

Perceptions and Experiences of Women in Benoni Regarding Weight Loss Strategies

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DECLARATION

"I, Johannita Cox, declare that the Master's Degree research dissertation or interrelated, publishable manuscripts/published articles, or coursework Master's Degree mini-dissertation that I herewith submit for the Master's Degree qualification, MSc Dietetics at the University of the Free State, is my independent work and that I have not previously submitted it for a qualification at another institution of higher education.



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SUMMARY

Obesity is a worldwide disease reaching epidemic proportions and is characterised by abnormal or extreme fat accumulation, affecting all socio-economic groups in both advanced and developing countries irrespective of sex, culture, or age. More women compared to men are overweight in South Africa.

With the high percentage of overweight and obesity in South Africa and given the social pressures on women in the media and among their peers to be thin (particularly in certain demographic areas), it might be expected that women would seek help from available weight-loss diets, programmes, strategies, and applications.

In response, the weight-loss market has exploded. To date, very little is known regarding South African women's opinions of and involvement with weight loss programmes and diets.

Hence, a cross-sectional survey was conducted to evaluate: The perceptions and experiences of women 18 years and older on weight-loss strategies and how they were perceived by women residing in Benoni, a city close to Johannesburg, South Africa. An electronic self-reported survey, created with Evasys Software®, was shared via the local community newspaper and online social media platforms. Descriptive statistics were calculated, and associations were investigated by crosstabulation and using chi-square, Fisher's exact, and Wilcoxon rank tests as applicable.

For the purpose of this study, programmes and different diets known to South African women were categorised and incorporated into the following seven categories:

(i) commercial weight-loss diet plans; (ii) commercial weight-loss aids; (iii) commercial coaching methods; (iv) self-imposed dietary restrictions and adapted eating patterns; (v) diets prescribed by a health professional; (vi) diets prescribed by non-health professionals, and (vii) other, including mobile weight loss apps.

A total of 272 participants completed the survey. Almost half of the participants fell in the age group between 40 to 60 years (48.2%), 71.7% held a tertiary qualification, 50.3% earned between R19 601.00-R38 200.00 per month, 75.8% were married or in a permanent relationship, and 88.2% were White.

Most participants (71.7%) did not smoke, but smokers reported smoking and eating less when stressed. Most participants (76.9%) were overweight or obese, with low activity levels (52.6%), drank less than eight glasses of water per day (86.9%), and rated their health as good (71.2%).

Participants reported having followed up to 10 diets in the last three years. A total of 619 diets, strategies, or applications were used across the different categories. The main motivation for following one of these was reported as weight loss. Across the different categories, self-imposed dietary restrictions/adapted eating patterns were used by the highest percentage (54.0%) of participants.

Participants provided the following information for each reported strategy that they had followed: the reason(s) for discontinuing the diet plan, whether it was easy or hard to follow, and why it was too difficult, as well as challenges, level of frustration and hunger experienced while using the strategy. Among all the strategies followed, the highest percentage for objective obtained was reported for intermittent fasting. The highest percentage for no challenges experienced was reported for using a mobile weight-loss application, and the highest percentage of no frustration or hunger experienced, while using a strategy for an approach prescribed by a personal trainer. Only 31 out of the 619 strategies followed (chosen by 11.4% of participants) were prescribed by a healthcare professional, with half of these prescribed by dietitians.

Dietitians need to position themselves as the preferred choice when spending money on weight loss. Future research needs to focus on exploring the reasons for the poor uptake of weight loss strategies by health professionals and dietitians compared to the other strategies. The insights provided by the current study regarding the weight loss strategies South African women choose and their experiences with these strategies may assist dietitians and other healthcare professionals to design and choose approaches that may lead to improved adherence to following a diet and long-term weight loss.

Key terms: overweight and obesity; risk factors; weight loss strategies; perceptions; experiences; socio-demographic factors; lifestyle factors; fad diets; psychological effects.

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LIST OF ABBREVIATIONS

BMI	Body mass index
BP	Blood pressure
CLA	Conjugated linoleic acid
CVD	Cardiovascular disease
DASH	Dietary Approach to Stop Hypertension diet
HDL	High-density lipoprotein
HSREC	Health Sciences Research Ethics Committee
IF	Intermittent fasting
IPAQ	The International Physical Activity Questionnaire
IR	Insulin resistance
ITU	International Telecommunications Union
kg	kilogram
Keto	Ketogenic diet
LDL	Low density lipoprotein
low GI	Low glycemic index
MET-minutes	Metabolic equivalent minutes
MetS	Metabolic syndrome
NAFLD	Non-alcoholic fatty liver disease
NCDs	Non-communicable diseases
NCEP ATP III	National Cholesterol Education Program Adult Treatment Panel III
Paleo	Paleolithic diet
PCOS	Polycystic ovary syndrome

Pegan	Paleo-vegan
SADHS	South African Demographic and Health Survey
TLC	Therapeutic lifestyle changes
TG	Triglycerides
UFS	University of the Free State
USA	United States of America
USN	Ultimate Sports Nutrition
VLCD	Very low-calorie diet
WC	Waist circumference
WHO	World Health Organisation
WW	Weight watchers

GLOSSARY

For the purpose of this study the following phrases with explanations are included:

The **weight loss strategies** were categorised according to a conceptual framework designed by Julia et al. (2014), as (i) commercial weight loss diet plans, (ii) commercial weight loss aids, (iii) commercial coaching methods, (iv) self-imposed dietary restrictions and adapted eating patterns, (v) diets prescribed by a health professional, (vi) diets prescribed by non-health professional, and (vii) mobile weight loss apps (Appendix C).

Commercial weight loss diet plans (Julia et al., 2014) included: Herbalife, Herbex, USN (Ultimate Sports Nutrition), and GI Lean.

Commercial weight loss aids included: Biomix Slimming, Hoodia, Conjugated linoleic acid (CLA), Leanor, Simply slim, Phentermine, Orlistat (Senekal et al., 2016), and meal replacements.

Commercial coaching methods included: SureSlim, Weigh-less, and WW (Appendix C) (Julia et al., 2014).

Self-imposed dietary restrictions and adapted eating patterns included the following diets: Intermittent fasting (IF), Paleolithic diet (paleo diet), Ketogenic diet (keto diet), Banting diet, Very low calorie diet (VLCD) diets, Mediterranean, Dietary Approach to Stop Hypertension diet (DASH) and Therapeutic Lifestyle Changes (TLC diets), reduced snacking, reduced fat intake, reduced sugar and sugary foods intake or a combination of these, vegetarian, vegan, paleo-vegan (pegan) and low glycemic index diets (low GI) (Katz & Meller, 2014) (Appendix C) (Julia et al., 2014). Cognisance is taken that the DASH and TLC diets are mainly prescribed by dietitians and healthcare professionals.

Diets prescribed by a health professional were diets that were, according to the participant, prescribed to them by dietitians, medical doctors, physiotherapists, or biokineticists (Appendix C).

Diets prescribed by non-health professionals were diets that were, according to the participant, prescribed to them by a non-health professional “such as a personal trainer or anyone else giving out diets” (Appendix C).

Other included any other diet or weight-loss aid used, not mentioned in the questionnaire.

Mobile weight loss applications, diets followed using a weight-loss application included any weight loss application downloaded on the participant's mobile phone or tablet (Appendix C).

CHAPTER 1: BACKGROUND AND MOTIVATION FOR THE STUDY

1.1 Introduction

Obesity derived from the Latin word *obesus*, referring to being fat, stout or plump (Hankey, 2018: preface), has become a global epidemic since the late twentieth century that influences all societies (Omar et al., 2019:2; Hankey, 2018: preface; Kopelman, 2018:7; WHO, 1998:4). The World Health Organization (WHO) reported that since 1980 the incidence of obesity has doubled in more than 70 countries worldwide, and this trend is becoming apparent in most other nations (Song et al., 2019:1).

Obesity has a long history, dating back to at least 25 000 years. Throughout the Stone Age, the Middle Ages, and the 17th century, obesity was associated with affluence, power, and fertility. However, Hippocrates already described obesity as an illness before 400 BC. The first scholarly publications dealing with adiposity were published during the Industrial Revolution (Balke & Nocito, 2013:77). Already in the 19th century, people had to deal with quackery and dangerous weight loss remedies like amphetamines that flooded the market (Balke & Nocito, 2013:77). In 1907, Carl Van Noorden proposed two types of obesity, namely exogenous and endogenous (Kopelman, 2018:9). The author argued that exogenous obesity, responsible for most cases, results from external elements, specifically due to excess food intake and a lack of energy expenditure (Kopelman, 2018:9; Wilcox, 2005:26). The author argued that those with endogenous obesity, on the other hand, have an inherent problem that leads to hypometabolism (Kopelman, 2018:9; Wilcox, 2005:29). In 1933, doctors started to take note of obesity after an article published in *The Lancet* indicated that losing weight was a very popular topic of discussion amongst laypeople and referred to it as 'these days of "slimming"' (Kopelman, 2018:7). In the 1950s, Jules Hirsch observed a 'biochemical or biological element' to willpower; he based his observation on many obese person's life-long struggles to maintain long term weight loss (Kopelman, 2018:9). Over the past 50 years, however, obesity has become recognised and defined as a longterm disease process characterised by accumulation of excessive body fat that lead to well-described comorbidities (Kopelman, 2018:7; Lean, 2018:25; James, 2008: S123). In 1996, clinical guidelines for obesity were published for the first time, promoting roles and responsibilities for health care professionals, including doctors, dietitians and nurses, on managing obesity (Hankey, 2018: preface). Due to the

alarming speed with which obesity rates have been escalating globally, the WHO now defines it as an epidemic (Lean, 2018:25; James, 2008:S120; WHO, 2000:1).

Body fat is most commonly estimated in clinical practice using indirect measures, such as weight and height (Kopelman, 2018:3). The most frequently used formula is body mass index (BMI), referring to 'weight in kilograms divided by the square of the height in metres' (Omar et al., 2019:2; Kopelman, 2018:3). The body mass index (BMI) increases as a person's body weight increases relative to height (Kopelman, 2018:3; WHO, 1998:10). Adults are classified as overweight with a BMI $>25 \text{ kg/m}^2$, and as obese with a BMI $\geq 30 \text{ kg/m}^2$ (Kopelman, 2018:3; James, 2008:S122).

Obesity, particularly the accumulation of fat around the organs defined as abdominal obesity, is one of the greatest risk factors contributing to metabolic syndrome (MetS) (Fung & Berger, 2016:2). MetS, characterised by insulin resistance (IR), is associated with impaired blood glucose control, hypertension, dyslipidaemia (with high triglyceride and low high-density lipoprotein (HDL) levels), type 2 diabetes, cardiovascular disease (CVD) and non-alcoholic fatty liver disease (NAFLD), amongst others (Clifton, 2018: 49; Ghouri, 2018:42; Kopelman, 2018:5; Fung & Berger, 2016:1; Singh et al., 2016:1). Globally, the diagnosis of MetS is, therefore, used to estimate the future risk of developing CVD and type 2 diabetes (Singh et al., 2016:1). A long list of other diseases is also related to obesity, including osteoarthritis (Waters & Williams, 2018:71), hormonal disturbances (Allahbadia & Merchant, 2011:19) and some cancers, as well as overall mortality (Omar et al., 2019:2). Research also indicates that obesity may be associated with certain psychological disorders, especially anxiety and depression (Waters & Williams, 2018:72). Collectively, these diseases are known as non-communicable diseases (NCDs) and place a huge burden on the healthcare system, particularly in low and middle-income countries (Ghebreyesus, 2018).

More recent studies have studied the effects of obesity on psychosocial well-being (Omar et al., 2019:4; Waters & Williams, 2018:71). In Western culture, being thin is seen as being safe, good-looking and in control (Waters & Williams, 2018:71). In addition to labels like unattractive, uncontrollable, and lazy, being fat or overweight contributes to a poor body image (Waters & Williams, 2018:71). Waters & Williams (2018:71) and Khawandanah & Tewfik (2016:84) found that obese individuals often experience verbal abuse, social isolation, and low self-esteem and that stigmatisation is very common. These 'ideals' are represented

in many types of advertising and media (Waters & Williams, 2018:71; Khawandanah & Tewfik, 2016:84; Thomson, 2008:16). Traditionally, “fatness” has been perceived as a sign of happiness and wealth in the Black African culture and is associated with dignity, respect, confidence and beauty. While many young Black girls and older Black women feel that a larger body size is socially accepted, studies show that many also have contradictory views about its advantages (Kolanisi et al., 2018:22; Puoane et al., 2010:29; Puoane & Fourie, 2005:6). Thus, different messages from society and families influence how food is perceived so that food and nutrition are not seen simply as sources of nourishment and health (Waters & Williams, 2018:72).

The causes of obesity have been studied over many generations. A hereditary cause for obesity has been suspected for a long time (Kopelman, 2018:9). In the early 1970s, Ethan Sims used a prison population to demonstrate that family history of obesity influenced weight gain (Kopelman, 2018:9; Salans et al., 1971:1010). Over 200 days, the majority of inmates were overfed. Once the overfeeding was discontinued, most of the inmates had difficulty maintaining their weight gain, but a small number gained weight fast and battled to lose the gained weight (Kopelman, 2018:9). The author concluded that genetic variation might not only affect the predisposition to obesity, but also the ability to lose weight, which has been repeatedly shown in modern studies (Balaskas & Jackson, 2018: 93; Fung & Berger, 2016:1). Today, hereditary is estimated to contribute between 40% to 70% to the chance of being obese (Balaskas & Jackson, 2018: 87) and approximately 5–10% of severe obesity is linked to mutations in genes inherited from both parents (Balaskas & Jackson, 2018:95).

However, evidence suggests that many people are inclined to gain weight, but only a few are destined for obesity (Kopelman, 2018:9). While genetic predisposition may play a role (Kopelman, 2018:9; Radulian et al., 2009:1), the increasing prevalence of obesity observed over the past four decades coincided with the development of food settings that encourage overeating and surrounding environments that discourage individuals from being active (Kopelman, 2018:9). It has been suggested that the absence of physical activity and extreme eating are normal responses by normal individuals to the abnormal modern environment (Lakerveld et al., 2018:132; Khawandanah & Tewfik, 2016: 80). The term obesogenic environments describe a combination of environmental factors that promote obesity in individuals or populations or is characteristic of the environment that acts as a block to

maintaining a healthy body weight (Lakerveld et al., 2018:132). Obesity is mainly caused by poor diets, physical inactivity and sedentary behaviour, which can also cause chronic diseases since they directly or indirectly contribute to obesity (Lakerveld et al., 2018:132; Khawandanah & Tewfik, 2016:80). When energy intake from food and drink exceeds energy expenditure over time, the excess energy is stored as fat; this is referred to as having a positive energy balance (Gomersall & Brown, 2018:126; Khawandanah & Tewfik, 2016:80). Globally, food environments have become increasingly obesogenic with energy-dense food of low nutrient density, being easier and cheaper to access than healthier foods, while unhealthy foods are heavily marketed.

On the other hand, sedentary behaviour is also associated with gaining weight and adverse health consequences, by promoting overweight and obesity, although some studies indicate that these effects operate independently of the amount of physical activity engaged in (Gomersall & Brown, 2018:128; Ortega et al., 2006:3). Sedentary behaviour requires little energy expenditure during waking hours and consists of sitting or lying down (Gomersall & Brown, 2018:128). People have increasingly sedentary lifestyles due to little activity occurring at work (such as sitting at a desk or behind a computer), during leisure (such as watching TV, reading a book, or talking to friends) and while using transport (such as sitting in a car, bus or train) (Gomersall & Brown, 2018:128). Individuals are at risk of gaining weight if they have low activity levels, indicating that physical activity has an important role in gaining weight (Swift et al., 2014). Moreover, certain chemicals in the environment may disrupt lipid metabolism to cause over-fatness and obesity (Grün & Blumberg, 2006:50). These environmental chemicals are called obesogens and influence the process of lipid homeostasis and body fat storage (Grün & Blumberg, 2006:50). They are affected by endocrine disruptors, which changes metabolic set points or cause disturbances in energy balance and affect the regulation of satiety and appetite; in this way, obesity is promoted (Lysen et al., 2021).

In adulthood, weight gain seems to occur involuntarily and gradually, with approximately 0.5 kg per year and is age-dependant (Hankey, 2018:18). Cois & Day (2015:1) reported a typical increase in BMI of 0.5 kg/m² per decade for women. The study included women aged 18 years and older (Cois & Day, 2015:1). With ageing, people tend to become less physically active, leading to them increasingly becoming more obese (Hankey, 2018:22). In older adults, speculation is that retirement leads to a lack of daily structure, feeling less empowered, and

a decrease in social contact, all of which may lead to depression and is associated with obesity and gaining weight (Hankey, 2018:22; Khawandanah & Tewfik, 2016:84).

The complex nature of obesity causes long-term health problems (NDoH et al., 2019:297; Jones, 2018:242), which is considerably difficult to prevent (Waters & Williams, 2018:71); therefore, losing weight is essential (Jones, 2018:242). There is no proven method to help with weight loss or to maintain a healthy weight, but it is important to decrease energy intake to achieve weight loss. The way to lose weight for overweight or obese individuals is commonly promoted as adhering to restricting daily energy intake (Van Baak & Mariman, 2019:1) and participating in more physical activity (Hopkins et al., 2018:212; Ortega et al., 2006:7). An increasingly important motivation in weight management interventions for individuals trying to lose weight is their psychosocial well-being (Waters & Williams, 2018:72; Swift et al., 2014:2). Low mood and anxiety contribute to inactivity, poor diet, alcohol abuse, and comfort eating (Waters & Williams, 2018:72). Weight management interventions are therefore more likely to be effective if a person's psychosocial well-being is good (Waters & Williams, 2018:72).

Although improved health is the main physiological reason for losing excess weight and maintaining a healthy weight, the Western obsession with thinness may be an even stronger driver for women. Up to 38% of women globally are on a weight loss diet at any given time (Waters & Williams, 2018:71). Young females, including university students, in Western societies often have an intention to be thin as they associate that with being perceived as beautiful. They thereby set unrealistic weight-loss goals for themselves (Senekal et al., 2016:2), which they try and achieve through unhealthy diets, such as fasting, fad diets [A fad diet is an eating plan that promises dramatic weight loss results over a short period of time, according to studies] (Omar et al., 2019:2), or extreme measures, like using laxatives (Senekal et al., 2016:2). When individuals are extremely worried about their appearance or body perception, dieting can lead to restrictive and disordered eating, ultimately to eating disorders (Senekal et al., 2016:2).

The weight loss industry is a lucrative business, and more than 1 500 new books and countless websites on weight loss are published every year, often promoting weight loss approaches that are scientifically unproven and often scientifically unsound (Omar et al., 2019:2; Hart, 2018: 177). However, consumers are willing to pay a great deal of money for the 'rapid weight

loss with minimal effort' promoted by many dietary approaches (Omar et al., 2019:2; Hart, 2018: 177). Despite the popularity of these approaches and the fact that they may have a beneficial impact on body composition and weight loss in the short term (Omar et al., 2019:1), their effectiveness is doubtful in the long run (Alsaleh & Algarni, 2017:29). Some dietary approaches promoted by mass media may be more scientifically sound and supported by peer-reviewed evidence than the fads. According to a conceptual framework developed by Julia et al. (2014), the myriad of weight-loss strategies may be organised as (i) commercial weight loss diet plans, (ii) commercial weight loss aids, (iii) commercial coaching methods, (iv) self-imposed dietary restrictions and adapted eating patterns, (v) diets prescribed by a health professional, (vi) diets prescribed by non-health professional, and (vii) mobile weight loss apps. Though it is easy for dietitians to dismiss some of these weight-loss strategies, it is critical to understand the regimes to which clients may be exposed and attracted and their purpose for adhering to them to communicate risk and benefit (Hart, 2018:177) effectively.

1.2 Problem statement

The majority of South African women are overweight and obese (Mchiza et al., 2011). The 2016 South African Demographic and Health Survey (SADHS) found that the prevalence of overweight or obesity amongst women increased from 56% in 1998 to 68% in 2016 (NDoH et al., 2019:298). Given the social pressures on women in the media and among their peers to be thin (Mchiza et al., 2011), it might be expected that many South African women would seek help from available weight loss diets, programmes and applications. However, to date, very little is known regarding South African women's perceptions of and experiences with weight loss programmes and diets (Mchiza et al., 2011). Insight into which weight loss strategies South African women choose and their experiences with these strategies may assist dietitians and other healthcare professionals in designing and choosing approaches that may lead to improved dietary adherence and long-term and sustained weight loss. The benefit of achieving sustained weight loss and improved health will relieve the burden of NCDs and the adverse effects thereof on the healthcare system. There was, therefore, a need to do a study on the perception and experiences of women regarding weight loss diets and reasons for choosing specific diets in South Africa. Thus, this research study aimed to investigate the perceptions and experiences of weight loss strategies followed by women in Benoni, an urban area close to Johannesburg, South Africa.

1.3 Aim and objectives

The aim and objectives of the study are as follows:

1.3.1 Aim

The study aims to investigate the perceptions and experiences of women regarding weight loss strategies in the general population of Benoni, on the East Rand, Gauteng, South Africa.

1.3.2 Objectives

The following objectives are set to reach the aim of the study:

- To determine socio-demographic factors (age, level of education, level of income, marital status, cultural group and self-reported health status);
- To determine lifestyle factors, including smoking status, BMI based on self-reported height and weight, self-reported activity levels, as well as intake of water;
- To determine participants' perception and experiences of different weight loss strategies;
- To determine which weight loss strategies are most popular;
- To determine reasons for choosing a particular weight loss strategy as well as reasons for discontinuing a particular weight loss strategy; and
- To determine if there are associations between the choice of weight loss strategy, socio-demographic factors, self-reported BMI and activity levels.

1.4 Layout of this dissertation

This dissertation is divided into six chapters:

Chapter 1: An introduction to the study, explaining the problem statement, aims and objectives.

Chapter 2: A literature review.

Chapter 3: The methodology used for this study.

Chapter 4: The results of the study.

Chapter 5: Discussion of the results.

Chapter 6: Conclusion and recommendations.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

The history of dieting and people's obsession with dieting goes back many centuries (Omar et al., 2019:2; Khawandanah & Tewfik, 2016:81). However, obesity only became classified as a disease, according to the International Classification of Disease code, after World War II (Hankey, 2018:preface). Today, obesity has become a global disease (Freire, 2020:1; Song et al., 2019:1; Senekal et al., 2016:2), reaching epidemic proportions (Wilcox, 2005:19; Omar et al., 2019:2). Besides, obesity is globally the fifth foremost cause of mortality (Song et al., 2019:1; Klop et al., 2013:1218).

Since 1975, the obesity figures have tripled, with a significant increase since the early 1980's (Julia et al., 2014), to currently affecting 13% of the world's population (Freire, 2020:1; Omar et al., 2019). The World Health Organization (WHO) estimated that in 2014, out of 1.9 billion overweight and obese individuals, 600 million individuals were obese (Mindikoglu et al., 2017:1). At the same time, two-thirds of adults in the United States of America (USA) were overweight or obese (Swift et al., 2014:1). Two years later (2016), as reported by the WHO in 2021, 39% of adults (18 years and older) were overweight, and 650 million individuals were obese, which amounts to 13% of the world population (WHO, 2021c). It is expected that by the year 2030, 86% of USA adults will be overweight or obese if recent trends continue (Dennis et al., 2011). In Africa and Asia, the prevalence of overweight is below 10%, compared to above 20% in Europe (Omar et al., 2019:2).

However, in the South African adult population, overweight or obesity increased in the decade between 1998 and 2008 with 6.9% in relative terms in men (from 29.1 to 31.1%), and with 5.9% in women (from 56.2 to 59.5%) (Cois & Day, 2015:2). South African women are disproportionately affected. According to the 2016 South African Demographic and Health Survey (SADHS), 27% of women are overweight, and 41% are obese based on their body mass index (BMI) (NDoH et al., 2019:297). Moreover, the prevalence of overweight and obesity among South African women increases steeply with age. The SADHS 2016 data indicated that the prevalence of overweight or obesity increased from two-thirds (66%) in women between the ages of 25 and 34 years to 82% in women above 45 years of age (NDoH et al., 2019:299).

Given the high global prevalence of overweight and obesity and the growing conscience of the health and social impact, people are prone to implement various diets claiming to help with rapid weight loss (Khawandanah & Tewfik, 2016:81).

In response to the modern demand for weight loss, the weight loss market has exploded into a multibillion-dollar business that includes a multitude of commercial diet plans/programmes, an ever-growing number of self-help books, websites and mobile diet applications, and aggressive anecdotal marketing and word-of-mouth promotion (Julia et al., 2014:1) in the media and on social media platforms (Khawandanah & Tewfik, 2016:84). According to Omar et al. (2019:2) and Khawandanah & Tewfik (2016:82), fad diets are very popular amongst the multitude of weight loss plans and programmes available, promising rapid and remarkable improvements in how followers will look and feel, and is perceived as being relatively easy to implement, usually by only restricting a specific food group or a food item. Therefore, any weight loss plan promoting rapid results by temporarily changing nutritional intake is seen as a fad diet (Khawandanah & Tewfik, 2016:81). Individuals then eat less energy and nutrients, hence fad diets are considered as being unhealthy (Khawandanah & Tewfik, 2016:81). Furthermore, most fad diets promise one kilogram or more weight loss in a week, without having to give up unhealthy fatty and energy-dense foods or having to exercise regularly (Khawandanah & Tewfik, 2016:82). Certain foods are also labelled as “miracle” foods claiming to help burn fat with little effort (Khawandanah & Tewfik, 2016:82). Fad diets are also presented in a scientifically sound manner with simplistic theories which are not supported by scientific evidence (Omar et al., 2019:2). Unfortunately, fad diets seldom promote sound weight loss (Omar et al., 2019:2; Khawandanah & Tewfik, 2016:82).

This chapter covers the history of overweight and obesity, associated risk factors of overweight and obesity, comorbidities, and different weight-loss strategies.

2.2 Definition of obesity

Obesity is characterised by abnormal or excessive fat accumulation (Freire, 2020:1), affecting all socio-economic groups in both developed and developing countries (Omar et al., 2019:2), irrespective of sex, ethnicity (Senekal et al., 2016; Mchiza et al., 2011:2), or age (Omar et al., 2019:2; Song et al., 2019:1), impairing health and well-being on physical and psychosocial levels (Al-Goblan et al., 2014:588).

2.3 Overweight and obesity

Similar to many other developing countries, more women compared to men are obese in South Africa (Cois & Day, 2015:8; Mchiza et al., 2011). While various methods are used to identify overweight or obesity, BMI is an accepted and widely used measure to interpret the weight status of the average person or population relative to their stature (Olfert et al., 2018). Body Mass Index is calculated as weight divided by height squared (kg/m^2) (Song et al., 2019:1). Although BMI cannot be seen as a true measure of obesity, it can be used to identify if individuals are under, normal, overweight, obese, or severely obese (Olfert et al., 2018:2). It is an easy-to-use health screening tool (Song et al., 2019:1) that is cost-effective and accessible (Olfert et al., 2018:2). An individual's BMI is inclined to increase with age (Litchford, 2021:71). According to Litchford (2021:71), an individual's BMI does not differentiate between fat, muscle, bone mass or fat distribution. The muscle structure of active individuals, like professional athletes and bodybuilders, is heavier and denser than fat, and they are often considered overweight or obese based on their BMI alone (Armstrong, 2021). The association between BMI and body fat can be affected by age, sex, ethnicity, and muscle mass (Litchford, 2021:71). Accurate body composition is thus not always portrayed by using BMI (Hingorjo et al., 2012:37).

According to the WHO, an individual is obese with a BMI $\geq 30 \text{ kg/m}^2$ (Omar et al., 2019:3; Song et al., 2019; Senekal et al., 2016) and overweight with a BMI of $25\text{--}30 \text{ kg/m}^2$ (Song et al., 2019:1). Obesity is classified into three different classes according to BMI; class I with a BMI value between $30.0\text{--}34.9 \text{ kg/m}^2$, class II with a BMI between $35.0\text{--}39.9 \text{ kg/m}^2$, and class III, classified as being extremely obese, with a BMI $\geq 40.0 \text{ kg/m}^2$ (Lee & Nieman, 2013:183). An elevated BMI is a major risk factor for comorbidities, NCDs, or chronic diseases (WHO, 2018b).

2.3.1 Associated risk factors of overweight and obesity

Overweight and obesity are risk factors for various health problems or the aggravation thereof, and one of the most important contributors to disease (Kopelman, 2018:5).

The following risks are associated with overweight and obesity, namely hypertension, insulin resistance, increased visceral fat, high triglyceride levels, and low levels of HDL cholesterol (Song et al., 2019:3). The before mentioned metabolic complications, as well as the risk of developing arteriosclerotic heart disease, are even observed in the overweight and obese paediatric population (Lee, 2012:459). An increase in weight-related comorbidities has been documented, including NCDs or chronic diseases such as diabetes, CVD, musculoskeletal disorders, e.g. osteoarthritis, cancers such as ovarian, kidney, endometrial, breast, prostate, liver, gallbladder, and colon cancers (WHO, 2018b), as well as renal disease (Alsaleh & Algarni, 2017; Elfishawi et al., 2018:1).

This overall increase in NCDs is a significant challenge to the public health sector (Freire, 2020:1). However, evidence had shown that 5 to 10% weight loss within six months in obese individuals significantly reduced obesity-related comorbidities as well as a decrease in other risk factors, such as blood glucose levels, blood pressure, and triglycerides (Freire, 2020:1).

See Table 2.1 for a summary of risks and diseases associated with increased body weight.

Table 2.1: Risks and diseases associated with increasing body weight (Adapted from Lysen et al., 2021:402; Kopelman, 2018:5; Esmaeilzadeh et al., 2017:151; ; Hunter et al., 2010:1)

Diseases	Risk associated with increasing body weight
Hypertension	Five (5) times risk in obesity. 66% of hypertension is linked to excess weight. 85% hypertension associated with BMI >25 kg/m ² .
Insulin resistance	70–80% of obese women (BMI >30 kg/m ²) compared to 20–25% of normal weight women (BMI<25 kg/m ²), present with IR.
Increased visceral fat	Increased visceral fat increases the risk of developing type 2 diabetes, coronary heart disease.
Type 2 diabetes	90% of people with type 2 diabetes have BMI >23 kg/m ² .
Dyslipidemia	Dyslipidemia or lipid abnormalities contribute to higher rates of CVD especially in patients with diabetes.
Metabolic syndrome	30% of middle-aged people in developed countries have features of metabolic syndrome.
Coronary artery disease (CAD) and stroke	Three-point six (3.6) times increase in the risk of CAD for each unit change in BMI. Dyslipidaemia progressively develops as BMI increases from 21 kg/ m ² . With a rise in small-particle LDL, 70% of obese women with hypertension, have left ventricular hypertrophy. Obesity is a contributing factor to cardiac failure in >10% of patients. Overweight/obesity plus hypertension are associated with an increased risk of ischaemic stroke.
Liver and gall bladder disease	Overweight and obesity associated with non-alcoholic fatty liver disease and non-alcoholic steatohepatitis (NASH); 40% of NASH patients are obese; 20% have dyslipidaemia, three times the risk of gallbladder disease in women with BMI >32 kg/m ² ; seven times the risk if BMI > 45 kg/m ² .
Restriction of movement in old age	Frequent association in the elderly with increasing body weight – the risk of disability attributable to old age equal to heart disease and greater to any other medical disorder among individuals during older years.
Reproductive function	6% of primary infertility in women attributable to obesity.
Respiratory effects	Neck circumference >40.5 cm in women associated with obstructive sleep apnoea, daytime somnolence, and development of pulmonary hypertension.
Cancers	10% of all cancer deaths among non-smokers are related to obesity.

2.3.1.1 Hypertension

Since 1998, the rate of hypertension had increased from 25% to 46% in South-African women, an increase of almost 50% (NDoH et al., 2019:263). In the United Kingdom, 85% of patients with a BMI of $>25 \text{ kg/m}^2$ have hypertension (Kopelman, 2018:5).

Hypertension is a disorder in which the blood vessels are under persistently elevated pressure, causing increased strain in the blood vessel, and is known as high or raised blood pressure (WHO, 2021b). Sleep apnoea, which is often caused by obesity, is also found to be a risk factor for developing hypertension (Clifton, 2018:51).

Two essential components to treat hypertension are weight management and dietary intervention (Larson et al., 2021:357). According to Larson et al. (2021:357), the Dietary Approaches to Stop Hypertension (DASH) eating plan help to reduce blood pressure effectively in numerous individuals.

2.3.1.2 Insulin Resistance

Insulin resistance (IR) is defined as a declining biological response produced by a normal or elevated insulin level (Wilcox, 2005:19) or the inability of insulin to effectively stimulate the transportation of glucose into the body's cells (Roberts et al., 2014:1; Wilcox, 2005:19). Jones (2021:609) refers to IR as a decrease in tissue sensitivity or response to insulin.

An increased waist circumference (WC) and elevated BMI are associated with an increase in IR (Oliveira & Burini, 2012:1; Allahbadia & Merchant, 2011:28). Elevated uric acid levels are also a predictor for the development of IR (Joseph et al., 2018; Aparecida et al., 2015; Allahbadia and Merchant, 2011). A higher percentage (45%) of obese women (BMI $>30 \text{ kg/m}^2$) than lean women (15%) (BMI $<25 \text{ kg/m}^2$) present with IR (Esmaeilzadeh et al., 2017:151). Insulin resistance appears to be inter-dependent with obesity and related specifically to polycystic ovary syndrome (PCOS) (John & Dunaif, 2013:20). Polycystic ovary syndrome is associated with IR (Petta et al., 2017:1). Insulin resistance is regarded as a primary risk factor for developing type 2 diabetes (Song et al., 2017:1).

2.3.1.3 Increased visceral fat

The distribution of fat might be as important as total obesity, especially when referring to increased visceral fat (Hunter et al., 2010:1), referring to fat concentrated largely beneath the peritoneum and in the intra-abdominal cavity (Lysen et al., 2021:402). Increased visceral fat increases the risk of elevated fasting plasma glucose levels, developing type 2 diabetes, coronary heart disease (Lysen et al., 2021:402; Clifton, 2018:50; Hunter et al., 2010:1), stroke, dyslipidemia (elevated triglycerides and low HDL cholesterol), hypertension, MetS (Lysen et al., 2021:402; Clifton, 2018:50) and certain cancers (Hunter et al., 2010:1). Hunter et al. (2010:2) described an increase in the accumulation of visceral fat in women, which was associated with an increase in age. In a study conducted in Mumbai, India, 50% of female patients presented with visceral fat and were overweight or obese (Allahbadia & Merchant, 2011:28). Research has shown that plasma leptin concentration levels in obese women, either in the upper or lower body, affected the distribution of fat in the body and weight loss (Schoemaker et al., 2018:1706). Schoemaker et al. (2018:1706) concluded that the profiles of leptin concentration in upper and lower body obese women were comparable. Additionally, a link exists between IR and visceral obesity (Lysen et al., 2021:402).

2.3.1.4 Diabetes mellitus

The prevalence of diabetes, according to Ghouri (2018:41), is projected at around 285 million people worldwide. The WHO reported that since 1980 – 2014 the number of people with diabetes rose from 108 to 422 million (WHO, 2021a). However, Saeedi et al. (2019:1) reported that the prevalence of diabetes globally in 2019 was projected to be 9.3% (463 million people), increasing to 10.2% (578 million people) by 2030 and by 2045 to 10.9% affecting 700 million people. These statistics were confirmed by the International Diabetes Federation (IDF, 2019:4). Additionally, approximately 20% of people are unaware that they have diabetes (Ghouri, 2018:41). Saeedi et al. (2019:1), in their literature research of 255 data sources, found that one out of two people (50%) do not know they have diabetes. In South Africa, 13% of women have an adjusted HbA1c level of 6.5% or above, indicating that they have diabetes and 64% of women have pre-diabetes (NDoH et al., 2019:263).

Obesity is an independent risk factor for general mortality, heart diseases, and diabetes (Omar et al., 2019:2). The rising occurrence of type 1 and 2 diabetes can be attributed to an increased body mass index and weight gain (Al-Goblan et al., 2014:587). Harder-Lauridsen et al. (2017:92) concluded in their study conducted in Denmark that there had been a rise in the incidence of obesity and diabetes and the number of meals eaten per day. Fitzpatrick et al. (2016:115.e1) stated that type 2 diabetes is linked to obesity and that losing weight improves diabetes control. Evidence shows the benefits of therapy to modify behaviour to help with weight loss and diabetes prevention (Fitzpatrick et al., 2016:115.e5)

2.3.1.5 Dyslipidemia

Dyslipidemia indicates an increased prevalence of lipid abnormalities that contribute to higher rates of CVD, especially in patients with diabetes (Raymond & Couch, 2021:678). The following are indicative of dyslipidemia, namely elevated total cholesterol levels, elevated triglyceride levels, low levels of HDL cholesterol and elevated Low Density Lipoprotein (LDL) cholesterol levels (DeBusk & Hahn, 2021:100).

i. Elevated total cholesterol levels

Total cholesterol is the total amount of cholesterol found in the blood (Thomson, 2008:789). The total cholesterol measurement includes all lipoprotein fractions: 60% to 70% is made up of LDL, 20% to 30% HDL, and 10% to 15% very low-density lipoprotein (VLDL) (Raymond & Couch, 2021:673). It is a fat-like substance produced in the body and is found in many foods (Thomson, 2008:789). The main food sources include egg yolk, beef, pork, poultry, shrimp, and cheese and butter (Soliman, 2018:2). Elevated cholesterol levels can be hereditary (Thomson, 2008:540).

ii. Elevated triglyceride levels

Triglycerides (TG) are mainly stored as fat in the adipose tissues and are used as an energy reserve by the body (Lysen et al., 2021:394). This accumulated, stored fat protects the internal organs against trauma (Lysen et al., 2021:394). Elevated TG levels are a risk factor for MetS (Joseph et al., 2018:1025), while Klop et al. (2013:1219) mentioned it as a risk factor for CVD. Apart from glucose intolerance, hypertension, decreased HDL and elevated LDL cholesterol

levels, elevated triglyceride levels are now considered as part of MetS (Raymond & Couch, 2021:673).

iii. Low levels of HDL cholesterol

Low HDL cholesterol levels are a risk factor for MetS (Joseph et al., 2018, Lee 2012:460, and Allahbadia & Merchant, 2011:20). Obesity has an important impact on the lipid profile with insulin being negatively associated with low levels of HDL in IR patients and positively associated with total cholesterol, LDL and TG in PCOS patients that are overweight or obese and presenting with fat accumulation in the abdomen (Allahbadia & Merchant, 2011:28).

iv. Elevated LDL cholesterol levels

Low-density lipoprotein cholesterol is a type of cholesterol considered harmful to the body (Thomson, 2008:789). LDL cholesterol is responsible for transporting excess cholesterol through the bloodstream, and if deposited in the walls of the arteries, it forms a hardened plaque referred to as atherosclerosis (Soliman, 2018:6). Elevated levels of LDL cholesterol is a risk factor for heart disease (Soliman, 2018:2). LDL cholesterol levels tend to be increased with being overweight (Thomson, 2008:540). Weight gain can result from a lack of regular exercise leading to elevated LDL cholesterol levels (Thomson, 2008:540). Exercising regularly aids in losing weight as well as lowering LDL cholesterol levels (Thomson, 2008:540).

2.3.1.6 Metabolic syndrome

Metabolic Syndrome (MetS) is described as a lifestyle-dependent epidemic (Bhupathiraju & Hu, 2016; Clinic & Panagiotakos, 2006) and affects about one out of three persons (Roberts et al., 2014). MetS was first described nearly a century ago as the combination of dyslipidemia, hypertension, hyperglycemia, and abdominal fat accumulation (Alberti et al., 2006:118). MetS have also been described as Syndrome X and are associated with IR (Roberts et al., 2014; Lee, 2012). According to the National Cholesterol Education Program Adult Treatment Panel III (NCEP ATP III), MetS is present when at least three of the following components can be shown: “elevated TG; low HDL cholesterol concentrations; elevated blood pressure (BP); abnormal glucose homeostasis; and enlarged waist circumference (WC)” (Saely et al., 2018; Nejatinamini et al., 2015; Roberts et al., 2014) as indicated in Figure 2.1. A WC of

>80 cm for women is classified as an increased risk of metabolic complications (WHO, 2011). Increased levels of VLDL may also be present (Roberts et al., 2014; Lee, 2012). The prevalence of these components has a profound effect on the risk of developing CVD, Type 2 diabetes, and stroke (Roberts et al., 2014).

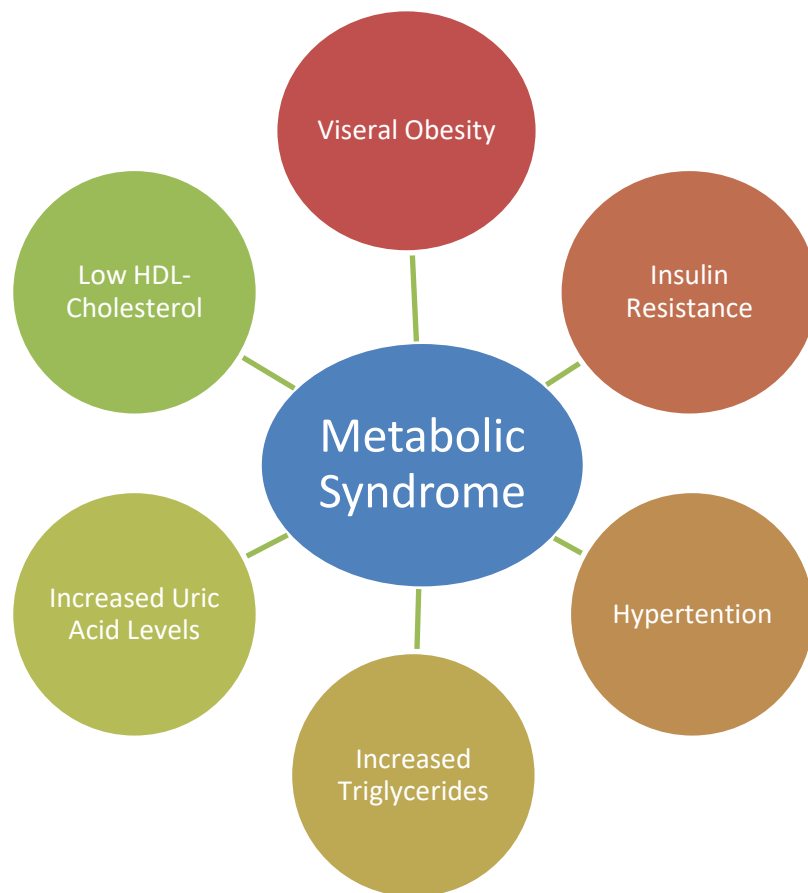


Figure 2.1: Risk factors associated with Metabolic Syndrome (Joseph et al., 2018; Manuscript & Syndrome, 2013; Lee, 2012; Clinic & Panagiotakos, 2006; Cowey & Hardy, 2006)

2.3.1.7 Cardiovascular disease, heart attack, and stroke

Individuals with MetS have a higher risk for developing type 2 diabetes and CVD (Omar et al., 2019:2; Csige et al., 2018; Fitzpatrick et al., 2016). Behavioural therapy that had been used to prevent diabetes may also reduce the risk for CVD (Fitzpatrick et al., 2016).

Congestive heart failure has been linked to MetS (Roberts et al., 2014; Lee, 2012) as obesity leads to both structural and functional changes to the heart muscle that causes volume stress in the heart (Csige et al., 2018:6). An increase in BMI by only one unit can cause a sudden risk for stroke, heart failure, and cardiac death (Csige et al., 2018). Obesity is associated with 32%–49% chance of having heart failure, and overweight with a 31%–40% chance (Csige et al., 2018). The risk of having a stroke is increased by excess visceral fat and obesity (Lysen et al., 2021:402).

2.3.1.8 Non-alcoholic fatty liver disease

Non-alcoholic fatty liver disease (NAFLD) is present in roughly 20–30% of the general population worldwide (Petta et al., 2017). NAFLD is also becoming the most recurrent etiology of chronic liver diseases (Petta et al., 2017). Petta et al. (2017:1) recognised IR and obesity as leading factors for the onset of NAFLD and PCOS. According to Romanowski et al. (2015:117) and Jones et al. (2018) very few studies exist which associate NAFLD and PCOS. However, obesity and IR are normally present in women presenting with PCOS as well as in those being diagnosed with NAFLD (Bjekic et al., 2016).

2.4 Additional factors associated with overweight and obesity

Additional risk factors for overweight and obesity include age, sex, family history, lack of exercise, inadequate water intake, unhealthy lifestyle, and ethnicity.

2.4.1 Age

World Health Organization (WHO) data suggests that globally, 39% of people above the age of 18 are overweight and 13% obese (Csige et al., 2018). In industrial countries, most adults between the ages of 20 and 70 years tend to gain weight (Hunter et al., 2010:2).

A meaningful increase in weight can be seen in American women, after the age of 40, between the ages of 40 and 59 the incidence of obesity reaches 65%, and in women over the age of 60 it increases to 73.8% (Lizcano & Guzmán, 2014:1). In South Africa, the NDoH et al. (2019:299) in the Demographic and Health Survey found that the prevalence of overweight or obesity (81%-82%) was the highest amongst women aged 45-64 years.

2.4.2 Gender

Pradhan (2014) investigated if gender had an effect on MetS and determined the association with cardiovascular health in women. Estrogen plays an essential role in safeguarding the body against metabolic diseases and women do have higher body fat percentage compared to men (Shin et al., 2018). Estrogen is responsible for the storing of subcutaneous instead of visceral fat deposits (Shin et al., 2018). During and after menopause, the storing of fat increases and is shifted to visceral fat deposits in the abdomen (Shin et al., 2018; Lizcano & Guzmán, 2014:2). The loss of subcutaneous fat and an increase in abdominal fat in menopausal women is associated with a reduction in estrogen levels (Lizcano & Guzmán, 2014:2).

The effect of several metabolic components on MetS differs between men and women (Beigh & Jain, 2012). This could provide an answer to gender-specific differences in the risk of metabolic side effects such as IR (Beigh & Jain, 2012).

2.4.3 Family history

Health can be improved by more knowledgeable decisions if people know and understand their family history of a disease and the accompanying risk factors, such as excess body weight, distribution of body fat, blood pressure, and cholesterol levels (Thomson, 2008:732).

Lizcano & Guzmán (2014:1) reported that the accumulation of body fat is associated with several genetic and epigenetic factors. In the last decade, numerous studies have investigated the genetic influence on obesity. However, the genes linked to the body's reaction to different weight-loss strategies have not been studied that often (Lamiquiz-Moneo et al., 2019). However, in a study on 93 pairs of monozygotic twins that were reared separately, Gary (1990:1485) found that genetics acted independently of the environment where children grew up. By using the Danish Twin Registry, Stunkard obtained information about twins who were adopted at a young age and separated from their biological families (Kopelman, 2018:9). Kopelman, (2018:9) found that adoptee twins' BMIs were more closely related to those of their biological parents than to their adoptive parents, even though they shared a home with their adoptive parents. Accordingly, the majority of adopted children become obese like their

biological parents (Kopelman, 2018:9). On the other hand, Fairweather-Schmidt & Wade, (2020) in a more recent longitudinal study of female twins found that both genetic and nonshared environmental influences were linked to anxiety and eating disorders.

2.4.4 Lifestyle

The prevailing increase in the prevalence of obesity (WHO, 2018; Mindikoglu et al., 2017) had been attributed, amongst others, to lifestyle (WHO, 2018: online; Zeki et al., 2018; Mindikoglu et al., 2017:9), which refers to the day to day behaviours of individuals in their jobs and lives, as well as to their activity levels, habits and diets (Zeki et al., 2018). According to the WHO, lifestyle contributes to as much as 60% of an individual's quality of life and health (Zeki et al., 2018).

Obesity-promoting changes associated with modern lifestyles include an increase in energy intake due to the increased number of meals consumed per day (Freire, 2020:1; Alsaleh & Algarni, 2017; Mindikoglu et al., 2017), the higher energy density of foods (Benton & Young, 2017), and diets high in fat and refined carbohydrates (Roberts et al., 2014), as well as decreased activity levels (Cox, 2017; Swift et al., 2014) and more screen time (Omar et al., 2019; Alsaleh & Algarni, 2017). Additional factors contributing to obesity include increased restaurant dining, increased consumption of fast food, and the increased availability and use of vending machines that sell energy-dense snacks and cool drinks (Mcallister et al., 2010). Besides food and drinks, genetics (Omar et al., 2019:4; Mcallister et al., 2010), as well as economic, psychosocial (Omar et al., 2019; Mcallister et al., 2010), reproductive, and pharmacologic factors (Mcallister et al., 2010) play a role to increase the risk for obesity. Likewise, televised entertainment may contribute to obesity by making eating more attractive and physical activity less attractive (Omar et al., 2019:2).

2.4.5 Smoking

Cois & Day (2015:8) re-emphasised that smoking is associated with an increased risk for developing CVD, type 2 diabetes, as well as an increased waist circumference. Smoking is sometimes used to eat less and feel fuller because nicotine may reduce appetite and increase energy expenditure (Cois & Day, 2015:8). On the other hand, Waters & Williams (2018:72)

demonstrated a link between the probability of engaging in smoking and obesity. The mechanism between smoking and obesity seems to be the supposed link between obesity and psychosocial factors such as depression and anxiety (Waters & Williams, 2018:72).

2.4.6 Lack of physical activity and exercise

Weight gain is caused by a lack of exercise and a mostly sedentary lifestyle, combined with continuing overeating (Lysen & Israel, 2017:467). The main factor in the increasing problem of obesity is the sedentary nature of humans (Lysen & Israel, 2017:468). More time spent on low-energy activities such as watching television, using the computer, and driving or using transport causes fewer people to exercise (Lysen et al., 2021:415).

Losing weight by increasing physical activity and modifying diet can help decrease the risk for comorbidities or NCD (WHO, 2018; Alsaleh & Algarni, 2017) related to obesity (Tinsley & La Bounty, 2015). Physical activity or exercise should form an essential part of the treatment plan for obese individuals wanting to lose weight irrespective of their goals for losing weight (Swift et al., 2014:2). Exercising is associated with several benefits concerning the cardiovascular system (Swift et al., 2014:2). Patients often want to know how much exercise and what type of exercise is needed to ensure weight loss (Swift et al., 2014:2). Over an extended period of time, it appears that exercise contributes to losing and maintaining weight if the basic recommendations of participating in moderate-intensity exercise for 150 minutes/week is followed (Cox, 2017:159). According to Zhou et al. (2017:94897), physical activity was classified as a frequency of ≥ 1 h of exercise per week, with low activity defined as exercising less than two times/week, medium activity is defined as exercising 3–5 times/week, and heavy intensity activity is defined as physical exercises more than six times/week with prominent perspiration or breathlessness.

The International Physical Activity Questionnaire (IPAQ) was developed as a tool to monitor physical activity and inactivity cross-nationally (Craig et al., 2003:1381). Between 1997 and 1998, four long and short forms were developed by an International Consensus Group (Craig et al., 2003:1381). The IPAQ questionnaires produced repeatable and comparable data from both short and long forms (Craig et al., 2003:1381). Xu et al. (2019:1), in their study to determine the effect of long-term high physical activity on the inhibitory process on Alzheimer

disease amongst postmenopausal women, made use of IPAQ to assess participants physical activity levels. High physical activity according to IPAQ classification is defined as more than three days of high intensity activity per week and gross metabolic equivalent minutes (MET-minutes) higher than 1,500 MET-minutes/week or a gross MET higher than 3,000 MET-minutes/week (Xu et al., 2019:1).

Being less sedentary and partaking in physical activities, which include flexibility, resistance, and aerobic exercises, result in numerous health benefits in type 2 diabetes and should be incorporated in any lifestyle recommendations (Cox, 2017:160). Zhou et al. (2017:94895) found that individuals aged between 35-60 years were more likely to do physical exercises. Whether an individual gains or loses weight depends on the amount of energy consumed versus the energy used. Therefore, if individuals are mainly sedentary and their dietary energy intake is in excess, weight gain will set in (Omar et al., 2019:2; Alsaleh & Algarni, 2017; Swift et al., 2014:3).

2.4.7 Water intake

The increase in obesity prevalence has been suggested to be related to the consumption of sugar-containing beverages such as fruit juices and cool drinks instead of water (Muckelbauer et al., 2013:2473). On the other hand, evidence suggests that weight loss may be supported by drinking more water (Muckelbauer et al., 2013:282). Experimental data, for example, showed that drinking 500 ml water (Muckelbauer et al., 2014:2473; Stookey et al., 2008) can increase energy expenditure by 100 kJ, resulting in 2 kg weight loss over 12 months (Stookey et al., 2008). Drinking water before or with a meal (Muckelbauer et al., 2014:2473) can also help individuals to eat less and feel fuller (Stookey et al., 2008), leading to lowered energy intake (Muckelbauer et al., 2014:2473).

2.4.8 Ethnicity

Overnutrition is prevalent amongst South-African adults and occur mostly in women, where one of the determinants may include ethnicity (Puoane et al., 2002:1038). South African women seem less likely to see themselves as overweight, irrespective of their body size (Mchiza et al., 2011). Mchiza et al. 2011:2 in a cohort study of South African mother and

daughter dyad in 2010, interviewed women of all races, 56.6% classified themselves as overweight and obese, and only 22.1% perceived themselves as being overweight. The findings were divided based on ethnicity, with only 27% of black women correctly perceiving themselves as being obese or overweight compared to 100% of white women and 65% of women from mixed ancestry (Mchiza et al., 2011). According to Raymond & Couch (2021:678), race and ethnicity affect the rate of obesity in women. In a study done by Draper et al. (2016:548), amongst Black South-African women, it was highlighted that there was a strong outcome on community perceptions and ideals set by culture on an individual's perception regarding weight. Sartorius et al. (2015:13) reported that with recent findings, it was projected that 31.8% of black South African females were obese. However, the NDoH et al. (2019:299) conducted a National Survey and found only slight differences in the prevalence of overweight or obesity by population group amongst South-African women.

2.5 Psychological effects related to dieting

Certain psychological factors play a part in gaining weight, such as having low self-esteem, stress and depression (Thomson, 2008:738). Understanding what psychological issues underlies a person's eating habits will shed light on how an individual responds to food (Thomson, 2008:739). If individuals can identify these psychological triggers and develop alternative coping mechanisms that take the focus away from food (Thomson, 2008:739), they may stick to a diet and lose weight.

2.5.1 Peer pressure

Peer pressure in the context of weight issues arises if an individual's behaviours and decision making are influenced by people of the same age, causing the individual to feel uncomfortable and affecting the way they think of themselves and the way they dress and eat (Khawandanah & Tewfik, 2016:84). Peers may even insist on which activities should be participated in and what food should be eaten (Gehl & Brunt, 2017:3). Social connections may also influence behaviour that can lead to overweight and obesity, impacting ideal body size (Powell et al., 2016). Moreover, as Julia et al. (2014:1) indicated, not adhering to a thin ideal body image due to social pressure poses personal and professional consequences.

The role of social networks in explaining the development of overweight and obesity consists of three inter-related social processes (Powell et al., 2015), namely social contagion (the network of people an individual are surrounded by, influences weight over time), social capital (experiencing a sense of belonging and support influences weight and behaviours), and social selection (the people individuals surround themselves with developing according to their weight) (Powell et al., 2015:10).

2.5.2 Poor body image and self-esteem

Self-esteem is defined as the worthiness and value a person feels on the inside and is associated with body image (Thomson, 2008:117). Senekal et al. (2016:9) reported that numerous young adult women had a distorted body image. A poor body image can lead to following unhealthy fad diets, eating disorders, overweight, and obesity (Thomson, 2008:118). Unhealthy behaviour to control weight is enhanced by magazine articles and television programmes about diets and how to lose weight that causes the formation of unrealistic images of the ideal body type (Thomson, 2008:16). Young adults and teenagers are very sensitive and vulnerable to external pressures impacting body image (Thomson, 2008:117). Typically women are more critical of their body and how they see themselves than men (Quittkat et al., 2019:8; Thomson, 2008:118). Among obese adults, low self-esteem has been associated with increased feelings of sadness and loneliness (Waters & Williams, 2018:72).

Okop et al. 2016 conducted a qualitative study among black South African adult men and women to determine their 'Perceptions of body size, obesity threat and the willingness to lose weight'. The study revealed that women, in particular those who were overweight did not only underestimate their body size, but had low perceptions of the risks of being obese (Okop et al., 2016:10). As overweight women, they presumed their weight was 'normal', partially because they believed that obesity does not cause debilitating health conditions such as diabetes or stroke (Okop et al., 2016:10). It has been shown that appropriate perception of risk is important in improving intentions and willingness to engage in healthy behaviours (Okop et al., 2016:10).

Han et al. (2019:11) found that there was an increasing trend in the proportion of participants who rated themselves as overweight and obese among those who were overweight and obese and pursued weight loss strategies. There is evidence, however, that self-perceptions of overweight are not associated with physical activity or nutritional habits (Han et al., 2019:11). Many studies have suggested that self-perceptions of overweight lead to weight gain over time (Han et al., 2019:11).

2.5.3 Stress

Numerous people lead stressful lives, and many overeat when stressed (Coco & Ricciardelli, 2018:80; Thomson, 2008:235), with stress being one of the major aspects that can trigger a binge (Thomson, 2008:99). Stress can be caused by various social and /or cultural factors, including conflicts in the family, relationships, and stress related to a job (Thomson, 2008:99). On the other hand, following a very restrictive diet can also cause stress (Thomson, 2008:99). Emotional eating is often used to suppress or calm emotions of stress, loneliness, and anger, and this can sabotage weight-loss efforts and, in turn, lead to weight gain (Thomson, 2008:192).

Dealing with stress and adjusting an individual's diet to assist in weight loss has a positive effect on self-esteem and emotional outlook and increases the levels of energy (Thomson, 2008:236).

2.5.4 Impact of media

Modifying the diet is a key element when addressing appropriate treatment for overweight and obesity. Unfortunately, the media offer mixed opinions on which diet to follow and often promote the many fad diets available (Omar et al., 2019; Hatcher, 2019). More people are driven by social pressure to diet and be thin (Julia et al., 2014:1). Those feeling they are not meeting the social pressure of an ideal image of a thin body are exposed to challenges in both their personal and professional lives (Julia et al., 2014:1).

Being overweight as an adult, as well as health issues later in life can be linked to nutrition and eating habits as an adolescent (Thomson, 2008:14). Adolescents are bombarded by conflicting images in the media (Thomson, 2008:16), portraying being thin as good, and

overweight as bad (Thomson, 2008:99). Thomson (2008:47) concluded that the media portrays thin people as being successful, trendy, and happy whereas overweight people are being portrayed as being lazy, thoughtless and, disappointed in life.

2.5.5 Socio-economic factors

Socio-economic factors also plays a role in the psychological effect on dieting, as It affects eating behaviours significantly, and a low socioeconomic status is linked to an increased risk of obesity (Williamson et al., 2020:1). Williamson et al. (2020:12) concluded that the relationship between socio-economic status and snacking among adolescents may vary depending on culture, geography, and income levels.

It has been shown in a number of studies that obesity is a socially determinant problem. (Kuntz & Lampert, 2010:517). Kuntz & Lampert, (2010:517) in their study wanted to identify the relationship between socioeconomic status and obesity by investigating the importance of three socio-economic status indicators: income, education, and employment. According to the results of Kuntz & Lampert, (2020) economic factors play a significant role and should be taken into account in the prevention and treatment of obesity.

2.6 Weight loss strategies

In a French study, Julia et al. (2014:2) grouped popular types of weight-loss diets into five categories, namely: (i) commercial weight loss diet plans, (ii) commercial coaching methods, (iii) self-imposed dietary restrictions, (iv) diets prescribed by a health professional and (v) adherence to official dietary guidelines. For the purposes of the current study, weight loss plans/programmes and self-imposed dietary restrictions and adapted eating patterns popular and commonly known to South African women were categorised and incorporated as set out in Table 2.2 as Categories of popular weight-loss diets on the South African market.

These categories include (i) **commercial weight loss diet plans**, for example, Herbalife, Herbex, USN (Ultimate Sports Nutrition), and GI Lean (Senekal et al., 2016); (ii) **commercial weight loss aids** (for example Biomix Slimming, Hoodia, Conjugated linoleic acid, Leanor, Simply slim, Phentermine, Sibutramine and Orlistat (Senekal et al., 2016) and meal replacements); (iii) **commercial coaching methods**, for example, SureSlim, Weigh-less and

Weight Watchers (WW); (iv) **self-imposed dietary restrictions and adapted eating patterns**, for example, intermittent fasting (IF), paleolithic (paleo) diet, ketogenic (keto) diet, Banting diet, very low-calorie diet (VLCD), Mediterranean diet, Dietary Approaches to Stop Hypertension (DASH) and Therapeutic Lifestyle Changes (TLC) diets, diets associated with reduced snacking, reduced fat intake and/or reduced intake of sugar and sugary foods, vegetarian, vegan, paleo-vegan (pegan) and low glycemic index); (v) **diets prescribed by a health professional** (dietitians, doctors, physiotherapists, and biokineticists); (vi) **diets prescribed by non-health professionals**, being personal trainers or anyone else giving out diets; and (vii) **other**, including mobile weight loss applications. The general characteristics of each group, are summarised in Table 2.2.

Table 2.2 Categories of popular weight-loss diets on the South African market

Diet categories	Name of diet or aid	Defining characteristics	Reference
Commercial weight-loss plans	Herbalife	Includes fat burners and diet shakes.	(Senekal et al., 2016) (Thomson, 2008)
	Herbex	Claimed to promote fat burning.	(Senekal et al., 2016)
	USN (Ultimate Sports Nutrition)	Includes fat burners, appetite suppressants, and meal replacements.	(Senekal et al., 2016)
	GI Lean	Includes fat burners and diet shakes.	(Senekal et al., 2016)
Commercial weight loss aids	Biomix Slimming	Claimed to be a metabolic accelerator and appetite suppressant.	(Senekal et al., 2016)
	Hoodia	Appetite-suppressant derived from a South African cactus plant.	(Senekal et al., 2016)
	CLA	Conjugated linoleic acid, a fatty acid claimed to assist with weight loss.	(Senekal et al., 2016)
	Leanor	Slimming concentrate.	(Senekal et al., 2016)
	Simply slim	Slimming mix.	(Senekal et al., 2016)
	Phentermine	Used for appetite suppression and energy burning.	(Senekal et al., 2016)
Commercial weight loss aids	Orlistat	Reduces fat absorption. Is used with an individualised low-energy, low-fat diet and exercise programme to help with weight loss. Prescription Orlistat is used in overweight individuals who may also have high blood pressure, diabetes, high cholesterol, or heart disease.	(Senekal et al., 2016)
	Meal replacements	Meal replacements have a very low energy content (often 400-500 kJ) and promise to supply the necessary nutrients.	(Khawandanah & Tewfik, 2016:83)

Diet categories	Name of diet or aid	Defining characteristics	Reference
Commercial coaching methods	SureSlim	SureSlim is an international brand, focusing on weight loss and wellness using a natural approach.	(Living Slim PTY Limited, 2018)
	Weigh-less	Weigh-less profiles clients according to certain lifestyle factors and clients are given an A, B, or C Profile.	(Thomson, 2008)
	Weight Watchers	Balanced slimming diet.	(Kuchkuntla et al., 2018)
Self-imposed dietary restrictions and adapted eating patterns	Intermittent fasting	Abstinence from food during certain periods when following the diet.	(Kuchkuntla et al., 2018)
	Paleolithic (paleo) diet	The particular focus is on emulating the dietary pattern of Stone Age ancestors, with an emphasis on avoiding processed foods and the preferential intake of vegetables, fruits, nuts and seeds, and lean meats. In principle at least, dairy and grains are excluded entirely.	(Katz & Meller, 2014)
Self-imposed dietary restrictions and adapted eating patterns	Ketogenic (keto) diet	High-fat, adequate-protein, low-carbohydrate content. Diet changes the way energy is used in the body. 10–15 grams of carbohydrates per day, 1 gram of protein for each kilogram body weight, and the remaining energy from fat.	(Khawandanah & Tewfik, 2016:88) (Thomson, 2008:597)
	Banting diet	The diet emphasises the use of meat, fruits, and vegetables, and stresses total avoidance of starchy vegetables such as potatoes, beetroot, carrots, turnips, and parsnips, together with all other starches and sugar.	(Dolson, 2020).
	Very low-calorie diet (VLCD)	Can normalise glucose control and improve insulin resistance.	(Khawandanah & Tewfik, 2016)
	OptiFast	A total meal replacement dietary intervention. Formerly developed as a VLCD in the 1970s providing 1757.28 kJ/d. One meal can be eaten per day.	(Ard et al., 2019a)

Diet categories	Name of diet or aid	Defining characteristics	Reference
	Mediterranean	50–55% low GI carbohydrates, 30% fats, 15–20% protein. The particular focus is on mimicking the common themes of the traditional dietary pattern that prevails in Mediterranean countries with emphasis on olive oil, vegetables, fruits, nuts and seeds, beans and legumes, selective dairy intake, and whole grains; often fish and other seafood; and limited intake of meat. Moderate wine intake is often emphasised as well.	(Kuchkuntla et al., 2018) (Katz & Meller, 2014)
Self-imposed dietary restrictions and adapted eating patterns	Dietary Approach to Stop Hypertension (DASH) diet	Is seen as a mixed and balanced diet, that includes both plant and animal foods and conforms to authoritative dietary guidelines, such as the Dietary Reference Intakes of the Institute of Medicine, the Dietary Guidelines for Americans, and the Dietary Recommendations of the World Health Organization. DASH diet was developed specifically for hypertensive patients.	(Katz & Meller, 2014) (Grundy, 2016)
	Therapeutic lifestyle changes diet (TLC)	The American Heart Association published its therapeutic lifestyle changes (TLC) diets and recommended that fat should account for $\leq 30\%$ of total daily energy intake.	(Omar et al., 2019:3)
	Reduced snacking	Snacking should be reduced due to the fact that snacks are usually unhealthy, energy-dense, and lacking in nutrients.	(Njike et al., 2016)

Diet categories	Name of diet or aid	Defining characteristics	Reference
	Reduced fat intake	The particular focus is on the restriction of total fat intake from all sources below some threshold, reasonably set at the lower limit of the recommended range established by the Institute of Medicine, or 20% of total daily energy intake. The effect of eating less fat (defined as $\leq 30\%$ of total energy being derived from fat compared with usual dietary fat intake, considered as $>30\%$ energy from fat).	(Katz & Meller, 2014) (Mete et al ., 2018:144)
	Reduced intake of sugar and sugary food	Reduce intake of sugar and sugar-containing food to $\leq 10\%$ of total daily energy intake.	(WHO, 2020)
Self-imposed dietary restrictions and adapted eating patterns	Vegetarian diet	Vegetarian diets are mostly plant-based but typically include dairy and eggs and may selectively include other animal products, such as fish and other seafood.	(Katz & Meller, 2014)
	Vegan diet	These diets exclude all animal products, including dairy and eggs.	(Katz & Meller, 2014)
	Paleo-vegan (Pegan) diet	The pegan diet combines some principles of the paleo diet and veganism and prescribes a plant-based eating style.	(Get the Gloss, 2021)
	Low Glycemic Index diet	The particular focus is on limiting the glycemic load of the overall diet by restricting the intake of foods with a high glycemic index and/or glycemic load. This often extends to the exclusion of certain vegetables and many if not all fruits.	(Katz & Meller, 2014)
Diets prescribed by a health professional	Dietitian	The role of the dietitian is to support patients to lose weight with dietary interventions based on individualised consultations.	(Williams et al., 2019)

Diet categories	Name of diet or aid	Defining characteristics	Reference
	Medical doctor	“The role of a family physician is to identify and review with the patient a realistic weight loss goal. A successful programme will lead to a weight loss of more than 5% of initial weight. If this goal is achieved, it can reduce risk factors of CVD, such as dyslipidemia, hypertension, and diabetes”.	(Alsaleh & Algarni, 2017:28)
	Physiotherapist	“Physiotherapists without the necessary nutrition-related education are not allowed to give dietary advice, but play a vital role in the screening and referring of patients that require dietary advice or who can benefit from it. Many conditions managed and seen by physiotherapists are directly affected by diet and nutrition”.	(Physiopedia contributors, 2020)
	Biokineticist	Biokineticists are health professionals that promote health and wellness by improving quality of life. Prescribing diets are not part of their scope of practice.	(Biokinetics Association of South Africa, 2020) (Kinsey & Ormsbee, 2015)
Diets prescribed by non-health professionals	Personal trainer (or others)	Diets can be prescribed by personal trainers, although they may have little to no accredited training in nutrition and physiology.	(Kiss et al., 2020)

2.6.1 Commercial weight loss diet plans

Commercial weight-loss diet plans rely on anecdotal evidence to establish their effectiveness (Julia et al., 2014).

2.6.1.1 Herbalife

Herbalife sells nutritional supplements and replaces two meals per day with a meal replacement shake (Thomson, 2008: 514). A 25 g serving of the meal replacement shake contains 376.56 kJ, 1 g fat, 13 g carbohydrates, 3 g fibre, 9 g sugar and 9 g protein (Julson, 2020).

The weight management and weight-loss products include protein snacks, enhancers for energy, appetite, and digestive support (Thomson, 2008: 514). The Herbalife programme is seen as a quick-fix diet, helping people lose weight in a short period (Julson, 2020). The Herbalife diet have no dietary restrictions, but it is advised to drink plenty of water, eat small, frequent meals, and include snacks which include ample fruits and vegetables (Julson, 2020).

Herbalife can be expensive and may not be sustainable for everyone, while some people may be allergic to some of the ingredients (Thomson, 2008: 515). The shakes are primarily very high in fructose , which constitute 40% of the energy in each serving (Julson, 2020). Excess intake of fructose may be responsible for onset of diseases, such as obesity, type II diabetes, IR, CVD and even cancer (Gunnars, 2018b). The WHO recommends that no more than 5% of daily energy intakes should be obtained from added sugars, which is roughly equivalent to 25 grams per day for the average adult (Julson, 2020). Very little leeway remains for any other source of sugar in the diet, as two servings of Herbalife shake provide 18 grams of added sugar (Julson, 2020).

No official recommendation exists determining how long the diet should be followed, and presumably most people continue to follow the diet until they reach their weight loss goal (Julson, 2020).

2.6.1.2 Herbex

Herbex states on their web page that they know and understand that fad diets do not work and cause roller coaster or yo-yo effects on weight (Herbex, 2020). Herbex claims a holistic approach to weight loss and that their products are natural and contain no harmful chemicals or additives (Herbex, 2020). On the packaging of their newest UltraSlim product, it is mentioned to follow a healthy eating plan and exercise routine for maximum benefits, with a patient information leaflet stating the same.

The information sheet warns that a decrease in metabolic rate can occur if the use of the product is stopped, and that gastrointestinal effects e.g. nausea, vomiting, cramping and diarrhoea, micronutrient deficiency can occur as absorption is impaired, as well as that the product is not safe for individuals with diabetes (Herbex, 2020).

Dr. Harris Steinman, author of the CAMcheck website that investigates the scientific basis of products claims, has previously lodged a complaint with the Advertising Regulatory Board (ARB) arguing that the Herbex's UltraSlim product had no evidence for claiming that this specific product affects weight-loss, or for any of the other claims made (Steinman, 2021). In November 2020, the ARB ruled against the claims made by Herbex UltraSlim and prevented them to advertise this product with these claims (Steinman, 2021). Herbex appealed the ruling and stated that Dr. Steinman was not a consumer (Steinman, 2021). On 13 May 2021, the ARB finally ruled that the following claims made by Herbex were unsubstantiated: that "Herbex UltraSlim constitutes a weight loss evolution", that it is "South Africa's number 1 slimming brand", that it is based on "25 years refining the science of weight loss" and that the product is effective "with triple the action" for weight loss (Steinman, 2021).

2.6.1.3 Ultimate Sports Nutrition diet plan

A variety of choices of weight loss products found on Ultimate Sports Nutrition's (USN) website can be divided into products that burn energy, tone, and maintain muscles (USN, 2021). The website states that the key to effective weight loss is following a training programme intended for losing fat as well as following an appropriate diet plan (USN, 2021). Apart from weight loss USN also offers solutions for lean muscle, hardcore training and, endurance (USN, 2021).

2.6.1.4 GI Lean

GI Lean is a four step weight loss programme, with specific products used in each step, namely Step one: Detox, Step two: BioBurn, Step three: Beat hunger, and Step four: Eat low GI” (G. I. Lean, 2017). The webpage contains different tabs with useful information (G. I. Lean, 2017). Under the heading GI Lean tools, the following are provided: a glycemic index food chart, portion control, three-day detox and seven-day low GI eating guides (G. I. Lean, 2017).

2.6.2 Commercial weight loss aids

Commercial weight-loss aids, including Biomix Slimming, Hoodia, CLA, Leanor, Simply slim, Phentermine, Orlistat (Senekal et al., 2016), and meal replacements, are sold and marketed to aid weight loss, often in combination with a restrictive diet.

2.6.2.1 Biomix Slimming

Biomix Slimming is claimed to be a metabolic accelerator and appetite suppressant (Senekal et al., 2016).

2.6.2.2 Hoodia

In an article written by Lang (2020), it is said that Hoodia is derived from a succulent also known as “Bushman’s hat” and “Queen of the Namib” (Lang, 2020). Hoodia improves weight loss by suppressing appetite and is seen as a natural diet supplement (Lang, 2020). Hoodia are available as tea, tablets, powders, liquid extracts, and patch forms (Lang, 2020).

2.6.2.3 Conjugated Linoleic Acid

Conjugated linoleic acid (CLA) is a popular supplement marketed for weight loss (Gunnars, 2018a). Linoleic acid is a fatty acid of which large amounts are found in vegetable oils and numerous other foods containing smaller amounts (Gunnars, 2018a). The conjugated form, CLA, is commonly found in dairy products and meat, and is thought to have several health benefits (Gunnars, 2018a). According to a study done by Blankson et al. 2000:2948 it was

found that CLA can cause significant fat loss in humans. It may also improve body composition by reducing body fat (Gunnars, 2018a).

2.6.2.4 Leanor

Leonor drops contain “Cathine” (nor-pseudoephedrine) as the active ingredient (Tablet Wise, 2018). Cathine was launched in the 1970s as a short-term treatment for obesity (Hauner et al., 2017), and works on both the central and peripheral systems (Hauner et al., 2017:408). A randomised placebo-control trial showed that Cathine, in addition to a multimodal lifestyle intervention programme, was effective in assisting weight loss, and that the effects on the central system included anorexia (thus, the product suppresses appetite), hyperthermia and increased sensory stimulation and alertness (Hauner et al., 2017:408). Effects on the peripheral system included increases in heart rate, respiration, and blood pressure, and retention of urine and constipation (Hauner et al., 2017:408).

2.6.2.5 Simply Slim

Simply Slim is marketed as a slimming mix (Senekal et al., 2016), and was widely advertised and marketed by distributors (Jobson, 2010). The initial advertising stated that no dietary changes or exercise was necessary when using the product to assist with weight loss (Jobson, 2010). Simply Slim was tested independently by a pharmacist when a number of participants, experienced unusual side-effects (Jobson, 2010). It was found that Sibutramine, a Schedule five substance, was an ingredient of Simply Slim, but was not listed (Jobson, 2010). Sibutramine is proven to promote weight loss (Jobson, 2010). According to the label, it contains bitter orange extract, cassia seed, aloe vera, L-carnitine, Alisma Orientalis, lotus, evening primrose oil, dietary fibre, and dextrose. Sibutramine should be avoided in combination with any substances that increase blood pressure (Jobson, 2010). Synephrine is a component of “bitter orange” listed as an ingredient of Simply Slim and may increase blood pressure (Jobson, 2010).

2.6.2.6 Phentermine

Phentermine (Duromine) is used to suppress appetite (Lysen et al., 2021:410; Apovian et al., 2015:346). The structure of phentermine is related to amphetamines, which are used to suppress appetite (Pronsky & Crowe, 2017:221). Phentermine should be used for a short period, incorporating an energy-restricted diet and exercise (Pronsky & Crowe, 2017:221). Phentermine is also intended for use by obese or overweight patients with added risk factors such as diabetes, hypertension, or hyperlipidemia (Pronsky & Crowe, 2017:221).

2.6.2.7 Orlistat

Orlistat decreases the amount of fat absorbed from food by almost one-third (Lysen et al., 2021:410), through the process of inhibiting gastrointestinal lipase (Lysen et al., 2021:410; Muir, 2018:183). It is not an appetite suppressant, and it may be hard to sustain a diet low in fat (Pronsky & Crowe, 2017:220). Supplementation of fat-soluble vitamins is advised due to the lowered absorption thereof when fat absorption is restricted (Raymond & Couch, 2017)(Lysen & Israel, 2017:479). Hypertension, (Morrison & Shaikh, 2018:317), flatulence, abdominal distension and faecal incontinence are mentioned as side effects (Lysen et al., 2021:220; Abdeen, 2018:188). Some of the health benefits include reduced LDL and elevated HDL cholesterol levels, and an improvement in glycemic control (Lysen & Israel, 2017:479).

2.6.2.8 Meal replacements

Meal replacements are a universal term for milk-like, pre-packaged shakes and are used as meal replacements for one or more meals a day (Thomson, 2008:877) reducing intake of total energy (Ard et al., 2019:22). Meal replacements provide 840–1680 kJ, 25–50% of the total energy in the form of protein, and ≤ 30 % as fats (Khoo & Cheong, 2018:150). Commercially a wide range is available and is fortified with vitamins and minerals (Khoo & Cheong, 2018:150).

Meal replacements are used as part of a weight-loss programme or as additional nourishment for frail people battling to eat solid food (Thomson, 2008:877). Meal replacements do not automatically change eating habits, posing the problem of regaining weight when the use thereof is stopped (Ard et al., 2019:27; Thomson, 2008:879). However, meal replacements

can be helpful in weight-loss strategies as the only energy source, or in combination with additional foods (Khoo & Cheong, 2018:150).

2.6.3 Commercial coaching methods

Commercial coaching methods include for example SureSlim, Weigh-less, and WW. Weight loss when following these coaching methods is slow and steady. The dieter aims for a target weight or a BMI of between 20 and 25 kg/m² which is considered to be the ideal range (Thomson, 2008: 1010). Weight Watchers coaches, however, are people who have been successful in losing weight and are not trained in nutrition (Thomson, 2008: 1011).

A group-based approach to manage weight has gained increased acceptance in community surroundings and the healthcare industry (Allan, 2018:164; Khoo & Cheong, 2018). A broader group of people can be reached if health professionals make use of a group-based model to treat obesity, facilitating peer support and social interaction (Allan, 2018:164).

2.6.3.1 SureSlim

SureSlim is an international brand, focusing on weight loss and wellness using a natural approach (Living Slim PTY Limited, 2018). According to the SureSlim website, their approach makes use of a scientific strategy that improves metabolic processes which regulate hormone balances as part of their success rate, and an individualised approach is used (Living Slim PTY Limited, 2018). Individualised programmes are worked out for every client taking individual lifestyle and physiological needs into account, using a one on one approach (Living Slim PTY Limited, 2018).

2.6.3.2 Weigh-less

Weigh-less was founded in 1975 by Mary Holroyd and is a South-African brand (Weigh-less, 2020). The Weigh-less Programme is intended to provide in member's individual needs and has been formulated using stringent dietary guidelines and theories, ensuring weight loss in a healthy way (Weigh-less, 2020).

The website states that their weigh-less promise to each member is 'you can expect to be met by a caring, friendly, empathetic Weigh-Less Group Leader who has lost weight on the

Weigh-Less Eating Plan and can relate to YOUR yearning for a slimmer, healthier you – for life’ (Weigh-less, 2020). The Weigh-less programme profiles clients according to certain lifestyle factors and is given an A, B, or C Profile (Weigh-less, 2020). The new normal weigh-less programme contains a workstyle menu plan, shopping list and workstyle strategies (Weigh-less, 2020). The website also contains different tabs from weigh-less foods, recipes and tools to determine BMI and ideal weight as well as success stories (Weigh-less, 2020).

2.6.3.3 Weight Watchers

Weight Watchers is a diet plan that is energy and portion-controlled with the intent to change eating and exercise habits of an individual for a lifetime (Thomson, 2008:1012). Weight Watchers is group-based and offers new members one-on-one support (Allan, 2018:164; Avery, 2018:170). Meetings usually last 1 hour and a system using food points are used (Avery, 2018:170). The core programme is spread out over 5 weeks concentrating mainly on how to beat hunger, being more active, and stay motivated as well as helpful tips for eating out (Avery, 2018:170). The aim is to lose between 0.5–1 kg weight per week by creating a 2 092 kJ deficit per day which leads to weight loss (Avery, 2018:170).

Weight Watchers is not seen as a fad diet, as the approach is to lose weight slowly and steadily. The dieter aims for a target weight or a BMI of between 20 and 25 kg/m² which is considered to be the ideal range (Thomson, 2008: 1010). A Reward system is used whereby for each 3.2 kg the dieter lost a reward is given, this is also done if they lose 5 and 10% of their body weight (Avery, 2018:170). Thomson, 2008: 1012 is of the opinion that the flexibility of the programme may cause too much temptation. Weight Watcher coaches, however, are people who has been successful in losing weight and are not trained in diet and nutrition (Thomson, 2008: 1011).

2.6.4 Self-imposed dietary restrictions and adapted eating patterns

Self-imposed dietary restrictions include Intermittent fasting (IF), paleolithic nutrition (Paleo diet), ketogenic diet (Keto diet), Banting diet, the Mediterranean diet. Conversely, the Mediterranean diet although also grouped as a self-imposed restrictive diet, is associated

with many well-documented health benefits, independent of weight loss. This diet emphasises less meat and more grains, vegetables, fruit, and some olive oil (La Berge, 2008).

2.6.4.1 Fad diets

Hart, (2018:177) states that fasting could be classified as the oldest 'fad diet'. Amongst the multitude of available weight loss plans and programmes, fad diets are very popular because they are relatively easy to implement, usually by restriction of a specific food group or food item (Omar et al., 2019; Thomson, 2008). Some self-imposed diets can be classified as fad diets, which do not meet nutritional needs (particularly not micronutrient needs) and promises unrealistically rapid weight loss that is not sustainable in the long run (Omar et al., 2019:2). Peer pressure may be one of the main reasons people, particularly women, follow fad diets, as, having their weight criticized by peers, creates negative and uncomfortable feelings of unattractiveness and guilt, leaving women feeling vulnerable and confused, and with low self-esteem (Khawandanah & Tewfik, 2016:84). Media and external factors contribute to these feelings (Khawandanah & Tewfik, 2016:80). As a resort, women choose fad diets, thinking that weight loss will make them more likeable, and wanting quick results (Khawandanah & Tewfik, 2016:81). Fad diets claiming rapid weight loss are a lucrative business (Khawandanah & Tewfik, 2016:85).

2.6.4.2 Intermittent fasting

Intermittent fasting (IF), is a dietary regime consisting of short periods of severe energy restriction for specific fasting days, reducing energy intake by between 75–100%, followed by 'normal' eating on non-fasting days (Wilson et al., 2018). IF by using an on and off eating approach might bring about better adherence to the diet, possibly due to the fact that it is easier to accomplish and stick to than normal dietary guidelines requiring daily restrictions (Hart, 2018:179). The following are types of IF: alternate-day fasting, 5:2 diets, periodic fasting, time-restricted feeding and Ramadan or religious fasting (Freire, 2020:6). The different types of fasting is discussed under point i Types of fasting.

Side effects include headaches, feelings of light headedness, digestive issues, fatigue and low levels of energy, irritability, bad breath, dehydration and sleeping disorders (Kubala, 2021).

i. Types of fasting

There are different forms of fasting (Freire, 2020:6).

a) Alternate-day fasting

Individuals eat every other day (Hart, 2018:178; Patterson et al., 2017:376), where a noneating day will consist of one 2 100kJ meal (Molina et al., 2019:2). On feeding days, foods and drinks are taken in ad libitum (Patterson et al., 2017:376). In mice, energy intake was reduced by 65 – 80% (Longo & Panda, 2016; Longo & Mattson, 2014).

b) 5-2 Diet

Individuals eat five days of the week and refrains from eating the other two (Harris et al., 2018:509). The 5:2 diet entails consuming 2 100 kJ on two non-consecutive days and 5 days of ad libitum eating per week (Harris et al., 2018:509). This form of fasting is very popular (Patterson et al., 2017:377). Conley et al., (2018) conducted a pilot study to determine if $\geq 5\%$ weight loss could be achieved compared to a traditional energy-restricted diet in obese male war veterans. The researchers found that following a 5:2 diet were effective, but was not more beneficial when compared to a standard energy-restricted diet (Conley et al., 2018).

c) Periodic fasting

This fast is followed for a minimum of two days up to six days (Harris et al., 2018:509) and can be followed once a month or annually. The diet is low in energy, carbohydrates, and proteins. Food is avoided or meals modified to lower energy intake severely for short periods (Harris et al., 2018:509).

d) Time-restricted feeding

Time-restricted IF consists of eating only during certain hours of the day (Kuchkuntla et al., 2018:311). No alteration to dietary composition or restriction of energy is needed (Hart, 2018:178). Fasting is confined to a typical interval window of 12 to 21 hours per day (Patterson et al., 2017:378). According to Kuchkuntla et al. (2018:311) there are two types of

time restricted fasting 16:8 (fasting for 16 hours, eating for 8 hours) or 20:4 fasting whereby (fasting for 20 hours, eating for only 4 hours).

e) Ramadan fasting

Harder-Lauridsen et al., (2017:92) investigated the effect of abstaining from eating and drinking for 14 hours of daytime, for 28 days. The effect it had on body composition, glucose metabolism, and cognitive function in men were determined. The authors concluded that abstaining from food and drink for 28 days had no significant effect on the composition of the body, glucose metabolism, or cognitive function (Harder-Lauridsen et al., 2017:102). This suggested that in healthy lean males the frequency of meals taken per day might not be as significant as the total energy intake when it comes to metabolic flexibility (Harder-Lauridsen et al., 2017:102).

2.6.4.3 Paleolithic diet

Paleolithic nutrition (paleo diet), is characterised by low carbohydrate intake (20% of total energy intake), combined with both high fat and high protein (40% each) intakes (Dolson, 2020). The Paleolithic period is characterised by food found and hunted by hunters and gatherers in the wild, which included game and self-grown fruits and vegetables which were eaten raw (Thomson, 2008:179). No milk or dairy products were available during this period (Thomson, 2008:179), therefore, no dairy products are included in the modern version of the paleolithic diet. Similarly, grains, legumes, yeast, processed foods, sugar, and alcohol are excluded (Thomson, 2008:699).

There is no energy or kilojoule/calorie counting and the lists of "yes" and "no" foods are short and easy to grasp (Dolson, 2020). Disadvantages include the cutting out of whole groups of foods, which is challenging, and to continue eating this way indefinitely could be difficult (Dolson, 2020). Zinn et al. (2018:1) in their study found that despite macronutrients not aligning with dietary guidelines, if well-planned a meal plan low in carbohydrates and high in fat can be considered micronutrient complete. This is an important finding for critics, health professionals, and consumers of low carbohydrate and high fat nutrition, as it dismisses the myth that these diets are suboptimal in their micronutrient supply (Zinn et al., 2018:1). As

with any diet, for optimum nutrient attainment, meals need to be well formulated (Zinn et al., 2018:1).

2.6.4.4 Ketogenic diet

Ketogenic refers to the increased production of ketone bodies as a result of following the diet (Thomson, 2008:597). The Mayo Clinic in 1921, devised this diet initially for epilepsy patients with the intent to mimic the biochemical changes taking place during the fasting process — ketosis, acidosis, and dehydration (Thomson, 2008:597).

The ketogenic diet (keto diet) comprises of low-carbohydrate and high-fat intakes, claiming multiple health benefits including weight loss and increased energy levels (Blanco et al., 2019; Brooks, 2019). Carbohydrates, which is a macronutrient with important functions in the body, are severely limited in this approach (Brooks, 2019). The diet focuses more on meats, fatty fish, and less-starchy vegetables (Blanco et al., 2019). The carbohydrate content is so low that grains and many fruits are not included (Blanco et al., 2019). The Mayo Clinic suggested 10–15 grams of carbohydrates per day, one gram of protein for each kilogram of body weight, and the remaining energy from fat with total energy intake per day limited to 75% of the normal allowance for the patient’s weight (Thomson, 2008:597).

Following a keto diet causes ketoacidosis with symptoms such as fatigue, nausea, and vomiting (Blanco et al., 2019). Weight regain tends to set in quickly (Brooks, 2019). It can be difficult changing from a diet high in carbohydrates to concentrating on fats instead (Brooks, 2019). Long term sustainability of this diet is questioned (Dolson, 2020).

2.6.4.5 Banting diet

The Banting diet is a low-carbohydrate approach, that emphasises the use of meat, fruits, and certain vegetables, and stresses total avoidances of starchy vegetables such as potatoes, beetroots, carrots, turnips, and parsnips, together with all other starches and sugar (Dolson, 2020). Although there are numerous testimonials and success stories the diet is not suited for everyone (Dolson, 2020). The diet is very restrictive with little scientific evidence, is high in saturated fat, may lead to nutrient deficiencies and lack sustainability (Dolson, 2020).

2.6.4.6 Very low-calorie diet

The very low-calorie diet (VLCD) was developed more than 30 years ago enabling weight loss of 1 kg or more in a week (Leeds, 2018:157). The VLCD is a weight loss diet consisting of 3 360 kJ or less per day (Leeds, 2018:157; Thomson, 2008:154). This diet has been very unpopular with healthcare professionals largely due to speculative concerns about adverse effects and unproven clinical supervision issues (Leeds, 2018:157). VLCD should only be used as part of weight management strategies where patients need to lose weight rapidly and have been clinically assessed having to undergo surgery e.g. the need for joint replacement surgery (Khoo & M Cheong, 2018:157; Leeds, 2018:157).

2.6.4.7 Mediterranean diet

The Mediterranean diet, although grouped as a self-imposed restrictive diet, is associated with many well-documented health benefits including losing weight, as well as a reduction in visceral fat and waist circumference (Molina et al., 2019:1). This diet emphasises eating less meat and more grains, vegetables, fruit, and some olive oil (Mete et al., 2018:144; La Berge, 2008). The diet also includes a moderate intake of dairy, poultry, and fish and a minimum or no intake of red meat (Mete et al., 2018:144; Khoo & Cheong, 2018). Three servings of legumes per week are also recommended (Molina et al., 2019:4). One glass of wine (150 ml for men, and 100 ml for women) with meals is permitted per day for habitual intake (Molina et al., 2019:5). A maximum of 300 ml of wine per day, equivalent to 1-3 glasses, is recommended for regular drinkers (Molina et al., 2019:5). Wine should be the main source of alcohol intake (Molina et al., 2019:5).

2.6.4.8 Dietary Approach to Stop Hypertension diet

The Dietary Approach to Stop Hypertension (DASH) diet was created for patients presenting with hypertension (Grundy, 2016:368) and is known to reduce blood pressure effectively (Larson et al., 2021:357). The diet restricts energy intake, reduces the intake of saturated fat, and maintains electrolyte intake (Grundy, 2016:368). DASH is a healthy dietary option (Grundy, 2016:368; Katz & Meller, 2014:91). The DASH diet is predominantly plant-based

including some animal products, focusing mainly on low- and non-fat dairy products (Katz & Meller, 2014:91).

2.6.4.9 Therapeutic lifestyle changes diet

The Therapeutic Lifestyles Changes (TLC) diet lowers cholesterol levels in people at risk of developing heart disease or in those individuals diagnosed with heart disease (Thomson, 2008:504). It is recommended by the American Heart Association since 2001 that fat should not exceed 30% of the daily intake of energy in TLC diets (Omar et al., 2019:3). According to Raymond & Couch, (2017:753) and Thomson, (2008:504) total daily fat intake can vary between 25 to 35%. However, less than 7% of total daily energy intake should be derived from saturated fat (Thomson, 2008:504). Some of the guidelines for the TLC diet include consuming only enough energy to achieve and maintain a healthy weight (Thomson, 2008:504).

2.6.4.10 Reduced snacking

For effective weight loss, snacking should be reduced due to the fact that snacks are usually unhealthy, energy-dense, and lacking in nutrients (Njike et al., 2016:866) or should be replaced by healthy options like low GI food, fruit, and vegetables (Njike et al., 2016:866).

2.6.4.11 Reduced fat intake

Weight loss of 1.5 kg can be achieved by reducing fat intake and an even higher weight-loss result can be accomplished by reducing fat intake even more (Mete et al., 2018:144). Eating less fat is defined as eating 30% or less of total energy intake derived from fat (Mete et al., 2018:144). Restriction of total fat intake from all sources below some threshold, reasonably set at the lower limit of the recommended range established by the Institute of Medicine, or 20% of total daily energy intake (Katz & Meller, 2014) may also help with weight loss.

2.6.4.12 Reduced intake of sugar and sugary food

Reduced intake of sugar and sugar-containing food is recommended (Drummond, 2018:333) to $\leq 10\%$ of the total daily energy intake (WHO, 2020). The WHO recommends $\leq 10\%$ of total energy intake from free sugars, which includes sugar added to foods or drinks as well as sugars naturally present, such as honey, syrups and fruit juice (WHO, 2020). A person of healthy

weight consuming about 8 400 kJ, a $\leq 10\%$ total energy in the form of sugar is equivalent to 50 g (about 12 level teaspoons) per day, ideally total energy intake in the form of sugar should be less than 5% for added health benefits (WHO, 2020). The recommendation of less than 5% sugar intake per day is confirmed by the Society for Endocrinology, Metabolism and Diabetes of South Africa (SEMDSA) and mentioned that fructose powder and high fructose corn syrups should also be taken into account (SEMDSA, 2017:S27). Walsh & Van den Berg, (2019) compiled a desk-review with South African National data regarding overweight and obesity. The categories are categorised according to age, with easy to reference tables for e.g. intake of sugar.

2.6.4.13 Vegetarian diet

Vegetarian diets are mostly plant-based (Katz & Meller, 2014), eliminating “red” meats but selectively include fish, poultry, and dairy products in their diet (Appendix 30 in Raymond and Morrow, 2021:1095; Katz & Meller, 2014). Lacto-vegetarians include milk, cheese, and other dairy products in their diet, but exclude meat, fish, poultry, or eggs (Appendix 30 in Raymond and Morrow, 2021:1095). A lacto-ovo-vegetarian includes eggs as well (Murray et al., 2017:285). Hultin, (2021:765) indicated that significant evidence proves that there are numerous health benefits of following a vegetarian diet according to a study of Seventh-Day Adventists. The results indicate a lower rate of type 2 diabetes, breast and colon cancer, as well as an improvement in cardiovascular and gallbladder disease (Hultin, 2021:765).

2.6.4.14 Vegan diet

Vegans are also referred to as strict vegetarians (Thomson, 2008:897), and excludes all animal products including milk and dairy products (Raymond & Couch, 2021:677; Thomson, 2008:768). This leads to insufficient intake of vitamin B₁₂ (Larson et al., 2021:353; Thomson, 2008:823), as well as deficiencies in vitamin D, zinc, iron, omega-3 fatty acids (Larson et al., 2021:353) and protein (Thomson, 2008:823). Vegans include food such as tofu, seeds, nuts, green leafy vegetables, foods fortified with calcium as well as fortified soya milk, to improve calcium stores (Thomson, 2008:768). If vegans plan their diets well, it is suitable for all stages of life, including pregnancy (Sebastiani et al., 2019:1), adolescence (Thomson, 2008:779), and adulthood (Key et al., 2006:37).

2.6.4.15 Paleo-vegan diet

The pegan diet developed by Dr. Mark Hyman combines some principles of the paleo diet and veganism and prescribes a plant-based vegan eating style combined with meat, fish, and eggs paleo style of eating (Get the Gloss, 2021).

2.6.4.16 Low glycemic index diet

The glycemic index (GI) was devised in 1981 by the University of Toronto ranking carbohydrates and using it as a measurement system (Gallagher, 2017:39; Thomson, 2008:42). Carbohydrates are ranked by the way it affects blood glucose levels (Jones, 2021:617; Omar et al., 2019:3; Thomson, 2008:123). The consumption of foods containing a high glycemic index and/or load is restricted (Katz & Meller, 2014:85). Certain vegetables and many fruits are not recommended and thereby excluded from the diet (Omar et al., 2019:3; Katz & Meller, 2014:85). The Western diet's main source of carbohydrates tends to be highly refined cereal and potato products all containing a high GI value (Radulian et al., 2009:3).

2.6.5 Diets prescribed by a health professional

Diets prescribed by a health professional include diets prescribed by dietitians, physicians, physiotherapists, and biokineticists. Weight loss of more than 5% of the initial weight will be obtained if a successful programme is given (Alsaleh & Algarni, 2017).

2.6.5.1 Dietitians

A dietitian is a qualified health professional registered with the Health Professions Council of South Africa (HPCSA) and has a minimum qualification of a four-year undergraduate scientific dietetics degree (Division of Human Nutrition, 2021). The University of the Free State (UFS), Department of Nutrition and Dietetics indicate on their web-page that dietetic students are taught 'to apply the science of nutrition and food to improve quality of life and performance as well as to prevent and treat disease' (Faculty of Health Sciences, 2020).

Dietitians are expertly trained to provide nutrition therapy for various conditions: liver disease, kidney disease e.g. (Division of Human Nutrition, 2021), and specialise in the following fields: Therapeutic-, Community-, and Sports nutrition as well as Food service

management and Research (Faculty of Health Sciences, 2020). The role of the dietitian also involves supporting patients to lose weight with dietary interventions based on individualised consultations (Williams et al., 2019).

2.6.5.2 Doctors

“The role of the family physician is to identify and review with the patient a realistic weight loss goal. If this goal is achieved, it can reduce risk factors of CVD’s, such as dyslipidemia, hypertension, and diabetes” (Alsaleh & Algarni, 2017:28). Doctors should screen patients and refer them to dietitians (Alsaleh & Algarni, 2017:33).

2.6.5.3 Physiotherapists

Physiotherapists have a basic knowledge of nutrition in using a holistic approach to manage a patient (Physiopedia Contributors, 2020). Prescribing diets are not part of their scope of practice as it is only essential to have basic knowledge about the role of nutrition (Physiopedia contributors, 2020).

2.6.5.4 Biokineticists

Biokineticists as health professionals, promote health and wellness, thereby improving quality of life (Biokinetics Association of South Africa, 2020). Prescribing diets are not part of their scope of practice (Biokinetics Association of South Africa, 2020).

2.7 Diets prescribed by non-health professionals

Diets are also prescribed by personal trainers (Kiss et al., 2020), although they may have little to no accredited training in nutrition and physiology. These can also include anyone else giving out a diet.

2.8 Other weight loss strategies followed

Other weight loss strategies included mobile weight loss applications.

2.8.1 Mobile weight loss applications

Mobile weight loss applications that offer nutritional advice, are easily accessible and have become very popular as a tool to manage weight (Liefers et al., 2017:229). Mobile phones

have become a major part of the market, and the International Telecommunications Union (ITU) reports that mobile phones have emerged as one of the most popular communication tools all over the world (Mateo et al., 2015:2). In 2015, there were about 7 billion mobile phone users worldwide (Mateo et al., 2015:2). At present, mobile applications are used in all social and economic sectors and environments and can become a valuable tool for patient education and support by healthcare providers (Mateo et al., 2015:2).

Weight loss and diet mobile applications, has great potential in aiding people to lose weight and evaluate diets (Zaidan & Roehrer, 2016:1). A mobile weight loss application should take some factors into account e.g. ease of use and usability, and reminders and motivations (Zaidan & Roehrer, 2016:1).

2.9 Conclusion

The increase in overweight and obesity is closely related to an increase in health issues and is associated with central obesity (Senekal et al., 2016:2). This has increased the number of individuals attempting to lose weight and having to do so for health reasons (Senekal et al., 2016:2). The truth for most dieters unfortunately is, that attempting to lose weight has a small rate of success, and only a small group will succeed and not regain the lost weight (Senekal et al., 2016:2).

Lowering energy intake, increasing activity levels, and making informed food choices can help reach and maintain a healthy weight, reduce the risk of comorbidities, NCDs, or chronic diseases, and promote overall health (WHO, 2018; Alsaleh & Algarni, 2017; Tinsley & La Bounty, 2015; U.S Department of Agriculture, 2020:94). Nevertheless, while modifying the diet is a key element of the appropriate treatment for overweight and obesity towards improved health, people are also increasingly experiencing social pressure in their personal and professional lives to follow weight loss diets to attain a thin body image that is promoted as the ideal in many societies (Julia et al., 2014:1). On the other hand, Powell et al. (2016) stated that body size norms and ideals are influenced by social connections that influence behaviour, which can potentially also lead to overweight and obesity. In a South African study, women of all races were interviewed, with more than half classified as being overweight and

obese but less than a quarter perceived themselves as being overweight but not obese (Mchiza et al., 2011).

Confusing media reporting on weight-loss strategies, some mere fad diets, and other healthier options, offer mixed opinions on which diet to follow (Omar et al., 2019; Hatcher, 2019). The reality for most dieters, unfortunately, is that their weight loss attempts have a poor success rate and that the majority regain most of the weight that they lost within a few years (Senekal et al., 2016), making it seem that failure of obesity management is inevitable (Alsaleh & Algarni, 2017). Studies do however indicate that better success is achieved with a diet or eating plan that is chosen based on patient preferences which lead to improved long-term adherence, as weight loss appears to be dependent on the degree of adherence to the diet, irrespective of macronutrient composition (Alsaleh & Algarni, 2017). For sustained weight loss over time, it is necessary to make permanent changes in lifestyle, improve dietary quality, reduce excessive energy intake and change behaviour (Freire, 2020:1) and increase activity levels (Swift et al., 2014:2). There was therefore a need to do a study on the perception and experiences of South African women regarding weight-loss diets and reasons for choosing specific diets.

CHAPTER 3: METHODOLOGY

3.1 Introduction

The study design, population, procedures, and techniques are described in this chapter, as well as criteria for inclusion, operational definitions, validity and reliability of the survey, and the limitations of the study. Furthermore, ethical approval, research procedures, and methods which was used in the statistical analysis of the data and the planning for the implementation of this study are presented.

3.2 Study design

A cross-sectional study design was used between November and December 2020 to conduct a survey. A cross-sectional survey is a type of study design used to collect data of interest from a population to make interpretations at a certain point in time, and has been described as snapshots of the populations from which the data has been gathered (Lavrakas, 2008).

3.3 Study population

The study population is defined, as a group of people sharing a mutual characteristic or condition, typically a/the disease (Elfil & Negida, 2017:1). The study population for this survey was women residing in Benoni, a large and diverse community with a total population of 158777 consisting of 38.1% White, 45.2% Black, 13.9% Indian, and 2.1% mixed ancestry occupants, and with 48.4 % of the population represented by women (Stats SA, 2011). Benoni has the following suburbs: Actonville, Airfield, Alphen Park, Benoni North Agricultural Holdings, Brendwood Park, Crystal Park, Cloverdene, Daveyton, Etwatwa, Fairleads, Farrarmere, Goedeburg, Jatniel, Lakefield, Lakeside, McKenzie Park, Morehill, Norton Estates, Northmead, Northvilla, Rynfield, The Stewards, Wattville, Westdene, and Western Extension as shown in Figure 3.1. This area represents a typical middle-class urban South African community and was chosen as this is the primary community served by the researcher as a practicing dietitian.



Figure 3.1 Map of Benoni (SA-venues.com, 2020)

3.4 Sample

A non-probability, convenience sampling method was used to recruit participants that fitted the inclusion criteria. A non-probability sampling method is a most appropriate and commonly used method in clinical research (Elfil & Negida, 2017:2). Participants are enrolled according to their availability and accessibility (Elfil & Negida, 2017:2). This method is inexpensive, convenient, and quick (Elfil & Negida, 2017:2). For this study, any women who followed a weight loss strategy in the last three years residing in Benoni were eligible to participate in the study.

The sample was recruited through advertising (Appendix A) in the weekly community newspaper, the Benoni City Times, of which more than thirty-nine thousand complimentary copies are delivered to residents' houses on Thursdays. The newspaper is published in English as 41.0% of the population is English speaking, 19.3 % Afrikaans, and 17.1% Zulu speaking (Stats SA, 2011). The survey was conducted in English but in an attempt not to exclude any participants due to language barriers the advertisement clearly indicated that if any assistance was needed with translation or interpretation into isiZulu or Afrikaans the participant needed to inform the researcher to enable her to SVTGZK for a translator/interpreter to assist with completion of the questionnaire.

The survey was also advertised on the Benoni Community Facebook page, as well as on local WhatsApp groups. Permission was obtained from the Administrator of each group (Appendix B). The mentioned newspaper and social media groups serve the Benoni-area of the Gauteng Province of South Africa.

3.4.1 Inclusion criteria

- Women 18 and older.
- Women who have followed at least one weight loss strategy during the past three years.
- Women who gave informed consent.

3.5 Procedure and data collected

The protocol was submitted and approved by an evaluation committee of the Faculty of Health Sciences on 30 July 2020.

Ethical approval was obtained from the Health Sciences Research Ethics Committee (HSREC) from the University of the Free State (UFS) with the following number: UFS-HSD2020/1396/2411, on 16 November 2020. In December 2020, permission was obtained from the administrator of the social media group (Benoni Community Facebook Group) to advertise the survey (Appendix B). Advertisements were placed on the group and in the Benoni City Times (Appendix A) to attract possible participants. A direct link was provided to the online questionnaire created with Evasys Software®, or, alternatively, interested parties sent their e-mail address to the researcher, making use of either WhatsApp, SMS, or e-mail. The direct link was then e-mailed to the participants. The survey information document (Appendix D) was linked to the questionnaire. The survey information document (Appendix D) gave a brief summary and explanation of the purpose and procedures of the survey and by clicking on the provided link the participant was navigated directly to the online questionnaire. The process followed to complete the questionnaire can be seen in Figure 3.2. In addition, in order not to lose possible participants, a direct link was provided in the advertisement for those who wanted to partake in the survey immediately. All participants were assigned a three-digit survey number and listed on a participant register. This was assigned automatically by Evasys Software®. Participants were able to start the survey, by

clearly choosing the option to consent to take part in the survey. If consent was not given, the participants were not able to complete the questionnaire.

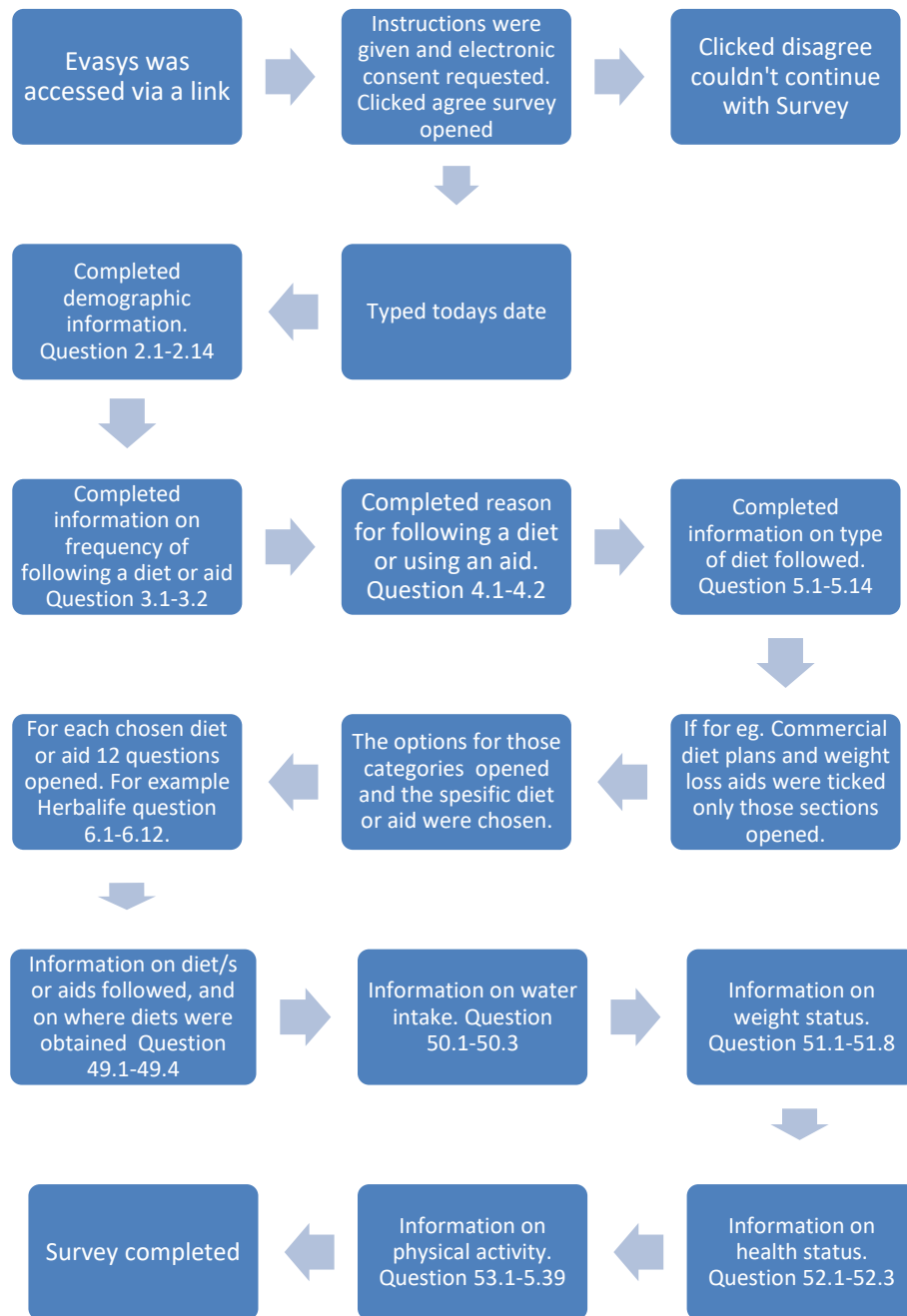


Figure 3.2 The process followed to complete the survey

Participants that did not have access to the internet could complete the survey online at the office of the researcher which is situated centrally in Benoni at 61 Fourth Avenue, Northmead. If a translator/interpreter was needed for isiZulu or Afrikaans speaking participants to help

complete the questionnaire it would have been arranged, but it was not requested by any of the participants. Submitting the questionnaire, thus represented the participant's informed consent. Data was collected by the Evasys software® and was then exported to an Excel sheet that was submitted to the Department of Biostatistics of the Faculty of Health Sciences, UFS for analysis. The results of the analysed data were examined and interpreted by the researcher. The flow diagram of procedures is indicated in Figure 3.3.

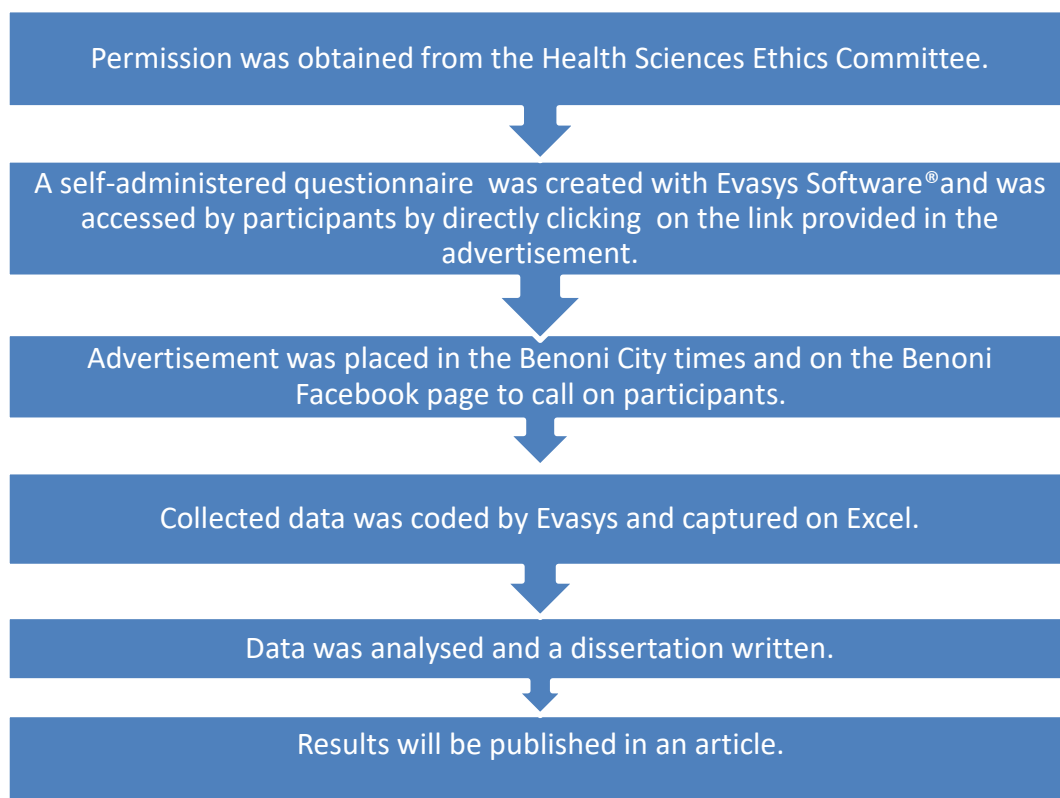


Figure 3.3 Flow diagram of procedures

3.6 Operational definitions

For the purpose of this survey, the variables that were recorded via a self-reported questionnaire (Appendix C) included socio-demographic factors, lifestyle factors and data related to perceptions and experiences of women regarding weight-loss strategies that they had used. The questionnaire, included questions on frequency of following a diet; reason for following a specific diet or diets, type of diet or diets and/or weight-loss aids used, duration that a specific diet was followed or a weight loss aid was used, reasons the diet was

discontinued; adherence, challenges, and level of frustration experienced for following a specific diet or using a specific weight-loss aid, as well as where or from whom diet information was obtained.

3.6.1 Socio-demographic factors

Socio-demographic factors for this survey included age, level of education, level of income, marital status, ethnicity, as well as self-reported health status, and was obtained through a questionnaire (Appendix C).

3.6.1.1 Self-reported health status

In this survey, information on health status was collected by asking participants how they would rate their health by choosing between excellent, good, poor, or very poor. They were also asked if they had been diagnosed with a chronic disease, and they could choose between yes or no, and had to specify the disease if they answered yes.

3.6.2 Lifestyle factors

Lifestyle factors for this study included smoking status, BMI based on self-reported height and weight, self-reported activity level, as well as intake of water, and was obtained through a questionnaire (Appendix C).

3.6.2.1 Smoking status

In this survey, data on smoking was collected by determining if participants smoke now or smoked in the past or have never smoked. Participants were asked if they smoked and had the option of choosing yes, no, or smoked in the past. If participants chose yes, they needed to indicate the number of cigarettes they smoked per day. Participants were asked whether they smoked if stressed with yes, no and sometimes as options to have chosen from. Participants were asked if they ate less when smoking with yes, no, and sometimes as options. If participants answered they smoked in the past the same questions were asked as for smoking but relevant to when they had smoked.

3.6.2.2 Body mass index based on self-reported height and weight

Anthropometry involved obtaining physical measurements from participants and comparing measurements to evaluate the effects of nutrition over some time (Litchford, 2021:70). For the purpose of this survey, self-reported weight and height (Olfert et al., 2018) recorded in Appendix C, were used to calculate BMI in kg/m^2 (WHO, 2018a).

Body mass index was used as a measure to indicate nutritional status in adults. It reflects body fatness by expressing the body weight in relation to height, independently of the frame size of the subject (WHO, 2018; Lee & Nieman, 2013).

Body mass index was calculated by dividing a participant's self-reported weight in kilogram by the square of the self-reported height in meters (kg/m^2) (Lee & Nieman 2013:181).

Body mass index was interpreted according to the WHO categories (Table 3.1) (WHO, 2018a; Lee & Nieman, 2013: 181).

Table 3.1 Categories of overweight and obesity according to body mass index (WHO, 2018; Lee & Nieman, 2013:183)

	BMI (kg/m^2)	Category
Underweight	< 18.5	
Normal.	18.5 – 24.9	
Overweight	25.0 – 29.9	Pre-obesity
Obesity	30.0 – 34.9	Class I
	35.0 – 39.9	Class II
Extreme obesity	≥ 40.0	Class III

3.6.2.3 Self-reported activity level

In this survey, data on activity levels were collected by determining if participants performed any form of exercise or physical activity.

After losing weight physical activity may be an important component to maintain weight (Cox, 2017). Moderate exercise is being physically active for 90 minutes per week (Sacks et al., 2009). It is recommended that 150-250 minutes of moderate to vigorous physical activity per

week to prevent weight gain (Swift et al., 2014). A general guideline is to aim for at least 30 minutes of physical activity daily. If you want to lose or, maintain weight loss, you might need to exercise more (Mayo Clinic, 2021).

The risk for cardiovascular disease is effectively reduced with low-intensity exercise (Joseph et al., 2018). Low-intensity exercises include light walking, sit- and push-ups, lifting hand weights, pressing with hands against the wall, and stretching (Tse et al., 2015).

For the purpose of this study participants needed to indicate if they did any form of exercise or physical activity with the options yes, no and sometimes to choose from.

Physical activity was measured with the International Physical Activity Questionnaire (IPAQ)-short form (International Physical Activity Questionnaire, 2005). The IPAQ measures properties for physical activity amongst 18- to 65-year-old adults and asks respondents to recall their physical activities of the last seven days (Craig et al., 2003).

Activity levels were categorised according to three levels with IPAQ, namely as high-, moderate- and low-active according to the published data processing rules (version 2.0) (Craig et al., 2003).

The “high active” category included physical activity, approximately one hour per day or more, of at least moderate-intensity activity above the basal level of physical activity, approximately 5 000 steps per day. This represented at least an hour or more of moderate-intensity activity, or half an hour of vigorous-intensity activity over and above basal levels daily or seven days of any combination of walking (International Physical Activity Questionnaire, 2005).

The “moderate” active category included three or more days of vigorous-intensity activity of at least 20 minutes per day **OR** 5 or more days of moderate-intensity activity and/or walking of at least 30 minutes per day **OR** 5 or more days of any combination of walking, moderate-intensity or vigorous-intensity activities Individuals meeting at least one of the above criteria would be defined as accumulating a minimum level of activity and therefore be classified as ‘moderate’ active (International Physical Activity Questionnaire, 2005).

The “low” active category was simply defined as not meeting any of the criteria for either of the ‘high’ or ‘moderate’ categories (International Physical Activity Questionnaire, 2005).

3.6.2.4 Intake of water

Weight loss is believed to be supported by drinking a lot of water (Muckelbauer et al., 2013). Therefore, in this survey, data on water intake was collected by determining how many medium-size glasses (250 ml cup sizes) of water participants consumed per day. Participants were asked an open-ended question of how many glasses of water they drink per day. This excluded the intake of any other beverages e.g. coffee, tea, cold drinks, energy drinks, or juices.

3.6.3 Weight loss strategies

For the purpose of this survey, participants were asked if they had followed any weight loss strategies (diets), to identify the strategies and to share their experiences with these strategies. The weight-loss strategies were categorised according to a conceptual framework designed by Julia et al. (2014), as (i) commercial weight loss diet plans, (ii) commercial weight loss aids, (iii) commercial coaching methods, (iv) self-imposed dietary restrictions and adapted eating patterns, (v) diets prescribed by a health professional, (vi) diets prescribed by non-health professional, and (vii) mobile weight loss apps (Appendix C). The perceptions of participants were determined by asking questions on how long they followed a specific weight loss strategy, reasons why they had stopped the specific diet, programme, or weight loss aid, if they had gained weight after discontinuing the diet or programme, whether it was easy or difficult to follow, and what their experiences, challenges and frustrations were following the diet, programme or weight loss aid.

3.6.3.1 Commercial weight loss diet plan

Commercial weight-loss diet plans (Julia et al., 2014) included Herbalife, Herbex, USN (Ultimate Sports Nutrition), and GI Lean.

3.6.3.2 Commercial weight loss aids

For the purpose of this study, commercial weight loss aids included: Biomix Slimming, Hoodia, CLA, Leanor, Simply slim, Phentermine, Orlistat (Senekal et al., 2016), and meal replacements.

3.6.3.3 Commercial coaching methods

For the purpose of this study commercial coaching methods included SureSlim, Weigh-less, and WW (Appendix C) (Julia et al., 2014).

3.6.3.4 Self-imposed dietary restrictions and adapted eating patterns

Self-imposed diets, for the purpose of this survey, included the following diets: Intermittent fasting (IF), Paleolithic diet (paleo diet), Ketogenic diet (keto diet), Banting diet, VLCD diets Mediterranean, DASH and TLC diets, reduced snacking, reduced fat intake, reduced sugar and sugary foods intake or a combination of these, vegetarian, vegan, paleo-vegan (pegan) and low glycemic index diets (Katz & Meller, 2014) (Appendix C) (Julia et al., 2014). Cognisance is taken that the DASH and TLC diets are mainly prescribed by dietitians and healthcare professionals

3.6.3.5 Diets prescribed by a health professional

For the purpose of this survey, diets prescribed by health professionals were diets that were, according to the participant, prescribed to them by dietitians, medical doctors, physiotherapists, or biokineticists (Appendix C).

3.6.3.6 Diets prescribed by non-health professionals

For the purpose of this survey, diets that were, according to the participant, prescribed to them by a non-health professional included diets prescribed by a personal trainer or anyone else giving out diets (Appendix C).

3.6.3.7 Other

Other included any other diet or weight-loss aid used, not mentioned in the questionnaire.

3.6.3.8 Mobile weight loss applications

For the purpose of this survey, diets followed using a weight-loss application included any weight loss application downloaded on the participant's mobile phone or tablet (Appendix C).

3.7 Techniques

Techniques are the tools used to collect data and for the purpose of this survey, a questionnaire was used. The questionnaire was created based on the conceptual framework of Julia et al., (2014).

3.7.1 The questionnaire

A questionnaire is a list of written questions wherein answers are written or marked by the participant to record their answers (Kumar, 2011). For the purpose of this survey, available literature based on the objectives of the study was used to compile a self-administered questionnaire. The data interpretation plan of the questionnaire is summarised in Figure 3.4. The electronic questionnaire was generated and managed via the Evasys system[®]. The questionnaire was accessed directly via a link (on a phone, tablet, or computer) (Addendum C). The link could also be e-mailed to the participants but was not necessary as all participants accessed the link electronically. After the pilot study was concluded (see 3.7.2), the link was forwarded to participants that provided their details and was placed as a link in the advertisement in the Benoni City Times and on the Benoni Facebook Community Group. As soon as participants clicked on the link it led them directly to clear instructions to the survey, indicating that they should click on the correct answer, or type their answer in the space provided and to make sure that all questions were answered. Consent was given electronically. If consent was given to the following: “information was read”, “participation is voluntary”, and “you are at least 18 years of age” the agree option would be clicked; if not, the disagree option would be clicked and the participant would not be able to continue with the survey. The survey did not take longer than 15 minutes to complete.

The questionnaire was in English as this was the most commonly used language by the population of Benoni (Stats SA, 2011). The Benoni City Times where the advertisement for the study was placed, is also published in English. For a self-administered questionnaire like this, questions needed to be clear and easy to understand as there would be no one to explain questions to the participants (Kumar, 2011). The researcher, therefore attempted to phrase questions so that they were posed in simple language, were non-leading, free from emotional

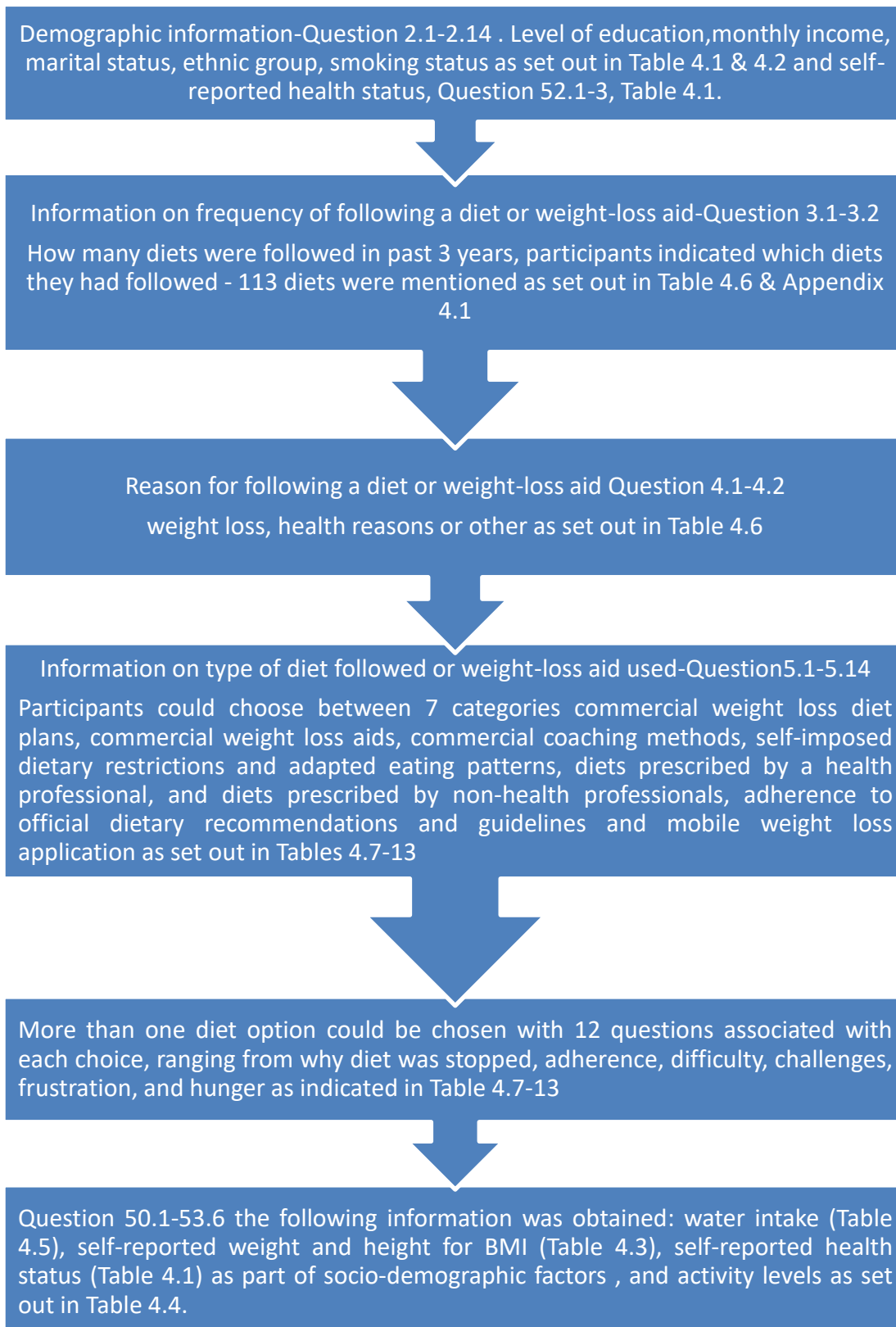


Figure 3.4 Data interpretation plan for the questionnaire

speech, and inambiguous to make them clear and easy to understand. Double-barrelled questions, abbreviations, and prestige bias was avoided (Kumar, 2011). The questionnaire consisted of both open-ended and closed-ended questions. Open-ended questions were questions where no possible responses were given and the participant needed to type the answer in their own words (Kumar, 2011). In closed questions, participants were given possible answers and the participant ticked the answer best describing their situation with regards to the question asked (Kumar, 2011).

The questionnaire was structured as follows: Part one included questions on socio-demographic information. Socio-demographic information included were the age, level of education, level of income, marital status, ethnicity, and smoker or non-smoker for each participant. Level of education gave participants seven options to choose from option one, being grade 9 as the lowest level and option seven postgraduate qualifications as the highest qualification. Categories on level of income were compiled according to Statistics South Africa (Stats SA, 2011). The lowest income being between R0.00 and R4 800.00 and the highest being between R76 401.00 and R153 800.00 per month. Regarding marital status, participants could choose between, single, married, living together, long-term relationship, separated or divorced, and widowed. Participants could choose to which group they belong: black, white, Indian, mixed ancestry, and other. With regards to smoking, participants were asked if they smoked yes, no, or smoked in the past as options. If participants chose yes, they needed to indicate the number of cigarettes smoked per day, whether they smoked if stressed or ate less when smoking. If participants answered they smoked in the past the same questions were asked as for smoking but relevant to when they had smoked.

Part two of the questionnaire included questions on the frequency of following a diet. Participants needed to complete three questions; question one: an open question was asked on how many diets were followed in the past three years. Space was provided to list the diets that had been followed by the participant.

Part three of the questionnaire included a question on the reason for following a diet; Participants had the option to respond by indicating weight loss, health reasons, or other with space provided to specify.

Part four of the questionnaire included a question on information on the type of diets followed (one question with sub-sections); Participants had the option to choose between seven diet types and an option of choosing other and to specify. Participants would indicate if more than one diet type had been followed. The diet types were divided into commercial diet plans, commercial weight loss aids, commercial coaching plans, self-imposed dietary restrictions and adapted eating patterns, diets prescribed by health professionals, diets prescribed by non-health professionals, or using a weight-loss application.

If participants chose commercial weight loss diet plans, they could choose between Herbalife, Herbex, USN, GI Lean, or other. If participants chose commercial weight loss aids, they could choose between Biomix Slimming, Hoodia, CLA, Leanor, Simply Slim, Sibutramine, Orlistat, meal replacements, or other. If participants chose commercial coaching methods, they could choose between SureSlim, Weigh-less, Weight-Watchers (WW), or other. If participants chose self-imposed dietary restrictions and adapted eating patterns, they could choose between Intermittent fasting, Paleo diet, Keto diet, Banting, Mediterranean diet, DASH, TLC, reduced snacking, reduced fat intake, reduced intake of sugar and sugary foods, a combination, vegetarian, vegan, pegan, low glycemic index diets or other. If participants chose prescribed by health professionals they could choose between dietitians or, doctors, physiotherapists, or biokineticists, participants also had the option to choose between diets prescribed by a non-health professional which included personal trainers or anyone else giving out diets. Participants also had the option of choosing that they were or had been making use of a mobile weight-loss application or other with space provided to specify.

Each specific diet type had sub-sections indicating the duration of following the diet, why the diet was stopped, adherence to the diet, difficulty following the diet, experiencing complications, level of frustration, and if hunger was experienced.

Part five of the questionnaire included a question regarding from where information on the specific diet was obtained. The options included the Internet, a friend/family member, media (television, radio, magazine), registered dietitian, doctor, physiotherapist, biokineticist, personal trainer, mobile weight loss application, and other. Participants also needed to specify which diet was easiest to follow and gave a reason why it was the easiest to follow.

In part six of the questionnaire, participants needed to indicate how many 250 ml glasses of water they drank per day. They also needed to indicate by answering yes or no if they drank more water when trying to lose weight. If the answer was yes, they needed to indicate how much more they drank when trying to lose weight.

Part seven of the questionnaire pertained to weight status, participants needed to self-report height and current weight to determine BMI in kg/m². Participants were also asked if they regained weight by answering yes or no. If the answer was yes, they needed to indicate how much weight they had regained and over how long a period. This part also had three questions with a yes or no option asking if a participant had regained more weight than they had lost, if they were maintaining their new weight and if they had lost more weight since following the diet.

Part eight of the questionnaire pertained to health status, participants needed to self-report how they rated their health status and if they had been diagnosed with a chronic disease. If they answer yes, they needed to specify.

In part nine of the questionnaire, participants needed to indicate physical activity levels, by indicating how many times per week they exercised. The IPAQ short form was used to categorise activity levels.

3.7.2 Pilot study

A pilot survey is a smaller version of a proposed survey conducted to develop and refine the steps in the research process (Kumar, 2011).

For the pilot survey, the researcher shared the link to the survey, created with Evasys Software®, directly via e-mail to the first three persons who e-mailed their intent to participate in the survey, and who meet the inclusion criteria.

Three participants completed the pilot study on the 23rd of November 2020. The questionnaire was reviewed by the selected participants on the following: user-friendliness, content, the sequence of questions, as well as organisation. The pilot survey was based on feedback, to determine if any changes were needed to be made before the final survey. The data was forwarded to the Department of Biostatistics to test the statistical programming as

well. No major changes were made to the questionnaire, and data from these three participant's surveys were included for final analysis.

3.8 Preventing methodological errors

Methodological errors occur if we are not measuring what we intend to measure, therefore validity and reliability need to be ensured (Kumar, 2011).

3.8.1 Validity of measurements

Validity is defined as the degree to which instruments accomplish the purpose for which they are being used, thus that the instrument accurately measures the concept being questioned (Kumar, 2011; De Vos et al., 2005).

To improve content validity, all questions in the survey and women's perceptions and experience thereof, were based on an in-depth review of the literature regarding weight-loss strategies (Julia et al., 2014), and all included questions were directly related to the aim and objectives of the study. The IPAQ short form, which was validated in 12 countries, including South Africa in 2003, was used to determine physical activity levels (Craig et al., 2003).

3.8.2 Reliability of measurements

Reliability refers to a measuring instrument's capability to replicate the results each time the instrument is used and to produce consistent results that do not change unless there are discrepancies in the variable being measured (De Vos et al., 2005). Participants could e-mail their addresses if they read the advertisement. Participants that had used the direct link provided in the advertisement to partake in the survey through the Evasys system® would only allow the participant to complete the survey once. The Evasys system® captured data as the surveys were submitted and made it available as a spreadsheet which was directly exported to Excel, eliminating the need for checking data integrity. To improve reliability, a pilot study was conducted to ensure that all questions were clear and understood correctly.

3.9 Practical implementation and limitations of the study

The main limitation of this study was recruiting participants. Only one participant responded to the online advertisement, although a free copy of the local newspaper is delivered to thirty-

nine thousand residents, and an online version could also be accessed on the webpage of Caxton. Initially, the researcher did not receive authorisation from the social media platforms. The researcher sent the link to female weight loss clients in her practice and asked them to forward the link to friends and family in Benoni. On 18 December 2020, the number of respondents were at 84. After approval from the Facebook community page, the rest of the participants completed the survey by the 21st of December 2020. Thereafter the survey was removed from the social media platform.

3.10 Statistical analysis

Descriptive statistics were summarised as frequencies and percentages for categorical data and as medians and percentiles (as the data was not normally distributed). Associations were calculated using contingency tables, and, dependant on the distribution, the appropriate statistical tests were used. Statistical significance was set at a p-value of $\leq .05$. Data analysis for this study was performed using SAS/STAT software, version 9.4, for Windows (Copyright 2010 SAS Institute Inc) by the Department of Biostatistics, Faculty of Health Sciences, UFS (Me. Riette Nel).

3.11 Ethical considerations

Before conducting the survey, approval was obtained from the HSREC, Faculty of Health Sciences, UFS, with clearance number UFS-HSD2020/1396/2411. The survey commenced after necessary approval had been obtained. An information document (Appendix D) explaining the purpose of the survey and procedures were forgoing the questionnaire on Evasys Software®. Consent was obtained on the Evasys Software® by clearly clicking the applicable box. Participation was voluntary and participants had the right to withdraw participation at any point during the survey.

Information of participants was kept confidential as respondent numbers were used and not names. Only the researcher and research assistant had access to e-mail addresses. Findings published in a scientific journal will be done without identifying individual participants. Data is stored safely under the participant's student number on a flash drive kept in a safe at the Department of Nutrition and Dietetics, as well as a copy on a flash drive kept in the safe of A

S Steijn Attorneys. Access to stored information is password protected. Data will be stored for 15 years as required by the HSREC.

CHAPTER 4: RESULTS

4.1 Introduction

A total of 283 women submitted their responses to the online survey. After applying the inclusion criteria, the final sample comprised 272 participants. One participant were 17 years and 11 months old, and some had not indicated having followed at least one diet or strategy in the past three years and were therefor excluded. This chapter reports on the results collected according to the objectives set out for this study, namely socio-demographic factors (age, level of education, level of income, marital status, ethnic group as well as self-reported health status), lifestyle factors (smoking status, BMI based on self-reported height and weight, self-reported activity level and intake of water), participants' perception and experiences of different weight loss strategies; indicating which weight loss strategy is most popular; reasons for choosing a particular weight loss strategy as well as reasons for discontinuing a particular weight loss strategy. This chapter also presents associations between the choice of weight loss strategy, socio-demographic factors, self-reported BMI and activity levels. The process that participants followed to complete the survey on Evasys, is set out in Figure 3.2.

4.2 Socio-demographic and health information

Socio-demographic characteristics and health information of participants are reported in Table 4.1. The median age of the participants was 41.6 years (P25; P75: 33.6 years; 48.8 years; minimum: 18.0 years; maximum: 74.3 years). Only 8.8% of the 272 participants were younger than 25 years, 37.5% were 25-40 years old, almost half (48.2%) were 40-60 years old, and 5.5% were older than 60 years.

Looking at the level of education, 4.4% of participants had not obtained a matric (thus, had not completed the secondary level of basic education), only more than a third (34.9%) held a diploma/certificate, and more than a third (36.8%) has a tertiary education qualification.

Regarding monthly income, almost a quarter of participants (23.5%) earned a salary between R9 601.00 and R19 600.00 per month and another quarter (26.8%) earned a salary between

R19 601.00 and R38 200.00 per month. A small percentage (4.4%) earned between R76 401.00 and R153 800.00 per month.

When looking at marital status, about 60% (n=164) were married, 8.5% (n=23) lived together and 7.0% (n=19) were in a long-term relationship. The rest of the participants were single (n=41; 15.1%), separated/divorced (n=17; 6.3%) and widowed (n=8; 2.9%). The majority of participants (n=240, 88.2%) belonged to the White ethnic group, followed by Indian (6.6%), Black (4.0%) and people of Mixed Ancestry (1.1%).

Table 4.1: Socio-demographic characteristics of participants (N = 272)

Variable	N	%
Age (years)		
< 25.0	24	8.8
25.0-40.0	102	37.5
40.1-60.0	131	48.2
> 60.0	15	5.5
Level of education		
≤ Grade 9	5	1.8
Grade 10	6	2.2
Grade 11	1	0.4
Grade 12	65	23.9
Diploma/Certificate	95	34.9
Degree	51	18.8
Other post graduate qualification	49	18.0
Monthly income		
R0.00-R4800.00	33	12.1
R4801.00-R9600.00	38	14.0
R9601.00-R19600.00	64	23.5
R19601.00-R38200.00	73	26.8
R38201.00-R76400.00	52	19.1
R76401.00-R153800.00	12	4.4
Marital status		
Single	41	15.1
Married	164	60.3
Living together	23	8.5
In a long-term relationship	19	7.0
Separated/divorced	17	6.3
Widowed	8	2.9
Ethnic group		
Black	11	4.0
White	240	88.2
Indian	18	6.6
Mixed Ancestry	3	1.1

Variable	N	%
Age (years)		
Self-rated health status		
Excellent	53	19.6
Good	193	71.2
Poor	21	7.8
Very poor	4	1.5
Not specified	1	-
Ever been diagnosed with a chronic disease		
Yes	69	25.6
No	201	74.4
Not Specified	2	-

Self-reported health status information of participants are reported in Table 4.1. Most participants rated their health as excellent (19.6%) or good (71.2%). Only 25.6% of participants indicated that they had been diagnosed with a chronic disease. In the open-ended space provided, participants indicated the chronic diseases they had been diagnosed with, some of the following (verbatim):

- “Anaemia” (n=1);
- “Anxiety” (n=1);
- “Asthma” (n=2);
- “Bipolar Disorder” (n=1);
- “Blood pressure” (n=15) and “cholesterol” (n=9);
- “Celiac disease” (n=1);
- “Diabetes” (n=6);
- “Hashimotos disease” (n=2);
- “Hypertension” (n=4);
- “Hypothyroidism” (n=7); and
- “Insulin resistance” (n=10).

4.3 Lifestyle factors

The participants’ smoking status, BMI based on self-reported height and weight, self-reported activity levels, and water intake were asked.

4.3.1 Smoking status

Most participants (71.7%) reported to never having smoked, 20.6% being current smokers, and 7.7% that they were ex-smokers, as indicated in Table 4.2.

Table 4.2 Smoking status and history of participants (N = 272)

Variable	n	%
Smoking status		
Non-smokers	195	71.7
Current smokers	56	20.6
Ex-smokers	21	7.7
Current smokers (n=57)		
Cigarettes/day		
< 10	9	16.1
10 -19	27	48.2
20 (1 packet)	16	28.6
>20	4	7.2
Smoke when stressed		
Yes	47	82.5
No	3	5.3
Sometimes	7	12.3
Eat less when smoking		
Yes	30	52.6
No	20	35.1
Sometimes	7	12.3
Ex-smokers		
Cigarettes/day		
< 10	8	38.1
10-19	3	14.3
20 (1 packet)	8	38.1
>20	2	9.5
Smoked when stressed		
Yes	13	61.9
No	1	4.8
Sometimes	7	33.3
Ate less when smoking		
Yes	17	81.0
No	3	14.3
Sometimes	1	4.8

Current smokers (n=56) smoked a median of 15 cigarettes per day (P25; P75: 10 per day; 20 per day; minimum: 3 per day; maximum: 40 per day). Less than a fifth of participants (16.1%) smoked less than half a packet (10 cigarettes) per day, 48.2% reported smoking between 10 and 19 cigarettes per day, 28.6% reported smoking at least a packet of cigarettes per day, and 7.2% smoked more cigarettes per day.

Ex-smokers reported (n=21) that they used to smoke a median of 20 cigarettes per day (P25; P75: 5 per day; 20 per day; minimum: 2 per day; maximum: 60 per day).

Most of the current smokers (82.5%), as well as the ex-smokers (61.9%) reported smoking, or having smoked in the past, when stressed. Half of the current smokers (52.6%) and most of the ex-smokers (81.0%) reported eating less or having eaten less when smoking.

4.3.2 Body mass index based on self-reported height and weight

Based on self-reported weight and height, BMI was categorised as depicted in Table 4.3, according to the WHO cut-offs (WHO, 2018a; Lee & Nieman, 2013:183).

Table 4.3 Body mass index (N = 272)

BMI Category	n	%
Underweight	4	1.5
Normal weight	59	21.7
Overweight/Pre-obese	89	32.7
Obese Class I	53	19.5
Class II	38	14.0
Extremely Obese Class III	29	10.7

Only 21.7% of the participants had a normal BMI, while 1.5% were underweight. More than three quarters of the participants (76.9%) were overweight or obese, with 32.7% classified as pre-obese and 10.7% as extremely obese.

4.3.3 Self-reported activity level

The IPAQ classification was used to determine the activity levels of the participants as set out in Table 4.4. According to what participants had indicated, 52.6% were classified as low active, 15.4% as moderately active, and 32.0% as highly active, as presented in Table 4.4

Table 4.4 Self-reported activity level (N = 272)

IPAQ classification	n	%
Low active	143	52.6
Moderately active	42	15.4
Highly active	87	32.0

4.3.4 Self-reported water intake

In the questionnaire, participants were asked how many 250 ml-glasses of water they normally drink per day. These results are summarized in Table 4.5 in 500ml increments according to Muckelbauer et al. (2014:2473). Only a fifth (21.9%) drank at least eight glasses per day, 25.7% drank six glasses per day, whilst 3.0% drank more than 12 glasses. Two participants (0.8%) drank more than 12 250 ml-glasses of water per day. Drinking less than 500 ml of water per day was indicated by 5.9%, (n=16) of participants.

Table 4.5 Self-reported water intake (N = 272)

Water intake	N	%
How many 250 ml-glasses of water do you drink per day?		
<500 ml	16	5.9
500 ml	26	9.9
(500 ml-1000 ml]	62	23.5
(1000 ml-1500 ml]	68	25.7
(1500 ml-2000 ml]	58	21.9
(2000 ml-2500 ml]	22	8.3
(2500 ml-3000 ml]	8	3.0
>3000 ml	2	0.8
Do you drink more water when you are trying to lose weight?		
Yes	170	64.6
No	93	35.4
Not specified	9	-
How much more water do you drink when you are trying to lose weight?		
<500 ml	2	1.2
500 ml	30	18.3
(500 ml-1000 ml]	11	6.7
1000 ml	39	23.8
(1000 ml-1500 ml]	3	1.8
(1500 ml-2000 ml]	11	6.7
2000 ml	39	23.8
(2000 ml-2500 ml]	1	0.6
(2500 ml-3000 ml]	7	4.3
3000 ml	17	10.4
4000 ml	1	0.6
Not Specified	108	-

To the question if they drank more water when trying to lose weight, 64.6% of participants indicated “yes”, and 35.4% indicated “no”, as presented in Table 4.5.

Asked how much more water they drink when trying to lose weight, just under a quarter of the participants (23.8%) indicated drinking 1 000 ml (1L) or 2 000 ml (2L) per day, less than a fifth indicated drinking at least 500 ml per day and only two participants (1.2%) indicated drinking less than 500 ml more water per day. Of the 272 participants, 108 did not specify the amount of water they consumed extra per day as indicated in Table 4.5.

4.4 Self-reported use of weight-loss strategies or weight-loss aids

Participants were first asked about the number of strategies and aids followed in the past three years and then probed in more detail about the types of strategies and aids.

4.4.1 Frequency of following a diet or using weight-loss aids

Participants reported on the number of diets they had followed or weight-loss aids they had used and the reasons for following the diet or using a weight loss aid (as summarized in Table 4.6). According to question 3.2 (diets they had followed or weight loss aids used in the past three years), the 272 participants reported having followed 113 different diets (Appendix D).

Overall, the top 10 diets that were reportedly followed as determined in participants answers to question 3.2 were (in descending order):

1. Banting (n=50)
2. Herbalife (n=38)
3. IF (n=34)
4. 28 Day diet (n=30)
5. Keto (n=29)
6. Weigh-less (n=22)
7. Self-changes (n=20)
8. Duromine (n=18)
9. Fasting (n=16)
10. High protein (n=15)

The median number of diets followed was two (P25, P75: 1, 3; minimum: 1, maximum: 10). Most participants (n=106), reported having followed at least one diet (39.0%), two (29.8%) or three diets (17.7%) and 7.4% that they had followed four diets over the indicated time period as indicated in Table 4.6. A small percentage of the participants (7.7%) had followed five or

more diets; two participants (0.7%) indicated that they had followed ten diets in the previous three years.

Table 4.6 History of weight-loss diets and aids that participants had tried (N=272)

Variable	n	%
Number of diets followed in past three years		
1	106	39.0
2	81	29.8
3	48	17.7
4	20	7.4
5	9	3.3
6	3	1.1
7-10	3	1.1
10	2	0.7
Reason for following the chosen diets / aids (choose all that apply)		
Weight loss	245	90.1
Health reasons	78	28.7
Other	6	2.2

Participants were asked to indicate what the reason was for following a diet or using a weight-loss aid (Table 4.6). The majority of participants (90.1%) indicated that it was for weight loss, whilst 28.7% indicated health reasons, and six participants (2.2%) indicated other reasons. Some of the other reasons reported in the open-ended space provided included the following (verbatim):

- “Detox” (n=1);
- “Natural control of sugar and cholesterol” (n=1);
- “Post pregnancy weight” (n=1);
- “Religion” (n=1); and
- “Trying to fall pregnant, struggle with PCOS” (n=1).

4.4.2 Different weight-loss strategies and aids followed

Participants were asked to indicate the types of diets followed or weight-loss aids that they had used, and more than one option could be chosen.

The diets and aids are categorised according to the seven categories as defined for the purposes of the study (Chapter 2 and 3) according to the conceptual framework of Julia et al., (2014), namely commercial weight loss diet plans, commercial weight loss aids, commercial

coaching methods, self-imposed dietary restrictions and adapted eating patterns, diets prescribed by a health professional, and diets prescribed by non-health professionals, and mobile weight loss applications.

Table 4.7 summarises the diets and strategies reported per category (Senekal et al., 2016; Julia et al., 2014).

Table 4.7: Dietary strategies used by the 272 participants

Categories of strategies	Participants that chose a specific category in Q 5.1 of questionnaire n (% of 272)	Participants that completed Q6 of questionnaire regarding experiences with specific strategies followed in each category #	
		n (% of 272)	Total number of weight loss strategies reported per category
Commercial diet plans	75 (27.6%)	75 (27.6%)	87
Commercial weight loss aids	58 (21.3%)	58 (21.3%)	67
Commercial coaching plans	56 (20.6%)	54 (19.9%)	54
Self-imposed dietary restrictions / adapted eating patterns	147 (54.0%)	147 (54.0%)	327
Diets prescribed by a health professional	33 (12.1%)	31 (11.4%)	31
Diets prescribed by a non-health professional	26 (9.6%)	14 (9.6%)	14
Mobile weight loss applications (apps)	25 (9.2%)	14 (9.2%)	14
Other uncategorised strategies	25 (9.2%)	25 (9.2%)	25
TOTAL			619

#Experiences included: adherence, difficulty, challenges, frustration & hunger.

In response to question 5.1, just more than half (n=147; 54.0%) of the participants had followed a self-imposed dietary restriction and/or adapted their eating patterns. The second most popular strategy was commercial diet plans (n=75; 27.6%), followed by commercial weight-loss aids (n=58; 21.3%), and commercial coaching plans (n=56; 20.6%). Diets prescribed by a health professional were only reported by 12.1% (n=33) of the participants. Diets prescribed by non-health professionals were reported by 9.6% of participants (n=26). Mobile weight loss applications were reported by 9.2% (n=25) of participants. Diets that did not fit into these main categories were reported by 9.2% (n=25) of participants.

When asked in question 6, to report their experiences with different strategies, the 272 participants reported following/having used 619 dietary strategies among them (as some participants reported using various strategies over various categories) as summarised in Table 4.7.

4.4.3 Experiences with different commercial diet plans

If participants indicated that they had followed a commercial diet plan (question 5.1 of the survey), they were directed to indicate if they had followed Herbalife, Herbex, Ultimate Sports Nutrition (USN), GI Lean or another type of commercial diet. The duration of following these diet plans are summarised in Table 4.8 and experiences with different commercial diet plans are indicated in Table 4.9. As indicated in Table 4.7, 75 participants had reported following a total of 87 different commercial diet plans. The percentage of participants for example using Herbalife are $41/87 = 47.1\%$ as set out in Table 4.9.

Table 4.8 Duration of following commercial diet plans

	Minimum	P25	Median	P75	Maximum
Herbalife	1 month	3 months	5 months	8 months	2 years
Herbex	1 month	3 months	3 months	5 months	4 years
USN	1 month	3 months	4 months	5 months	4 years
GI Lean	3 months	3 months	5 months	7 months	6 months
Other	1 month	2 months	3 months	1 year	2 years

Herbalife and GI Lean seemed to have been followed the longest with a median of 5 months each, and an IQR (P75-P25), 5 months and 4 months, respectively. All commercial diet plans except GI lean was followed for a minimum period of at least one month as indicated in Table 4.8.

As summarised in Table 4.9, among those participants who followed commercial diets, 41 (47.1%) followed Herbalife, 19 (21.8%) followed Herbex, nine (10.3%) followed USN, three (3.4%) followed GI lean, and 15 (17.2%) followed other types of commercial diets. Thus, the most popular commercial diet was Herbalife, followed by Herbex. However as depicted in Table 4.9, all participants that used Herbalife (100%) indicated that they discontinued the diet because it was too difficult to follow, and 63.4% because it was too expensive. Eleven

participants (26.8%) indicated “other” as a reason for discontinuing Herbalife, and some of the other reasons given in the open-ended space provided, included the following (verbatim):

Table 4.9 Experiences with commercial diet plans (n=87)

		Type of commercial diet plan									
Participants who used each strategy		Herbalife		Herbex		USN		GI Lean		Other	
		n	%	n	%	n	%	n	%	n	%
		41	47.1	19	21.8	9	10.3	3	3.4	15	17.2
Statement	Options										
Reason for discontinuing the diet plan (more than option could be chosen)	Objective obtained	4	9.8	2	10.5	1	11.1	0	0.0	4	26.7
	Too difficult	41	100.0	2	4.9	0	0.0	0	0.0	3	20.0
	Felt frustrated and hungry	10	24.4	7	17.1	1	11.1	0	0.0	5	33.3
	Too expensive	26	63.4	5	12.2	6	66.7	2	66.7	8	53.3
	Other	11	26.8	6	14.6	1	11.1	1	33.3	2	13.3
Ease of following the diet plan	It was easy to follow	25	61.0	13	31.7	5	55.6	2	66.7	6	40.0
	It was difficult to follow	16	39.0	6	14.6	4	44.4	1	33.3	9	60.0
Reason why it was too difficult to follow the diet plan (more than option could be chosen)	Too strict	4	9.8	0	0.0	0	0.0	0	0.0	5	33.3
	Unfamiliar ingredients	2	4.9	0	0.0	0	0.0	0	0.0	4	26.7
	Too expensive	11	26.8	2	4.9	4	44.4	1	33.3	8	53.3
	Did not lose any weight	8	19.5	5	12.2	2	22.2	0	0.0	3	20.0
	Other	1	2.4	0	0.0	0	0.0	0	0.0	0	0.0
Challenges experienced while following the diet plan	Not at all	22	53.7	12	29.3	0	0.0	0	0.0	6	40.0
	A little	9	22.0	7	17.1	0	0.0	0	0.0	4	26.7
	A moderate amount	8	19.5	0	0.0	0	0.0	0	0.0	3	20.0
	A lot	2	4.9	0	0.0	0	0.0	0	0.0	2	13.3
Level of frustration experienced while following the diet plan	Not at all	21	51.2	9	22.0	5	55.6	2	66.7	3	20.0
	A little	15	36.6	8	19.5	2	22.2	1	33.3	7	46.7
	A moderate amount	4	9.8	1	2.4	2	22.2	0	0.0	2	13.3
	A lot	1	2.4	1	2.4	0	0.0	0	0.0	3	20.0
Experienced hunger whilst following the diet plan	Not at all	12	29.3	8	19.5	3	33.3	1	33.3	5	33.3
	A little	16	39.0	6	14.6	4	44.4	1	33.3	4	26.7
	A moderate amount	7	17.1	2	4.9	2	22.2	1	33.3	2	13.3
	A lot	6	14.6	3	7.3	0	0.0	0	0.0	4	26.7

- *"Did not see results" (n=2);*
- *"Didn't lose weight" (n=2);*
- *"Haven't stopped" (n=4);*
- *"Pregnant" (n=1); and*
- *"Reaction to the caffeine" (n=1).*

Still, to the question on ease of adherence, 61.0% indicated that adherence was easy for using Herbalife, and some of the reasons given in the open-ended space provided, included the following (verbatim):

- *"Convenient" (n=2);*
- *"Didn't take much time" (n=3);*
- *"Easy shakes meal planning provided" (n=3);*
- *"Eating plan available" (n=1);*
- *"Enjoyed it" (n= 3);*
- *"Instructions comes with the package" (n=1); and*
- *"Instructions were clear" (n=2).*

A small percentage (14.6%) indicated that they frequently felt hungry a lot whilst using Herbalife, whereas 12 participants (29.3%) indicated they never felt hungry at all, and at least just over half (51.2%) of the participants indicated there had been no level of frustration using Herbalife (Table 4.9).

Herbex were used by, 21.8% of the participants, with 31.7% indicating that it was easy to follow (Table 4.9), some of the reasons given in the open-ended space provide why it was easy to use Herbex, included the following (verbatim):

- *"Drops in water" (n=2);*
- *"Easy meal plan" (n=1);*
- *"Its easy to follow" (n=3);*
- *"Mix in water. Very simplistic" (n=2); and*
- *"No side effects" (n=1).*

A small percentage (12.2%) of the participants that indicated it was difficult to follow indicated that they did not lose weight, while 22.0% of the participants indicated that they did not feel frustrated at all and 19.5% indicated they did not feel hungry at all whilst using Herbex.

Both Ultimate Sports Nutrition (USN) (n=9, 10.3%) and GI Lean (n=3, 3.4%) were the least popular commercial diet plans as depicted in Table 4.9, with the reason why the diets had been discontinued being too expensive for both USN and GI Lean respectively (66,7%). Fifteen participants (17.2%) indicated using other commercial diet plans with some of the Both Ultimate Sports Nutrition (USN) (n=9, 12.0%) and GI Lean (n=3, 4.0%) were the least popular commercial diet plans as depicted in Table 4.9, with the reason why the diets had been discontinued being too expensive (8,0%) for using USN and 2.7% for using GI Lean respectively. Fifteen participants (20.0%) indicated using other commercial diet plans with some of the diets indicated as being used as other commercial weight-loss plans in the open-ended question included CSN, Tony Ferguson, Happy Shrinkers and Truvy. They indicated that it was too expensive (53.3%) and too difficult (20.0%) to follow and 53.3% indicated that the reason why it was too difficult to follow was that it was too expensive.

4.4.4 Experiences with different commercial weight-loss aids

Participants had the choice to choose between, Biomix slimming, Hoodia, Conjugated Linoleic Acid (CLA), Leanor, Simply Slim, Phentermine (Duromine), Orlistat, Meal replacements or other, if they chose commercial weight-loss aids (question 5.1 of the survey). The duration for following a commercial weight-loss aid is depicted in Table 4.10 and the experiences with different commercial weight-loss aids are presented in Table 4.11. As indicated in Table 4.7, 58 participants had reported using a total of 67 different commercial weight-loss aids. The percentage of participants for example using CLA are $6/67 = 8.9\%$ as set out in Table 4.11.

Table 4.10 Duration of following commercial weight-loss aids

	Minimum	P25	Median	P75	Maximum
Biomix slimming (n=0)	-	-	-	-	-
Hoodia (n=1)	-	-	2 months	-	-
CLA	3month	3 months	7 months	1 year	4 years
Leanor (n=1)	-	-	3 months	-	-
Simply Slim	2 months	2 months	3 months	4 months	5 months
Phentermine (Duromine)	1 month	3 months	5 months	1 year	2 years
Orlistat (n=0)	-	-	-	-	-
Meal replacements	1 month	3 months	5 months	1 year	4 years
Other	1 month	3 months	3 months	5 months	2 years

CLA seems to have been followed the longest with a median of 7 months, followed by Duromine and meal replacements for a median of 5 months with a IQR 9 months, respectively. As summarised in Table 4.11, among those participants who used different commercial weight loss aids, one (1.5%) used Hoodia, six (8.9%) used CLA, one (1.5%) used Leanor, four (6.0%) used Simply Slim, 20 (29.9%) used Duromine, one (1.5%) used Orlistat, 15 (22.4%) used meal replacements, 19 (28.4%) used other types of commercial weight loss aids. Thus, the most popular commercial weight loss aid was Duromine. Biomix Slimming and Orlistat was not reported to have been used by any of the participants.

Phentermine (Duromine) was the popular choice amongst participants (n=20, 29.9%), “other” (n=19, 28.4%) and then meal replacements (n=15; 22.4%) according to results reported in Table 4.11. All participants using Phentermine indicated it was easy to follow (100%), did not experience frustration (n=16; 80.0%) or experience any hunger (n=14,70.0%). Seven of the 15 participants, using meal replacements indicated the reason why they had stopped the use, was because it was too expensive (43.8%). Almost two thirds (n=10) of those using the meal replacements, indicated that it was easy to follow (62.5%).

Table 4.11 Experiences with different commercial weight loss aids (n=67)

		Type of commercial weight loss aid																	
		Biomix Slimming		Hoodia		CLA		Leanor		Simply Slim		Phentermine (Duromine)		Orlistat		Meal replacements		Other	
Participants who used each strategy		0	0.0	1	1.5	6	8.9	1	1.5	4	6.0	20	29.9	1	1.5	15	22.4	19	28.4
Statement	Options	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Reason for discontinuing using the weight loss aid (more than option could be chosen)	Objective obtained	-	-	0	0.0	1	16.7	0	0.0	0	0.0	5	25	-	-	2	12.5	2	10.5
	Too difficult	-	-	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	-	-	2	12.5	1	5.3
	Felt frustrated and hungry	-	-	0	0.0	0	0.0	1	100	1	25	1	5	-	-	3	18.8	3	15.8
	Too expensive	-	-	0	0.0	2	33.3	0	0.0	2	50	6	30	-	-	7	43.8	6	31.6
	Other	-	-	1	100	3	50	0	0.0	1	25	9	45	-	-	2	12.5	8	42.1
Ease of using the weight loss aid	It was easy to follow	-	-	1	100	3	50	1	100	1	25	20	100	-	-	10	62.5	11	57.9
	It was difficult to follow	-	-	0	0	3	50	0	0.0	3	75	0	0.0	-	-	5	31.3	8	42.1
Reason why it was too difficult to use the weight loss aid (more than option could be chosen)	Too strict	-	-	0	0.0	1	16.7	-	-	0	0.0	-	-	-	-	1	6.3	3	15.8
	Unfamiliar ingredients	-	-	0	0.0	0	0.0	-	-	0	0.0	-	-	-	-	0	0.0	1	5.3
	Too expensive	-	-	1	100	1	16.7	-	-	2	50	-	-	-	-	3	18.8	5	26.3
	Did not lose any weight	-	-	0	0.0	0	0.0	-	-	1	25	-	-	-	-	2	12.5	4	21.1
	Other	-	-	0	0.0	1	16.7	-	-	0	0.0	-	-	-	-	1	6.3	0	0.0
Challenges experienced while using the weight loss aid	Not at all	-	-	1	100	5	83.3	1	100	4	100	11	55	-	-	7	43.8	8	42.1
	A little	-	-	0	0.0	1	16.7	0	0.0	0	0.0	5	25	-	-	6	37.5	6	31.6
	A moderate amount	-	-	0	0.0	0	0.0	0	0.0	0	0.0			-	-	2	12.5	5	26.3
	A lot	-	-	0	0.0	0	0.0	0	0.0	0	0.0	4	20	-	-	0	0.0	0	0.0
Level of frustration experienced while using the weight loss aid	Not at all	-	-	0	0.0	5	83.3	0	0.0	3	75	16	80	1	100	9	56.3	9	47.4
	A little	-	-	0	0.0	1	16.7	0	0.0	1	25	2	10	0	0.0	3	18.8	6	31.6
	A moderate amount	-	-	0	0.0	0	0.0	0	0.0	0	0.0	1	5	0	0.0	1	6.3	2	10.5
	A lot	-	-	1	100	0	0.0	1	100	0	0.0	1	5	0	0.0	2	12.5	2	10.5
Experienced hunger whilst using the weight loss aid	Not at all	-	-	0	0.0	2	33.3	0	0.0	1	25	14	70	1	100	6	37.5	8	42.1
	A little	-	-	0	0.0	2	33.3	0	0.0	1	25	6	30	0	0	3	18.8	7	36.8
	A moderate amount	-	-	1	100	2	33.3	1	100	2	50	0	0.0	0	0	3	18.8	2	10.5
	A lot	-	-	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0	3	5.2	2	10.5

Some of the reasons given in the open-ended space provide why it was easy to use, included the following (verbatim):

- *“Didn’t have to cook” (n=1);*
- *“Easy to make” (n= 4);*
- *“Easy to mix a smoothie and convenient to use at work” (n=1); and*
- *“It was quick to prepare in the morning” (n=1).*

It was indicated as per Table 4.11 that there was no level of frustration (56.3%) or hunger (37.5%) experienced whilst using meal replacements.

A very small percentage (n=1, 1.5%) indicated that they used Hoodia and Leanor respectively. Both participants, each indicated that it was easy to follow (100%), but the participant that used Hoodia indicated “other” as being the reason for discontinuation (100%) and feeling frustrated and hungry respectively (100%) as reasons to discontinue the use of Leanor, as seen in Table 4.11.

More than a quarter of participants (n=19, 28.4%) indicated “other” as choice of commercial weight-loss aid. Participants were requested to explain if they used any “other” commercial weight-loss aids, some of the other products mentioned in the open-ended space provide, included the following (verbatim):

- *“CSN “(n=1);*
- *“Cheetathin” (n=1);*
- *“Fireballs” (n=1);*
- *“Garcinia Cambogia capsules” (n=1);*
- *“Gummy Berry juice” (n=1);*
- *“The Secret pill” (n=2); and*
- *“ReliSlim” (n=2).*

The highest percentage (n=8, 42.1%) as reason why any other weight-loss aid was stopped was “other” as presented in Table 4.11, while 57.9% indicated that it was easy to follow. Some of the answers indicated in the open-ended space provide, as reasons as to why any “other” weight-loss aids were discontinued included the following (verbatim):

- *“Didn’t see results” (n=2)*

- *“Finished last bottle and didn't replace” (n=1);*
- *“Never lost weight even with eating well” (n=1);*
- *“Not going to diet in December” (n=1);*
- *“The thermogenic pills made me feel sick to my stomach” (n=1); and*
- *“Could not obtain it” (n=1).*

A larger percentage of participants, using “other” commercial weight loss aids, indicated that the level of frustration they experienced (n=9, 47.4%) was not very high and that they also did not feel very hungry (n=8, 42.1%) as illustrated in Table 4.11.

4.4.5 Experiences with different commercial coaching plans

The following commercial coaching plans were followed by the participants, SureSlim, Weigh-less, WW and any “other” (question 5.1 of the survey). The duration for using commercial coaching plans are depicted in Table 4.12 and the experiences with different commercial coaching plans are presented in Table 4.13. As indicated in Table 4.7, 54 participants had reported following a total of 54 different commercial coaching plans. The percentage of participants for example using SureSlim are $6/54 = 11.1\%$ as set out in Table 4.13.

Table 4.12 Duration of following commercial coaching plans

	Minimum	P25	Median	P75	Maximum
SureSlim	3 months	4 months	1 year	8 months	2 years
Weigh-less	2 months	3 months	5 months	1 year	1 year
WW	3 months	4 months	7 months	7 years	10 years
Other	2 months	4 months	5 months	1 year	2 years

Weight Watchers seems to have been followed the longest with a median of 7 months, followed by Weigh-less and any other commercial coaching plan for a median of 5 months with an IQR 6 years and 8 months for following WW as a commercial coaching plan.

As summarised in Table 4.13 among those participants who followed commercial coaching plans, six (11.1%) followed SureSlim, 21 (38.9%) followed Weigh-less, 11 (20.4%) followed WW, and 16 (29.6%) followed other types of commercial coaching plans. Thus, the most popular commercial coaching plan was Weigh-less.

Table 4.13: Experiences with different commercial coaching plans (n=54)

Participants who used each strategy		Type of commercial coaching plans							
		SureSlim		Weigh-less		Weight Watchers		Other	
		6	11.1	21	38.9	11	20.4	16	29.6
Statement	Options	n	%	n	%	n	%	n	%
Reason for discontinuing the diet plan (more than option could be chosen)	Objective obtained	4	66.6	2	9.5	1	9.1	3	18.8
	Too difficult	1	16.7	2	9.5	1	9.1	1	6.3
	Felt frustrated and hungry	0	0.0	0	0.0	1	9.1	2	12.5
	Too expensive	1	16.7	7	33.2	2	18.2	6	37.5
	Other	1	16.7	10	47.6	6	54.5	6	37.5
Ease of following the diet plan	It was easy to follow	4	66.6	15	71.4	9	81.8	13	81.3
	It was difficult to follow	2	33.3	6	28.6	2	18.2	3	18.8
Reason why it was too difficult to follow the diet plan (more than option could be chosen)	Too strict	2	33.3	2	9.5	1	9.1	2	12.5
	Unfamiliar ingredients	0	0.0	1	4.8	1	9.1	0	0.0
	Too expensive	0	0.0	3	14.3	1	9.1	2	12.5
	Did not lose any weight	0	0.0	1	4.8	1	9.1	1	6.3
	Other	0	0.0	0	0.0	0	0.0	0	0.0
Challenges experienced while following the diet plan	Not at all	2	33.3	7	33.2	7	63.6	9	56.3
	A little	2	33.3	12	57.1	2	18.2	2	12.5
	A moderate amount	2	33.3	0	0.0	0	0.0	4	25
	A lot	0	0.0	2	9.5	2	18.2	1	6.3
Level of frustration experienced while following the diet plan	Not at all	4	66.6	11	52.4	8	72.7	7	43.8
	A little	1	16.7	9	42.9	3	27.3	5	31.3
	A moderate amount	1	16.7	0	0.0	0	0.0	2	12.5
	A lot	0	0.0	1	4.8	0	0.0	2	12.5
Experienced hunger whilst following the diet plan	Not at all	3	50	16	76.2	6	54.5	4	25
	A little	1	16.7	3	14.3	5	45.5	7	43.8
	A moderate amount	2	33.3	1	4.8	0	0.0	4	25
	A lot	0	0.0	1	4.8	0	0.0	1	6.3

In the open-ended space provide, the following “other” commercial coaching plans were indicated as being followed and included the following (verbatim):

- “Curves” (n=1);
- “Diet everyone talks about” (n=1); and
- “Slender wonder” (n=2).

As a reason why participants had stopped SureSlim as a commercial coaching plan, n=4, 66.6% indicated that their objective was obtained, however n=10, 47.6% Weigh-less and n=6, 54.5% WW users indicated “other” as reasons why they discontinued using commercial coaching as weight-loss method as depicted in Table 4.13.

Participants indicated that it was easy to follow a commercial coaching plan: SureSlim (n=4, 66.6%), Weigh-less (n=15, 71.4%), WW (n=9, 81.8%) and other plans (n=13, 81.3%) (Table 4.13).

4.4.6 Self-imposed dietary restrictions and adapted eating patterns

Under self-imposed dietary restrictions and adapted eating patterns participants had the option to choose between the following dietary restrictions and/or adapted eating patterns, Intermittent fasting (IF), paleolithic nutrition (Paleo diet), ketogenic diet (Keto diet), Banting diet, very low calorie diet (VLCD), Optifast, Mediterranean diet, Dietary approach to stop hypertension (DASH) diet, Therapeutic lifestyle changes (TLC) diet, reduced snacking, reduced fat intake, reduced intake of sugar and sugary food, vegetarian diet, vegan diet, paleo-vegan (pegan) diet, low glycemic index and other (question 5.1 of the survey). The duration for using self-imposed dietary restrictions and adapted eating patterns are depicted in Table 4.14 and the experiences with self-imposed dietary restrictions and adapted eating patterns are presented in Table 4.15 and Table 4.16. As indicated in Table 4.7, 147 participants had reported following a total of 327 different self-imposed dietary restrictions and adapted eating patterns. The percentage of participants for example following Intermittent fasting as adapted eating pattern are $78/327 = 23.9\%$ as set out in Table 4.15.

Table 4.14: Duration of following self-imposed dietary restrictions and adapted eating patterns reported

	Minimum	P25	Median	P75	Maximum
IF	0 months	2 months	3 months	8 months	3 years
Paleo diet	1 month	1 month	3 years	5 years	5 years
Keto diet	1 month	2 months	3 months	1 year	3 years
Banting diet	0 months	3 months	5 months	2 years	8 months
VLCD	1 month	2 months	3 months	5 months	3 years
Optifast	3 months	3 months	6 months	1 year	1 year
Mediterranean diet	1 month	2 months	3 months	7 months	20 years
DASH diet (n=0)	-	-	-	-	-
TLC diet (n=0)	-	-	-	-	-
Reduced snacking	0 months	3 months	5 months	2 years	20 years
Reduced fat intake	1 month	2 months	4 months	2 years	30 years
Reduced intake of sugar and sugary food	1 month	3 months	7 months	2 years	30 years
Vegetarian diet	2 months	3 months	5 months	2 years	8 years
Vegan diet	1 month	1 month	1 month	2 months	2 months
Pegan diet (n=1)	-	-	4 months	-	-
Low glycemic index	5 months	8 months	2 months	3 years	3 years
Other	0 months	0 months	3 years	1 year	2 years

Following a paleo diet and any other self-imposed dietary restrictions and adapted eating pattern not listed in the survey, seems to have been followed the longest with a median of 3 years, with an IQR 4 year and 11 months and 1 year respectively. It seems that excluding specific ingredients or food from a diet is easier to follow as can be seen with reduced fat, and sugar and sugary foods being followed for a maximum of 30 years. The DASH diet was followed by one participant and TLC diet had not been followed by any of the participants.

As summarised in Table 4.15 & Table 4.16, among those participants who followed self-imposed dietary restrictions and adapted eating patterns, 78 (23.9%) followed IF, two (0.6%) followed a paleo diet, 26 (8.0%) followed a keto diet, 52 (15.9%) followed a Banting diet, 26 (8.0%) followed a VLCD, two (0.6%) used Optifast, six (1.8%) followed a Mediterranean diet, 1 (0.3%) followed the DASH diet, one (0.3%) followed a TLC diet, 31 (9.5%) followed reduced snacking, 25 (7.6%) reduced fat intake, 56 (17.1%) used reduced sugar and sugary food, 11 (3.4%) followed a vegetarian diet, two (0.6%) followed a vegan diet, one (0.3%) followed a pegan diet, four (1.2%) followed a low GI diet and three (0.9%) followed other types of self-imposed dietary restrictions and adapted eating patterns. The following diets, when followed, were indicated as being easy to follow, IF (n=49, 62.8%), Banting diet (n=32, 61.5%), reduced

fat intake (n=13, 52.0%), followed by Keto and VLCD diet (n=12, 46.2%) as per Table 4.15 and Table 4.16. In the open-ended space provide, why following the above mentioned self-imposed dietary restrictions and adapted eating patterns were easy to follow the following was indicated (verbatim):

Table 4.15: Experiences with self-imposed dietary restrictions and adapted eating patterns (n=327)

		Type of commercial weight loss aid																	
		Intermittent fasting		Paleolithic (Paleo) diet		Ketogenic (Keto) diet		Banting diet		VLCD		OptiFast		Mediterranean diet		DASH diet		TLC diet	
Participants that used each strategy		78	23.9	2	0.6	26	8.0	52	15.9	26	8.0	2	0.6	6	1.8	1	0.3	1	0.3
Statement	Options	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Reason for discontinuing using the weight loss aid (more than option could be chosen)	Objective obtained	19	24.4	0	0.0	5	19.2	13	25	5	19.2	2	100	1	16.7	0	0.0	0	0.0
	Too difficult	15	19.2	0	0.0	4	15.4	9	17.3	4	15.4	0	0.0	1	16.7	0	0.0	0	0.0
	Felt frustrated and hungry	21	26.9	1	50.0	5	19.2	3	5.8	11	42.3	0	0.0	0	0.0	0	0.0	0	0.0
	Too expensive	1	1.3	1	50.0	11	42.3	19	36.5	1	3.8	1	50.0	3	50	0	0.0	0	0.0
	Other	27	34.6	0	0.0	4	15.4	13	25	8	30.8	0	0.0	1	16.7	1	100	1	100
Ease of using the weight loss aid	It was easy to follow	49	62.8	1	50.0	12	46.2	32	61.5	12	46.2	2	100	6	100	0	0.0	1	100
	It was difficult to follow	29	37.2	1	50.0	14	53.8	20	40	14	53.8	0	0.0	0	0.0	1	100	0	0.0
Reason why it was too difficult to use the weight loss aid (more than option could be chosen)	Too strict	17	21.8	1	50.0	5	19.2	11	21.2	11	42.3	-	-	-	-	1	100	-	-
	Unfamiliar ingredients	0	0.0	0	0.0	4	15.4	6	11.5	2	7.7	-	-	-	-	0	0.0	-	-
	Too expensive	0	0.0	1	50.0	9	34.6	14	26.9	1	3.8	-	-	-	-	1	100	-	-
	Did not lose any weight	11	14.1	1	50.0	2	7.7	5	9.6	2	7.7	-	-	-	-	0	0.0	-	-
	Other	4	5.1	0	0.0	1	3.8	5	9.6	2	7.7	-	-	-	-	1	100	-	-
Challenges experienced while using the weight loss aid	Not at all	38	48.7	1	50	14	53.8	29	55.8	9	34.6	0	0.0	5	83.3	1	100	0	0.0
	A little	19	24.4	0	0.0	6	23.1	7	13.5	6	23.1	2	100	1	16.7	0	0.0	0	0.0
	A moderate amount	13	16.7	0	0.0	4	15.4	7	13.5	5	19.2	0	0.0	0	0.0	0	0.0	1	100
	A lot	8	10.3	1	50.0	2	7.7	9	17.3	6	23.1	0	0.0	0	0.0	0	0.0	0	0.0
Level of frustration experienced while using the weight loss aid	Not at all	39	50	1	50.0	12	46.2	29	55.8	9	34.6	2	100	4	66.7	0	0.0	0	0.0
	A little	17	21.8	0	0.0	6	23.1	10	19.2	5	19.2	0	0.0	2	33.3	0	0.0	0	0.0
	A moderate amount	14	17.9	0	0.0	7	26.9	6	11.5	6	23.1	0	0.0	0	0.0	1	100	1	100
	A lot	8	10.3	1	50.0	1	3.8	7	13.5	6	23.1	0	0.0	0	0.0	0	0.0	0	0.0
Experienced hunger whilst using the weight loss aid	Not at all	20	25.6	1	50.0	13	50	33	63.5	3	11.5	2	100	2	33.3	0	0.0	0	0.0
	A little	31	39.7	0	0.0	8	30.8	13	25	11	42.3	0	0.0	4	66.7	0	0.0	1	100
	A moderate amount	17	21.8	0	0.0	2	7.7	4	7.7	5	19.2	0	0.0	0	0.0	0	0.0	0	0.0
	A lot	10	12.8	1	50.0	3	11.5	2	3.8	7	26.9	0	0.0	0	0.0	1	100	0	0.0

Table 4.16: Experiences with different self-imposed dietary restrictions and adapted eating patterns (cont...)(n=327)

		Category of diet or weight loss strategy															
		Reduced snacking		Reduced fat intake		Reduced sugar / sugary foods		Vegetarian diet		Vegan diet		Paleo-vegan (Pegan) diet		Low glycemic index		Other	
Participants that used each strategy		31	9.5	25	7.6	56	17.1	11	3.4	2	0.6	1	0.3	4	1.2	3	0.9
Statement	Options	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Reason for discontinuing the diet/strategy/aid (more than option could be chosen)	Objective obtained	7	22.6	4	16	12	21.4	0	0.0	0	0.0	0	0.0	1	25	0	0.0
	Too difficult	9	29	5	20.0	15	26.8	2	18.2	2	100	0	0.0	0	0.0	0	0.0
	Felt frustrated and hungry	6	19.4	5	20.0	11	19.6	0	0.0	2	100	0	0.0	0	0.0	1	33.3
	Too expensive	4	12.9	4	16.0	3	5.4	1	9.1	1	50	1	100	1	25	1	33.3
	Other	9	29	10	40.0	19	33.9	8	72.7	1	50	0	0.0	2	50	1	33.3
Ease of following the diet/strategy/aid	It was easy to follow	12	38.7	13	52.0	19	33.9	6	54.5	0	0.0	1	100	4	100	1	33.3
	It was difficult to follow	19	61.3	12	48.0	37	66.1	5	45.5	2	100	0	0.0	0	0.0	2	66.7
Reason why it was too difficult to follow the diet/strategy/aid (more than option could be chosen)	Too strict	12	38.7	7	28.0	27	48.2	2	18.2	0	0.0	-	-	-	-	1	33.3
	Unfamiliar ingredients	1	3.2	3	12.0	2	3.6	2	18.2	2	100	-	-	-	-	0	0.0
	Too expensive	2	6.5	3	12.0	4	7.1	2	18.2	2	100	-	-	-	-	0	0.0
	Did not lose any weight	4	12.9	6	24.0	11	19.6	4	36.4	1	50.0	-	-	-	-	0	0.0
	Other	4	12.9	1	4.0	6	10.7	1	9.1	0	0.0	-	-	-	-	1	33.3
Challenges experienced while following the diet/strategy/aid	Not at all	17	54.8	14	56.0	20	35.7	6	54.5	0	0.0	1	100	2	50.0	1	33.3
	A little	6	19.4	4	16.0	17	30.4	2	18.2	0	0.0	0	0.0	2	50.0	2	66.7
	A moderate amount	5	16.1	7	28.0	9	16.1	1	9.1	1	50.0	0	0.0	0	0.0	0	0.0
	A lot	3	9.7	0	0.0	10	17.9	2	18.2	1	50.0	0	0.0	0	0.0	0	0.0
Level of frustration experienced while following the diet/strategy/aid	Not at all	17	54.8	15	60.0	26	46.4	7	63.6	2	100	1	100	2	50.0	1	33.3
	A little	4	12.9	3	12.0	11	19.6	1	9.1	0	0.0	0	0.0	2	50.0	2	66.7
	A moderate amount	4	12.9	7	28.0	9	16.1	3	27.3	0	0.0	0	0.0	0	0.0	0	0.0
	A lot	6	19.4	0	0.0	10	17.9	0	0.0	0	0.0	0	90.0	0	0.0	0	0.0
Experienced hunger whilst following the diet/strategy/aid	Not at all	16	51.6	11	44.0	32	57.1	9	81.8	1	50.0	1	100	3	75.0	2	66.7
	A little	3	9.7	6	24.0	11	19.6	2	18.2	0	0.0	0	0.0	0	0.0	1	33.3
	A moderate amount	4	12.9	4	16.0	6	10.7	0	0.0	1	50.0	0	0.0	1	25.0	0	0.0
	A lot	8	21	4	16.0	7	12.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Intermittent fasting

- *"It was something I could control" (n=1);*
- *"It works for my lifestyle" (n=1);*
- *"You just stop eating for 16 hours I don't like breakfast so it is easy" (n=1);*
- *"Easy" (n=5);*
- *"Don't usually eat breakfast" (n=9);*
- *"Not a lot of food to prep" (n=1); and*
- *"Fits into schedule. No fuss" (n=1).*

Banting

- *"3 Lists to follow Green Eat as much as you like when hungry Orange List in Moderation Red Seldom to Never" (n=1);*
- *"A lot of food that does not need cooking" (n=2);*
- *"As with Keto I started losing weight quickly which makes it easy to maintain" (n=1);*
- *"Banting products available like bread" (n=1);*
- *"Can eat most food" (n=1); and*
- *"Easy" (n=6).*

Reduced fat intake

- *"I can go without fatty food, cakes and tart are my problem" (n=1);*
- *"I don't eat fatty foods" (n=1);*
- *"It's the way I've always eaten. I don't like full fat products" (n= 1);*
- *"Was very easy to cut the fats out of cooking, no oil was used when cooking dinner" (n=1); and*
- *"We generally Trim fat off food anyway and we choose lean, eating habit was changed" (n=1).*

Ketogenic diet

- *"A lot of choices" (n=1);*
- *"Discipline behaviour" (n=1);*
- *"I enjoyed the food and lost weight quickly and easily which kept me motivated" (n=1);*
- *"I enjoyed the meals" (n=1);*
- *"Love the food on keto" (n=1); and*

- *“Nice food Was never hungry” (n=2).*

Very low-calorie diet

- *“Because I would eat everything else and remove foods high in calories” (n=2);*
- *“Food easily obtainable. Substitutes for food you cannot eat” (n=1);*
- *“I can still eat my favourite foods; I don't feel like I'm missing” (n=1);*
- *“Just watch your calories” (n=1);*
- *“Not a lot of thought” (n=2); and*
- *“Seeing results almost immediately makes it easy to stick to” (n=1).*

Almost all of the self-imposed dietary restrictions and adapted eating patterns followed by participants, participants indicated that they had not experienced any challenges, frustration or hunger whilst following a self-imposed dietary restriction and/or adapted eating patterns as evidenced in Table 4.15 and Table 4.16. The reasons for the level of frustration experienced whilst following a vegan diet as a self-imposed dietary restrictions and adapted eating pattern the following was indicated (verbatim):

- *“Hard to find the vegan alternatives for a lot of the foods in my area and they are so expensive” (n=1); and*
- *“Need meat. Things taste funny” (n=1).*

4.4.7 Diets prescribed by health-professionals

Participants had the option to choose between the following for diets prescribed by a health professional: dietitian, doctor, physiotherapist or biokineticist, (question 5.1 of the survey). The duration for using diets prescribed by health-professionals are depicted in Table 4.17 and the experiences with diets prescribed by health-professionals are indicated in Table 4.18. As indicated in Table 4.7, 31 participants had reported following a total of 31 diets prescribed by a health-professional. The percentage of participants for example following a diet prescribed by a dietitian are $18/31 = 58.1\%$ as set out in Table 4.18.

Table 4.17: Duration of diets prescribed by health-professionals reported

	Minimum	P25	Median	P75	Maximum
Dietitians	1 month	2 months	5 months	2 years	13 years
Doctor	1 month	3 months	4 months	1 year	3 years
Physiotherapist	-	-	-	-	-
Biokineticist	-	-	-	-	-

There is only one month's difference in the median duration for diets followed prescribed by dietitians and doctors, the IQR is 1 year and 10 months for following a diet prescribed by a dietitian and 9 months for a diet prescribed by a doctor. As clearly can be seen in Table 4.18 no participants had followed a diet prescribed by a physiotherapist or biokineticist.

As summarised in Table 4.18 among those participants who followed a diet prescribed by a health professional, 13 (41.9%) followed a diet prescribed by a doctor, and 18 (58.1%) followed a diet prescribed by a dietitian. As indicated in Table 4.18 the diets prescribed by dietitians (n=13, 72.2%) and doctors (n=11, 84.6%) was easy to follow. Less than half of participants indicated that they did not experience challenges following a diet prescribed by a dietitian (n=8, 44.4%) or doctor (n=6, 46.1%) and indicated no level of frustration following a diet prescribed by a dietitian (n=9, 50.0%) and n=4, 30.8% if prescribed by a doctor. Participants also indicated that they experienced no hunger following a diet prescribed by a dietitian (n=11, 61.1%) or doctor (n=9, 69.2%).

Table 4.18: Experiences with strategies prescribed by health professionals (n=31)

Participants who used each strategy		Health professional							
		Doctor		Dietitian		Physiotherapist		Biokineticist	
		13	41.9	18	58.1	0		0	
Statement	Options	n	%	n	%	n	%	n	%
Reason for discontinuing the diet plan (more than option could be chosen)	Objective obtained	3	23.1	4	22.2	-	-	-	-
	Too difficult	1	7.7	2	11.1	-	-	-	-
	Felt frustrated and hungry	0	0.0	0	0.0	-	-	-	-
	Too expensive	6	46.1	3	16.7	-	-	-	-
	Other	3	23.1	9	50.0	-	-	-	-
Ease of following the diet plan	It was easy to follow	11	84.6	13	72.2	-	-	-	-
	It was difficult to follow	2	15.4	5	27.8	-	-	-	-
Reason why it was too difficult to follow the diet plan (more than option could be chosen)	Too strict	1	7.7	0	0.0	-	-	-	-
	Unfamiliar ingredients	0	0.0	0	0.0	-	-	-	-
	Too expensive	1	7.7	2	11.1	-	-	-	-
	Did not lose any weight	1	7.7	1	5.6	-	-	-	-
	Other	0	0.0	2	11.1	-	-	-	-
Challenges experienced while following the diet plan	Not at all	6	46.1	8	44.4	-	-	-	-
	A little	3	23.1	4	22.2	-	-	-	-
	A moderate amount	2	15.4	5	27.8	-	-	-	-
	A lot	2	15.4	1	5.6	-	-	-	-
Level of frustration experienced while following the diet plan	Not at all	4	30.8	9	50.0	-	-	-	-
	A little	5	38.5	5	27.8	-	-	-	-
	A moderate amount	1	7.7	2	11.1	-	-	-	-
	A lot	3	23.1	2	11.1	-	-	-	-
Experienced hunger whilst following the diet plan	Not at all	9	69.2	11	61.1	-	-	-	-
	A little	1	7.7	3	16.7	-	-	-	-
	A moderate amount	2	15.4	2	11.1	-	-	-	-
	A lot	1	7.7	2	11.1	-	-	-	-

4.4.8 Diets prescribed by non-health professionals

For diets prescribed by a non-health professional, participants could choose between diets prescribed by a personal trainer or “other”. The duration for using diets prescribed by non-health-professionals are depicted in Table 4.19. As indicated in Table 4.7, 14 participants had reported having followed a total of 14 diets prescribed by a non-health professional. The percentage of participants for example following a diet prescribed by a non-health professional are $14/14 = 100\%$ as set out in Table 4.20.

Table 4.19: Duration of following diets prescribed by a non-health professional

	Minimum	P25	Median	P75	Maximum
Personal trainer	1 month	2 months	3 months	3 months	2 years
Other	-	-	-	-	-

The experiences with diets prescribed by a non-health professional in Table 4.20. None of the participants indicated that they had followed any “other” diet prescribed by a non-health professional; but $n=14$, 100% indicated that they had followed diets prescribed by a personal trainer. Participants indicated that with adherence to following a diet prescribed by a personal trainer that $n=6$, 23.1% experienced it as being difficult to follow, whilst $n=8$, 30.8% indicated it was easy to follow a diet prescribed by a personal trainer. One participant 3.9% indicated that they did not lose weight following a diet prescribed by a personal trainer, and $n=12$, 46.2% felt no frustration and $n=9$, 34.6% did not experience hunger, whilst two participants (7.7%) each, experienced a little or moderate hunger.

Table 4.20: Experiences with diets prescribed by non-health professionals

		Category of diet or weight loss strategy on-health professional			
		Personal trainer		Other	
Statement	Options	n	%	n	%
Total participants		14	100	-	-
Reason for discontinuing the diet/strategy/aid	Objective obtained	-	-	-	-
	Too difficult	-	-	-	-
	Felt frustrated and hungry	-	-	-	-
	Too expensive	-	-	-	-
	Other	0	0.0	-	-
Ease of following the diet/strategy/aid	It was easy to follow	8	30.8	-	-
	It was difficult to follow	6	23.1	-	-
Reason why it was too difficult to follow the diet/strategy/aid	Too strict	4	15.4	-	-
	Unfamiliar ingredients	0	0.0	-	-
	Too expensive	0	0.0	-	-
	Did not lose any weight	1	3.9	-	-
	Other	1	3.9	-	-
Challenges experienced while following the diet/strategy/aid	Not at all	8	30.8	-	-
	A little	1	3.9	-	-
	A moderate amount	2	7.7	-	-
	A lot	3	11.5	-	-
Level of frustration experienced while following the diet/strategy/aid	Not at all	12	46.2	-	-
	A little	0	0.0	-	-
	A moderate amount	1	3.9	-	-
	A lot	1	3.9	-	-
Experienced hunger whilst following the diet/strategy/aid	Not at all	9	34.6	-	-
	A little	2	7.7	-	-
	A moderate amount	1	3.9	-	-
	A lot	2	7.7	-	-

4.4.9 Diets using mobile weight- loss applications

Mobile weight-loss applications were followed for a median of 5 months as depicted in Table 4.21.

Table 4.21: Duration of mobile weight-loss applications reported

	Minimum	P25	Median	P75	Maximum
Mobile weight-loss App	1 month	1 month	5 months	1 year	3 years

In the open-ended space provided, participants were asked to indicate which mobile weight-loss applications were used to lose weight; the following were indicated (verbatim):

- *"Fat secret" (n=1);*
- *"FitOn" (n=1);*
- *"Fat secret" (n=1);*
- *"FitOn" (n=1);*
- *"MyFitnessPal" (n=3);*
- *"Sharny and Julius YAZIO" (n=1); and*
- *"Yoga for beginners VSHRED" (n=1).*

A small number of participants (n=14, 9.2%) used a mobile weight-loss applications as a method to lose weight as indicated in table 4.22.

Just more than a quarter of participants (28.0%) indicated that it was difficult to use a mobile weight-loss application, while almost a third of them (32.0%) indicated "other" as reason why they had discontinued using the application to lose weight as reported in Table 4.22. In the open-ended space provide, participants indicated the other reasons why they discontinued using a mobile weight-loss applications to lose weight, as being the following (verbatim):

- *"Can't work this app not meant for SA" (n= 1); and*
- *"Obsession" (n=1)*

Participants indicated that the reasons why it was difficult to use a mobile weight-loss application, was that it was too strict (n=4, 16.0%) and that they did not lose weight (n=4, 16.0%), they experienced no challenges (n=8, 32.0%), frustration (n=9, 36.0%) or hunger (n=10, 40.0%) following a diet on a mobile weight-loss application as indicated in Table 4.22. None of the participants indicated having used any other weight-loss strategy although 25 (9.2%) had initially indicated having used any other weight-loss strategy as per question 5.1 of the questionnaire.

Table 4.22: Experiences with using mobile weight loss applications

		Category of diet or weight loss strategy	
		Mobile weight loss App	
Statement	Options	n	%
Total participants		14	9.2
Reason for discontinuing the diet/strategy/aid	Objective obtained	1	4.0
	Too difficult	5	20.0
	Felt frustrated and hungry	3	12.0
	Too expensive	2	8.0
	Other	8	32.0
Ease of following the diet/strategy/aid	It was easy to follow	9	36.0
	It was difficult to follow	7	28.0
Reason why it was too difficult to follow the diet/strategy/aid	Too strict	4	16.0
	Unfamiliar ingredients	2	8.0
	Too expensive	2	8.0
	Did not lose any weight	4	16.0
	Other	2	8.0
Challenges experienced while following the diet/strategy/aid	Not at all	8	32.0
	A little	2	8.0
	A moderate amount	3	12.0
	A lot	3	12.0
Level of frustration experienced while following the diet/strategy/aid	Not at all	9	36.0
	A little	2	8.0
	A moderate amount	1	4.0
	A lot	4	16.0
Experienced hunger whilst following the diet/strategy/aid	Not at all	10	40.0
	A little	4	16.0
	A moderate amount	-	-
	A lot	2	8.0

4.4.10 Experiences of participants between different weight loss categories

According to percentages per category in Table 4.23, similar results were obtained for commercial coaching (n=10; 18.5%), self-imposed dietary restriction (n=69; 21.1%) and health care professional (n=7; 22.6%) for objective obtained being the reason for discontinuing the diet plan. More than half of the participants (n=46; 52.9%) gave too difficult and too expensive (n=47; 54.0%) as reasons for discontinuing the commercial diet plan. Across all categories participants indicated the highest percentage (n=7; 22.6%) for objective obtained following a diet prescribed by a health professional.

Furthermore, diets prescribed by health professionals were perceived as easy to follow (n=24; 77.4%), followed by commercial coaching (n=41; 75.9%), and commercial weight loss aids (n=47; 70.1%). The following diets/ strategies/aids were perceived to be difficult to follow: mobile weight loss App (n=7; 50.0%), self- imposed dietary restrictions (n=156; 47.7%) and diets prescribed by non-health professionals (n=6; 42.9%). Mobile weight loss Apps were perceived as being too strict, and participants did not lose weight, 28.6%, respectively, as reasons as to why it was too difficult to follow. Commercial diet plans were too expensive (n=26; 29.9%) and participants also indicated not having lost weight (n=18; 20.7%) as the reason why it was difficult to follow. Diets prescribed by health professionals and not health professionals were not perceived as containing any unfamiliar ingredients; commercial weight loss aids also reflected a low percentage (n=1; 1.5%).

The percentages across all categories were similar for indicating that no challenges or level of frustration or hunger were experienced whilst following a diet/strategy /aid.

Table 4.23: Experiences of participants between different weight loss categories

	Options	Commercial diet plan (n=87)		Commercial weight loss aids n=67		Commercial coaching plans (n=54)		Self-imposed dietary (n=327)		Health professional (n=31)		Non-health professional (n=26)		Mobile weight loss App (n=14)	
		n	%	n	%	n	%	n	%	n	%	n	%	n	%
Reason for discontinuing the diet plan	Objective obtained	11	12.6	10	14.9	10	18.5	69	21.1	7	22.6	-	-	1	7.1
	Too difficult	46	52.9	3	4.5	5	9.3	66	20.2	3	9.7	-	-	5	35.7
	Felt frustrated and hungry	23	26.4	9	13.4	3	5.6	66	20.2	0	0.0	-	-	3	21.4
	Too expensive	47	54.0	23	34.3	16	29.6	53	16.2	9	29.0	-	-	2	14.3
	Other	21	24.1	24	35.8	23	42.6	105	32.1	12	38.7	-	-	8	57.1
Ease of following the diet/strategy/aid	It was easy to follow	51	58.6	47	70.1	41	75.9	171	52.3	24	77.4	8	57.1	9	64.3
	It was difficult to follow	36	41.4	19	28.4	13	24.1	156	47.7	7	22.6	6	42.9	7	50.0
Reason why it was too difficult to follow the diet/strategy/aid	Too strict	9	10.3	5	7.5	7	13.0	95	29.1	1	3.2	4	28.6	4	28.6
	Unfamiliar ingredients	6	6.9	1	1.5	2	3.7	22	6.7	0	0.0	0	0.0	2	14.3
	Too expensive	26	29.9	12	17.9	6	11.1	39	11.9	3	9.7	0	0.0	2	14.3
	Did not lose any weight	18	20.7	7	10.4	3	5.6	47	14.4	2	6.5	1	7.1	4	28.6
	Other	1	1.1	2	3.0	0	0.0	26	8.0	2	6.5	1	7.1	2	14.3
Challenges experienced while following the diet/strategy/aid	Not at all	40	46.0	37	55.2	25	46.3	158	48.3	14	45.2	8	57.1	8	57.1
	A little	20	23.0	18	26.9	18	33.3	74	22.6	7	22.6	1	7.1	2	14.3
	A moderate amount	11	12.6	7	10.4	6	11.1	53	16.2	7	22.6	2	14.3	3	21.4
	A lot	4	4.6	4	6.0	5	9.3	42	12.8	3	9.7	3	21.4	3	21.4
Level of frustration experienced while following the diet/strategy/aid	Not at all	40	46.0	43	64.2	30	55.6	167	51.1	13	41.9	12	85.7	9	64.3
	A little	33	37.9	13	19.4	18	33.3	63	19.3	10	32.3	-	-	2	14.3
	A moderate amount	9	10.3	4	6.0	3	5.6	58	17.7	3	9.7	1	7.1	1	7.1
	A lot	5	5.7	7	10.4	3	5.6	39	11.9	5	16.1	1	7.1	4	28.6
Experienced hunger whilst following the diet/strategy/aid	Not at all	29	33.3	32	47.8	29	53.7	149	45.6	20	64.5	9	64.3	10	71.4
	A little	31	35.6	19	28.4	16	29.6	91	27.8	4	12.9	2	14.3	4	28.6
	A moderate amount	14	16.1	11	16.4	7	13.0	44	13.5	4	12.9	1	7.1	0	0.0
	A lot	13	14.9	5	7.5	2	3.7	43	13.1	3	9.7	2	14.3	2	14.3

4.5 Weight changes after discontinuing the weight loss strategy

Table 4.24 summarises participants weight maintenance experiences after stopping weight loss strategies.

Table 4.24: Weight changes after discontinuing the weight loss strategy (N=272)

Variable	n	%
Did you regain more weight than you have lost?		
Yes	63	38.9
No	99	61.1
Not specified	4	-
Do you maintain your new weight?		
Yes	152	56.9
No	115	43.1
Have you lost more weight since following the diet?		
Yes	112	41.6
No	157	58.4

Participants (n=63; 38.9%) indicated they had regained more weight than they had lost, and n=99; 61.1% indicated they had not regained more weight than they have lost since they discontinued the diet/ or weight-loss aid.

More than half of the participants (n=152; 56.9%) indicated that they maintained their new weight, while 43.1% indicated that they did not maintain their new weight.

To the question, 'have you lost more weight since following the diet?', n=112; 41.6% of participant indicated the answer as "yes", whereas n=157; 58.4% indicated that they had not lost more weight since discontinuing the diet or using a weight-loss aid.

4.6 Age, current BMI, weight changes and activity levels per category of weight loss.

Age, current BMI, activity levels and weight changes of participants per category of weight loss are reported in Table 4.25. It is notable that the median age for participants following a commercial coaching plan were much younger (24.4 years) than in any of the other weight-loss categories. The median age for participants following self-imposed dietary restrictions /adapted eating patterns were the highest at 48.5 years. Between all the different categories, participants following a diet prescribed by a health professional indicated the highest IQR age

of 16.4 and the lowest IQR age was 10.6 for participants following a diet on a mobile weight-loss application.

Table 4.25 Age, current BMI, and weight changes per category of weight loss strategies

Categories	Minimum	P25	Median	P75	Maximum
Commercial diet plans (n=75)					
Age in years	20.9	31.0	37.9	45.3	68.5
BMI (kg/m ²)	17.2	26.7	29.7	36.0	51.9
Amount of weight regained after discontinuing diet-kg	2.0	5.0	7.5	13.0	40.0
Commercial weight loss aids (n=58)					
Age in years	21.7	31.3	38.1	45.8	68.5
BMI kg/m ²	18.3	26.6	30.4	35.5	51.9
Amount of weight regained after discontinuing diet -kg	1.0	5.0	9.0	14.0	40.0
Commercial coaching plans (n=56)					
Age in years	21.9	35.9	24.4	49.3	74.3
BMI kg/m ²	20.6	26.2	30.0	35.9	49.9
Amount of weight regained after discontinuing diet	1.0	5.0	8.0	12.0	20.0
Self-imposed dietary restrictions /adapted eating patterns (n=147)					
Age in years	18.0	31.5	48.5	46.1	68.5
BMI kg/m ²	17.2	26.4	29.5	33.2	51.9
Amount of weight regained after discontinuing diet-kg	1.0	4.5	7.0	12.0	40.0
Diets prescribed by a health professional (n=33)					
Age in years	22.9	34.4	41.9	50.8	65.8
BMI kg/m ²	20.6	25.9	30.1	35.3	53.2
Amount of weight regained after discontinuing diet-kg	2.0	5.0	8.0	17.0	35.0
Diets prescribed by a non-health professional (n=26)					
Age in years	18.0	29.1	37.3	43.8	72.0
BMI kg/m ²	19.9	22.9	26.0	30.1	45.9
Amount of weight regained after discontinuing diet-kg	2.0	3.0	5.0	10.0	30.0
Mobile weight loss App (n=25)					
Age in years	18.3	31.3	36.9	41.9	63.5
BMI kg/m ²	17.2	26.6	28.9	32.0	48.2
Amount of weight regained after discontinuing diet-kg	1.0	3.0	5.0	12.0	40.0
Other (n=25)					
Age in years	25.0	35.0	41.6	50.8	58.1
BMI kg/m ²	22.0	27.6	30.0	35.7	48.2
Amount of weight regained after discontinuing diet-kg	2.0	5.0	13.0	15.0	32.0

Notably, the median BMI for participants following a diet prescribed by non-health professionals were the lowest across all different weight-loss categories being 26.0 kg/m². Among all the different categories, participants using commercial weight-loss aids indicated

the highest IQR BMI as 25.3 kg/m² and the lowest IQR BMI as 5.4 kg/m² for participants following a diet on a mobile weight-loss application.

The highest median for weight regained after discontinuing a diet or weight loss aid were for participants following any other dietary restrictions /adapted eating patterns with 13.0 kg. The lowest median for weight regained after discontinuing a diet or weight loss aid were for participants following a diet prescribed by a non-health professional, as well as mobile weight loss application was 5.0 kg. The highest IQR for regaining weight was 12.0 kg for following a diet prescribed by a health professional and the lowest IQR was 7.0 kg for both respective participants following commercial coaching or a diet prescribed by a non-health professional as weight-loss strategy.

4.6.1 Associations with socio-demography

The following associations with socio-demography were made: number of diets followed, following one of the top 10 diets, choice of weight loss strategy and age and ethnicity and category of weight loss strategies.

4.6.1.1 Associations between socio-demography and number of diets followed

No significant associations were evident between the number of weight loss strategies pursued in the last three years with age ($p=.16$) or being single or in a relationship ($p=.13$).

4.6.1.2 Associations between socio-demography and following one of the top 10 diets

The top 10 diets (as indicated under point 4.4.1) in the survey were significantly more likely to be followed by younger than older participants ($p=.006$), and by participants with a higher income ($p<.002$) and higher education level ($p<.04$), than those with a lower income and education levels, respectively.

4.6.1.3 Associations between the choice of weight loss strategy and age

As summarised in Table 4.26, People over the age of 60 were least likely to follow any of the weight loss strategies, followed by those younger than 25.

Table 4.26: Associations between the choice of weight loss strategy and age

Categories	% per age group				
	<25	25-39	40-60	>60	p-value
Commercial diet plans	10.7	45.3	40.0	4.0	.27
Commercial weigh loss aids	13.8	43.1	40.0	3.5	.34
Commercial coaching plans	5.4	32.1	53.6	8.9	.23
Self-imposed dietary restrictions /adapted eating patterns	12.2	43.5	42.2	2.0	.0008*
Diets prescribed by a health professional	6.1	36.4	54.6	3.0	.89
Diets prescribed by a non-health professional	7.7	46.2	42.3	3.9	.87
Mobile weight loss App	12.0	52.0	32.0	4.0	.27
Other	4.0	40.0	56.0	0.0	.61

*p<.05 was considered statistically significant

Most dieters in all of the categories were from 25 to 60 years old. However, these trends were only statistically significant for self-imposed dietary restrictions or adapted eating patterns (p=.0008).

4.6.1.4 Associations between ethnicity and category of weight loss strategies

Ethnicity was not significantly associated with the category of weight loss strategies pursued in the last three years.

4.6.2 Associations with body mass index

The following associations with body mass index were made: number of diets followed and categories of weight loss strategies.

4.6.2.1 Associations between body mass index and number of diets followed

Participants with a higher BMI were significantly ore likely to follow one of the top 10 diets (p=.02*).

4.6.2.2 Associations between body mass index and categories of weight loss strategies

An association between BMI and category of weight-loss strategy could be established for following a self-imposed dietary restriction/ adapted eating pattern, as depicted in Table 4.27. What can, however, also be seen from the results as depicted in Table 4.27, are that across all the different diet categories, participants were mainly pre-obese. The highest percentage of participants (17.9%) that followed a commercial coaching plan had a BMI falling in the obese class III category followed by commercial diet plans and mobile weight-loss applications with 16.0%, respectively as depicted in Table 4.27.

Table 4.27: Associations between body mass index and choice of weight loss strategy

Categories	% per BMI category						p-Value
	Under-weight	Normal weight	Pre-obese	Obese Class I	Obese Class II	Obese Class III	
Commercial diet plans	1.3	16.0	34.7	14.7	17.3	16.0	.26
Commercial weigh loss aids	1.7	13.8	29.3	25.9	17.2	12.1	.46
Commercial coaching plans	0.0	19.6	30.4	21.4	10.7	17.9	.37
Self-imposed dietary restrictions /adapted eating patterns	2.0	15.7	35.4	25.2	13.6	8.2	.02
Diets prescribed by a non-health professional	0.0	42.3	30.8	15.4	3.9	7.7	.12
Mobile weight loss App	4.0	8.0	48.0	16.0	8.0	16.0	.20
Other	0.0	12.0	40.0	20.0	20.0	8.0	.71

*p<.05 was considered statistically significant

4.6.3 Associations with activity levels

No significant association between activity levels and the category of weight-loss strategy followed could be established. As depicted in Table 4.28 the highest percentage of participants indicated being low active according to the IPAQ classification across all diet categories. It seems that participants that followed a diet prescribed by a non-health professional were the most highly active, as indicated in Table 4.28. Although not statistically significant, a trend was noted ($p=.06$) for more participants that followed self-imposed dietary restrictions / adapted eating patterns to be in the low activity category.

Table 4.28: Associations between activity levels and the choice of weight loss strategy

Categories	% per activity level			p-Value
	Low Active	Moderately active	Highly active	
Commercial diet plans	49.3	16.0	34.7	.80
Commercial weigh loss aids	46.5	15.5	37.9	.52
Commercial coaching plans	51.8	14.3	33.9	.93

Categories	% per activity level			
	Low Active	Moderately active	Highly active	p-Value
Self-imposed dietary restrictions /adapted eating patterns	48.3	13.6	38.1	.06
Diets prescribed by a health professional	48.5	24.2	27.3	.32
Diets prescribed by a non-health professional	38.5	11.5	50.0	.12
Mobile weight loss App	40.0	16.0	44.0	.35
Other	64.0	20.0	16.0	.20

4.6.4 Associations between water intake and choice of weight loss strategy

Participants who followed one of the top 10 weight loss strategies tended to consume more water when following the chosen strategy than those who followed another strategy not part of the top 10 ($p=.05$). When strategies were stratified across categories, participants that followed commercial diet plans ($p=.003^*$) and weight loss apps ($p=.01^*$) reported that they thought that they consume more water when they are trying to lose weight using these strategies. This was not the case for commercial coaching plans ($p=.23$), commercial diet aids ($p=.98$), self-imposed dietary restrictions /adapted eating patterns ($p=.81$), diets prescribed by a health professional ($p=.78$), diets prescribed by a non-health professional ($p=.26$), or mobile weight loss apps ($p=.27$). Moreover, the reported extra amount that was reportedly consumed was not significantly higher for any category (commercial diet plans ($p=.35$), commercial coaching plans ($p=.49$), commercial diet aids ($p=.21$), self-imposed dietary restrictions /adapted eating patterns ($p=.17$), diets prescribed by a health professional ($p=.15$), diets prescribed by a non-health professional ($p=.31$), or mobile weight loss apps ($p=.27$)).

4.6.5 Associations with weight regain

The following associations with weight regain were made: socio-demography and weight loss strategies.

4.6.5.1 Associations between the socio-demographics and weight regain

The tendency to regain weight after stopping the chosen weight loss strategy was not significantly associated with being in a relationship versus being single ($p=.13$), nor was it associated with age ($p=.16$).

4.6.5.2 Associations between the weight regained and weight loss strategy

Participants following one of the top 10 diets were not significantly more or less, likely to gain weight after stopping the weight loss strategy ($p=.22$).

Similarly, there were no significant associations between whether weight was regained or not, and following self-imposed dietary restrictions/adapted eating pattern ($p=.09$), diets prescribed by a health professional ($p=.46$), or diets prescribed by a non-health professional ($p=.36$). However, participants that used commercial diet aids ($p=.03^*$) and commercial coaching plans ($p=.03^*$), and mobile apps for weight loss ($p=.05$), were more likely to report that they did regain weight than those that followed other types of diets.

When asked how much weight was regained, participants using a commercial diet gained significantly ($p=.046^*$) more weight (median of 9 kg, P25, P75: 5 kg, 14kg, minimum: 1 kg, maximum: 40 kg) than those following any other category (median of 6 kg, P25, P75: 4 kg, 11kg, minimum: 1 kg, maximum: 40 kg). No associations between the amount of weight regained and any of the other categories of weight loss strategies were found.

CHAPTER 5: DISCUSSION

5.1 Introduction

The current study aimed to investigate the perceptions and experiences of women in Benoni regarding weight-loss strategies that they had used. In this chapter, the results are discussed and interpreted in the context of the available literature. The socio-demographic profile of the participants in the current survey (age, level of education, level of income, marital status, ethnicity as well as self-reported health status), their lifestyle characteristics (BMI, smoking status, activity levels and water intake), as well as their choices of, and perceptions and experiences with the weight-loss strategies that they had followed, are explored. The findings are most often compared to the survey conducted by Julia et al. (2014:3) among 48 435 participants recruited from the ongoing Nutrinet-Sante' internet cohort study in France as this study was very similar, and their conceptual framework for categorising the different weight loss approaches was used for the current study. This provides the opportunity to compare the results from a developing country like South Africa to a first-world country in Europe. The findings of the current study are also contextualised by exploring the different contexts of various studies. Finally, the strengths and limitations of the current study are discussed.

5.2 Socio-demographic profile

The socio-demographic profile of the participants in the current study included age, level of education, level of income, marital status, ethnicity, and their self-reported health status.

5.2.1 Age

The age distribution of participants in the current survey is comparable to Julia et al. (2014) for the age groups 25-40 years and 40-60 years. However, more younger women, aged <25 years (8.8%), chose to participate in the current study than 4.5% from the French cohort. On the other hand, the percentage of participants older than 60 years, were lower (5.5%) in the current study, compared to 17.4% in the survey by Julia et al. (2014:3). It also contrasts with a survey with similar aims conducted at employee wellness days and community health days at a supermarket in the United States (US), in which Seiber (2020:2) found that almost half of

participants were 60 years and older. Thus, it would seem that amongst this study population of (mostly white) urban South African women, more younger women and fewer older women were interested in participating in a survey regarding weight-loss strategies. It could simply be a reflection on younger women being more comfortable with online surveys than older women. In the current study, most responses were received after the survey invitation was published on a social media platform (see chapter 3). According to Statistika, in South Africa, almost a third of social media users are between 18 and 35 years, while only 5.1% are older than 55 years (Statistika Research Department, 2021).

South African national surveys consistently report very high levels of overweight and obesity amongst women, which increases with age. According to the 2016 South African Demographic and Health Survey (SADHS), 15.5% of women aged 15 – 25 years were obese, compared to 54.5% in the age group 55-64 years, and 45.8% in the group 65 years and older (NDoH et al., 2019:299). Thus, older South African women need weight loss strategies more, and in the current study, the age group between 40-60 years reported the highest percentage to have followed at least one diet (48.2%) in the last three years.

5.2.2 Level of education

Overall, 23.9% of participants in the current study finished secondary school, while 4.4% did not. Secondary education in France is a three-year course for children aged between 15 and 18 years and compares to Grade 9 and 12 in South Africa. The level of education of participants of the current study who obtained Grade 9 - 12 added up to 28.3%, comparable with the participants in the French study done by Julia et al. (2014:3).

According to the World Population Review, tertiary education (post-secondary education) refers to education obtained after high school, including certificate programmes, diplomas, undergraduate degree programmes, and graduate degree programmes (Organization for Economic Cooperation and Development (OECD), 2021). In South Africa, only 7.4% of the population has tertiary education. In contrast, in France, 35.21%, and in the United States, 46.36% of the population has tertiary education (Organization for Economic Cooperation and Development (OECD), 2021). In the current study, 18.8% of participants had a degree, while overall, 71.1% had some form of post-school qualification. This is much higher than the

national rates for South Africa reported by the OECD (Organization for Economic Cooperation and Development (OECD), 2021).

Similarly, in the French survey of Julia et al. (2014:3), 63.2% of the respondents had a university degree, while in the US study by Seiber (2020:42), 47.4% of participants, which included men had a college degree (neither studies reported the total percentage of participants that had tertiary education; thus the percentages would be even higher among the participants). Therefore, all three studies suggest that a survey on dietary approaches was more appealing to a more educated population. Indeed, Solar (2020:43) reported that participants with a higher level of education monitored their diet significantly more on most days than participants with a lower level of education, proving adherence differed significantly across education levels. This statement may be true for the current study, which revealed that participants with a higher level of education were more likely to follow a diet or weight loss strategy in the past three years.

5.2.3 Level of income

The current study only took monthly income into account categorised according to increments as set out for Benoni according to Statistics South Africa (Stats SA)(Stats SA, 2011). The level of income in the current study was much higher compared to income specified by Stats SA for Benoni residents (which included men and women). The significant difference is attributable to the fact that Stats SA was last updated according to the 2011 census. As an indication of the differences, Stats SA (2011) indicated that 3.3% of the Benoni residents fell into the income bracket R4 801.00-R9 600.00, whereas, in the current study, 14.% fell into this bracket; and for the income bracket R9 601.00-R19 600.00 Stats SA indicated 8.2%, and the present study 23.5%.

Regardless, in the current study, participants that had followed a diet/s in the past three years fell in the middle- to upper-class income brackets. Sarlio-Lähteenkorva et al. (2004:470) reported that undesirable attitudes toward obese women of higher socioeconomic class place extreme pressure on an individual to be thin. Preoccupation with body size is also more commonly found in groups with higher socioeconomic status (Sarlio-Lähteenkorva et al., 2004).

5.2.4 Marital status

According to the 2019 General Household Survey, among South African women 18 years and older, 46.8% were single, 28.5% were legally married, 10.9% were living together, 3.4% were divorced or separated, and 10.5% were widowed (Statistics South Africa, 2019:7). In the current study, however, the participants were skewed towards married women (60.3% of participants) as seen in (Table 4.1). In a national longitudinal study of youth, Teachman (2016:1) studied 20 years of data collected from 1979 to determine a relationship between marital status or the change in marital status and body weight. Teachman (2016:1) found that being single, divorced or never married was associated with lower body weight. Individuals that were either married or living together tended to weigh more. In the current study, married participants made up the highest percentage (60.3%) to have been on a diet in the past three years, with single, separated/divorced and widowed participants making up lower percentages. Thus, married women in the current study were more interested in responding to a survey on weight loss strategies that they followed.

5.2.5 Ethnic group

According to the latest available figures, Stats SA (2011), Black residents of Benoni represent 45.2%, White residents 38.1%, Indian residents 13.9%, residents of mixed ancestry 2.1%, and other 1.0%. In contrast, in the current study, the majority of participants (88.2%) were White, compared to only 4.0% of Black participants. In a study done by Senekal et al. (2016) amongst female university students in Cape Town regarding weight loss, at least 50% of participants were White (Senekal et al., 2016), and 25.0% were of mixed ancestry. An explanation for this difference can be due to the population distribution in Cape Town, where, as reported by (Stats SA, 2011), the mixed ancestry community alone represents 42.4%. Overall, the current study was skewed towards White participants. This can be linked to the western cultures value of thinness and why more Whites partook in the study.

Paeratakul et al. (2002:348), in a study on self-perception of overweight among individuals classified as normal weight, overweight, and obese in relation to sex, race/ethnicity, and socioeconomic status found that women perceived themselves as overweight significantly more than men and whites perceived themselves as overweight more than blacks, regardless

of their weight. Studies in the US have shown that African American women suffer the social consequences of obesity to a much lesser extent than their White counterparts (Reece, 2019). Reece (2019: 389) discusses findings that White women are much more likely than Black women to suffer discrimination solely based on body size. Thus, Black obese women were found to be almost unaffected, which has been shown in numerous studies to affect White obese women.

In the Black African culture, as alluded to in chapter 1, "fatness" has been perceived as a sign of happiness and wealth and is associated with dignity, respect, confidence and beauty (Kolanisi et al., 2018:22; Puoane et al., 2010:29; Puoane & Fourie, 2005:6). It is, therefore, conceivable that in a South African context, more White women would be interested in and involved with weight loss strategies.

5.2.6 Self-reported health status

In the current study, 90.8% of the participants self-reported good to excellent health, while 74.4% reported never having been diagnosed with a chronic disease, in contrast with a high national burden of chronic disease in South Africa (Samodien et al., 2021). Thus, it seems like women that considered themselves in good health were more involved in weight loss strategies and/or more interested in participating in a survey about their weight-loss strategies. Women may also be ignorant about their health and might not even be aware that they have e.g. undiagnosed hypertension. A large Danish study found that high levels of self-reported health are linked to high levels of health literacy, which includes the understanding of health information (amongst other components). People with higher levels of health literacy are more likely to participate in health-promoting behaviour like weight management (Aaby et al., 2017:1880).

5.3 Lifestyle factors

Lifestyle factors included smoking status, BMI based on self-reported height and weight, self-reported activity level, and water intake.

5.3.1 Smoking status

In the current study, as well as in that of Julia et al. (2014:3), most participants were never smokers (71.3% and 47.8%, respectively), while 7.7% and 37.5%, respectively, were former smokers who had quit. This high percentage of never smokers and ex-smokers might be due to the global message that smoking is dangerous and causes health issues. The first South African National Health and Nutrition Examination Survey (SANHANES 2012) (Reddy et al., 2015:649) found that nationally 47.8% of participants, which included both men and women, tried to stop smoking during the past 12 months, 81.4% noticed health warnings on tobacco packages, and 49.9% indicated that warning labels on packages led them to think about quitting smoking.

Statistics for current smokers were higher in the current study (21.0%) than in the French study (14.7%) (Julia et al., 2014:3). In the current study, the percentage of active smokers are three times higher than the 7.3% national average of women who smoke and five times higher than the 4.4% average of women who smoke for the Gauteng Province (where Benoni is situated) reported in SANHANES (Reddy et al., 2015:649). Thus, the current study suggests that more women who participate in weight loss strategies or are interested in participating in a survey on the weight loss strategies they had followed also smoked. A cross-sectional population-based survey by Saarni et al. (2004:798) in 2000–2002 among young adult Finnish twins found that the number of cigarettes smoked per day increased weight loss. Weight loss was also more probable for daily smokers in both sexes than for never-smokers (Saarni et al., 2004:799). Moreover, in the current study, about half (52.6%) of participants indicated that they ate less when smoking while 81.0% of ex-smokers supported the view of Cois & Day (2015:8) that smoking is sometimes used to feel fuller and eat less, reduce appetite and increase energy expenditure.

5.3.2 Body mass index based on self-reported height and weight

In the current study, 32.7% of participants were overweight, and 44.2% obese, based on BMI calculated from self-reported weight and height, compared to 28.9% overweight and 14.1% obese in the French study by Julia et al. (2014). Thus, 76.9% of participants in the current study were overweight/pre-obese, obese class I and II or extremely obese class III. According

to SANHANES 2012 (Mchiza et al., 2015), nationally, 3.7% of South African women were underweight, 32.0% were normal weight, 24.9% were overweight, and 39.4% were obese, indicating a high national burden of overweight and obesity. According to the 2016 SADHS (NDoH et al., 2019), 26.7% of women in Gauteng were overweight, and 38.9% were obese. The self-reported weight status of the women in the current study was slightly higher than the national and Gauteng prevalence of overweight and obesity. A high percentage of overweight and obesity might be expected in a study of women who seek out weight-loss strategies.

According to the 2016 SADHS, nationally, one in five women (20%) in South Africa falls in the severely obese category (NDoH et al., 2019:299); the current study revealed that just more than a tenth of participants fell in the extreme obese class. Puoane et al. (2002:1041) reported that being underweight was rare in women, supporting the current study's results with only 1.5% of participants being underweight. Results for being overweight and obese were also comparable with Puoane et al. (2002:1041). Puoane et al. (2002:1041) reported that 56.6% of women had very high levels of overweight and obesity, and the current study 52.2% if pre-obese and obese class I were combined. Senekal et al. (2016:5) reported participants being underweight as 1.2%, normal weight (69.1%), overweight (24.1%) and obese (5.6%).

The fact that BMI in the current study was based on self-reported weights and heights might have affected weight categories. However, Olfert et al. (2018:1) compared physically measured height and weight of 1562 students to self-reported measurements. Male students generally overestimated their height, whereas female students were more on target. Both sexes showed statistically significant correlations between self-reported anthropometrics and actual measurements. Therefore, the results in the current study are likely to be an accurate reflection of the participant's BMI. More so, because the current study population represents a group of women that might be weighing themselves regularly (being interested in pursuing weight loss strategies), as opposed to groups of people who have accepted overweight and obesity as a societal norm and, therefore, tend to underestimate their weight or fail to see it as a problem (Robinson, 2017:1200).

5.3.3 Self-reported activity level

Craig et al. (2003:1381) reported that the IPAQ questionnaires produced repeatable and comparable data using either short or long forms. For this current study, the IPAQ short form validated in 27 countries, including South Africa, was used. The short form contains nine items, providing information on walking, vigorous- and moderate-intensity activity, and sedentary activity (Craig et al., 2003:1382). The questionnaires were developed for adults aged between 18–65 years (Craig et al., 2003:1382); the inclusion criteria for the current study included participants older than 65 years of age, but only a very small number in this age group participated. Results in the current study indicated at least half of participants reported being sedentary.

Ortega et al. (2006:1) reported that weight loss strategies showed that people who succeed at losing weight included physical activity in their daily lives and exercised at least 30-minutes/day. The current study, however, found that more than half of the participants (52.6%) were classified as having low activity levels, which, according to Lysen et al. (2021:415), indicates that they were spending more time on low-energy activities such as watching television, using the computer, and driving or using transport that causes people to exercise less. Possibly, not wanting to increase their activity levels might be linked to the fact that 54% of participants in this study reported pursuing self-imposed dietary restrictions/adapted eating patterns in an attempt to lose weight.

5.3.4 Self-reported water intake

Stookey et al. (2008:2481) indicated that drinking water might promote weight loss. In the current study, water consumption was assessed by asking how many 250 ml glasses of water were consumed per day. This question was similarly asked in a systemic review conducted by Muckelbauer and co-workers (Muckelbauer et al., 2014:2465). The systemic review identified five longitudinal studies indicating that increasing water intake has a weight-reducing effect for adults trying to lose weight (Muckelbauer et al., 2014:2473). Muckelbauer et al. (2014:2473) also reported that two experimental studies with adults showed that consuming 500 ml of water per day had an energy-burning effect through the thermogenic effect in the body. In the current study, only 9.9% of participants reported drinking at least 500 ml water

per day, and 18.3% drank at least 500 ml when trying to lose weight. However, almost two thirds of participants (64.6%) indicated that they drank more water when trying to lose weight. Stookey et al. (2008:2487) indicated a 2 kg weight loss if the intake of water was increased to ≥ 1 L/day over 12 months. Stookey et al. (2008:2487) reported that a 2 kg weight loss is consistent with experimental data indicating that energy expenditure is increased by 100 kJ if water intake is increased by 500 ml per day.

5.4 Self-reported use of weight-loss strategies or weight-loss aids

Participants reported the number of strategies and aids followed in the past three years and then answered in more detail regarding the types of strategies and aids used.

5.4.1 Information on the frequency of following a diet or using weight-loss aids

In the current study, 3.7% of participants reported having followed one diet or weight-loss aid in the past three years, compared to 58.6% of participants in the French survey by Julia et al. (2014). Julia et al. (2014) reported that 41.4% of participants had followed more than one diet but did not specify how many diets each participant had followed. In the current study, some participants followed more than seven diets (6.6%) in the last three years. In the US study by Seiber (2020:59), which included men, participants were asked how many times in their lifetime they had made an effort to lose weight. Overall, 21.1% of participants indicated at least once or twice, while 46.1% reported that they had done so seven or more times. It was not specified how many different types of diets were followed. Senekal et al. (2016:4) reported that 64.8% of the participants (students) in their South African study attempted to lose weight in the previous year, but the number of diets followed was not included in their study. In a study in a peri-urban setting in Mangaung, Free State Province, Meko & Nel (2021:5) reported that approximately two-thirds (60.9%) of the female educators they had recruited to their study on body satisfaction had tried or were trying to lose weight. This is lower than the current study in which 90.1% of participants indicated weight loss as a reason for following a chosen diet /aid. The higher percentage could perhaps be attributed to the fact that Benoni is an urban area in Gauteng province of South Africa with more access to resources compared to Mangaung. On the other hand, the women in the Mangaung study were mostly Black, and the ethnic difference in weight perception may have been the major

reason for the differences between the percentage of women trying to lose weight in the two studies

5.4.2 Perception and experiences of different weight-loss strategies

Participants were asked to identify weight-loss strategies (diets) that they had followed and shared their experiences for this study. Weight-loss strategies were categorised according to the conceptual framework established by Julia et al. (2014) in the French survey, as commercial weight loss diet plans, commercial weight loss aids, commercial coaching methods, self-imposed dietary restrictions and adapted eating patterns, diets prescribed by a health professional, non-health professional, mobile weight loss apps, or others (Appendix C).

5.4.2.1 Commercial weight loss diet plans

As depicted in the survey by Julia et al. (2014:2), commercial weight-loss diet plans included Atkins, Dukan, South Beach, etc. The current study did not include any of these commercial weight loss diet plans as mentioned in Julia et al. (2014:2) as it is not as familiar to residents in Benoni as only three participants (1.1%) indicated having followed an Atkins diet, and two participants (0.7%) indicated having followed a Dukan diet. This information was gathered from the answers to question 3.2 of the questionnaire. The following diets were included in the current study, Herbalife, Herbex, USN, GI Lean and any “other” commercial diets not mentioned in the questionnaire. In the study among South African students, Senekal et al. (2016:5) reported that Herbex (classified as a commercial weight-loss diet for this study) was the most commonly used weight loss product (11.7%), whereas Herbex was ranked eleventh in the current study and was used by just more than a fifth of participants. More participants in the current study used Herbalife (47.1%) and USN (10.3%) weight-loss products compared to 3.7% of participants using USN in the study by Senekal et al. (2016:5). GI Lean products use was comparable with 5.1% in the study by Senekal et al. (2016:5) and 3.4% for the current study. The higher percentage of participants that used Herbalife as a weight-loss strategy might be explained by some of the answers given as a reason to adherence being easy in the open-ended question, namely: “convenient”, “didn’t take much time”, and “enjoyed it”.

5.4.2.2 Commercial weight loss aids

The increased pressure felt by overweight/obese individuals might be reflected in the use of commercial weight-loss products to lose weight (Senekal et al., 2016:8). The following weight loss aids featured in the Senekal et al. (2016:5) study was used by participants in the current study, namely Hoodia, CLA, Leanor, Simply Slim and Phentermine. For purposes of the current study the following commercial weight loss aids were also included, Orlistat, meal replacements and any “other” commercial weight loss aid not mentioned. Commercial weight loss aids were not included in the study of Julia et al. (2014). Senekal et al. (2016) mentioned that Phentermine is used to suppress appetite and enhance fat burning. Phentermine was used by less than a third of participants in the current study, compared to 0.6% in the Senekal et al. (2016:8) study. In the current study, CLA and Simply Slim were used as weight loss aids by a higher percentage (8.9% and 6.0%, respectively) compared to results reported in Senekal et al. (2016:8) (3.1% and 0.6 %, respectively). The use of Hoodia and Leanor was reported as very low in both the Senekal et al. (2016:8) and the current study (Hoodia, 1.5% versus 1.7% and Leanor, 1.5% versus 1.7%). In the US study, Seiber (2020:47) reported that 2.6% of participants took diet pills to lose weight, but it was not specified which diet pills were used. Both laxatives (1.3%) and water pills or diuretics (7.9%) were mentioned as a way to control weight (Seiber, 2020:47). Meko & Nel (2021:5) noted that the use of slimming shakes as commercial weight loss aid can be explained due to the pressure from society to be thin and might explain the use of meal replacements (22.4%) in the current study.

5.4.2.3 Commercial coaching methods

Types of commercial coaching methods depicted by Julia et al. (2014:2) were WW, Jenny Craig etc. Weight Watchers is familiar to South African consumers and included in the current study. For purposes of the current study, the following were included as commercial coaching methods SureSlim, Weigh-less, WW and any “other” commercial coaching method not mentioned. According to Julia et al. (2014:3), WW was used by most participants. Weight Watchers was the third most used commercial coaching plan (used by about a fifth of participants) in the current study. Stelter (2015:3) reported that, unlike self-surveillance, coaching for weight loss involves helping clients gain a deeper understanding of self that

enables them to manage their own lives in ways that will allow them to address challenges in new ways. This statement by Stelter (2015) might explain why 37.5% of participants in the current study had followed Weigh-less as a commercial coaching plan. Being held accountable by a coach on a weekly basis helps participants understand why and how to follow a diet, not feeling as if they are alone and having the necessary support in losing weight.

5.4.2.4 Self-imposed dietary restrictions and adapted eating patterns

Almost half of participants using self-imposed dietary restriction/adapted eating patterns for weight loss found it difficult to follow this strategy. Self-imposed dietary restrictions were negatively perceived by participants, according to Julia et al. (2014:1). In the current study, numerous participants had followed more than one self-imposed dietary restriction or eating pattern in the past three years, indicating that an individual will go to any length to lose weight and have a desirable outcome. In this study just over 50.4% of participants used self-imposed dietary restriction(s)/adapted eating patterns, as depicted in Table 4.7. Thomson (2008:738) indicated that psychological factors may play a part in gaining weight, and mentioned factors such as having low self-esteem, stress and depression, and may be the reason for following more than one self-imposed dietary restriction or eating pattern in the past three years.

The following diets/strategies were included for purposes of the current study, namely IF, Paleo diet, Keto diet, Banting, VLCD, Optifast, Mediterranean diet, DASH, TLC, reduced snacking, reduced fat intake, reduced sugar/sugary foods, vegetarian, vegan, pegan, Low GI and any “other” self-imposed dietary restriction(s)/adapted eating patterns. Participants across the different categories reported not experiencing any challenges, frustration or hunger, as depicted in Tables 4.15 and 4.16.

The current study indicated that 8.0.% of participants followed a ketogenic diet, compared to 6.6% that followed a ketogenic diet in the US study conducted by Seiber (2020:47) (which included men), while 9.2 % of participants in the Seiber study reported following a ketogenic diet in the past year (Seiber, 2020:52). In recent years, intermittent fasting has gained considerable public attention and subsequently become a popular weight management approach (Harris et al., 2018:509). IF is to refrain from food during certain periods when following this strategy. Participants in the current study (23.9%) used IF for weight loss,

compared to Seiber, (2020:47), who only had a general fasting group with 2.6% to lose weight and 11.8% that fasted in the past year (Seiber, 2020:51). The paleo diet was followed by 0.6% of participants in the current study compared but was not mentioned in the study conducted by Seiber (2020:52).

Kassier (2015:33) indicated in a study among African-American women in South Africa that researchers found weight-management behaviours to reduce or maintain weight, such as self-imposed diets, were mostly linked to looking attractive afterwards.

5.4.2.5 Diets prescribed by a health professional

According to Julia et al. (2014:6), diets prescribed by health professionals were associated with the most positive perceptions. These positive perceptions can be due to setting achievable goals and personalising according to individual lifestyles and dietary preferences (Julia et al., 2014:6). Seiber (2020:45) reported that 56.6% of participants sought the advice of a physician when trying to lose weight. This percentage included men and women. In the current study, a lower percentage of participants (41.9%) reported following a diet prescribed by a doctor, while more than half used diets prescribed by dietitians in the current study. Williams et al. (2019:14) noted that interventions by dietitians combining exercise delivered more desirable results rather than by doctors and nurses. In the current study for this diet category, n=18; 58.1% of participants had followed a diet prescribed by a dietitian as set out in Table 4.18, indicating that the public perceives dietitians as an authoritative platform for losing weight in a healthy manner.

5.4.2.6 Diets prescribed by non-health professionals

Diets are also prescribed by personal trainers (Kiss et al., 2020), although they may have little to no accredited training in nutrition and physiology. These can also include anyone else giving out a diet. The gap between nutritional knowledge and the demand for information can be considered a universal problem in the fitness industry (Kiss et al., 2020:2). Results from the current study showed that a small percentage (9.6%) of participants used a diet prescribed by a non-health professional, which is comparable with Seiber, (2020:45), who reported 9.2% of participants using other professions for diet advice. For the purpose of his (Seiber's) study,

other professions included: 'nutritionist, gym owner, health coach, Dr. Schulze, personal trainer, wellness class, and WW' (Seiber, 2020:45). In South Africa a nutritionist is seen as a health professional, and also registers with the HPCSA. In the current study, WW was categorised as a commercial coaching method. Meko & Nel (2021:5) reported that several community fitness clubs and gyms had opened in Mangaung, as it has in many other peri-urban areas in South Africa. Exercise was the most popular way in which weight loss was accomplished among the women (38.6%) in their study. It is therefore surprising that only 9.6% of participants in Benoni an urban area in South Africa, were going to the gym or a fitness club as it is very popular in urban areas. It might be due to the fact the majority of participants (85.7%) are aged between 25 and 60 years and are of working age. This might mean that they do not have time to go to the gym as they need to juggle between a job and family.

5.4.2.7 Mobile weight loss applications

Mobile weight loss applications offer nutritional advice and have become very popular and are easily accessible as a tool to manage weight (Lieffers et al., 2017:229). Lieffers et al. (2017:229) conducted semi-structured interviews with individuals who use mobile nutrition apps for weight loss outside scientific settings. Adults with a minimum age of 18 years and older were included (Lieffers et al., 2017:230). Twenty-four individuals took part, of which 19 were female. Fifteen participants (63.0%) were aged 18-30 years and included men (Lieffers et al., 2017:231). Indication of using mobile weight loss Apps in the current study was (9.2%). Although the percentage in the current study is low in comparison to following any other weight loss strategy, it might become a more popular means to losing weight with the trend at which the mobile industry is growing and as Islam et al. (2020:13) mentioned that, mobile weight loss App interventions appear to be an achievable and suitable means for losing weight, maintaining a healthy BMI, and increasing physical activity. Having a pedometer application on a mobile device might assist in the process of participants becoming more active and even being more aware of their daily physical activity levels. Tudor-Locke et al. (2011:2) pointed out that pedometers are relatively affordable, practical, and easy to interpret, making it a more likely tool to be used by the public.

5.5 Most popular weight-loss strategy

The perceptions were determined by asking how long a specific weight loss strategy was followed, as well as why a particular diet programme or weight loss aid was stopped. If participants lost weight with the diet or programme, how much weight they had lost and if they gained weight after discontinuing the diet or programme, and whether it was easy or difficult to follow the diet or programme. The above was used to determine the most popular weight-loss strategy according to the different weight-loss categories. In the current study self-imposed dietary restrictions/adapted eating patterns were the most popular with 54.0% compared to Julia et al. (2014) with 21.4%. Obert et al. (2017:2) found that IF, has increased in popularity and might be the reason why almost a quarter of participants (23.9%) used IF as a self-imposed dietary restriction and was the most popular in the current study. Kuchkuntla et al. (2018:311) also confirmed the popularity of IF. Commercial diet plans were most popular in the Julia et al. (2014) study with 34.1% participation, compared to the current study (27.6%) and were the second most popular choice in the current study. Commercial coaching was found to be the third most popular choice in the current study (19.9%) compared to 12.6% in the study conducted by Julia et al. (2014). Diets prescribed by a health professional was also represented by a higher percentage in the current study (12.1%) than by participants in the Julia et al. (2014) study with 2.4%. Seiber, (2020:45) reported even higher percentages with physicians (56.6%), registered dietitians (34.2%), and registered nurses (17.1%) as prescribers of weight loss diets.

5.6 Reason for choosing a particular weight loss strategy

When more than one effective treatment exists, giving individuals a choice naturally sounds more promising and improves dietary compliance (Leavy et al., 2018:2). This option of choice might be the reason why some participants in the current study have chosen more than one weight loss strategy and even chose more than one diet or strategy in a specific weight loss category. In both the current study and that of Julia et al. (2014), finding out if following a specific diet category were easy or difficult to follow was determined. The current study's results indicated that using Phentermine (Duromine) as a weight loss aid was the easiest to follow (100%), followed by and IF as self-imposed dietary restriction and Herbalife as a

commercial diet plan with 62.8% and 61.0%, respectively. In contrast, Julia et al. (2014) reported it was easiest to follow a commercial coaching plan with 71.6%. Following commercial coaching plans were not comparable with the current study as only 19.9% of participants had followed a commercial coaching plan. Diets prescribed by a health professional were only followed by 11.4% of participants in the current study compared to 67.8% for Julia et al. (2014). It is also observed that following a commercial diet plan was followed by just more than a quarter of participants (27.6%) in the current study in comparison to 53.5% in the Julia and co-workers' study.

Reducing sugar and sugary foods were the most difficult when following a self-imposed dietary restriction, with 66.1% compared to the Julia et al. (2014) study reporting a lower percentage (38.5%).

Not one diet category by Julia et al. (2014) had results above 50.0%, whereas participants in the current study reported 54.0% for following a self-imposed dietary restrictions/adapted eating patterns. It was also reported in the current study that 47.1% of participants used Herbalife as a commercial diet plan, 23.9% used IF as self-imposed dietary restriction, 11.4% for following a diet prescribed by a health professional being a dietitian and 9.6% for following a diet prescribed by a non-health professional being a personal trainer. Both participants in the current study (77.4%), as well as participants from the Julia et al. (2014) (32.2%) study, reported that following a diet prescribed by a health professional was not very difficult to follow. Leavy et al. (2018:2) also reported that weight loss outcomes might be greater if participants were allowed to change between one dietary strategy and another, this will reduce boredom and increase compliance. This might be true for the current study as participants indicated using more than one weight loss strategy, and more than half of participants (56.9%) stated that they maintained their new weight.

5.7 Reasons for discontinuing a particular weight loss strategy

In the study done by Julia et al. (2014:2), the following reasons were given for discontinuing a diet: 'I attained my objective in terms of weight loss', 'I attained my objective in terms of duration', 'I stopped early because of health problems', 'I stopped early because it was too expensive', 'I stopped early because it was too complicated to follow', 'I stopped early

because I felt frustrated or hungry', 'I stopped early because the diet was inefficient'. In the current study, similar questions were asked to determine why a diet was discontinued. The options participants could choose from included: objective obtained, too difficult, felt frustrated and hungry, too expensive and other.

Only 24.4% of participants in the current study using IF as self-imposed dietary restriction/adapted eating pattern indicated that the diet was discontinued because the objective for losing weight was obtained. Smith et al. (2000:123) in their study comparing vegetarian diets with different weight loss diets, found that the reason for discontinuing a diet was diverse; boredom was given as a reason for discontinuing a weight-loss diet. This could be a reason in the current study why participants had followed more than one particular weight loss strategy as they might have gotten bored with a specific weight loss strategy causing them to discontinue one strategy and start with a different one.

The results for different diet categories as set out by Julia et al. (2014:2) are compared to results in the current study. Results from both the current study and Julia et al. (2014) indicated that the objective obtained was the reason for discontinuing a diet. Almost fifty per cent (47.7%) of participants in the Julia et al. (2014) study indicated that they obtained their objective following a commercial diet plan, compared to only 12.6% of participants in the current study. Commercial coaching plans (37.0%) and diets prescribed by a health professional (42.5%) were indicated by a higher percentage in the study by Julia et al. (2014) compared to participants in the current study, with 18.5% obtaining their objective following a commercial coaching plan and 22.6% following a diet prescribed by a health professional.

The option other was also a reason for discontinuing the diet. A lower percentage, 32.1%, of participants in the current study indicated other reasons for discontinuing a self-imposed dietary restriction, compared to 51.9% of participants in the Julia and co-worker study. Results from the Julia et al. (2014) study for commercial diet plans (54.7%), commercial coaching plans (63.0%) as well as diets prescribed by a health professional was indicated by a notably higher percentage of participants mentioning other as the reason for discontinuing the diet compared to the current study 24.1% for following a commercial diet plan, 42.6% for following a commercial coaching plan and 38.7% following a diet prescribed by a health

professional. Seiber, (2020:48) asked the following question in his study, “what has been your greatest difficulties with dieting or losing weight?”, 23.7% indicated it was too expensive, this answer was an option in the current study for both the reason for discontinuing the diet/strategy/aid as well as the reason why it was too difficult to follow the diet/strategy/aid. Seiber asked a general question regarding difficulties when following a diet or losing weight, whereas the current study wanted to know what the percentage was for all the different categories.

5.8 Challenges experienced while following the diet/ strategy /aid

Challenges experienced were not compared in the Julia et al. (2014) study.

5.9 Level of frustration experienced while following the diet/strategy/aid

The following two choices were given to determine the level of frustration experienced following the diet/strategy /aid by participants in the Julia et al. (2014) study; not at all to a little, and moderately to a lot, four similar options; not at all, a little, moderately and a lot were given in the current study. In this study, the following answers were grouped for purposes of comparison with the Julia et al. (2014) study, not at all-a little.

In all four diet categories, the current study reported a higher percentage of experiencing no to little frustration following the diet/strategy/aids. No or little frustration was experienced by participants following a self-imposed dietary restriction compared to the Julia et al. (2014) study (Table 4.23). In the current study, more than one diet in each diet category could be followed. Therefore, much higher percentages were indicated in descending order: commercial coaching plans with 88.9%, commercial diet plans (83.9%), health professionals (74.2%) and self-imposed dietary restrictions (70.4%) compared to Julia and co-workers’ study. The percentage of the participant following a diet prescribed by a health professional in the current study was just more than double the percentage indicated by Julia (35.0%) for the Julia and co-worker’s study.

5.10 Experienced hunger whilst following the diet/strategy/aid

Participants in the Julia et al. (2014) study had the following two choices to indicate if they experienced hunger whilst following the diet/strategy /aid; not at all to a little and moderately

to a lot, participants in the current study had similar options but divided into four separate options; not at all, a little, moderately and a lot. For purposes of comparison, answers were grouped to compare with the Julia et al. (2014) study.

In the current study, participants following a commercial coaching plan reported not feeling hungry at all or only a little (83.3%) (Table 4.23) compared to 52.8% in the Julia and co-worker's study. Across all other categories, higher percentages were indicated for experiencing no or little hunger. More than three quarters (77.4%) of participants following a diet prescribed by a health professional did not experience hunger or only a little hunger compared to 57.3% of participants in the Julia and co-workers' study.

5.11 Associations between the choice of weight loss strategy, socio-demographic factors, BMI, and activity levels.

No significant associations between variables were established in the current study, except for self-imposed dietary restrictions/adapted eating patterns and age.

5.12 Summary

Most participants that were interested in a survey on weight loss strategies were in the age group between 40-60 years, mostly White urban women which resided in Benoni, South Africa. Most of the participants had a tertiary education, fell in the middle to higher income group were in a relationship and or living together. The majority rated themselves as being healthy and most were non-smokers, three quarters of participants were overweight, pre-obese and obese, and more than half had a low activity level. Participants indicated weight loss as the reason for choosing a particular strategy/weight loss aid. Two thirds indicated that they drank more water when trying to lose weight. Some participants indicated that they had followed up to ten diets in the past three years. The total number of weight loss strategies per seven categories was 619. Although various weight loss categories were available more than half of participants chose self-imposed dietary restriction/adapted eating patterns to lose weight. Experiences varied of participants between different categories.

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

The limitations of the study, as well as the conclusions and recommendations, are discussed in this final chapter.

6.1 Introduction

To date, very little was known regarding South African women's perceptions of and experiences with weight loss programmes and diets (Mchiza et al., 2011), as limited literature is available in South Africa. Kassier (2015), investigated 'weight management-related focus areas in middle-class overweight/obese black (Zulu) women to advise healthy weight loss intervention development' and Senekal et al. (2016), 'weight-loss strategies of South African female university students and comparison of weight management-related characteristics between dieters and non-dieters'. The study aimed to investigate the perceptions and experiences of women regarding weight loss strategies in the general population of Benoni, on the East Rand, Gauteng, South Africa. This dissertation provides insight into which weight loss strategies South African women residing in Benoni, Gauteng chose, the reasons for choosing specific diets and their experiences with these strategies.

Overweight and obesity is high among South African women (NDoH et al., 2019:297; Kassier, 2015:1; Mchiza et al., 2011). Given the social pressures on women in the media and among their peers to be thin (Mchiza et al., 2011), it might be expected that many South African women would seek help from available weight loss diets, strategies, programmes and applications. Furthermore, this study demonstrated that women mainly follow a diet to lose weight. The total number of diets followed across all categories were 619 as can be seen in Table 4.7. What needs to be considered is that numerous participants followed more than one weight loss strategy in one or more categories.

Not only do factors such as, socio-demographic factors (age, level of education, level of income, marital status, ethnicity as well as self-reported health status), lifestyle factors such as smoking status, BMI based on self-reported height and weight, self-reported activity levels and intake of water play an important role in participants' perceptions and experiences

following different weight-loss strategies but also the frequency of following a diet or using weight-loss strategies/ aids.

Results from this study may assist dietitians and other healthcare professionals in designing and choosing approaches that may lead to improved dietary adherence and long-term and sustained weight loss.

6.2 Limitations and strengths of the study

The main limitation of this study was recruiting participants. Although a free copy of the local newspaper is delivered to thirty-nine thousand residents, only one participant responded to the online advertisement in the Benoni City Times, which could be accessed on the webpage of Caxton local media. Initially, authorisation was not granted from social media platforms but was later approved. The link was distributed to female weight loss clients of the practice of the researcher, and they were asked to forward the link to friends and family in Benoni, but only 84 participants responded. By 18 December 2020, approval from the Facebook community page was obtained, the response was very positive, and by the 21st of December 2020, 277 participants had completed the survey, indicating the influence of social media platforms. In future making use of local radio stations to recruit participants should be considered.

One limitation of the survey was that participants only answered questions based on their previous answers. Some participants indicated following a specific diet and or weight loss aid in question five, but did not necessarily answer the related questions as not all were compulsory. Another limitation was that the question “how much weight did you lose with every weight loss strategy” was not asked. The question posed was, “how much weight did you regain”.

Participants were only allowed to complete the survey once.

6.2.1 Conclusion and recommendations

Conclusions and recommendations are summarised in terms of the research objectives.

6.3 Socio-demographic information and health status

Socio-demographic factors included the following: age, level of education, level of income, marital status, ethnicity as well as self-reported health status.

The study population had a median age of over 40 years of age. This current study revealed that the age group between 40-60 years reported the highest percentage to follow at least one diet indicating that older women were more inclined to follow a weight loss strategy compared to the French study conducted by Julia et al. (2014). and the South African study conducted by Senekal et al. (2016:). The youngest and oldest age groups were least likely to follow a diet.

This current study revealed that participants with a higher level of education were more likely to follow a diet or weight loss strategy in the past three years and fell in the middle- to upper income brackets. Preoccupation with body size is more commonly found in groups with higher socioeconomic status (Robinson, 2017:18). Married women and those being in permanent relationship were more interested in responding to a survey on weight loss strategies that they followed than-single, separated/divorced and widowed participants. The majority of women were White that completed the survey, followed by a lower percentage of Black and Indian participants.

The majority of participants indicated having excellent health, while almost three quarters of participants reported never having been diagnosed with a chronic disease, in contrast with a high national burden of chronic disease in South Africa (Samodien et al., 2021). It seems that women who considered themselves in good health were more involved in weight loss strategies and/or more interested in participating in the survey about their weight-loss strategies.

6.3.1 Recommendations on socio-demographic and health information

More research into other ethnic groups as well as reasons for why so few people make use of dietitians are necessary This will enable dietitians to help women of all ages, income and education levels, marital status, ethnic groups and health status to lose weight.

6.4 Lifestyle factors

Lifestyle factors included smoking status, BMI based on self-reported height and weight, self-reported activity level, and intake of water.

The current study more women who followed weight loss strategies also smoked. Smoking could be used to feel fuller and eat less, help decrease appetite and increase energy expenditure. Three quarters of the participants were overweight/pre-obese, obese class I and II or extremely obese class III. The study indicated that at least half of the participants reported being sedentary. Possibly, not wanting to increase their activity levels might be linked to the fact that slightly more than half of participants in this study reported pursuing self-imposed dietary restrictions/adapted eating patterns in an attempt to lose weight. Almost two thirds of participants indicated that they drank more water when trying to lose weight.

6.4.1 Recommendations on lifestyle factors

The dietitian as health care professional, has the professional knowledge and skills to individualise lifestyle recommendations to help with weight loss and weight maintenance. Interprofessional co-operation, e.g. with a medical doctor, biokineticist etc should be taken into account.

6.5 Self-reported use of weight-loss strategies or weight-loss aids

Participants reported the number of strategies and aids followed in the past three years and answered in more detail regarding the types of strategies and aids used.

6.5.1 Information on the frequency of following a diet or using weight-loss aids

The current study, indicated that some participants followed up to ten diets/weight loss strategies in the last three years. The majority of participants indicated weight loss as a reason for following a chosen diet/strategy/aid. The higher percentage could perhaps be attributed to the fact that Benoni is an urban area in the Gauteng province of South Africa with more access to resources.

6.5.2 Perception and experiences of different weight-loss strategies

Participants specified the different weight-loss strategies/diets followed and shared their experiences for this study. Weight-loss strategies were categorised as follows; commercial weight loss diet plans, commercial weight loss aids, commercial coaching methods, self-imposed dietary restrictions and adapted eating patterns, diets prescribed by a health professional, non-health professional, mobile weight loss apps, or others as set out in Appendix C.

6.5.2.1 Commercial weight loss diet plans

Herbalife was the most popular commercial weight loss diet plan and might be explained by some of the answers given as a reason to adherence being easy in the open-ended question, namely: *“convenient”*, *“didn’t take much time”*, and *“enjoyed it”*.

6.5.2.2 Commercial weight loss aids

The following weight loss aids were used by participants in the current study, namely Hoodia, CLA, Leanor, Simply Slim and Phentermine (Duromine), Orlistat, meal replacements and other. Duromine was found to be the most popular commercial weight loss aid, followed by “other” commercial weight loss aids, which included some products mentioned such as CSN, Cheetathin, Garcinia Cambogia capsules; and ReliSlim followed by meal replacements.

6.5.2.3 Commercial coaching methods

Participants in the current study indicated following Weigh-less as the weight loss method of choice in this category.

6.5.2.4 Self-imposed dietary restrictions and adapted eating patterns

Intermittent fasting was the most popular form of self-imposed dietary restriction, followed by reduced intake of sugar and sugary foods and then Banting.

6.5.2.5 Diets prescribed by a health professional

Dietitians were indicated to be the most popular choice when using a diet prescribed by a health professional. More participants used dietitians than medical doctors as health care professionals to assist with weight loss

6.5.2.6 Diets prescribed by non-health professionals

Only diets prescribed by a personal trainer was mentioned as a diet prescribed by a non-health professional.

6.5.2.7 Mobile weight loss applications

Mobile weight loss applications supply nutritional advice, are very popular and trendy, and are also an easily accessible weight management tool. The percentage of users in the current study is low in comparison to other weight loss strategies. The role of social media can be seen in the numerous diets and strategies available. A different result regarding the adherence to following a diet on a mobile weight loss applications might be seen in future as this industry is evolving.

6.6 Most popular weight-loss strategy

According to the survey, as indicated in Table 4.7, the most popular weight loss strategy were self-imposed dietary restrictions/adapted eating patterns, followed by commercial diet plans and commercial weight loss aids.

6.7 Reason for choosing a particular weight loss strategy

Having an option of choice might be the reason why some participants in the current study chose more than one weight loss strategy and even chose more than one diet or strategy in a specific weight loss category. Results indicated that using Phentermine (Duromine) as a weight loss aid was easiest, followed by Herbalife as a commercial diet plan and IF as self-imposed dietary restriction.

6.8 Reasons for discontinuing a particular weight loss strategy

The following reasons, “too difficult” and “expensive”, were given for discontinuing a commercial diet plan. “Other” was given as the reason for discontinuing commercial weight loss aids and commercial coaching plans. In the self-imposed dietary restrictions and adapted eating patterns category, “other” reasons were indicated. Participants who followed diets prescribed by a health professional indicated they discontinued the diet because the objective was obtained. Mobile weight loss App users indicated “other” and too difficult to follow as reasons for discontinuing this weight loss strategy.

6.9 Challenges experienced while following the diet/strategy/aid

A reasonable percentage of participants across all categories indicated experiencing no challenges while following the diet/strategy/aid.

6.10 Level of frustration experienced while following the diet/strategy/aid

A reasonable percentage of participants across all categories indicated experiencing no frustration while following the diet/strategy/aid.

6.11 Experienced hunger whilst following the diet/strategy/aid

Across all the different categories it was indicated that no hunger to a little was experienced for following a weight loss strategy or aid.

6.12 Associations between the choice of weight loss strategy, socio-demographic factors, BMI, and activity levels.

No significant associations between variables were established in the current study, except for self-imposed dietary restrictions/adapted eating patterns and age.

6.13 Recommendations for research

More studies across South African are needed to support the current studies’ findings. Additional research is needed in understanding why people choose different weight loss strategies that are not always evidence-based or beneficial to sustainable weight loss.

Therefore, the insights gained from this study may serve as preliminary work for further research to be conducted in all provinces in South Africa. As more than half of participants indicated having followed a diet prescribed by a dietitian as health professional, they need to position themselves to become the category of choice when choosing a weight loss strategy. The possibility of creating a mobile weight loss application should be explored as an accompanying tool for dietitians.

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Appendix A: Ethics approval



Health Sciences Research Ethics Committee

16-Nov-2020

Dear Mrs Hester Cox

Ethics Clearance: Perceptions and Experiences of Women in Benoni Regarding Weight Loss Strategies.

Principal Investigator: Mrs Hester Cox

Department: Human Nutrition Department (Bloemfontein Campus)

APPLICATION APPROVED

Please ensure that you read the whole document

With reference to your application for ethical clearance with the Faculty of Health Sciences, I am pleased to inform you on behalf of the Health Sciences Research Ethics Committee that you have been granted ethical clearance for your project.

Your ethical clearance number, to be used in all correspondence is: UFS-HSD2020/1396/2411

The ethical clearance number is valid for research conducted for one year from issuance. Should you require more time to complete this research, please apply for an extension.

We request that any changes that may take place during the course of your research project be submitted to the HSREC for approval to ensure we are kept up to date with your progress and any ethical implications that may arise. This includes any serious adverse events and/or termination of the study.

A progress report should be submitted within one year of approval, and annually for long term studies. A final report should be submitted at the completion of the study.

The HSREC functions in compliance with, but not limited to, the following documents and guidelines: The SA National Health Act, No. 61 of 2003; Ethics in Health Research: Principles, Structures and Processes (2015); SA GCP(2006); Declaration of Helsinki; The Belmont Report; The US Office of Human Research Protections 45 CFR 461 (for non-exempt research with human participants conducted or supported by the US Department of Health and Human Services- (HHS), 21 CFR 50, 21 CFR 56; CIOMS; ICH-GCP-E6 Sections 1-4; The International Conference on Harmonization and Technical Requirements for Registration of Pharmaceuticals for Human Use (ICH Tripartite), Guidelines of the SA Medicines Control Council as well as Laws and Regulations with regard to the Control of Medicines, Constitution of the HSREC of the Faculty of Health Sciences.

For any questions or concerns, please feel free to contact HSREC Administration: 051-4017794/5 or email EthicsFHS@ufs.ac.za.

Thank you for submitting this proposal for ethical clearance and we wish you every success with your research.

Yours Sincerely

Dr. SM Le Grange

Chair : Health Sciences Research Ethics Committee

Health Sciences Research Ethics Committee

Office of the Dean: Health Sciences

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IRB 00011992; REC 230408-011; IORG 0010096; FWA 00027947

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Appendix B: Advertisement for research

Female research participants needed!

The Department of Nutrition and Dietetics from the University of the Free State need female volunteers (18 years and older) to take part in a **survey** on the "**Perceptions and experiences of women in Benoni regarding weight loss strategies**". To take part in the study you need to have followed at least one weight loss strategy (slimming/weight loss diet) in the past 3 years.

Your participation will help us gain better insight into these aspects and may assist dietitians and physicians/doctors to design and choose approaches that may lead to better commitment and long-term weight loss.

Your participation is voluntary and will not include payment or incentives. Your e-mail address and information given through your participation in the survey will be treated with confidentiality. After completion of the survey, you will receive a brochure with guidelines on healthy eating. A summary of the study can be send to interested participants after the study.

If you are interested to participate in this survey, please contact Johannita Cox via e-mail by sending an e-mail to johannita.soqi@gmail.com. The survey is in English. If you need any assistance with translation or interpretation into isiZulu or Afrikaans kindly inform the researcher to make arrangements for a translator/interpreter to assist you with completing the questionnaire.

Appendix C: Questionnaire

EvaSys	Perceptions and experiences of women in Benoni regarding weight loss strategies	
- Johannita Cox		
		
Perceptions and experiences of women in Benoni regarding weight loss strategies		
Mark as shown: ☐  ☐  Please use a ball-point pen or a thin felt tip. This form will be processed automatically.		
Correction: ☐  ☐  Please follow the examples shown on the left hand side to help optimize the reading results.		
Survey: Perceptions and experiences of women in Benoni regarding weight loss strategies		
INSTRUCTIONS: CLICK THE APPROPRIATE ANSWER OR TYPE YOUR ANSWER IN THE SPACE PROVIDED. PLEASE MAKE SURE THAT YOU ANSWER ALL APPLICABLE QUESTIONS. IF YOU CHOOSE THE "OTHER" OPTION PLEASE PROVIDE DETAIL.		
* = Mandatory fields to complete		
1. CONSENT:		
1.1 ELECTRONIC CONSENT: Please select your choice below. Clicking on the "Agree" button below indicates that: ☐ Agree ☐ Disagree • you have read the above information • you voluntarily agree to participate • you are at least 18 years of age If you choose not to give consent to complete the survey, please click on the "Disagree" button.		
* Since you have chosen not to consent to this survey, please select 'Submit' to exit the survey.		
1.2 What is today's date? (YYYY/MM/DD)		
□ □ □ □ / □ □ / □ □		
2. Demographic information		
2.1 What is your date of birth? (YYYY/MM/DD)		
□ □ □ □ / □ □ / □ □		
2.2 What is your age in years?		
□ □ □		
2.3 Indicate your highest level of education.		
☐ < Grade 9 ☐ Grade 12 ☐ Post Graduate qualification ☐ Grade 10 ☐ Diploma / Certificate ☐ Grade 11 ☐ Degree		
2.4 Indicate your monthly income.		
☐ R0.00 - R4800.00 ☐ R19601.00 - R38200.00 ☐ R4801.00 - R9600.00 ☐ R38201.00 - R76400.00 ☐ R9601.00 - R19600.00 ☐ R76401.00 - R153800.00		
2.5 What is your marital status?		
☐ Single ☐ Long term relationship ☐ Married ☐ Separated / Divorced ☐ Living together ☐ Widowed		
F7978U0P1PL0V0		21.12.2020, Page 1/49
		

2. Demographic information [Continue]

2.6 Which group do you belong to?

☐ Black

☐ White

☐ Indian

☐ Mixed ancestry

☐ Other

2.7 If "Other", please explain:

2.8 Do you smoke?

☐ Yes

☐ No

☐ Smoked in the past

2.9 How many cigarettes do you smoke per day?

2.10 Do you smoke when you are stressed?

☐ Yes

☐ No

☐ Sometimes

2.11 Do you eat less when you smoke?

☐ Yes

☐ No

☐ Sometimes

2.12 How many cigarettes did you smoke per day?

2.13 Did you smoke when you were stressed?

☐ Yes

☐ No

☐ Sometimes

2.14 Did you eat less when you smoked?

☐ Yes

☐ No

☐ Sometimes

3. Information on frequency of following a diet or using weight loss aids

3.1 How many diets have you followed or weight loss aids have you used in the past 3 years?

3.2 Please type in the space provided which diets you had followed or weight loss aids used in the past three (3) years.

4. Reason for following a diet or using a weight loss aid (mark all that apply)

4.1 Why did you follow the diet(s) or use weight loss aids?

☐ Weight loss

☐ Health reasons

☐ Other

4.2 If "Other", please explain:

5. Information on type of diet(s) followed and / or weight loss aids used.



5. Information on type of diet(s) followed and / or weight loss aids used. [Continue]

5.1 Please indicate type of diet and or weight loss aids used or followed. If you have followed more than one diet or used more than one weight loss aid, please mark all the applicable ones.

- | | | |
|---|---|--|
| ☐ Commercial diet plan e.g. Herbalife, Herbex, Ultimate Sports Nutrition (USN), Gl Lean, other | ☐ Commercial weight loss aids e.g. Biomix Slimming, Hoodia, Conjugated Linoleic Acid (CLA), Leanor, Simply slim, Phentermine (Duramine), Orlistat, Meal replacements, other | ☐ Commercial coaching plan e.g. Sureslim, Weigh-less, Weight Watchers, other |
| ☐ Self-imposed dietary restrictions and adapted eating patterns : Intermittent fasting, Paleolithic (Paleo) diet, Ketogenic (Keto) diet, Banting diet, Very low calorie diet (VLCD), Mediterranean diet, Dietary Approach to Stop Hypertension (DASH) diet, Therapeutic Lifestyle Changes (TLC) diet, Reduced snacking, Reduced fat intake, Reduced intake of sugar and sugary foods, Vegetarian diet, Vegan diet, Paleo-vegan (Pegan) diet, Low glycemic index and other | ☐ Diets prescribed by a Health professional: Doctor, Dietitian, Physiotherapist, Biokineticist | ☐ Diets prescribed by non-health professionals: Personal trainers, other |
| ☐ Mobile weight loss App | ☐ Other | |

5.2 Which of the following commercial diets have you followed in the past 3 years? Mark all that apply.

- | | | |
|------------------------------------|---------------------------------|--|
| ☐ Herbalife | ☐ Herbex | ☐ Ultimate Sports Nutrition (USN) |
| ☐ Gl Lean | ☐ Other | |

5.3 If "Other", please explain:

5.4 Which of the following weight loss aids have you used in the past 3 years?

- | | | |
|--|--|---|
| ☐ Biomix Slimming | ☐ Hoodia | ☐ Conjugated Linoleic Acid (CLA) |
| ☐ Leanor | ☐ Simply slim | ☐ Phentermine (Duramine) |
| ☐ Orlistat | ☐ Meal replacements | ☐ Other |

5.5 If "Other", please explain:

5.6 Which of the following commercial coaching plans have you followed in the past 3 years? Mark all that apply.

- | | | |
|-----------------------------------|-------------------------------------|--|
| ☐ Sureslim | ☐ Weigh-less | ☐ Weight Watchers |
| ☐ Other | | |

5.7 If "Other", please explain:



5. Information on type of diet(s) followed and / or weight loss aids used. [Continue]

5.8 Which of the following self-imposed dietary restrictions and adapted eating patterns have you followed in the past 3 years? Mark all that apply.

- | | | |
|--|--|---|
| ☐ Intermittent fasting | ☐ Paleolithic (Paleo) diet | ☐ Ketogenic (Keto) diet |
| ☐ Banting diet | ☐ Very low calorie diet (VLCD) | ☐ OptiFast |
| ☐ Mediterranean diet | ☐ Dietary Approaches to Stop Hypertension (DASH) diet | ☐ Therapeutic Lifestyle Changes (TLC) diet |
| ☐ Reduced snacking | ☐ Reduced fat intake | ☐ Reduced intake of sugar and sugary foods |
| ☐ Vegetarian diet | ☐ Vegan diet | ☐ Paleo-vegan (Pegan) diet |
| ☐ Low glycemic index diet | ☐ Other | |

5.9 If "Other", please explain:

5.10 Which of the following diets have you followed in the past 3 years prescribed by a health professional? Mark all that apply.

- | | | |
|--|------------------------------------|--|
| ☐ Doctor | ☐ Dietitian | ☐ Physiotherapist |
| ☐ Biokineticist | | |

5.11 Have you followed a diet in the past 3 years prescribed by a Personal trainer? ☐ Yes ☐ No

5.12 Have you followed any diet on a Mobile weight loss App in the past 3 years? ☐ Yes ☐ No

5.13 Please type the names of the mobile applications you used in the past 3 years.

5.14 Please type the names of any other diet you have followed in the past 3 years not mentioned above.

6. Information on Herbalife:

6.1 Information on conditions of commercial diet(s) followed

How long did you use Herbalife for?

years, months

6.2 Why did you stop using Herbalife? Mark all that apply.

- | | | |
|---|--|---|
| ☐ Objective obtained | ☐ Too difficult | ☐ Felt frustrated and hungry |
| ☐ Too expensive | ☐ Other | |

6.3 If "Other", please explain:

6.4 Explain your adherence to using Herbalife please. ☐ It was easy to follow ☐ It was difficult to follow

6.5 Kindly indicate why using Herbalife was easy to follow.



6. Information on Herbalife: [Continue]

6.6 Why was it difficult to follow using Herbalife? Mark all that apply.

- ☐ Too strict ☐ Unfamiliar ingredients ☐ Too expensive
☐ Did not loose any weight ☐ Other

6.7 If "Other", please explain:

6.8 Did you experience any challenges using Herbalife? ☐ Not at all ☐ A little ☐ Moderately
☐ A lot

6.9 Kindly indicate what challenges you experienced.

6.10 What level of frustration did you experience using Herbalife? ☐ Not at all ☐ A little ☐ Moderately
☐ A lot

6.11 Kindly specify the frustrations you experienced using Herbalife.

6.12 Did you experience any hunger whilst using Herbalife? ☐ Not at all ☐ A little ☐ Moderately
☐ A lot

7. Information on Herbex:7.1 Information on conditions of commercial diet(s) followed
How long did you use Herbex for?
 years, months

7.2 Why did you stop using Herbex? Mark all that apply.

- ☐ Objective obtained ☐ Too difficult ☐ Felt frustrated and hungry
☐ Too expensive ☐ Other

7.3 If "Other", please explain:

7.4 Explain your adherence to using Herbex please. ☐ It was easy to follow ☐ It was difficult to follow

7.5 Kindly indicate why it was easy using Herbex.

7.6 Why was it difficult using Herbex? Mark all that apply.

- ☐ Too strict ☐ Unfamiliar ingredients ☐ Too expensive
☐ Did not loose any weight ☐ Other



7. Information on Herbex: [Continue]

7.7 If "Other", please explain:

7.8 Did you experience any challenges using Herbex? ☐ Not at all ☐ A little ☐ Moderately
☐ A lot

7.9 Kindly indicate what challenges you experienced using Herbex.

7.10 What level of frustration did you experience using Herbex? ☐ Not at all ☐ A little ☐ Moderately
☐ A lot

7.11 Kindly specify the frustrations you experienced using Herbex.

7.12 Did you experience any hunger whilst using Herbex? ☐ Not at all ☐ A little ☐ Moderately
☐ A lot**8. Information on Ultimate Sports Nutrition (USN):**8.1 Information on conditions of commercial diet(s) followed
How long did you use USN for? years, months

8.2 Why did you stop using USN? Mark all that apply.

☐ Objective obtained ☐ Too difficult ☐ Felt frustrated and hungry
☐ Too expensive ☐ Other

8.3 If "Other", please explain:

8.4 Explain your adherence to using USN please. ☐ It was easy to follow ☐ It was difficult to follow

8.5 Kindly indicate why it was easy to use USN.

8.6 Why was the difficult to use USN? Mark all that apply.

☐ Too strict ☐ Unfamiliar ingredients ☐ Too expensive
☐ Did not loose any weight ☐ Other

8.7 If "Other", please explain:



8. Information on Ultimate Sports Nutrition (USN): [Continue]

8.8 Did you experience any challenges using USN? ☐ Not at all ☐ A little ☐ Moderately
☐ A lot

8.9 Kindly indicate what challenges you experienced using USN.

8.10 What level of frustration did you experience using USN? ☐ Not at all ☐ A little ☐ Moderately
☐ A lot

8.11 Kindly specify the frustrations you experienced using USN.

8.12 Did you experience any hunger whilst using USN? ☐ Not at all ☐ A little ☐ Moderately
☐ A lot

9. Information on GI Lean:

9.1 Information on conditions of commercial diet(s) followed

How long did you use GI Lean for?

years, months

9.2 Why did you stop using GI Lean? Mark all that apply.

☐ Objective obtained ☐ Too difficult ☐ Felt frustrated and hungry
☐ Too expensive ☐ Other

9.3 If "Other", please explain:

9.4 Explain your adherence to using GI Lean please. ☐ It was easy to follow ☐ It was difficult to follow

9.5 Kindly indicate why it was easy to use GI Lean.

9.6 Why was it difficult to use GI Lean? Mark all that apply.

☐ Too strict ☐ Unfamiliar ingredients ☐ Too expensive
☐ Did not loose any weight ☐ Other

9.7 If "Other", please explain:

9.8 Did you experience any challenges using GI Lean? ☐ Not at all ☐ A little ☐ Moderately
☐ A lot



9. Information on GI Lean: [Continue]

9.9 Kindly indicate what challenges you experienced using GI Lean.

9.10 What level of frustration did you experience using GI Lean? ☐ Not at all ☐ A little ☐ Moderately ☐ A lot

9.11 Kindly specify the frustrations you experienced using GI Lean.

9.12 Did you experience any hunger whilst using GI Lean? ☐ Not at all ☐ A little ☐ Moderately ☐ A lot

10. Information on Other Commercial diet plan:

10.1 Information on conditions of any other commercial diet(s) followed
How long did you follow any other commercial diet for?

years, months

10.2 Why did you stop any other commercial diet? Mark all that apply.

☐ Objective obtained ☐ Too difficult ☐ Felt frustrated and hungry
☐ Too expensive ☐ Other

10.3 If "Other", please explain:

10.4 Explain your adherence to following any other commercial diet please. ☐ It was easy to follow ☐ It was difficult to follow

10.5 Kindly indicate why any other commercial diet was easy to follow.

10.6 Why was it difficult to follow any other commercial diet? Mark all that apply.

☐ Too strict ☐ Unfamiliar ingredients ☐ Too expensive
☐ Did not lose any weight ☐ Other

10.7 If "Other", please explain:

10.8 Did you experience any challenges following any other commercial diet? ☐ Not at all ☐ A little ☐ Moderately ☐ A lot



10. Information on Other Commercial diet plan: [Continue]

10.9 Kindly indicate what challenges you experienced following any other commercial diet.

10.10 What level of frustration did you experience following any other commercial diet?

☐ Not at all ☐ A little ☐ Moderately
☐ A lot

10.11 Kindly specify the frustrations you experienced following any other commercial diet.

10.12 Did you experience any hunger whilst following any other commercial diet?

☐ Not at all ☐ A little ☐ Moderately
☐ A lot

11. Information on Biomix Slimming weight loss aid:

11.1 Information on conditions of weight loss aid used.
How long did you use Biomix slimming for?

years, months

11.2 Why did you stop using Biomix Slimming? Mark all that apply.

☐ Objective obtained ☐ Too difficult ☐ Felt frustrated and hungry
☐ Too expensive ☐ Other

11.3 If "Other", please explain:

11.4 Explain your adherence to using Biomix Slimming please.

☐ It was easy to follow ☐ It was difficult to follow

11.5 Kindly indicate why the use of Biomix Slimming was easy to follow.

11.6 Why was using Biomix Slimming difficult to follow? Mark all that apply.

☐ Too strict ☐ Unfamiliar ingredients ☐ Too expensive
☐ Did not lose any weight ☐ Other

11.7 If "Other", please explain:

11.8 Did you experience any challenges using Biomix Slimming?

☐ Not at all ☐ A little ☐ Moderately
☐ A lot



11. Information on Biomix Slimming weight loss aid: [Continue]

11.9 Kindly indicate what challenges you experienced using Biomix slimming.

11.10 What level of frustration did you experience using Biomix Slimming? ☐ Not at all ☐ A little ☐ Moderately ☐ A lot

11.11 Kindly specify the frustrations you experienced using Biomix Slimming.

11.12 Did you experience any hunger whilst using Biomix Slimming? ☐ Not at all ☐ A little ☐ Moderately ☐ A lot

12. Information on Hoodia:

12.1 Information on conditions of weight loss aid used.
How long did you use Hoodia for?

years, months

12.2 Why did you stop using Hoodia? Mark all that apply.

☐ Objective obtained ☐ Too difficult ☐ Felt frustrated and hungry
☐ Too expensive ☐ Other

12.3 If "Other", please explain:

12.4 Explain your adherence to using Hoodia please. ☐ It was easy to follow ☐ It was difficult to follow

12.5 Kindly indicate why using Hoodia was easy to follow.

12.6 Why was it difficult using Hoodia? Mark all that apply.

☐ Too strict ☐ Unfamiliar ingredients ☐ Too expensive
☐ Did not lose any weight ☐ Other

12.7 If "Other", please explain:

12.8 Did you experience any challenges using Hoodia? ☐ Not at all ☐ A little ☐ Moderately ☐ A lot



12. Information on Hoodia: [Continue]

12.9 Kindly indicate what challenges you experienced using Hoodia.

12.10 What level of frustration did you experience using Hoodia?
☐ Not at all ☐ A little ☐ Moderately
☐ A lot

12.11 Kindly specify the frustrations you experienced using Hoodia.

12.12 Did you experience any hunger whilst using Hoodia?
☐ Not at all ☐ A little ☐ Moderately
☐ A lot**13. Information on Conjugated Linoleic Acid (CLA):**13.1 Information on conditions of weight loss aid used
How long did you use CLA for? years, months

13.2 Why did you stop using CLA? Mark all that apply.

☐ Objective obtained ☐ Too difficult ☐ Felt frustrated and hungry
☐ Too expensive ☐ Other

13.3 If "Other", please explain:

13.4 Explain your adherence to using CLA please.
☐ It was easy to follow ☐ It was difficult to follow

13.5 Kindly indicate why it was easy to use CLA.

13.6 Why was it difficult to use CLA? Mark all that apply.

☐ Too strict ☐ Unfamiliar ingredients ☐ Too expensive
☐ Did not lose any weight ☐ Other

13.7 If "Other", please explain:

13.8 Did you experience any challenges using CLA?
☐ Not at all ☐ A little ☐ Moderately
☐ A lot

13. Information on Conjugated Linoleic Acid (CLA): [Continue]

13.9 Kindly indicate what challenges you experienced using CLA.

13.10 What level of frustration did you experience using CLA? ☐ Not at all ☐ A little ☐ Moderately
☐ A lot

13.11 Kindly specify the frustrations you experienced using CLA.

13.12 Did you experience any hunger whilst using CLA? ☐ Not at all ☐ A little ☐ Moderately
☐ A lot**14. Information on Leanor:**

14.1 Information on conditions of weight loss aid used

How long did you use Leanor for?

 years, months

14.2 Why did you stop using Leanor? Mark all that apply.

☐ Objective obtained ☐ Too difficult ☐ Felt frustrated and hungry
☐ Too expensive ☐ Other

14.3 If "Other", please explain:

14.4 Explain your adherence to using Leanor please. ☐ It was easy to follow ☐ It was difficult to follow

14.5 Kindly indicate why it was easy to use Leanor.

14.6 Why was it difficult to use Leanor? Mark all that apply.

☐ Too strict ☐ Unfamiliar ingredients ☐ Too expensive
☐ Did not lose any weight ☐ Other

14.7 If "Other", please explain:

14.8 Did you experience any challenges using Leanor? ☐ Not at all ☐ A little ☐ Moderately
☐ A lot

14. Information on Leamor: [Continue]

14.9 Kindly indicate what challenges you experienced using Leamor.

14.10 What level of frustration did you experience using Leamor? ☐ Not at all ☐ A little ☐ Moderately
☐ A lot

14.11 Kindly specify the frustrations you experienced using Leamor.

14.12 Did you experience any hunger whilst using Leamor? ☐ Not at all ☐ A little ☐ Moderately
☐ A lot**15. Information on Simply slim:**15.1 Information on conditions of weight loss aid used
How long did you use Simply slim for? years, months

15.2 Why did you stop using Simply slim? Mark all that apply.

☐ Objective obtained ☐ Too difficult ☐ Felt frustrated and hungry
☐ Too expensive ☐ Other

15.3 If "Other", please explain:

15.4 Explain your adherence to using Simply slim please. ☐ It was easy to follow ☐ It was difficult to follow

15.5 Kindly indicate why it was easy using Simply slim.

15.6 Why was it difficult to use Simply Slim? Mark all that apply.

☐ Too strict ☐ Unfamiliar ingredients ☐ Too expensive
☐ Did not lose any weight ☐ Other

15.7 If "Other", please explain:

15.8 Did you experience any challenges using Simply slim? ☐ Not at all ☐ A little ☐ Moderately
☐ A lot

15. Information on Simply slim: [Continue]

15.9 Kindly indicate what challenges you experienced using Simply slim.

15.10 What level of frustration did you experience using Simply slim? ☐ Not at all ☐ A little ☐ Moderately ☐ A lot

15.11 Kindly specify the frustrations you experienced using Simply slim.

15.12 Did you experience any hunger whilst using Simply slim? ☐ Not at all ☐ A little ☐ Moderately ☐ A lot

16. Information on Phentermine (Duromine):

16.1 Information on conditions of weight loss aid used
How long did you use Phentermine (Duromine) for?

years, months

16.2 Why did you stop using Phentermine (Duromine)? Mark all that apply.

☐ Objective obtained ☐ Too difficult ☐ Felt frustrated and hungry
☐ Too expensive ☐ Other

16.3 If "Other", please explain:

16.4 Explain your adherence to using Phentermine (Duromine) please. ☐ It was easy to follow ☐ It was difficult to follow

16.5 Kindly indicate why it was easy using Phentermine (Duromine).

16.6 Why was it difficult to use Phentermine (Duromine)? Mark all that apply.

☐ Too strict ☐ Unfamiliar ingredients ☐ Too expensive
☐ Did not lose any weight ☐ Other

16.7 If "Other", please explain:

16.8 Did you experience any challenges using Phentermine (Duromine)? ☐ Not at all ☐ A little ☐ Moderately ☐ A lot



16. Information on Phentermine (Duromine): [Continue]

16.9 Kindly indicate what challenges you experienced using Phentermine (Duromine).

16.10 What level of frustration did you experience using Phentermine (Duramine)?

☐ Not at all
☐ A lot

☐ A little

☐ Moderately

16.11 Kindly specify the frustrations you experienced using Phentermine (Duramine).

16.12 Did you experience any hunger whilst using Phentermine (Duramine)?

☐ Not at all
☐ A lot

☐ A little

☐ Moderately

17. Information on Orlistat:

17.1 Information on conditions of weight loss aid used
How long did you use Orlistat for?

years, months

17.2 Why did you stop using Orlistat? Mark all that apply.

☐ Objective obtained
☐ Too expensive

☐ Too difficult
☐ Other

☐ Felt frustrated and hungry

17.3 If "Other", please explain:

17.4 Explain your adherence to using Orlistat please.

☐ It was easy to follow

☐ It was difficult to follow

17.5 Kindly indicate why it was easy to use Orlistat.

17.6 Why was it difficult to use Orlistat? Mark all that apply.

☐ Too strict
☐ Did not lose any weight

☐ Unfamiliar ingredients
☐ Other

☐ Too expensive

17.7 If "Other", please explain:

17.8 Did you experience any challenges using Orlistat?

☐ Not at all
☐ A lot

☐ A little

☐ Moderately



17. Information on Orlistat: [Continue]

17.9 Kindly indicate what challenges you experienced using Orlistat.

17.10 What level of frustration did you experience using Orlistat? ☐ Not at all ☐ A little ☐ Moderately ☐ A lot

17.11 Kindly specify the frustrations you experienced using Orlistat.

17.12 Did you experience any hunger whilst using Orlistat? ☐ Not at all ☐ A little ☐ Moderately ☐ A lot

18. Information on Meal replacements:

18.1 Information on conditions of weight loss aid used
How long did you use the Meal replacement for?

years, months

18.2 Why did you stop using the Meal replacement? Mark all that apply.

☐ Objective obtained ☐ Too difficult ☐ Felt frustrated and hungry
☐ Too expensive ☐ Other

18.3 If "Other", please explain:

18.4 Explain your adherence to using the Meal replacement please. ☐ It was easy to follow ☐ It was difficult to follow

18.5 Kindly indicate why it was easy using a Meal replacement,

18.6 Why was it difficult to use a Meal replacement? Mark all that apply.

☐ Too strict ☐ Unfamiliar ingredients ☐ Too expensive
☐ Did not lose any weight ☐ Other

18.7 If "Other", please explain:

18.8 Did you experience any challenges using Meal replacements? ☐ Not at all ☐ A little ☐ Moderately ☐ A lot



18. Information on Meal replacements: [Continue]

18.9 Kindly indicate what challenges you experienced using Meal replacements.

18.10 What level of frustration did you experience using Meal replacements? ☐ Not at all ☐ A little ☐ Moderately
☐ A lot

18.11 Kindly specify the frustrations you experienced using Meal replacements.

18.12 Did you experience any hunger whilst using Meal replacements? ☐ Not at all ☐ A little ☐ Moderately
☐ A lot

19. Information on other weight loss aids used:

19.1 Information on conditions of any other weight loss aids used
How long did you use any other weight loss aids for?

years, months

19.2 Why did you stop using other weight loss aids? Mark all that apply.

☐ Objective obtained ☐ Too difficult ☐ Felt frustrated and hungry
☐ Too expensive ☐ Other

19.3 If "Other", please explain:

19.4 Explain your adherence to using other weight loss aids please. ☐ It was easy to follow ☐ It was difficult to follow

19.5 Kindly indicate why it was easy to follow other weight loss aids.

19.6 Why was it difficult to use other weight loss aids? Mark all that apply.

☐ Too strict ☐ Unfamiliar ingredients ☐ Too expensive
☐ Did not lose any weight ☐ Other

19.7 If "Other", please explain:

19.8 Did you experience any challenges using other weight loss aids? ☐ Not at all ☐ A little ☐ Moderately
☐ A lot



19. Information on other weight loss aids used: [Continue]

19.9 Kindly indicate what challenges you experienced using other weight loss aids.

19.10 What level of frustration did you experience using other weight loss aids? ☐ Not at all ☐ A little ☐ Moderately ☐ A lot

19.11 Kindly specify the frustrations you experienced using other weight loss aids.

19.12 Did you experience any hunger whilst using other weight loss aids? ☐ Not at all ☐ A little ☐ Moderately ☐ A lot

20. Information on Sureslim:

20.1 Information on conditions of commercial coaching plan(s) followed
How long did you follow Sureslim for?

years, months

20.2 Why did you stop using Sureslim? Mark all that apply.

☐ Objective obtained ☐ Too difficult ☐ Felt frustrated and hungry
☐ Too expensive ☐ Other

20.3 If "Other", please explain:

20.4 Explain your adherence to Sureslim please. ☐ It was easy to follow ☐ It was difficult to follow

20.5 Kindly indicate why Sureslim was easy to follow.

20.6 Why was Sureslim difficult to follow? Mark all that apply.

☐ Too strict ☐ Unfamiliar ingredients ☐ Too expensive
☐ Did not lose any weight ☐ Other

20.7 If "Other", please explain:

20.8 Did you experience any challenges following Sureslim? ☐ Not at all ☐ A little ☐ Moderately ☐ A lot



20. Information on Sureslim: [Continue]

20.9 Kindly indicate what challenges you experienced using Sureslim.

20.10 What level of frustration did you experience following Sureslim? ☐ Not at all ☐ A little ☐ Moderately ☐ A lot

20.11 Kindly specify the frustrations you experienced following Sureslim.

20.12 Did you experience any hunger whilst following Sureslim? ☐ Not at all ☐ A little ☐ Moderately ☐ A lot

21. Information on Weigh-less:

21.1 Information on conditions of commercial coaching plan followed
How long did you follow Weigh-less for?

years, months

21.2 Why did you stop Weigh-less? Mark all that apply.

☐ Objective obtained ☐ Too difficult ☐ Felt frustrated and hungry
☐ Too expensive ☐ Other

21.3 If "Other", please explain:

21.4 Explain your adherence to Weigh-less please. ☐ It was easy to follow ☐ It was difficult to follow

21.5 Kindly indicate why Weigh-less was easy to follow.

21.6 Why was it difficult to follow Weigh-less? Mark all that apply.

☐ Too strict ☐ Unfamiliar ingredients ☐ Too expensive
☐ Did not lose any weight ☐ Other

21.7 If "Other", please explain:

21.8 Did you experience any challenges following Weigh-less? ☐ Not at all ☐ A little ☐ Moderately ☐ A lot



21. Information on Weigh-less: [Continue]

21.9 Kindly indicate what challenges you experienced following Weigh-less.

21.10 What level of frustration did you experience following Weigh-less? ☐ Not at all ☐ A little ☐ Moderately ☐ A lot

21.11 Kindly specify the frustrations you experienced following Weigh-less.

21.12 Did you experience any hunger whilst following Weigh-less? ☐ Not at all ☐ A little ☐ Moderately ☐ A lot

22. Information on Weight Watchers:

22.1 Information on conditions of commercial coaching plan followed
How long did you follow Weight Watchers for?

years, months

22.2 Why did you stop Weight Watchers? Mark all that apply.

☐ Objective obtained ☐ Too difficult ☐ Felt frustrated and hungry
☐ Too expensive ☐ Other

22.3 If "Other", please explain:

22.4 Explain your adherence to Weight Watchers please. ☐ It was easy to follow ☐ It was difficult to follow

22.5 Kindly indicate why Weight Watchers was easy to follow.

22.6 Why was Weight Watchers difficult to follow? Mark all that apply.

☐ Too strict ☐ Unfamiliar ingredients ☐ Too expensive
☐ Did not lose any weight ☐ Other

22.7 If "Other", please explain:

22.8 Did you experience any challenges following Weight Watchers? ☐ Not at all ☐ A little ☐ Moderately ☐ A lot



22. Information on Weight Watchers: [Continue]

22.9 Kindly indicate what challenges you experienced following Weight Watchers.

22.10 What level of frustration did you experience following Weight Watchers?

☐ Not at all ☐ A little ☐ Moderately
☐ A lot

22.11 Kindly specify the frustrations you experienced following Weight Watchers.

22.12 Did you experience any hunger whilst following Weight Watchers?

☐ Not at all ☐ A little ☐ Moderately
☐ A lot

23. Information on any other commercial coaching plans:

23.1 Information on conditions of other commercial coaching plans followed
How long did you follow the other commercial coaching plans for?

years, months

23.2 Why did you stop the other commercial coaching plans? Mark all that apply.

☐ Objective obtained ☐ Too difficult ☐ Felt frustrated and hungry
☐ Too expensive ☐ Other

23.3 If "Other", please explain:

23.4 Explain your adherence to the other commercial coaching plans please.

☐ It was easy to follow ☐ It was difficult to follow

23.5 Kindly indicate why the other commercial coaching plans were easy to follow.

23.6 Why was the other commercial coaching plans difficult to follow? Mark all that apply.

☐ Too strict ☐ Unfamiliar ingredients ☐ Too expensive
☐ Did not lose any weight ☐ Other

23.7 If "Other", please explain:

23.8 Did you experience any challenges following the other commercial coaching plans?

☐ Not at all ☐ A little ☐ Moderately
☐ A lot



23. Information on any other commercial coaching plans: [Continue]

23.9 Kindly indicate what challenges you experienced following the other commercial coaching plans.

23.10 What level of frustration did you experience following the other commercial coaching plans?

☐ Not at all ☐ A little ☐ Moderately
☐ A lot

23.11 Kindly specify the frustrations you experienced following the other commercial coaching plans.

23.12 Did you experience any hunger whilst following the other commercial coaching plans?

☐ Not at all ☐ A little ☐ Moderately
☐ A lot

24. Information on Intermittent fasting:
24.1 Information on conditions of diet(s) followed

How long did you follow the Intermittent fasting diet for?

years, months

24.2 Why did you stop the Intermittent fasting diet? Mark all that apply.

☐ Objective obtained ☐ Too difficult ☐ Felt frustrated and hungry
☐ Too expensive ☐ Other

24.3 If "Other", please explain:

24.4 Explain your adherence to following the Intermittent fasting diet please.

☐ It was easy to follow ☐ It was difficult to follow

24.5 Kindly indicate why the Intermittent fasting diet was easy to follow.

24.6 Why was the Intermittent fasting diet difficult to follow? Mark all that apply.

☐ Too strict ☐ Unfamiliar ingredients ☐ Too expensive
☐ Did not lose any weight ☐ Other

24.7 If "Other", please explain:

24.8 Did you experience any challenges following the Intermittent fasting diet?

☐ Not at all ☐ A little ☐ Moderately
☐ A lot



24. Information on Intermittent fasting: [Continue]

24.9 Kindly indicate what challenges you experienced following the Intermittent fasting diet.

24.10 What level of frustration did you experience following the Intermittent fasting diet?

☐ Not at all ☐ A little ☐ Moderately
☐ A lot

24.11 Kindly specify the frustrations you experienced following the Intermittent fasting diet.

24.12 Did you experience any hunger whilst following the Intermittent fasting diet?

☐ Not at all ☐ A little ☐ Moderately
☐ A lot

25. Information on Paleolithic (Paleo) diet:

25.1 Information on conditions of diet(s) followed

How long did you follow the Paleo diet for?

years, months

25.2 Why did you stop the Paleo diet? Mark all that apply.

☐ Objective obtained ☐ Too difficult ☐ Felt frustrated and hungry
☐ Too expensive ☐ Other

25.3 If "Other", please explain:

25.4 Explain your adherence to the Paleo diet please.

☐ It was easy to follow ☐ It was difficult to follow

25.5 Kindly indicate why the Paleo diet was easy to follow.

25.6 Why was the Paleo diet difficult to follow? Mark all that apply.

☐ Too strict ☐ Unfamiliar ingredients ☐ Too expensive
☐ Did not lose any weight ☐ Other

25.7 If "Other", please explain:

25.8 Did you experience any challenges following the Paleo diet?

☐ Not at all ☐ A little ☐ Moderately
☐ A lot



25. Information on Paleolithic (Paleo) diet: [Continue]

25.9 Kindly indicate what challenges you experienced following the Paleo diet.

25.10 What level of frustration did you experience following the Paleo diet?
☐ Not at all ☐ A little ☐ Moderately
☐ A lot

25.11 Kindly specify the frustrations you experienced following the Paleo diet.

25.12 Did you experience any hunger whilst following the Paleo diet?
☐ Not at all ☐ A little ☐ Moderately
☐ A lot**26. Information on Ketogenic (Keto) diet:**26.1 Information on conditions of diet(s) followed
How long did you follow the Keto diet for? years, months

26.2 Why did you stop the Keto diet? Mark all that apply.

☐ Objective obtained ☐ Too difficult ☐ Felt frustrated and hungry
☐ Too expensive ☐ Other

26.3 If "Other", please explain:

26.4 Explain your adherence to the Keto diet please. ☐ It was easy to follow ☐ It was difficult to follow

26.5 Kindly indicate why the Keto diet was easy to follow.

26.6 Why was the Keto diet difficult to follow? Mark all that apply.

☐ Too strict ☐ Unfamiliar ingredients ☐ Too expensive
☐ Did not lose any weight ☐ Other

26.7 If "Other", please explain:

26.8 Did you experience any challenges following the Keto diet?
☐ Not at all ☐ A little ☐ Moderately
☐ A lot

26. Information on Ketogenic (Keto) diet: [Continue]

26.9 Kindly indicate what challenges you experienced following the Keto diet.

26.10 What level of frustration did you experience following the Keto diet?
☐ Not at all ☐ A little ☐ Moderately
☐ A lot

26.11 Kindly specify the frustrations you experienced following the Keto diet.

26.12 Did you experience any hunger whilst following the Keto diet?
☐ Not at all ☐ A little ☐ Moderately
☐ A lot**27. Information on Banting diet:****27.1 Information on conditions of diet(s) followed**

How long did you follow the Banting diet for?

 years, months

27.2 Why did you stop the Banting diet? Mark all that apply.

☐ Objective obtained ☐ Too difficult ☐ Felt frustrated and hungry
☐ Too expensive ☐ Other

27.3 If "Other", please explain:

27.4 Explain your adherence to the Banting diet please. ☐ It was easy to follow ☐ It was difficult to follow

27.5 Kindly indicate why the Banting diet was easy to follow.

27.6 Why was the Banting diet difficult to follow? Mark all that apply.

☐ Too strict ☐ Unfamiliar ingredients ☐ Too expensive
☐ Did not lose any weight ☐ Other

27.7 If "Other", please explain:

27.8 Did you experience any challenges following the Banting diet?
☐ Not at all ☐ A little ☐ Moderately
☐ A lot

27. Information on Banting diet: [Continue]

27.9 Kindly indicate what challenges you experienced following the Banting diet.

27.10 What level of frustration did you experience following the Banting diet?

☐ Not at all ☐ A little ☐ Moderately
☐ A lot

27.11 Kindly specify the frustrations you experienced following the Banting diet.

27.12 Did you experience any hunger whilst following the Banting diet?

☐ Not at all ☐ A little ☐ Moderately
☐ A lot

28. Information on Very low calorie diet (VLCD):**28.1 Information on conditions of diet(s) followed**

How long did you follow the VLCD diet for?

years, months

28.2 Why did you stop the VLCD diet? Mark all that apply.

☐ Objective obtained ☐ Too difficult ☐ Felt frustrated and hungry
☐ Too expensive ☐ Other

28.3 If "Other", please explain:

28.4 Explain your adherence to the VLCD diet please.

☐ It was easy to follow ☐ It was difficult to follow

28.5 Kindly indicate why the VLCD diet was easy to follow.

28.6 Why was the VLCD diet difficult to follow? Mark all that apply.

☐ Too strict ☐ Unfamiliar ingredients ☐ Too expensive
☐ Did not lose any weight ☐ Other

28.7 If "Other", please explain:

28.8 Did you experience any challenges following the VLCD diet?

☐ Not at all ☐ A little ☐ Moderately
☐ A lot



28. Information on Very low calorie diet (VLCD): [Continue]

28.9 Kindly indicate what challenges you experienced following the VLCD diet.

28.10 What level of frustration did you experience following the VLCD diet? ☐ Not at all ☐ A little ☐ Moderately ☐ A lot

28.11 Kindly specify the frustrations you experienced following the VLCD diet.

28.12 Did you experience any hunger whilst following the VLCD diet? ☐ Not at all ☐ A little ☐ Moderately ☐ A lot

29. Information on OptiFast:

29.1 Information on conditions of diet(s) followed
How long did you follow the OptiFast diet for?

years, months

29.2 Why did you stop the OptiFast diet? Mark all that apply.

☐ Objective obtained ☐ Too difficult ☐ Felt frustrated and hungry
☐ Too expensive ☐ Other

29.3 If "Other", please explain:

29.4 Explain your adherence to the OptiFast diet please. ☐ It was easy to follow ☐ It was difficult to follow

29.5 Kindly indicate why the OptiFast diet was easy to follow.

29.6 Why was the OptiFast diet difficult to follow? Mark all that apply.

☐ Too strict ☐ Unfamiliar ingredients ☐ Too expensive
☐ Did not lose any weight ☐ Other

29.7 If "Other", please explain:

29.8 Did you experience any challenges following the OptiFast diet? ☐ Not at all ☐ A little ☐ Moderately ☐ A lot



29. Information on OptiFast: [Continue]

29.9 Kindly indicate what challenges you experienced following the OptiFast diet.

29.10 What level of frustration did you experience following the OptiFast diet?

☐ Not at all

☐ A little

☐ Moderately

☐ A lot

29.11 Kindly specify the frustrations you experienced following the OptiFast diet.

29.12 Did you experience any hunger whilst following the OptiFast diet?

☐ Not at all

☐ A little

☐ Moderately

☐ A lot

30. Information on Mediterranean diet:

30.1 Information on conditions of diet(s) followed

How long did you follow the Mediterranean diet for?

years, months

30.2 Why did you stop the Mediterranean diet? Mark all that apply.

☐ Objective obtained

☐ Too difficult

☐ Felt frustrated and hungry

☐ Too expensive

☐ Other

30.3 If "Other", please explain:

30.4 Explain your adherence to the Mediterranean diet please.

☐ It was easy to follow

☐ It was difficult to follow

30.5 Kindly indicate why the Mediterranean diet was easy to follow.

30.6 Why was the Mediterranean diet difficult to follow? Mark all that apply.

☐ Too strict

☐ Unfamiliar ingredients

☐ Too expensive

☐ Did not lose any weight

☐ Other

30.7 If "Other", please explain:

30.8 Did you experience any challenges following the Mediterranean diet?

☐ Not at all

☐ A little

☐ Moderately

☐ A lot


30. Information on Mediterranean diet: [Continue]

30.9 Kindly indicate what challenges you experienced following the Mediterranean diet.

30.10 What level of frustration did you experience following the Mediterranean diet? ☐ Not at all ☐ A little ☐ Moderately ☐ A lot

30.11 Kindly specify the frustrations you experienced following the Mediterranean diet.

30.12 Did you experience any hunger whilst following the Mediterranean diet? ☐ Not at all ☐ A little ☐ Moderately ☐ A lot

31. Information on Dietary Approaches to Stop Hypertension (DASH) diet:

31.1 Information on conditions of diet(s) followed

How long did you follow the DASH diet for?

years, months

31.2 Why did you stop the DASH diet? Mark all that apply.

☐ Objective obtained ☐ Too difficult ☐ Felt frustrated and hungry
☐ Too expensive ☐ Other

31.3 If "Other", please explain:

31.4 Explain your adherence to the DASH diet please. ☐ It was easy to follow ☐ It was difficult to follow

31.5 Kindly indicate why the DASH diet was easy to follow.

31.6 Why was the DASH diet difficult to follow? Mark all that apply.

☐ Too strict ☐ Unfamiliar ingredients ☐ Too expensive
☐ Did not lose any weight ☐ Other

31.7 If "Other", please explain:

31.8 Did you experience any challenges following the DASH diet? ☐ Not at all ☐ A little ☐ Moderately ☐ A lot



31. Information on Dietary Approaches to Stop Hypertension (DASH) diet: [Continue]

31.9 Kindly indicate what challenges you experienced following the DASH diet.

31.10 What level of frustration did you experience following the DASH diet? ☐ Not at all ☐ A little ☐ Moderately ☐ A lot

31.11 Kindly specify the frustrations you experienced following the DASH diet.

31.12 Did you experience any hunger whilst following the DASH diet? ☐ Not at all ☐ A little ☐ Moderately ☐ A lot

32. Information on Therapeutic Lifestyle Changes (TLC) diet:

32.1 Information on conditions of diet(s) followed

How long did you follow the TLC diet for?

years, months

32.2 Why did you stop the TLC diet? Mark all that apply.

☐ Objective obtained ☐ Too difficult ☐ Felt frustrated and hungry
☐ Too expensive ☐ Other

32.3 If "Other", please explain:

32.4 Explain your adherence to the TLC diet please. ☐ It was easy to follow ☐ It was difficult to follow

32.5 Kindly indicate why the TLC diet was easy to follow.

32.6 Why was the TLC diet difficult to follow? Mark all that apply.

☐ Too strict ☐ Unfamiliar ingredients ☐ Too expensive
☐ Did not lose any weight ☐ Other

32.7 If "Other", please explain:

32.8 Did you experience any challenges following the TLC diet? ☐ Not at all ☐ A little ☐ Moderately ☐ A lot



32. Information on Therapeutic Lifestyle Changes (TLC) diet: [Continue]

32.9 Kindly indicate what challenges you experienced following the TLC diet.

32.10 What level of frustration did you experience following the TLC diet?

☐ Not at all ☐ A little ☐ Moderately
☐ A lot

32.11 Kindly specify the frustrations you experienced following the TLC diet.

32.12 Did you experience any hunger whilst following the TLC diet?

☐ Not at all ☐ A little ☐ Moderately
☐ A lot

33. Information on Reduced snacking:

33.1 Information on conditions of diet(s) followed
How long did you follow Reduced snacking for?

years, months

33.2 Why did you stop Reduced snacking? Mark all that apply.

☐ Objective obtained ☐ Too difficult ☐ Felt frustrated and hungry
☐ Too expensive ☐ Other

33.3 If "Other", please explain:

33.4 Explain your adherence to Reduced snacking please.

☐ It was easy to follow ☐ It was difficult to follow

33.5 Kindly indicate why Reduced snacking was easy to follow.

33.6 Why was it difficult to follow Reduced snacking? Mark all that apply.

☐ Too strict ☐ Unfamiliar ingredients ☐ Too expensive
☐ Did not lose any weight ☐ Other

33.7 If "Other", please explain:

33.8 Did you experience any challenges following Reduced snacking?

☐ Not at all ☐ A little ☐ Moderately
☐ A lot



33. Information on Reduced snacking: [Continue]

33.9 Kindly indicate what challenges you experienced following Reduced snacking.

33.10 What level of frustration did you experience following Reduced snacking?

☐ Not at all ☐ A little ☐ Moderately
☐ A lot

33.11 Kindly specify the frustrations you experienced following the diet.

33.12 Did you experience any hunger whilst following Reduced snacking?

☐ Not at all ☐ A little ☐ Moderately
☐ A lot

34. Information on Reduced fat intake:

34.1 Information on conditions of diet(s) followed

How long did you follow Reduced fat for?

years, months

34.2 Why did you stop Reduced fat? Mark all that apply.

☐ Objective obtained ☐ Too difficult ☐ Felt frustrated and hungry
☐ Too expensive ☐ Other

34.3 If "Other", please explain:

34.4 Explain your adherence to Reduced fat please.

☐ It was easy to follow ☐ It was difficult to follow

34.5 Kindly indicate why Reduced fat was easy to follow.

34.6 Why was it difficult to follow Reduced fat? Mark all that apply.

☐ Too strict ☐ Unfamiliar ingredients ☐ Too expensive
☐ Did not lose any weight ☐ Other

34.7 If "Other", please explain:

34.8 Did you experience any challenges following Reduced fat?

☐ Not at all ☐ A little ☐ Moderately
☐ A lot



34. Information on Reduced fat intake: [Continue]

34.9 Kindly indicate what challenges you experienced following Reduced fat.

34.10 What level of frustration did you experience following Reduced fat? ☐ Not at all ☐ A little ☐ Moderately
☐ A lot

34.11 Kindly specify the frustrations you experienced following Reduced fat.

34.12 Did you experience any hunger whilst following Reduced fat? ☐ Not at all ☐ A little ☐ Moderately
☐ A lot

35. Information on Reduced intake of sugar and sugary foods:**35.1 Information on conditions of diet(s) followed**

How long did you follow Reduced intake of sugar and sugary food for?

 years, months

35.2 Why did you stop Reduced intake of sugar and sugary food? Mark all that apply.

☐ Objective obtained ☐ Too difficult ☐ Felt frustrated and hungry
☐ Too expensive ☐ Other

35.3 If "Other", please explain:

35.4 Explain your adherence to Reduced intake of sugar and sugary food please. ☐ It was easy to follow ☐ It was difficult to follow

35.5 Kindly indicate why Reduced intake of sugar and sugary food was easy to follow.

35.6 Why was it difficult to follow Reduced intake of sugar and sugary food? Mark all that apply.

☐ Too strict ☐ Unfamiliar ingredients ☐ Too expensive
☐ Did not lose any weight ☐ Other

35.7 If "Other", please explain:

35.8 Did you experience any challenges following Reduced intake of sugar and sugary foods? ☐ Not at all ☐ A little ☐ Moderately
☐ A lot



35. Information on Reduced intake of sugar and sugary foods: [Continue]

35.9 Kindly indicate what challenges you experienced using Reduced intake of sugar and sugary foods .

35.10 What level of frustration did you experience following Reduced intake of sugar and sugary foods? ☐ Not at all ☐ A little ☐ Moderately ☐ A lot

35.11 Kindly specify the frustrations you experienced following Reduced intake of sugar and sugary foods.

35.12 Did you experience any hunger whilst following Reduced intake of sugar and sugary foods? ☐ Not at all ☐ A little ☐ Moderately ☐ A lot

36. Information on Vegetarian diet:

36.1 Information on conditions of diet(s) followed

How long did you follow the Vegetarian diet for?

years, months

36.2 Why did you stop the Vegetarian diet? Mark all that apply.

☐ Objective obtained ☐ Too difficult ☐ Felt frustrated and hungry
☐ Too expensive ☐ Other

36.3 If "Other", please explain:

36.4 Explain your adherence to the Vegetarian diet please. ☐ It was easy to follow ☐ It was difficult to follow

36.5 Kindly indicate why the Vegetarian diet was easy to follow.

36.6 Why was the Vegetarian diet difficult to follow? Mark all that apply.

☐ Too strict ☐ Unfamiliar ingredients ☐ Too expensive
☐ Did not lose any weight ☐ Other

36.7 If "Other", please explain:

36.8 Did you experience any challenges following the Vegetarian diet? ☐ Not at all ☐ A little ☐ Moderately ☐ A lot



36. Information on Vegetarian diet: [Continue]

36.9 Kindly indicate what challenges you experienced following the Vegetarian diet.

36.10 What level of frustration did you experience following the Vegetarian diet?

☐ Not at all ☐ A little ☐ Moderately
☐ A lot

36.11 Kindly specify the frustrations you experienced following the Vegetarian diet.

36.12 Did you experience any hunger whilst following the Vegetarian diet?

☐ Not at all ☐ A little ☐ Moderately
☐ A lot

37. Information on Vegan diet:**37.1 Information on conditions of diet(s) followed**

How long did you follow the Vegan diet for?

years, months

37.2 Why did you stop the Vegan diet? Mark all that apply.

☐ Objective obtained ☐ Too difficult ☐ Felt frustrated and hungry
☐ Too expensive ☐ Other

37.3 If "Other", please explain:

37.4 Explain your adherence to the Vegan diet please.

☐ It was easy to follow ☐ It was difficult to follow

37.5 Kindly indicate why the Vegan diet was easy to follow.

37.6 Why was the Vegan diet difficult to follow? Mark all that apply.

☐ Too strict ☐ Unfamiliar ingredients ☐ Too expensive
☐ Did not lose any weight ☐ Other

37.7 If "Other", please explain:

37.8 Did you experience any challenges following the Vegan diet?

☐ Not at all ☐ A little ☐ Moderately
☐ A lot



37. Information on Vegan diet: [Continue]

37.9 Kindly indicate what challenges you experienced following the Vegan diet.

 37.10 What level of frustration did you experience following the Vegan diet?
 ☐ Not at all
 ☐ A little
 ☐ Moderately
 ☐ A lot

37.11 Kindly specify the frustrations you experienced following the Vegan diet.

 37.12 Did you experience any hunger whilst following the Vegan diet?
 ☐ Not at all
 ☐ A little
 ☐ Moderately
 ☐ A lot
38. Information on Paleo-vegan (Pegan) diet:**38.1 Information on conditions of diet(s) followed**

How long did you follow the Pegan diet for?

 years, months

38.2 Why did you stop the Pegan diet? Mark all that apply.

☐ Objective obtained
 ☐ Too difficult
 ☐ Felt frustrated and hungry
 ☐ Too expensive
 ☐ Other

38.3 If "Other", please explain:

 38.4 Explain your adherence to the Pegan diet please.
 ☐ It was easy to follow
 ☐ It was difficult to follow

38.5 Kindly indicate why the Pegan diet was easy to follow.

38.6 Why was the Pegan diet difficult to follow? Mark all that apply.

☐ Too strict
 ☐ Unfamiliar ingredients
 ☐ Too expensive
 ☐ Did not lose any weight
 ☐ Other

38.7 If "Other", please explain:

 38.8 Did you experience any challenges following the Pegan diet?
 ☐ Not at all
 ☐ A little
 ☐ Moderately
 ☐ A lot


38. Information on Paleo-vegan (Pegan) diet: [Continue]

38.9 Kindly indicate what challenges you experienced following the Pegan diet.

38.10 What level of frustration did you experience following the Pegan diet?

☐ Not at all ☐ A little ☐ Moderately
☐ A lot

38.11 Kindly specify the frustrations you experienced following the Pegan diet.

38.12 Did you experience any hunger whilst following the Pegan diet?

☐ Not at all ☐ A little ☐ Moderately
☐ A lot

39. Information on Low glycaemic index diet:

39.1 Information on conditions of diet(s) followed

How long did you follow the Low glycaemic index diet for?

years, months

39.2 Why did you stop the Low glycaemic index diet? Mark all that apply.

☐ Objective obtained ☐ Too difficult ☐ Felt frustrated and hungry
☐ Too expensive ☐ Other

39.3 If "Other", please explain:

39.4 Explain your adherence to the Low glycaemic index diet please.

☐ It was easy to follow ☐ It was difficult to follow

39.5 Kindly indicate why the Low glycaemic index diet was easy to follow.

39.6 Why was the Low glycaemic index diet difficult to follow? Mark all that apply.

☐ Too strict ☐ Unfamiliar ingredients ☐ Too expensive
☐ Did not lose any weight ☐ Other

39.7 If "Other", please explain:

39.8 Did you experience any challenges following the Low glycaemic index diet?

☐ Not at all ☐ A little ☐ Moderately
☐ A lot



39. Information on Low glycemic index diet: [Continue]

39.9 Kindly indicate what challenges you experienced following the Low glycemic index diet.

39.10 What level of frustration did you experience following the Low glycemic index diet?

☐ Not at all

☐ A little

☐ Moderately

☐ A lot

39.11 Kindly specify the frustrations you experienced following the Low glycemic index diet.

39.12 Did you experience any hunger whilst following the Low glycemic index diet?

☐ Not at all

☐ A little

☐ Moderately

☐ A lot

40. Information on any other diet followed:

40.1 Information on conditions of diet(s) followed

How long did you follow any other diet for?

years, months

40.2 Why did you stop the other diet? Mark all that apply.

☐ Objective obtained

☐ Too difficult

☐ Felt frustrated and hungry

☐ Too expensive

☐ Other

40.3 If "Other", please explain:

40.4 Explain your adherence to the other diet please.

☐ It was easy to follow

☐ It was difficult to follow

40.5 Kindly indicate why the other diet was easy to follow.

40.6 Why was the other diet difficult to follow? Mark all that apply.

☐ Too strict

☐ Unfamiliar ingredients

☐ Too expensive

☐ Did not lose any weight

☐ Other

40.7 If "Other", please explain:

40.8 Did you experience any challenges following the other diet?

☐ Not at all

☐ A little

☐ Moderately

☐ A lot


40. Information on any other diet followed: [Continue]

40.9 Kindly indicate what challenges you experienced following the other diet.

40.10 What level of frustration did you experience following the other diet? ☐ Not at all ☐ A little ☐ Moderately ☐ A lot

40.11 Kindly specify the frustrations you experienced following the other diet.

40.12 Did you experience any hunger whilst following the other diet? ☐ Not at all ☐ A little ☐ Moderately ☐ A lot

41. Information on diets prescribed by a Doctor:

41.1 Information on conditions of diet(s) followed

How long did you follow the diet prescribed by a Doctor for?

years, months

41.2 Why did you stop the diet prescribed by a Doctor? Mark all that apply.

☐ Objective obtained ☐ Too difficult ☐ Felt frustrated and hungry
☐ Too expensive ☐ Other

41.3 If "Other", please explain:

41.4 Explain your adherence to the diet prescribed by a Doctor please. ☐ It was easy to follow ☐ It was difficult to follow

41.5 Kindly indicate why the diet prescribed by a Doctor was easy to follow.

41.6 Why was the diet prescribed by a Doctor difficult to follow? Mark all that apply.

☐ Too strict ☐ Unfamiliar ingredients ☐ Too expensive
☐ Did not lose any weight ☐ Other

41.7 If "Other", please explain:

41.8 Did you experience any challenges following the diet prescribed by a Doctor? ☐ Not at all ☐ A little ☐ Moderately ☐ A lot



41. Information on diets prescribed by a Doctor: [Continue]

41.9 Kindly indicate what challenges you experienced following a diet prescribed by a Doctor.

41.10 What level of frustration did you experience following the diet prescribed by a Doctor?

☐ Not at all

☐ A little

☐ Moderately

☐ A lot

41.11 Kindly specify the frustrations you experienced following the diet prescribed by a Doctor.

41.12 Did you experience any hunger whilst following the diet prescribed by a Doctor?

☐ Not at all

☐ A little

☐ Moderately

☐ A lot

42. Information on diets prescribed by a Dietitian:

42.1 Information on conditions of diet(s) followed

How long did you follow the diet prescribed by a Dietitian for?

years, months

42.2 Why did you stop the diet prescribed by a Dietitian? Mark all that apply.

☐ Objective obtained

☐ Too difficult

☐ Felt frustrated and hungry

☐ Too expensive

☐ Other

42.3 If "Other", please explain:

42.4 Explain your adherence to the diet prescribed by a Dietitian please.

☐ It was easy to follow

☐ It was difficult to follow

42.5 Kindly indicate why the diet prescribed by a Dietitian was easy to follow.

42.6 Why was the diet prescribed by a Dietitian difficult to follow? Mark all that apply.

☐ Too strict

☐ Unfamiliar ingredients

☐ Too expensive

☐ Did not lose any weight

☐ Other

42.7 If "Other", please explain:

42.8 Did you experience any challenges following the diet prescribed by a Dietitian?

☐ Not at all

☐ A little

☐ Moderately

☐ A lot


42. Information on diets prescribed by a Dietitian: [Continue]

42.9 Kindly indicate what challenges you experienced following a diet prescribed by a Dietitian.

 42.10 What level of frustration did you experience following the diet prescribed by a Dietitian?
 ☐ Not at all
 ☐ A little
 ☐ Moderately
 ☐ A lot

42.11 Kindly specify the frustrations you experienced following the diet prescribed by a Dietitian.

 42.12 Did you experience any hunger whilst following the diet prescribed by a Dietitian.
 ☐ Not at all
 ☐ A little
 ☐ Moderately
 ☐ A lot

43. Information on diets prescribed by a Physiotherapist:
43.1 Information on conditions of diet(s) followed

How long did you follow the diet prescribed by a Physiotherapist for?

 years, months

43.2 Why did you stop the diet prescribed by a Physiotherapist? Mark all that apply.

☐ Objective obtained
 ☐ Too difficult
 ☐ Felt frustrated and hungry
 ☐ Too expensive
 ☐ Other

43.3 If "Other", please explain:

 43.4 Explain your adherence to the diet prescribed by a Physiotherapist please.
 ☐ It was easy to follow
 ☐ It was difficult to follow

43.5 Kindly indicate why the diet prescribed by a Physiotherapist was easy to follow.

43.6 Why was the diet prescribed by a Physiotherapist difficult to follow? Mark all that apply.

☐ Too strict
 ☐ Unfamiliar ingredients
 ☐ Too expensive
 ☐ Did not lose any weight
 ☐ Other

43.7 If "Other", please explain:

 43.8 Did you experience any challenges following the diet prescribed by a Physiotherapist?
 ☐ Not at all
 ☐ A little
 ☐ Moderately
 ☐ A lot


43. Information on diets prescribed by a Physiotherapist: [Continue]

43.9 Kindly indicate what challenges you experienced following a diet prescribed by a Physiotherapist.

43.10 What level of frustration did you experience following the diet prescribed by a Physiotherapist?

☐ Not at all

☐ A little

☐ Moderately

☐ A lot

43.11 Kindly specify the frustrations you experienced following the diet prescribed by a Physiotherapist.

43.12 Did you experience any hunger whilst following the diet prescribed by a Physiotherapist?

☐ Not at all

☐ A little

☐ Moderately

☐ A lot

44. Information on diets prescribed by a Biokineticist:

44.1 Information on conditions of diet(s) followed

How long did you follow the diet prescribed by a Biokineticist for?

years, months

44.2 Why did you stop the diet prescribed by a Biokineticist? Mark all that apply.

☐ Objective obtained

☐ Too difficult

☐ Felt frustrated and hungry

☐ Too expensive

☐ Other

44.3 If "Other", please explain:

44.4 Explain your adherence to the diet prescribed by a Biokineticist please.

☐ It was easy to follow

☐ It was difficult to follow

44.5 Kindly indicate why the diet prescribed by a Biokineticist was easy to follow.

44.6 Why was the diet prescribed by a Biokineticist difficult to follow? Mark all that apply.

☐ Too strict

☐ Unfamiliar ingredients

☐ Too expensive

☐ Did not lose any weight

☐ Other

44.7 If "Other", please explain:

44.8 Did you experience any challenges following the diet prescribed by a Biokineticist?

☐ Not at all

☐ A little

☐ Moderately

☐ A lot


44. Information on diets prescribed by a Biokineticist: [Continue]

44.9 Kindly indicate what challenges you experienced following a diet prescribed by a Biokineticist.

44.10 What level of frustration did you experience following the diet prescribed by a Biokineticist?

☐ Not at all☐ A little☐ Moderately☐ A lot

44.11 Kindly specify the frustrations you experienced following the diet prescribed by a Biokineticist.

44.12 Did you experience any hunger whilst following the diet prescribed by a Biokineticist?

☐ Not at all☐ A little☐ Moderately☐ A lot**45. Information on diets prescribed by a Personal trainer:****45.1 Information on conditions of diet(s) followed**

How long did you follow the diet prescribed by a Personal trainer for?

years, months

45.2 Why did you stop the diet prescribed by a Personal trainer? Mark all that apply.

☐ Objective obtained☐ Too difficult☐ Felt frustrated and hungry☐ Too expensive☐ Other

45.3 If "Other", please explain:

45.4 Explain your adherence to the diet prescribed by a Personal trainer please.

☐ It was easy to follow☐ It was difficult to follow

45.5 Kindly indicate why the diet prescribed by a Personal trainer was easy to follow.

45.6 Why was the diet prescribed by a Personal trainer difficult to follow? Mark all that apply.

☐ Too strict☐ Unfamiliar ingredients☐ Too expensive☐ Did not lose any weight☐ Other

45.7 If "Other", please explain:

45.8 Did you experience any challenges following the diet prescribed by a Personal trainer?

☐ Not at all☐ A little☐ Moderately☐ A lot

45. Information on diets prescribed by a Personal trainer: [Continue]

45.9 Kindly indicate what challenges you experienced following a diet prescribed by a Personal trainer.

45.10 What level of frustration did you experience following the diet prescribed by a Personal trainer?

☐ Not at all

☐ A little

☐ Moderately

☐ A lot

45.11 Kindly specify the frustrations you experienced following the diet prescribed by a Personal trainer.

45.12 Did you experience any hunger whilst following the diet prescribed by a Personal trainer.

☐ Not at all

☐ A little

☐ Moderately

☐ A lot

46. Information on diets prescribed by any one else giving out diets:
46.1 Information on conditions of diet(s) followed

How long did you follow the diet prescribed by anyone else.

years, months

46.2 Why did you stop the diet prescribed by any one else? Mark all that apply.

☐ Objective obtained

☐ Too difficult

☐ Felt frustrated and hungry

☐ Too expensive

☐ Other

46.3 If "Other", please explain:

46.4 Explain your adherence to the diet prescribed by anyone else please.

☐ It was easy to follow

☐ It was difficult to follow

46.5 Kindly indicate why the diet prescribed by anyone else was easy to follow.

46.6 Why was the diet prescribed by anyone else difficult to follow? Mark all that apply.

☐ Too strict

☐ Unfamiliar ingredients

☐ Too expensive

☐ Did not lose any weight

☐ Other

46.7 If "Other", please explain:

46.8 Did you experience any challenges following the diet prescribed by anyone else?

☐ Not at all

☐ A little

☐ Moderately

☐ A lot


46. Information on diets prescribed by any one else giving out diets: [Continue]

46.9 Kindly indicate what challenges you experienced following a diet prescribed by anyone else.

46.10 What level of frustration did you experience following the diet prescribed by anyone else?

☐ Not at all

☐ A little

☐ Moderately

☐ A lot

46.11 Kindly specify the frustrations you experienced following the diet prescribed by anyone else.

46.12 Did you experience any hunger whilst following the diet prescribed by anyone else?

☐ Not at all

☐ A little

☐ Moderately

☐ A lot

47. Information on diets followed by using a Mobile weight loss App:
47.1 Information on conditions of diet(s) followed

How long did you follow the diet using a Mobile weight loss App for?

years, months

47.2 Why did you stop the diet using a Mobile weight loss App? Mark all that apply.

☐ Objective obtained

☐ Too difficult

☐ Felt frustrated and hungry

☐ Too expensive

☐ Other

47.3 If "Other", please explain:

47.4 Explain your adherence using the Mobile weight loss App please.

☐ It was easy to follow

☐ It was difficult to follow

47.5 Kindly indicate why the diet using a Mobile weight loss App was easy to follow.

47.6 Why was the diet using a Mobile weight loss App difficult to follow? Mark all that apply.

☐ Too strict

☐ Unfamiliar ingredients

☐ Too expensive

☐ Did not lose any weight

☐ Other

47.7 If "Other", please explain:

47.8 Did you experience any challenges following the diet using a Mobile weight loss App?

☐ Not at all

☐ A little

☐ Moderately

☐ A lot


47. Information on diets followed by using a Mobile weight loss App: [Continue]

47.9 Kindly indicate what challenges you experienced using the Mobile weight loss App.

47.10 What level of frustration did you experience following the diet using a Mobile Weight loss App?

☐ Not at all

☐ A little

☐ Moderately

☐ A lot

47.11 Kindly specify the frustrations you experienced following the diet using a Mobile weight loss App.

47.12 Did you experience any hunger whilst following the diet using a Mobile weight loss App?

☐ Not at all

☐ A little

☐ Moderately

☐ A lot

48. Information on any other diet not mentioned:

48.1 Information on conditions of diet(s) followed

How long did you follow any other diet not mentioned for?

years, months

48.2 Why did you stop any other diet not mentioned? Mark all that apply.

☐ Objective obtained

☐ Too difficult

☐ Felt frustrated and hungry

☐ Too expensive

☐ Other

48.3 If "Other", please explain:

48.4 Explain your adherence to any other diet not mentioned please.

☐ It was easy to follow

☐ It was difficult to follow

48.5 Kindly indicate why any other diet not mentioned was easy to follow.

48.6 Why was any other diet not mentioned difficult to follow? Mark all that apply.

☐ Too strict

☐ Unfamiliar ingredients

☐ Too expensive

☐ Did not lose any weight

☐ Other

48.7 If "Other", please explain:

48.8 Did you experience any challenges following any other diet not mentioned?

☐ Not at all

☐ A little

☐ Moderately

☐ A lot


48. Information on any other diet not mentioned: [Continue]

48.9 Kindly indicate what challenges you experienced following any other diet not mentioned.

 48.10 What level of frustration did you experience following any other diet not mentioned?
 ☐ Not at all
 ☐ A little
 ☐ Moderately
 ☐ A lot

48.11 Kindly specify the frustrations you experienced following any other diet not mentioned.

 48.12 Did you experience any hunger whilst following any other diet not mentioned?
 ☐ Not at all
 ☐ A little
 ☐ Moderately
 ☐ A lot
49. Information on where diets were obtained from.

49.1 Where did you receive information on the diet(s) you followed? Mark all applicable.

- | | | |
|---|---|---|
| ☐ Internet e.g. Google, Facebook | ☐ A friend / family member | ☐ Media: television, radio or magazine |
| ☐ Registered dietitian | ☐ Doctor | ☐ Physiopharapist |
| ☐ Biokineticist | ☐ Personal trainer | ☐ Mobile weight loss App |
| ☐ Other | | |

49.2 If "Other", please explain:

49.3 Please indicate which type of diet was the easiest to follow? Mark all applicable.

- | | | |
|---|---|---|
| ☐ Internet e.g. Google, facebook | ☐ A friend / family member | ☐ Media: television, radio or magazine |
| ☐ Registered dietitian | ☐ Doctor | ☐ Physiotherapist |
| ☐ Biokineticist | ☐ Personal trainer | ☐ Mobile weight loss App |
| ☐ Other | | |

49.4 If "Other", please explain:

50. Information on water intake

50.1 How many 250 ml glasses of water do you drink per day?

50.2 Do you drink more water when you are trying to lose weight? ☐ Yes ☐ No

50.3 Please indicate how much more water do you drink when you are trying to lose weight.

 ml
51. Information on weight status

51. Information on weight status [Continue]

51.1 How tall are you? eg. 1.72 m

meter

51.2 What is your current weight? Answer as honestly as possible. eg. 80.00 kg

kg

51.3 Did you regain weight after you stopped following the diet? ☐ Yes ☐ No

51.4 How much weight did you regain? eg 7.00kg

kg

51.5 Over how long a period of time have you regained the weight you have lost?

years, months

51.6 Did you regain more weight than you have lost? ☐ Yes ☐ No

51.7 Do you maintain your new weight? ☐ Yes ☐ No

51.8 Have you lost more weight since following the diet? ☐ Yes ☐ No

52. Information on health status

52.1 How would you rate your health? ☐ Excellent ☐ Good ☐ Poor
☐ Very poor

52.2 Have you been diagnosed with a chronic disease? ☐ Yes ☐ No

52.3 If you answered 'Yes' please specify.

53. Information on physical activity

Think about all the **vigorous** activities that you did in the **last 7 days**. **Vigorous** physical activities refer to activities that take hard physical effort and make you breathe much harder than normal. Think only about those physical activities that you did for at least 10 minutes at a time.

53.1 During the **last 7 days**, on how many days did you do **vigorous** physical activities like heavy lifting, digging, aerobics, or fast bicycling? ☐ 1 ☐ 2 ☐ 3
☐ 4 ☐ 5 ☐ 6
☐ 7 ☐ No vigorous physical activities ☐ Don't know/Not sure

53.2 How much time did you usually spend doing **vigorous** physical activities on one of those days?

hours minutes / day

Think about all the **moderate** activities that you did in the **last 7 days**. **Moderate** activities refer to activities that take moderate physical effort and make you breathe somewhat harder than normal. Think only about those physical activities that you did for at least 10 minutes at a time.

53.3 During the **last 7 days**, on how many days did you do **moderate** physical activities like carrying light loads, bicycling at a regular pace, or doubles tennis? Do not include walking ☐ 1 ☐ 2 ☐ 3
☐ 4 ☐ 5 ☐ 6
☐ 7 ☐ No moderate physical activities ☐ Don't know/Not sure

53.4 How much time did you usually spend doing **moderate** physical activities on one of those days?

hours minutes / day



53. Information on physical activity [Continue]

Think about the time you spent **walking** in the **last 7 days**. This includes at work and at home, walking to travel from place to place, and any other walking that you have done solely for recreation, sport, exercise, or leisure.

- 53.5 During the **last 7 days**, on how many days did you **walk** for at least 10 minutes at a time?
- | | | |
|----------------------------|-------------------------------------|--|
| ☐ 1 | ☐ 2 | ☐ 3 |
| ☐ 4 | ☐ 5 | ☐ 6 |
| ☐ 7 | ☐ No walking | ☐ Don't know/Not sure |

- 53.6 How much time did you usually spend **walking** on one of those days?

hours minutes / day

The last question is about the time you spent **sitting** on weekdays during the **last 7 days**. Include time spent at work, at home, while doing course work and during leisure time. This may include time spent sitting at a desk, visiting friends, reading, or sitting or lying down to watch television.

- 53.7 During the **last 7 days**, on how many days did you **walk** for at least 10 minutes at a time?
- | | | |
|----------------------------|-------------------------------------|--|
| ☐ 1 | ☐ 2 | ☐ 3 |
| ☐ 4 | ☐ 5 | ☐ 6 |
| ☐ 7 | ☐ No walking | ☐ Don't know/Not sure |

- 53.8 Did you spend time sitting during the **last 7 days**? ☐ Yes ☐ Don't know/Not sure

- 53.9 During the **last 7 days**, how much time did spend **sitting** on a week day?

hours minutes / day



Appendix D: Complete list of weight-loss diets and aids that participants had tried (N=272)

Diets followed / aids used
Commercial weight loss diet plans
Herbalife
Herbex
Commercial weight loss aids
Antagolin
Apple cider vinegar diet/pills
Biogen
Cheetathin
CSN
Diet pills
Diet syrup
Duromine
Fat burners
Fat freez
Fireballs
Forever living
Garcinia Cambodia
Glucophage
Gummy berry juice
Happy shrinkers
Jenna Carmen diet
Kineoslim
Lipogon
Mammas Flat Stomach
Mannatech
Meal Replacement
Oragano Coffee
Orange pharmacy
Relislim
Ripped freak
Rush tush glow cleanse
Secret pill
Sha-lynn diet pills
Shred it
Sh'zen fatburner
Sibutra-lean
Simply slim
Slimz
Springbok pharmacy
Super slim
The diet everyone is talking about

Diets followed / aids used
Thermogenic pills
Truvy
U Slim
USN slimming
Commercial coaching methods
Curves
Health pointe club
Koebaai vetnoi
Sleek geek
Slender Wonder
Sureslim
Terene life
Weigh-less
Weight Watchers
Self-imposed dietary restrictions and adapted eating patterns
Ackermans diet
Ascot diet
Atkins
Banting
Blood type diet
Bootcamp
Calorie count
Carrot diet
28 Day Diet
10 Day slimming loss
Diet seed / wondernut
DNA diet
Dr Cohen
Duken diet
Egg diet
Fasting
Food map
Future life
German diet
Gluten free
HCG diet
Heart foundation diet
High Protein
Hip & thigh diet
Intermittent fasting
Juicing
Keto diet
Less starch
Lifeline
Low Carb
Low carb, Low fat

Diets followed / aids used
LCHF
Low carb high protein
Low fat high fibre
Low / No Carbs and sugar
Low GI
Men's health challenge
Metabolic balance
Metabolism miracle
Mia Snyman meal plan
Millitaire diet
No sugar
Not specified
Paleo diet
Potato diet
Raw wolf diet
Self-changes
Soup diet
Vegan diet
Vegetarian
Diets prescribed by a health professional
Dietitian
Doctor
Homeopath
Diets prescribed by non-health professionals
Gym
Personal trainer
Mobile weight loss applications
Mobile App
Other
Huisgenoot/You
Internet
People