've done

	everything, and you still can't like yourself. You lose confidence
Finding	Socio-cultural barriers (U)
Illustration	There are quite a lot here that come from Asia and the Mediterranean area and they often have dinner very late and have particular eating habits. It's very difficult to make them change things
Finding	Psychological and medical barriers (U)
Illustration	Often orthopaedic problems hinder people and one thing leads to another. Orthopaedic problems increase and then you can't move around. Your weight goes up and of course it gets harder to exercise
Asselin J, Osunlana AM, Ogunleye AA, Sharma AM, Campbell-Scherer D. Missing an opportunity: the embedded nature of weight management in primary care. Clin Obes. 2015; 5(6):325-32.	
Finding	I don't really see weight management visits as such (U)
Illustration	I see them mostly for diabetes of dyslipidemia or hypertension, mostly diabetes. I mean and weight management is involved in that but that's not my focus is not let's lose weight
Finding	It can be inappropriate to bring it up (U)
Illustration	...for example the lady I saw this week could have been like a good like 10, 20 pounds that she could lose, then it was her first visit so am I going to approach that on her first visit for smoking cessation when she's already struggling with that? I find that's one mountain, if you throw everything in the same visit, they're going to be like who's that crazy lady, I'm not going back
Finding	Time can be a challenge (U)
Illustration	It depends...on how much time I have so if this is a patient I have never seen before and I've been booked 10 or 15 minutes with them and they have a number of issues but what they're there for is their cough, I probably won't bring it up

Finding	Instead I can focus on issues related to weight indirectly (U)
Illustration	I do give them information of well you know five to ten percent weight loss may help with blood sugar control but we just focus on things that they can actually do to help those 'cause I believe that if they work on portion control, that's going to help with their blood sugars and their weight right so I don't necessarily need to bring that up and you know make that the center of attention that oh you know what, let's, let's work on portion control so you can lose weight. I just focus on let's work on portion control. These are the, these are considered the healthy portions.
Finding	There are many places to start the conversation (U)
Illustration	I often do because they're all kind of linked, those chronic disease right so if they are in fact overweight but they're coming in for let's say blood sugar management, then I will let them know that the, the literature shows us that even modest weight loss can help you manage your blood sugars, is that something you want to talk about so I definitely do but it's really dependent on whether they're ready to go there
Gray L, Chamberlain R, Morris C. "Basically you wait for an 'in": Community pharmacist views on their role in weight management in New Zealand. J Prim Health Care. 2016; 8(4):365-71.	
Finding	Obesity as a social 'norm' (U)
Illustration	I suppose with the large percentage of those being overweight they think it's the norm...sometimes people do find it hard to eat healthily because unhealthy food is so much more accessible, so much cheaper and so much more convenient
Finding	Defining obesity (U)
Illustration	I would probably use the BMI index which is probably most commonly talked about in studies and like health guidelines as the marker so I'd probably use that
Finding	Personal motivation (U)

Illustration	If they're happy with the way they are then they will not be motivated to lose weight. It's being aware of the effect of carrying that much weight and how it's going to affect them in the future and what it's doing to them on a day to day basis
Finding	Diet and exercise (U)
Illustration	I think that's the whole point of the thing - diet and exercise, that's it in a nutshell. It is nothing else. It's calories in, calories out - energy in, energy out, that's it, it's not rocket science
Finding	Approachable and accessible (U)
Illustration	...we're in a far better position to approach it [obesity] than any other health professional because we obviously see them monthly [for prescriptions]
Finding	Commercial weight loss products (U)
Illustration	By rights, if they're modifying what they're taking in which is controlled by the sachet, it should be a win-win. But if they decide not to follow it properly then it becomes a bit of a problem. But I think the product itself is useful
Finding	Pharmacist role (U)
Illustration	Not many people come in and use it as a main talking point, they often have other health concerns like whatever medications they're taking. So maybe people don't see us as a port of call for helping with weight loss advice
Finding	Education and advice (C)
Illustration	I'd probably be 70% confident, kind of just giving vague information about healthy diets and exercise
Finding	Raising the issue (U)
Illustration	I think it's such a sensitive topic that it tends to be a reactive rather than a proactive, unless there are things going on when the health is declining we know that their meds [medicines] are going up and we get a

	chance to sit down and talk to them about other things
Finding	Time, remuneration, space (U)
Illustration	The trouble with pharmacy is that commercial aspect to it where you aren't going to do something for nothing. I mean that sounds pretty horrible and harsh but do you know what I'm getting at. If you're going to be selling a product or a programme or whatever, then it's gonna take some time and there's gotta be a remuneration for the time you spend, and that's the difficult part that I see
Finding	Team approach (U)
Illustration	We'd like to, but I think the only reason we don't [refer patients] is because we don't know how. It's not easy. We've got no phone numbers, they never contact us. If they were more proactive and saying 'hey, did you know what we do? These are the sort of patients you can refer', then we might be more proactive...what would be really helpful id to refer patients to dietitians, nutritionists and exercise specialists. To be able to refer people would be excellent but we don't have a referral pathway
Howes F, Warnecke E, Nelson M. Barriers to lifestyle risk factor assessment and management in hypertension: A qualitative study of Australian general practitioners. J Hum Hypertens. 2013; 27(8):474-8.	
Finding	Knowledge (U)
Illustration	My advice for everyone is walk 5 times a week for an hour...so that's all I say but I think that is adequate. Diet is a little more difficult, I just say don't use excessive salt and that's about it for hypertension
Finding	Self-efficacy (C)
Illustration	I'm seeing patients here with so many other crises in their lives...they've got children on drugs and they're looking after grandkids and partners who are seriously sick...and so the fact that their BP is one hundred and forty something...it's way down on their list
Finding	Consultative style (C)

Illustration	Certainly I give up telling people about the lifestyle things because we tried that 5 years ago, and they didn't do it then, so you just check their BP and write their script, but we really should be saying it every time
Finding	Patient characteristics (C)
Illustration	...a lot of the time you're medicalising a lifestyle, people are overweight and unfit and smoking...you then start to throw tablets at it...you're having to treat things inappropriately because that's the only intervention that's affordable and practical
Weidmann AE, MacLure K, Marshall S, Gray G, Stewart D. Promoting weight management services in community pharmacy: perspectives of the pharmacy team in Scotland. Int J Clin Pharm. 2015; 37(4):599-606.	
Finding	Awareness and knowledge (C)
Illustration	The people who come into pharmacy talk about their daily life during conversation, it pops up and we talk about it, but not because they want to buy or ask for advice
Finding	Motivation (C)
Illustration	I definitely believe pharmacy is well placed to provide that level of service and we tend to have a good soft relationship with our patients. I think the success of the nicotine replacement therapy service shows that in elements of public health like weight management I think pharmacy could have a very successful role
Finding	Acceptance and beliefs (C)
Illustration	I don't think they maybe realise the service is going to be there...I also think there is a hurdle, actually coming in and asking a pharmacist that is maybe running around like a headless chicken
Finding	Skills (C)
Illustration	...all our pharmacists are trained on healthy eating, they've all been sent to a course in London...
Finding	Practicalities (C)

Illustration	Yes, we have the expertise and we would have no problem as a profession but it's whether or not it's [national weight management scheme] something which is of value and will make a difference to the end user: I would challenge that
Bornhoeft K. Perceptions, Attitudes, and Behaviors of Primary Care Providers Toward Obesity Management: A Qualitative Study. J Comm Health Nurs. 2018; 35(3):85-101.	
Finding	Lack of knowledge (U)
Illustration	My knowledge is...bad and getting worse, I think it's (obesity) a huge crisis, that's exponentially expanding. I see it getting worse, I'd say 50% are obese, I don't have the details of prevalence in our community. I sometimes wonder (pause and staring in to space) do we have enough knowledge to be skilled enough to provide the care. Most providers don't have the time or the knowledge to address obesity, but I think there should be more of a medical education and awareness of obesity for all of us
Finding	Interpersonal and intrapersonal processes influence behaviour (U)
Illustration	I could do better myself with obesity. I try to follow a healthy lifestyle and I have my problems, and I'm not the thinnest person in the world. How can I be the one telling patients to lose weight when I am dealing with my own weight issues. I understand where they are coming from but I feel uncomfortable talking about weight. I know it's a lifelong struggle for me and for them
Finding	Organisational culture (U)
Illustration	Our organisation (study site) doesn't seem to promote much in terms of obesity management. I think we all need more training on the issue from the top, but I suppose there is a lack of resources. I am not aware of any policy, practice guideline, or organisational assistance for my obese patients. I think the only program is the bariatric program. Obesity management should be discussed at our quarterly provider meeting

Finding	Support and services (C)
Illustration	There is no time in our schedules, the practice manager limits our visits to 20 minutes, and you couldn't possibly manage obesity with all the other things we have to talk about in one visit. It's got to be short and sweet; because once you start talking about obesity...you know that subject can be very extensive
Finding	Patient knowledge, readiness and capability (U)
Illustration	Patients are sensitive. If they aren't open to the discussion (and I can usually tell), I don't go there. Some people are just not approachable. They are not motivated, and that is the key to success. And sometimes even if they are motivated, they just fall off...the wagon you know. They have repeated weight loss failures and they usually give up. Compliance is just as important as motivation. I had one patient who was so motivated and that's why she was successful
Nolan C, Deehan A, Wylie A, Jones R. Practice nurses and obesity: professional and practice-based factors affecting role adequacy and role legitimacy. Prim Health Care Res Dev.2012; 13(4):353-63.	
Finding	Belief that weight management is part of their chronic disease management and health promotion function (C)
Illustration	We're monitoring...the chronic diseases and all that so I think...it's our role, yeah
Finding	Perceived lack of expertise in motivating patients, as well as in nutrition, child obesity and assessment (U)
Illustration	I'm not trained in dietetics and...in weight management, mine's more of a general healthy lifestyle kind of 'common sense' information that I'm giving them
Finding	Belief in own communication skills and ability to build rapport, steer conversation on to the topic and encourage patients (C)
Illustration	Your BMI is this and the normal one is between this and this...so if we do something about it...I'm here anytime, come

	and see me', ... I encourage them...tactfully, not like just bring it up
Finding	Having attended weight management training and having extra time (U)
Illustration	I probably may be more effective because I'm quite comfortable...I give that bit of extra time and I've had a bit of extra training, so I have a bit more at my fingertips to offer them in that short intervention
Finding	Low awareness and use of NICE and Department of Health guidance (C)
Illustration	Vaguely, I have sort of looked at it, I couldn't tell you specifically
Finding	Belief that there are some contexts and patient types where it is more appropriate to raise the topic than others (U)
Illustration	I sometimes think of how you can broach the subject? I used to do...'ooh let's check your blood pressure'...it looks like I am just checking a few things and then bring it up that way
Finding	More comfortable raising issue with people with co-morbidities (U)
Illustration	It's harder when they are healthy and overweight...if they are hypertensive, if they have had a heart attack, if they are diabetic, it's easier to then to tackle the problem
Finding	Beliefs about their own limited impact on outcome (U)
Illustration	It was good but she must have been motivated, I don't think it was particularly me
Finding	Belief that patients are responsible for their lack of success (U)
Illustration	People know what they should be doing but lack the intention to do it
Finding	Ambivalence about the effectiveness of interventions offered by the practice (C)
Illustration	I feel quite justified from a nursing point of view that the Weight Watchers and

	Slimming World are sensible, healthy, good, well-run good eating plans.
Finding	Perceived lack of priority for topic within the practice (U)
Illustration	There are so many other things that you need to keep up to date with...things like that tend to be put in the back burner unless you're made to do it
Finding	Lack of time available and workload (U)
Illustration	Ok, you've got ten minutes, so the most important thing on their mind is you dealing with what they've come in for. If by any chance you get...to deal with other issues that's what we try and do
Finding	Supported in extra time for weight management or being able to offer alternative appointments and follow up support to motivated patients (C)
Illustration	If somebody is really in to that frame of mind where they want to lose weight, then it's my job to actually support them and help them
Um ISI, Armour C, Krass I, Gill T, Chaar BB. Managing obesity in pharmacy: the Australian experience. Pharm World Sci. 2010; 32(6):711-20.	
Finding	The perceived role of the pharmacist in weight management (C)
Illustration	I think pharmacists are very accessible for customers who are in that bracket that need to be losing weight
Finding	Balancing marketing and credibility (U)
Illustration	I'm a bit uneasy about promoting it (weight management services) too much so that it isn't seen as just another way of making money...doctors are very suspicious of what pharmacists do
Finding	Product versus service (U)
Illustration	I'm very sceptical of the meal replacement based programs because they don't teach people what they should be eating, they're largely designed on selling product rather

	than changing people's lifestyles, and only giving good income to the manufacturer
Finding	Vision for training modules (C)
Illustration	Pharmacists are not equipped in nutritional food aspects like calorie-content
Finding	Factors influencing provision of service (U)
Illustration	It's difficult here because we don't have the clientele or demand for weight management
Laws R, Kirby S, Powell Davies G, Williams A, Jayasinghe U, Amoroso C, et al. "Should I and can I?": A mixed methods study of clinician beliefs and attitudes in the management of lifestyle risk factors in primary health care. BMC Health Serv Res. 2008; 8:44.	
Finding	Congruence with clinician role (U)
Illustration	I don't know...whether it should be something we address, or whether we feel it's addressed to by other people...we know that they're dealing with their doctor, and often, a community nurse is involved, and a lot of the clientele we see are serviced by other professionals
Finding	Perception of client acceptability (U)
Illustration	You explain it to them while you're having a chat with them and...their defenses drop and they're like 'oh, they're not here to bombard me, they're just interested'
Finding	Beliefs about capabilities (U)
Illustration	I guess I'm fairly comfortable in the way that I do it. I'm not often shown the door
Finding	Perceived effectiveness of risk factor intervention (U)
Illustration	Well I'm not quite sure that much advice will not be effective very, very frequently, but it doesn't mean that I can't, I mean you have a responsibility where you can try and steer people in the right direction
Finding	Clinicians' own lifestyles (U)

Illustration	because I feel I'm a little overweight, I sometimes feel a bit funny telling people what to eat...but it doesn't stop me doing it
Ampt AJ, Amoroso C, Harris MF, McKenzie SH, Rose VK, Taggart JR. Attitudes, norms and controls influencing lifestyle risk factor management in general practice. BMC Fam Pract. 2009; 10(1):59.	
Finding	Motivating the patient (U)
Illustration	We are not here as saints to - I mean we need to move on with our time and there are some ten other patients for one unmotivated patient who we can help so if in the end the patient's not motivated I think motivational interviewing is not going to make a huge difference
Finding	Assessment (C)
Illustration	Rather than what they're eating, I ask about nutrition only if the weight is very high and if they (are) obviously well looking person, I don't bother
Finding	Giving advice and educating the patient (U)
Illustration	I was saying "you've got a weight problem and obviously the cholesterol is raised, you need to perhaps lose some weight...eat healthily, eat more vegetables and do exercise regularly, all you need to do is just start walking and eating regularly". So basically I gave her information
Finding	Arranging follow up appointments (C)
Illustration	..I did try to practice preventative medicine when you see obese and if they've got diabetes or heart disease, of course I - but I must say it's not structured with the timeframe allowed 'cause this is about 20 minutes or more...and that's a bit hard sometimes to spare 20 minutes
Finding	Referring to other personnel and agencies (U)
Illustration	Okay if the patient has high cholesterol or hypertension and perhaps is overweight we'll discuss their diet and that sort of things and I would ask them if they would like to see a dietitian

Finding	Managing multiple SNAP risk factors (U)
Illustration	I'd try to sort out what the patient had in mind, maybe he or she wants to do the lot all together as a package, we'd have to come to some agreement as to how the patient wants to address it. But it needs to be patient-orientated where possible
Lundberg K, Jong MC, Kristiansen L, Jong M. Health Promotion in Practice—District Nurses′ Experiences of Working with Health Promotion and Lifestyle Interventions Among Patients at Risk of Developing Cardiovascular Disease. Explore (NY). 2017; 13(2):108-15.	
Finding	A necessity for patients' health (U)
Illustration	It's an absolute necessity, I feel that is my duty as a district nurse, who else would do it? It's also a positive thing, which I have been trained to do as a district nurse, and it gives an opportunity to work for a change among outpatients
Finding	An opportunity to promote a healthier lifestyle (U)
Illustration	It feels absolutely wonderful! I graduated as a district nurse a year ago and I am so looking forward to deal with the different aspects of health promotion and disease prevention. I feel that I have so many possibilities to affect the way people are living their lives and I really believe in health promotion. I have seen examples where people have become more physically active after having PAP's, also reduce their waist circumference - that is so encouraging for them. Well, I really find that the work with disease prevention and lifestyle interventions are natural tasks for district nurses in primary healthcare
Finding	Counselling (U)
Illustration	With respect to nutrition, I have some brochures from the National Food Agency which suits well in conversations about food and eating habits. Patients often ask for written counsels and I believe it’s easier to converse with someone of you have uncomplicated materials as support, which also the patient can bring home

Finding	Motivational interviewing (U)
Illustration	I find MI a useful tool in health promotion and lifestyle interventions. For the individual, it is often about changing something inside to be able to change your habits, and then it is good to know MI
Finding	Health dialogue (U)
Illustration	Well, these health dialogues that we must perform on patients, some find them a negative obligation that patients can feel intruded by, but I actually find them useful - you are forced to ask the patients questions about their lifestyle. Interviewer: "So you find the dialogues beneficial?" "Yes, this is how I think; if I wouldn't be obligated, I am pretty sure I wouldn't ask the patients about lifestyle habits, it wouldn't be prioritised - so for me the health dialogues are positive, since it means that I am actively asking questions about lifestyle issues
Finding	Lack of knowledge (C)
Illustration	I am so tired of being this "agent" of change! Is it so difficult to work with health promotion? I have been at many different courses concerning lifestyle interventions and have really tried to spread the word at my workplace, but some never learn! I honestly believe that some people aren't suited to work in disease prevention and health promotion in patients. But it's also about pedagogical characteristics, something that not everyone has, in spite of thorough training
Finding	Lack of organisational structure (U)
Illustration	We are lacking in structure in our health center, I believe we actually know what is right to do, but with respect to health promotion and disease prevention, there is no scheme on who should do what and when it should be done
Finding	A troublesome burden (U)
Illustration	I find that since we are obligated to have health dialogues with people of 40, 50 and 60 years, it feels like a compulsory constraint, I mean, sometimes it feels like

	we are shovelling over lots of health stuff to people who aren't ready to buy it, and then I feel a bit embarrassed as a professional health counsellor
Lee J, Tung YC, Tai KP, Tay SA, Cheng SJ, Ang SB, et al. Do primary care physicians use the 5As in counselling obese patients? A qualitative study. Proc Singapore Healthc. 2017; 26(3):144-9.	
Finding	Ask (U)
Illustration	I work in a private clinic. I see mainly professionals, shift workers and white collared workers. Busy individuals, very irregular working hours, and so when they do come to me, it's really with the intent of sorting whatever they are quickly. It's very opportunistic to ask "Hey, may I take your weight?" it's surprising for them to measure their weight after not having stepped on a weighing machine for many years...that's what I've been noticing...getting them aware of their weight and BMI
Finding	Assess (U)
Illustration	First we have to uncover the different layer, the meaning, the hidden agenda behind eating, overeating. Secondly, the under exercising, and thirdly, whether there's a medical condition that we've missed out. A lot of patients actually don't eat for satiety. They actually eat for comfort
Finding	Advise (U)
Illustration	I would explain to them that the nature of their obesity increases their risk of diabetes, hypertension and hyperlipidemia. I encourage them to shed kilos...but in a non-threatening manner...explain to them that the best way is through exercise and diet modification...and if they are really, really obese like BMI 45 and above, I would encourage them to go for bariatric surgery because by then majority have Obstructive Sleep Apnoea (OSA), impaired glucose tolerance and diabetes...the ill effects of severe obesity
Finding	Agree (U)
Illustration	When a patient comes to you for a chronic condition, it's very hard to shift their

	attention to their weight so I find it helpful to link it. Most patients are very concerned about taking more medicines, having to administer injections, about long term side effects of medication. You tell them that if they exercise and manage to bring the weight down by one to two kilograms, it will improve the diabetes or blood pressure without having to increase medication, this could become an incentive to them
Finding	Assist (U)
Illustration	We can't know everything...unless we have a degree in clinical nutrition, we probably won't know how to give the details. Sometimes when we reach a point whereby things are just not moving, the patient is wondering what else they can do. That's when I ask "Do you want to see a dietitian?" There may be certain blind spots they (dietitian) can spot
Ashman F, Sturgiss E, Haesler E. Exploring Self-Efficacy in Australian General Practitioners Managing Patient Obesity: A Qualitative Survey Study. Int J Fam Med. 2016; 2016:8212837.	
Finding	Skills and knowledge (U)
Illustration	I don't feel confident to really get into the nitty gritty of...patients' questions about this diet, this food and that food, and I think, oh, I'll leave that for somebody else to do
Finding	Structure to approach and follow-up (U)
Illustration	It comes down to follow up, I think, and feeling confident that I have a system in place that I'm going to see them and act on. I feel like a lot of my obesity management has been very opportunistic with not a lot of protocol or system around it
Finding	The GP-patient relationship (U)
Illustration	[Having an established relationship] makes it easier because you know what works and...what makes this patient tick...With a patient that you've seen over many years you know where they stand...You can be more frank with them I suppose, and you know their life situation

Finding	Acknowledging barriers to weight loss (U)
Illustration	I don't want to be falsely saying...'I really believe if you do this this would be effective'...I just think if people have put on weight often their body's fighting to get back up to that weight...and I know some people lose weight and they do keep it off with a lot of effort, but I think the majority of people put it back on...So I don't feel confident empowering people
Finding	Prior experience and outcome expectation (U)
Illustration	I've been treating patients who are overweight or obese for years, and I wouldn't say that my success rate is particularly high...in seeing my patients lose weight, so that's why I don't feel particularly confident that I'm good at it...I've made suggestions that I think would be effective, but in so many times...we don't actually get very far
Phillips K, Wood F, Kinnersley P. Tackling obesity: The challenge of obesity management for practice nurses in primary care. Fam Pract. 2014; 31(1):51-9.	
Finding	Opportunities to discuss weight with patients (U)
Illustration	No, if they were coming for something completely unrelated because they would probably have had plenty of people doing it to them already, and it will have [annoyed them] to be quite honest. If I went to the doctors with conjunctivitis and had a weight problem I would be pretty [annoyed] to be quite honest if you then started telling me about my weight
Finding	Priorities for weight discussions (U)
Illustration	I think sometimes we can be a little extreme and a little bit looking for the perfect readings of BMIs and things. I think they are slightly extreme. I think we're slightly unrealistic...I'll look at them and think sometimes 'well, you're really not that bad' but that is compared to what I'm dealing with in my weight management clinic and they're not that bad compared to what I'm seeing

Finding	Broaching the subject (C)
Illustration	Nurses reported broaching the subject indirectly, perhaps by asking the patient to be weighed, or during other activities such as during blood pressure readings
Finding	Relationships with patients (C)
Illustration	Many nurses reported the need to build a close relationship with patients, both to allow them to discuss certain aspects of obesity and to enable patient to be honest and open
Finding	Strategies for discussing weight with patients (C)
Illustration	If he [the patient] was 5 stone you'd be admitting him [to hospital] and addressing his issues. But nearly at 35 stone no one is doing anything and it's perceived that he can't stop but nobody can help. You can't say 'you know, you should eat less'
Finding	Guiding or directing patients to changes (U)
Illustration	People do often want directions. They want quite a prescriptive diet plan rather than the general principles. That, I think, is to make things easier for themselves. 'Eat this' - I'd imagine, though I don't know, that people don't stick to very restricted diets. But that's what they think they want. They don't feel they can take away the general principles of this, this and this and then transfer them to their own lived. They want you to tell them
Finding	Monitoring patients for weight loss (U)
Illustration	For healthy patients, follow up was often with an 'open door policy' when the patients could refer themselves back to have their weight checked whenever they wanted. Specific weight loss clinics, in three of the four examples given, were unsuccessful with high drop-out rates and little effective weight loss observed
Finding	Dietary advice (U)
Illustration	You gauge the patient on that first meeting. So if they 'I don't know what I'm doing, then you kind of make it to suit - you know, you

	go back to basics. Right, we'll do a food diary, we'll do this week, I give them little goals. But if you get patients that come in and say 'Look, I've done weight watchers, I know what I should be doing. I know what I shouldn't be eating and I know I should be exercising, and I know I should be doing this and this' And they've got a bit more of an idea, then you do it a little bit differently. You say, 'OK, let's try this'. Your approach to them is different because of their knowledge
Mazza D, McCarthy E, Carey M, Turner L, Harris M. "90% of the time, it's not just weight": General practitioner and practice staff perspectives regarding the barriers and enablers to obesity guideline implementation. Obes Res Clin Prac. 2019; 13(4):398-403	
Finding	Time constraints (U)
Illustration	Time is the biggest obstacle...people usually haven't come just about their weight
Finding	Cost of other health services (U)
Illustration	I have referred a few people to the dietitian, obviously that is a bit limited for those who can't really pay for it...they can't really afford to do that even if they want to do it
Finding	Lack of awareness of services to refer to (U)
Illustration	I never send anyone, I used to years ago, to the obesity clinics at the hospitals. I don't even know if they exist anymore
Finding	Fear of embarrassing patients (U)
Illustration	No one wants to hurt or embarrass or insult their patients. For a lot of them [GP's and practice staff] broaching that topic sensitively is not easy
Finding	Meeting the patient's expectations (U)
Illustration	If they've come in for something else and we've had difficulty getting to the issue of weight and I can see they're awkward, I will probably not push it
Finding	Strong doctor-patient relationship (U)

Illustration	Readiness to change can be very threatening to patients...you need to know them fairly well to bring that discussion up
Finding	Patients with comorbidities (U)
Illustration	It's all about what's appropriate to the consultation. If they've come in with major depression, I'm not going to give them a hard time about their obesity
Finding	Concern about losing patients (U)
Illustration	I have lost a few patients by weighing them and telling them their weight. I am very conscious of that
Finding	Professional sense of responsibility to patients (U)
Illustration	It's not fun to see someone who's a walking risk factor...you can help a person change their life
Finding	Ability of health professionals to relate to their patients (U)
Illustration	It's hard for me to convey these messages when they look at you and say 'You don't know what it's like.' And it's true, I don't know what it's like to be overweight, or to lose weight
Aboueid S, Bourgeault I, Giroux I. Nutrition and obesity care in multidisciplinary primary care settings in Ontario, Canada: Short duration of visits and complex health problems perceived as barriers. Prev Mep. 2018; 10:242-7.	
Finding	Attitude towards the role of nutrition in weight management (U)
Illustration	There are so many other things in primary care that are paramount that not everyone is thinking of weight and nutrition as really important things to assess but it should really be another vital sign because it's so important. People can gain weight and it can increase their risk for other diseases in a short amount of time
Finding	Accessible and cost free dietetic referrals (U)
Illustration	I guess if I was in solo practice, I would probably ramp up my skills in terms of

	counselling around nutrition. If dietitians are covered then I would definitely make a referral if the patient can pay for them
Finding	Allows for nutrition discussion with PCP (U)
Illustration	I think it's definitely more accessible for the patient and I think because they are more accessible, I tend to bring up the topic of nutrition more because I know something can be done about it.
Finding	Evidence-based resource (U)
Illustration	We have clinical meetings and talk about different clinical issues and so there is that so she (RD) can help us with our knowledge which is great.
Finding	Improved continuity in the delivery of care (U)
Illustration	If we're all telling people the same thing but it's coming from different angles or explanations, whether it's weight loss or cutting down drinking or smoking or any kind of change, I think it really helps to hear it from everybody.
Finding	Duration of visits (U)
Illustration	Time is the biggest issue. I rarely have a patient coming in for weight management alone. Weight is almost a side effect or contributing factor for whatever they came in for. So if they come in for diabetes, we talk about nutrition and weight in the context of diabetes.
Finding	Family physicians' and nurse practitioners' remuneration schemes (U)
Illustration	I work four hours a week in a fee for service model and have I ever talked about weight management? Very rare because it is designed for more acute conditions and because it is not incentivized. ... In the FHT we have regular diabetes sessions. In this setting we get incentivized to see diabetic patients every 3 months and we talk about weight then.

Aboueid S, Bourgeault I, Giroux I. Nutrition and obesity care in multidisciplinary primary care settings in Ontario, Canada: Short duration of visits and complex health problems perceived as barriers. Prev Med Rep. 2018; 10:242-7.	
Finding	Providers' frustration with addressing an important priority (U)
Illustration	I've been seeing them for four years and tell them the same thing every time, and their weight has not gone down, but gone up.
Finding	Providers perceive many patient barriers (U)
Illustration	A sense of hopelessness, about their health care. … they've tried their best, but in the end they don't feel they have the resources to make the change. There are barriers to improvement. And some of those are internal, some of those are external.
Holmgren M, Sandberg M, Ahlstrom G. To initiate the conversation - public health nurses' experiences of working with obesity in persons with mobility disability. J Adv Nurs. 2019; 75(10):2156-66.	
Finding	Person-centeredness in the situation (U)
Illustration	I try to personalize, try to scan that person's ability to do and that you give advices based on that…
Finding	Experience and knowledge (U)
Illustration	I think the more years you have worked, the easier it is for you to dare and find opportunities where it would be appropriate to initiate it…
Finding	Strengthening conditions (C)
Illustration	… then the doctors put notes in my mail-box," wish to lose weight…"…. "need to lose weight" and then I start by calling and asking about the motivation. I mean, working with a patient who absolutely not... Is it the doctor who wants it or is it the patient? It is first and foremost important in all behavioural changes
Finding	Access to other professionals (U)
Illustration	… you have to have multi-professional collaboration with physiotherapist and

	dietitian. You can't do it your- self, there has to be a collaboration around it all
Finding	Prioritization in everyday work (C)
Illustration	....a lot is given low priority and this is such a thing – lifestyle habits. It is after all, the first choice in all treatment with regard to osteoarthritis, hypertension, obesity. The first achievement, comes last
Mercer SW, Tessier S. A qualitative study of general practitioners' and practice nurses' attitudes to obesity management in primary care. Health Bull. 2001; 59(4):248-53.	
Finding	Responsibilities, attitudes and motivation (U)
Illustration	We very much leave it to the practice nurse. I do not think it is a GP's job to be doing the hands-on work - it is my responsibility to make sure it has been tackled by someone else
Finding	Routine management (C)
Illustration	BMI was usually calculated at least initially (from charts or computer) but only one (PN) routinely measured waist circumference - either they had not heard of it or did not see how it would be helpful in management. A few felt it might offend patients as an "invasion of personal space"
Finding	Lifestyle changes (C)
Illustration	You do not get very good results. You sometimes feel you are banging your head against a brick wall
Finding	Commercial slimming clubs (N)
Illustration	I'm not sure I have a big role to play in actually tackling the problem of obesity...I am not entirely sure that to medicalise it is the way forward
Finding	Dietitians (U)
Illustration	Referring obese diabetics was generally regarded as a much more appropriate use of the service. Nevertheless, many of the GP's and PN's interviewed expressed a keen interest in having a dietitian attached

	to the practice, to advise on difficult or complex cases and to help support the efforts of the PN's
Finding	Concomitant disease (U)
Illustration	The presence of a concomitant disease seemed to lift the negativity and ambiguity that existed about managing obesity and the GP's in particular were much more prepared to take an active role in weight management in such patients
Finding	Guidelines (U)
Illustration	Well we certainly saw the SIGN guidelines (on weight management) and were horrified. There were aspects of the SIGN guidelines that we found quite unacceptable, particularly the recommendation to use appetite suppressants. I think that was one of the less successful SIGN guidelines
Finding	Needs at the level of the primary care setting (C)
Illustration	Maybe something, like psychology in to people's eating habits and their incentive, how to keep them going...yes, motivate and keep it going. It's frustrating for them and for the person trying to help
Finding	Needs at the level of the individual/family/society (U)
Illustration	Probably if we're going to impact on obesity with any great success, I think we're going to have to do it through other means, other than doctors. I think it has to be a kind of general society shift through education in broad sense, but that is a major challenge
Lambe B, Collins C. A qualitative study of lifestyle counselling in general practice in Ireland. Fam Pract. 2009; 27(2):219-23.	
Finding	Attitudes to lifestyle counselling (C)
Illustration	[prevention is] part of what we do. It’s not all about medications
Finding	Barriers to lifestyle counselling (U)
Illustration	I’ve come back from working in a practice in England where people can’t doctor shop as

	much and I'm more conscious of it now starting off in a new practice, not wanting to antagonise people but being very conscious of the importance of it [lifestyle counselling].
Finding	Approaches to lifestyle counselling (C)
Illustration	I've a chart that shows what's in a cigarette and I'd come down heavy on them, telling them there's arsenic and rocket fuel in it. They'd be horrified (practice nurse)
Aboueid S, Jasinska M, Bourgeault I, Giroux I. Current Weight Management Approaches Used by Primary Care Providers in Six Multidisciplinary Healthcare Settings in Ontario. Can J Nurs Res. 2018; 50(4):169-78.	
Finding	Referral to a dietitian or on-site programming. (U)
Illustration	It's mostly referring to the programs we have here. We have the Healthy YOU class so I refer to that or ask if they have done that. These programs go through diet, exercise, and behaviour change. If there are not interested in a group session, I refer directly to the dietitian.
Finding	Referral to outpatient weight loss programs. (U)
Illustration	If they live close to the hospital then I would ask them to look into that and book an appointment or sign up for their workshop.
Finding	Referral to Weight Watchers. (U)
Illustration	I don't really refer to Weight Watchers and that sort of thing because I wouldn't want to go against anything that the dietitian recommends.
Finding	Providing educational resources. (U)
Illustration	I usually educate and I tell them about caloric intake, reading labels, the Dietitians of Canada website so they can access certain points of healthy eating.
Finding	Bariatric surgery. (U)
Illustration	Typically I will also refer to bariatric surgery if they tried several other methods so if they say that they've been trying to do this all their life and that they yo-yoed. It requires

	commitment and sometimes patients are not ready for the workup leading to the surgery.
Finding	Patients' motivation to change. (U)
Illustration	I get to know the patient and get a sense of what they already try, how motivated they are to change their lifestyle components.
Finding	Providing options and letting the patient choose. (U)
Illustration	I will give them their range of options and ask if they are interested by any of them. I don't usually pick for my patient, I usually present the option available for the patient.
Finding	Patients' BMI and comorbidities. (U)
Illustration	For the surgical program, I reserve because there are specific criteria (BMI over 35 with comorbidities or BMI over 40 with no comorbidities) so patients that fall into that criteria and they've been overweight for a long time and they tried several other methods such as weight watchers or something else, those are the ones I will bring up the topic of surgical weight loss.
Finding	Patients' income status and access to resources. (U)
Illustration	It depends how accessible certain resources are for the patient. Transportation is a major issue for many of the patients. If they live close to the CHC then I would refer them to the dietitian here. Some of them don't have access to the Internet. If they're tech savvy then I would refer them to the services that are online or I would print it up for them.
Finding	Patients' previous weight loss attempts. (U)
Illustration	If they haven't tried any previous weight loss methods, I start with the basic, just discussing portions and referring to the dietitian and giving them some handouts. If I am dealing with a patient who has come time and again because of their weight, has a longstanding history of obesity or being overweight, I will discuss the other approach such as the referral to the program at the hospital.

Finding	Multidisciplinary approach that focused on lifestyle behaviours. (U)
Illustration	They will say absolutely book me with a dietitian. They tend to like one-on-one sessions because they can deal with their specific questions and then they will take that information most of the time and implement it in their own time.
Finding	Patient independent approach. (U)
Illustration	They [patients] want to receive information but it's mostly ''I want to keep doing thing in my way.'' I respect their wishes but I still provide the information and allow for patients to make their own decisions based on what they feel is right for them.
Aboueid S, Bourgeault I, Giroux I. Nutrition care practices of primary care providers for weight management in multidisciplinary primary care settings in Ontario, Canada - a qualitative study. BMC Fam Pract. 2018; 19(1):69.	
Finding	Screening (U)
Illustration	I don't use any tools because I am always dealing with multiple issues so it's more of a time thing. In the general assessment I ask: 'do you eat healthy?' and then they say yes so then I challenge them and ask 'what is healthy?' and then they would say 'I eat Wendy's instead of McDonald's and often it's not really what I am looking for."
Finding	Approaching the topic of nutrition (U)
Illustration	Quite commonly if we're doing chronic disease management – diabetes, hypertension, lipid control – those types of things come up very early in the conversation. Some people associate weight discussion as a negative thing, instead of something that carries them forward into a positive role for their health management."
Finding	Dietetic referrals (U)
Illustration	I actually changed my technique when it comes to referring to the RD. If I give them the option, more often they are going to decline. I've actually changed how I bring it up. I say: I would like you to see the RD, I think she would be able to give you some

	good advice, I think she can give a good assessment of how your diet could be affecting your weight, cholesterol, blood pressure.”
Finding	Reinforcing the healthy eating advice (U)
Illustration	And also, the next time I see the person I say, “How did it go with the dietitian?” And if they need a follow up on what was discussed I can look it up in the EHR and I will see that she [dietitian] also assessed their readiness to change and likeliness to make the change, so I think it’s terrific for follow-up.”

U: Unequivocal; C: Credible