BODY WEIGHT PERCEPTION, WEIGHT MANAGEMENT STRATEGIES, AND DEPRESSIVE SYMPTOMS IN A SOUTH AFRICAN COMMUNITY SAMPLE

by

Itumeleng Khutlang

A mini-dissertation submitted in partial fulfilment

of the requirement for the degree of

MA Clinical Psychology

in the

Department of Psychology

at the

UNIVERSITY OF PRETORIA

FACULTY OF HUMANITIES

Supervisor:

Dr M. Makhubela

April 2018

Declaration

1. I understand what plagiarism is and I am aware of the university policy and implications in this regard.

2. I declare that this mini-dissertation is my own original work. Where secondary material has been used (either from a printed source, Internet or any other source), this has been properly acknowledged and referenced in accordance with university requirements.

3. I have not used work previously produced by another student or any other person to hand in as my own.

4. I have not allowed, and will not allow, anyone to copy my work with the intention of passing it off as his or her own work.

I Khutlang ……..

Initials & Surname Date

Dedication

It gives me great honour to dedicate this research to my family, friends and all the people that supported me through this long and challenging journey I have embarked on. I am eternally grateful for all the support and encouragement.

Acknowledgements

I would like to first and foremost thank God for His grace through my process of personal and professional development. Special thanks go to my supervisor Dr Makhubela for his time, patience and encouragement. It has been more than an honour to work with such a knowledgeable person, who was as involved in my research as I was. He was able to facilitate this process in both a challenging and insightful manner. My warmest gratitude goes to my family, more especially my mother and my late father, who have been on this journey with me from the very beginning. My mother's never failing support and love motivated me during some of the most difficult times throughout my career and beyond this mini-dissertation. Lastly, I would like to show my appreciation to all the people that were willing to be part of my study.

Abstract

Introduction: The increased prevalence and incidence rates of weight related problems have become a serious public health problem in many developing countries such as South Africa. Research has found that the statistical distribution of weight indicates a growing number of both underweight and overweight people in the South African population. One of the leading contributions to this staggering growth may be a misperception of one's body weight. Many studies in South Africa have shown how many participants in their study were said to have a distorted perception of their weight and either underestimated or overestimated their actual body weight. There is growing interest in understanding the impact of body weight perceptions on an individual's weight management strategies and eating patterns.

Objectives: In order to address perceived limitations of previous studies, this mini-dissertation examines associations between weight perceptions and weight management strategies, and seeks to add new direction to existing literature by exploring the association of weight related problems with depressive symptoms.

Methods: Information was obtained from 215 adult community members from both Johannesburg and Pretoria. Participants were requested to self-report their weight and height in order for their BMI to be calculated, to indicate their perceived weight category and to report whether they were trying to do anything about their weight. The Eating Attitudes Test (EAT-26) was used to measure weight concerns, and the Center for Epidemiologic Studies Depression Scale (CES-D) was administered to measure depressive symptoms.

Results: Most of the participants in the study had a distorted perception of their body weight and indicated that they were trying to do something about weight regardless of their actual weight status. About 52.6% of participants used a combination of approaches to lose weight. Dieting and using diet pills was found to be the most popular combination. Weight perception was found to be a predictor of depressive symptomology.

Conclusion: The results of this study are parallel to many other studies which have found an association between perceived weight and weight management strategies.

Furthermore, this study discovered that weight perception, compared to actual weight, is a better predictor of the presence of depressive symptoms.

Key words: weight perception, BMI, weight management strategies, depressive symptoms, weight distortion, emotional well-being.

Table of Contents

Declaration i
Dedication ii
Acknowledgements iii
Abstract iv
Chapter 1: 1
Overview of the study 1
1. **General introduction** 1
1.1. **Introduction** 1
1.2. **Statement of the problem** 2
1.3. **Aim of the study** 5
1.4. **Objectives of the study** 5
1.5. **Research questions** 5
1.6. **Significance of the study** 6
1.7. **Operational definition of terms** 7
1.7.1. Weight perception 7
1.7.2. Weight management strategies 8
1.7.3. Depressive symptoms 8
1.8. **Conclusion** 8
Chapter 2: 9
Theoretical perspective and literature review 9
2.1. Introduction 9
2.2. Theoretical perspective 9
2.3. Literature review 11
2.3.1. Weight perception 12
2.3.2. Weight management strategies 18
2.3.3. Depressive symptoms 24
2.3.4. Body Mass Index 30
2.4. Conclusion 32
Chapter 3: 33
Methodology 33
3.1. Introduction 33
3.2. Research design 33
3.3. Participants 33
3.4. Instruments 34

3.4.1. Weight status 34
3.4.2. Weight perception and weight concern 34
3.4.3. Weight management strategies 35
3.4.4. Depressive symptoms 35
3.5. Procedures 36
3.6. Ethical considerations 36
3.7. Conclusion 36
Chapter 4: 37
Results 37
4.1. Introduction 37
4.2. Data analysis strategy 37
4.3. Presentation of results 37
4.3.1. Descriptive data 37
4.3.2. Reliability coefficients of the research instruments 40
Table 3 40
4.3.3. Bivariate associations between predictor and outcome variables 41
4.3.4. Relationship between body weight perception and weight loss management 41
4.3.5. The prediction of depressive mood by body weight perception and actual weight status 42
4.4. Conclusion 43
Chapter 5: 44
Discussion, recommendations and limitations of the study 44
5.1. Introduction 44
5.2. Discussion 44
5.3. Recommendations 48
5.4. Limitations of the study 49
5.5. Conclusion 49
6. References 50
7. Appendices 59
7.1 Appendix A: Information sheet and consent form 59
7.2 Appendix B: Questionnaire 64
7.3 Appendix C: Ethical Clearance Letter 69

List of tables

Table 1 38

Table 2 ..... **ERROR! BOOKMARK NOT DEFINED.**

Table 3 39

Table 4 41

Table 5 42

Chapter 1:
Overview of the study

1. General introduction

1.1. Introduction

The manner in which individuals perceive their weight has great bearing on their actual weight, weight-management strategies and psychological well-being. Likewise, research has shown that the prevalence of weight-related problems has significantly increased over the years (Phetla & Skaal, 2017). This is supported by the growing number of people reported to suffer from conditions such diabetes and chronic fatigue syndrome that is precipitated by the individual's unhealthy body-weight status. It is an epidemic of enormous proportions, which is associated with both physical problems such hypertension as well as the psychological problems associated with weight, such as depression and anxiety. Moreover, there is also evidence that suggest that in most cases there is a discrepancy between an individual's perceived weight and their actual weight. This implies that individuals' perception of their weight does not necessarily correspond with their actual body mass index, because they either over-estimate or under-estimate their actual weight.

How individuals learn to evaluate their weight can be seen as an internal and external process. Their weight may be evaluated on how they feel about themselves, how they compare themselves to others and on what they perceive as an ideal body weight or shape. However, this is not an isolated process, as many of their perceptions are largely influenced by external factors. All of these external factors — such as the media, culture and judgement from others — seem to have their own criteria of what a desirable body weight is that people should aim towards achieving. Based on both these internal and external processes individuals develop a perception of their weight that may not

accurately represent their actual weight, but rather speaks to their subjective experience of their body weight.

Individuals' subjective experience of their weight may result in developing an emotional response to their evaluation, which motivates them to lose weight, gain weight or remain at the same body weight. This emotional response could be seen on a continuum from a complete acceptance and sense of contentment with one's body to an extreme discomfort and resentment with one's appearance. People's subjective experience of their weight and their consequential emotional reaction can strongly influence what they do to manage their body weight. The means that could be employed to reach what different individuals consider to be their body weight goals are endless and can be classified as either healthy, such as living a balanced lifestyle, or unhealthy, such as taking supplements or skipping meals to help with rapid weight loss. The success or failure of these methods has the potential to affect an individual's health and emotional well-being.

It is therefore important to understand the emotional and psychological aspects that have a bearing on weight, and vice versa. This study attempts to tackle weight related problems by trying to understand the impact of weight perceptions on individuals' ability to make informed decisions about their weight management strategies and to understand how their perceptions can affect their psychological well-being. Many studies have discovered a relationship between actual body weight and a variety of physical illnesses. Although this relationship is essential to be aware of, it is of equal importance to understand how an individual's weight perception can influence their actual body weight and their emotional well-being.

1.2. **Statement of the problem**

Weight is a serious health problem both in South Africa and globally. Body weight problems can take the form of either an excess amount of body fat for an individual's height or physique (referred to as being overweight or obese), or an insufficient amount of body fat (referred to as being underweight). Both

conditions are unhealthy and sometimes life threatening (Olubukola & Olubukola, 2012). South Africa has one of the highest prevalence rates of obesity in sub-Saharan Africa (Kimani-Murage, Kahn, & Pettifor, 2010). It has been reported by some sources that up to 70% of South Africans are overweight, while other sources report that 40% of women and a third of men are classified as being overweight or obese (Kimani-Murage et al., 2010; Kruger, 2005). Being overweight or obese is not only a challenge for adults, but there are disturbing increases in children under the age of 14 years who are also overweight (Reilly & Kelly, 2010; Truter, Pienaar, & Du Toit, 2010). Research seems to focus largely on overweight and obese people, with comparatively little attention being given to people who are considered to be underweight. Reilly and Kelly (2010) note the increase of the problem of underweight people in addition to that of overweight and obese people.

Weight has become a global concern due to the number of adverse physical and psychological consequences related to it (Desai, Miller, Staples, & Bravender, 2012). Physically, obesity is most commonly associated with conspicuous risk factors such as high blood pressure, type II diabetes, physical impairments, skin disorders, stroke, aneurysm and heart attacks; whereas severely underweight people most commonly may complain of more easily ignored disorders such as chronic fatigue, hair loss, bone fractures, and infections — although more obviously alarming conditions such as heart disease and deteriorated brain functioning may also occur. Added to these problems is the concern for individuals' emotional well-being, because many overweight and underweight people alike are said to be extremely unhappy with their body for various reason. In the case of people who are overweight, the frustration associated with losing the additional weight may cause them to feel discouraged, hopeless, helpless and inadequate.

In the psychological spectrum of disorders, there is also the possibility of people having a distorted perception of their weight in the sense of perceiving themselves as having normal weight whereas they are actually overweight, which then increases their risk of experiencing emotional difficulties (Mogre, Mwinlenna, & Oladele, 2013). Individuals who are underweight but strongly

believe that they are overweight may struggle with self-loathing feelings that may be difficult to contain. Having a distorted perception of your weight, be it underestimating or overestimating it, has the potential to aid in the development of eating problems, depression, anxiety, social phobias and a number of other psychiatric disorders (Mogre et al., 2013).

From the foregoing it is clear that, in order to move towards a healthier society, research needs to study all avenues of this global problem, and that the research needs to include a psychological perspective and not only a medical perspective. In this way a more holistic perspective can be developed in understanding this complex phenomenon. Mchiza et al. (2015) found in their study that over 85% of their South African sample had a largely distorted view of their actual body weight, which greatly increased their risk of developing a medical or psychological problem. This figure represents an abnormally large proportion of the general population and raises serious questions about the factors that influence public perceptions of what is considered as normal weight. In contemporary society there appear to be two contending trends regarding 'ideal' body weight and shape. On the one hand research has shown an increase in the prevalence of obesity in both adults and children, and on the other hand, there is an unhealthy preoccupation with body size and shape that is very often driven by a strong desire towards thinness rather than a desire towards good heath (Cole, Bellizzi, Flegal, & Dietz, 2000; Konstanski & Gullone, 1998). This statement highlights the complexity in understanding this body weight and weight perception phenomenon.

These contending trends run the risk of leaving people dissatisfied with their body shape or size and consequently they may choose to ease their discomfort by addressing this problem which then may become a predecessor for mental health problems such as depression (Desai et al., 2012). Both trends raise great concern with regards to the future of this epidemic on both a physical and psychological level. Physically we may find an increase in the prevalence on both the overweight and underweight side of the weight perspective. Psychologically, the psychiatric well-being of a number of people may be at risk if they fail to reach their weight related goals and fit into what they perceive as

the ideal body weight or shape. Thus this research will examine if people's perception of their body weight is related to their weight management strategies (which includes eating and exercising patterns) and the development of depressive symptomology. This research provides a new avenue in understanding and addressing problems related to body weight and shape, as it looks to determine the relationship between the perception of weight to weight management strategies and depressive symptoms.

1.3. Aim of the study

The aim of this study was to investigate whether a relationship exists between perceived body weight, weight management strategies, and depressive symptoms; and what the nature of such a putative relationship could be.

1.4. Objectives of the study

The following objectives were formulated to answer the research questions:

1.4.1. Examine if inaccurate body weight perception predicts unhealthy weight management strategies, and

1.4.2. Determine if there is an association between inaccurate body weight perception and depressive symptoms.

1.5. Research questions

1.5.1. Does inaccurate body weight perception predict unhealthy weight management strategies?

1.5.2. To what extent is inaccurate body weight perception associated with depressive symptoms?

1.6. Significance of the study

There is a growing number of people globally who are underweight, overweight and obese (Bhurton & Jeewon, 2013). Obesity is both a physical and psychological problem in South Africa (Peltzer & Pengpid, 2012) — physically, with regard to the health risks associated with it, and psychologically with regard to the emotional and psychiatric difficulties that it may cause.

One of the many contributing factors to this global problem could be the fact that people may have a distorted perception of their weight. Therefore incorrectly perceiving and reporting their actual weight. This was evident in a study conducted by Faber and Kruger (2005) in a rural setting in Kwa-Zulu Natal, which discovered that overweight and obese Black females found no problem with their (over)weight and perceived their weight as normal weight. The females in this study seem to have some level of disregard to the consequences of their health and distorted perspective. There also seems to be some positive reinforcement from their community and feeds into the idea that being overweight is what is expected and what is healthy.

A major focus in the literature on body weight and related issues has been with regard to dietary intake (Sira & White, 2010), focusing on *what* and *how much* a person eats. This is basically looking at the physical aspect (eating patterns) of weight and not necessarily the psychological aspect (i.e. weight perception), although both are of equal importance. The manner in which individuals view their weight is an influential element in the weight control behaviour they choose to engage in (Puoane, Tsholekile, & Steyn, 2010). For example, if individuals are overweight, but perceive their weight as normal, they are less likely to engage in activities that would result in weight loss and thus improve their physical health. One would also expect that these individuals would continuously engage in unhealthy life-style habits. On the other hand, individuals who are underweight and perceive themselves as overweight may engage in unhealthy and unnecessary weight reducing strategies. In both examples there is a significant distortion of the individuals' weight that is so extreme that it exposes them to possible life-threatening risks; which highlights

the profound impact that weight perceptions have on an individual's overall well-being. There also seems to be a lack of awareness in both examples about the seriousness of the situation, which seems to be completely tainted by the individuals' distorted perception of their weight.

To summarise: a distorted perception of one's body weight may have significant negative physical and psychological consequences such as the development of respiratory and other physical problems, as well as psychiatric problems such as depression. South African studies on weight perception have found that a discrepancy between actual weight and perceived weight may exist within a large portion of the population (Puoane, 2005). However, with the limited number of studies carried out, none of the studies in the area has examined the impact that weight perception has on weight management strategies and its association with depressive symptoms. Accordingly, this study aims to close this gap in the South African literature and address the limitations in other studies.

1.7. **Operational definition of terms**

This section provides definitions of the main variables used in this study.

1.7.1. Weight perception

Weight perception is defined in this study as the manner in which people perceive themselves as falling within an underweight, normal weight or overweight category (Faber & Kruger, 2005).

1.7.2. Weight management strategies

Weight management strategies refer to the behaviours that an individual engages in as an attempt to lose, gain or maintain weight (Vartanian, 2012). These behaviours can range from being healthy to unhealthy, and even life-threatening. Healthy weight control behaviours could include following a low fat diet and exercising. Unhealthy behaviours could include self-induced vomiting, overuse of laxatives, and skipping meals.

1.7.3. Depressive symptoms

Depressive symptoms are the negative emotions that persons experience in response to their perceived weight. Such emotions could include feelings of sadness, hopelessness, dejection, guilt, helplessness and overall unhappiness (Sadock, Sadock & Ruiz, 2015).

1.8. **Conclusion**

Body weight is affected by, and affects aspects of an individual's overall well-being. From a physical heath point of view, a person's weight may have a significant impact on their quality of life, and even have life-threatening implications. People may not recognise that they are putting themselves at risk of contracting physical illness because they have a misunderstanding of what constitutes a healthy body weight and they may incorrectly perceive themselves as being healthy when they are in fact not.

From a mental-health point of view, inappropriate perceptions of body weight also have a bearing on individuals' psychological well-being, thus exposing them to conditions such as depression.

Thus, from both a physical and a mental and emotional health point of view, understanding how individuals' weight perceptions affect their well-being is important in any attempt at dealing with this social problem that we have identified.

Chapter 2:
Theoretical perspective and literature review

2.1. Introduction

In order to provide a comprehensive theoretical understanding of how the variables in this study are associated, the self-discrepancy theory is discussed. This theory provides a comprehensive understanding of an individual's sense of self and how this is related to phenomena such as weight perceptions. How we or others perceive ourselves is an evaluation of who we are and either brings to question or else validates our sense of self. This evaluation affects how we feel about ourselves and influences our behaviour.

This section of the research also aims to provide a detailed understanding of weight perceptions, weight management strategies and depressive symptoms. Added to this, previous studies that have investigated similar variables will be reviewed.

2.2. Theoretical perspective

The self-discrepancy theory presents the self as being multifaceted and consisting of various domains that define the self (Vartanian, 2012). The theory postulates three domains of self:

a) the 'actual' self which is characterised by a subjective perception of one's attributes, for example, 'I am overweight';

b) the 'ideal' self which refers to the attributes that the individual would like to possess, for example, 'I want to be thin'; and

c) the 'ought' self which involves the attributes that the individual believes that he or she has a duty to possess, for example, 'my friends are all thinner than I am, so I have to lose some weight' (Vartanian, 2012).

These different states of the self can be related to body image as it helps to understand some of the reasons why people have been found to misperceive

their body weight or shape (their actual self). The theory further provides information about why people are motivated by their ideal/ought states of self to reach their desired body shape or size (Halliwell & Dittmar, 2010). The theory highlights the subjective nature of body image and how an individual's beliefs about how they should look are the main reasons behind any motivations to change how they look. As a source of reference, they use their personal perspectives and experiences instead of relying on objective facts and health standards (Halliwell & Dittmar, 2010).

The self-discrepancy theory explains the concept of 'self-discrepancy' as a cognitive process that is generated by a perceived difference between an individual's two states of self, actual and ideal/ought (Vartanian, 2012). This discrepancy then results in a particular emotional response (Halliwell & Dittmar, 2010). The theory outlines the specific emotional outcomes of perceiving a discrepancy between one's actual self and one's ideal/ought self (Vartanian, 2012). In other words, self-discrepancy occurs when individuals' perception of their weight or shape does not match what they consider their 'ideal' weight or shape ought to be according to the norms imposed by social pressures. This mismatch has the potential to lead to emotional discontent.

According to the theory, this actual-ideal discrepancy elicits emotions related to dejection, such as depression and dissatisfaction with one's perceived body weight/image (Vartanian, 2012). Social and peer pressure consequently creates expectations expected to motivate the individual to engage in weight management strategies which can have either a negative or a positive outcome (Vartanian, 2012). A discrepancy between the actual and ought states of self is expected to elicit agitation related emotions such as anxiety and guilt arising from a sense that one has dishonoured one's obligations (Vartanian, 2012). There is a sense of failure towards the self that stems from the actual-ideal self-discrepancy, and a sense of failure towards the other that stems from the actual-ought self-discrepancy. This could lead to an overall sense of resentment directed towards the self and a need to minimise this effect by conforming to weight standards imposed by oneself and imposed by others.

Thus due to the emotional consequences associated with self-discrepancies, individuals are motivated to engage in certain weight control behaviours in an effort to reduce the discrepancy (Halliwell & Dittmar, 2010). By reducing the discrepancy they are numbing or eliminating the negative emotions associated with it and feel that they are meeting their personally and socially imposed weight related expectations. Their efforts could include dieting, exercising, over-eating, excessively using laxatives, self-induced vomiting, self-starvation, and surgery, to mention a few strategies they may resort to, but the list is virtually endless.

2.3. **Literature review**

Whether it be overweight or underweight, both classifications are associated with a number of psychological, social and health-related problems (Peltzer & Pengpid, 2012). There is a considerable body of research that highlights the alarming growth of weight related problems in different populations and environmental contexts. According to Faber and Kruger (2005), obesity is common among South African women, more so among Black women than among White, Indian and Coloured women. Desai et al. (2012) mention that mortality related to obesity has increased due to the increasing risk of a host of diseases such as heart disease, high blood pressure, elevated cholesterol levels, arthritis, Type 2 diabetes, stroke, sleep apnoea, and even some cancers. Despite all this information, people still choose to engage in unhealthy dietary and other weight-related forms of behaviour that are known risks to well-being and health.

An equally significant, yet under-investigated, avenue of understanding body weight is its associations with adverse social and psychological consequences. Furnham, Badmin and Sneade (2013) highlighted that body weight, be it overweight or underweight, is also associated with social and psychological concerns, such as negative stereotyping and discrimination, depression, low self-esteem and anxiety. These findings are supported by Ratcliffe and Ellison (2015), who found that the majority of obese people frequently experience weight stigma, which is internalised and precipitates psychological distress and

emotional difficulties. Negative stereotyping of people with weight problems — for example that overweight people are lazy and impulsive, while underweight people are sickly and unattractive — reinforces the idea of there being a perfect body weight or shape and continues to marginalise people who do not meet these criteria. People therefore react by trying to conform what they believe society expects of them, because any deviation from the norm is likely to be criticised and rejected. As human beings we long for a sense of belonging and connection with others even if it means actively trying to obtain a certain body shape.

Despite the easily available information on what is considered to be healthy and the consequence of being unhealthy, body weight related problems are increasing at an alarming rate (Bhurton & Jeewon, 2013). This highlights the need to understand and address this problem more effectively and to explore innovative approaches to the problem. Florin, Shults and Stettler (2011) mention that individuals' perception of their body weight may have implications for how they classify their actual weight, their weight control behaviour, and their self-esteem and psychological well-being. This statement speaks to the seriousness and influential nature of body weight perceptions and the effects they have on an individual's physical and psychological functioning.

2.3.1. **Weight perception**

There has been an increasing tendency in modern times to focus on body image, which has predisposed people to perceive themselves and others according to what is thought to be an ideal body weight and shape. Weight perception can be understood as a subjective view or an interpretation of one's own body weight or the weight of others, and these perceptions could be related to mental health factors such as low self-esteem (Chithambo & Huey, 2013; Park, 2011). This supposition underscores the importance of weight perception being subjective as it encompasses both self-perception and attitudes towards oneself that may be unreliable. It also highlights the fact that weight perception is based on an evaluation of the self which is linked to one's experience, mental

health status (i.e. level of self-esteem and self-confidence) and subjective view of one's body shape and image.

Individuals are said to have an inaccurate weight perception when they incorrectly evaluate their weight to the degree that it does not correspond with their actual weight. (Bhurton & Jeewon, 2013). People are considered to have a distorted perception of their body weight or image when there is a significant discrepancy between their perceived weight and their actual weight. Thus, for example, they perceive themselves as overweight whereas they are in fact underweight. This can lead to poor self-esteem, negative self-schema[1], psychological distress, eating disorders and harmful weight control behaviour (Furnham et al., 2013). This is further supported by Mchiza et al. (2015), who found that most South African females in their study had a misconception about their weight, and the greater the discrepancy between actual and perceived weight, the more dissatisfied they were with their body weight. These are some of the negative psychological and behavioural consequences associated with a distorted weight perception (Bhurton & Jeewon, 2013).

Peltzer and Pengpid (2012) conducted a study at the University of Limpopo in which they administered the Multidimensional Body—Self Relations Questionnaire (MBSRQ) (Cash, 2015) and calculated the students Body Mass Index. Their results indicated that most students in their sample incorrectly estimated their body weight, thus having a distorted body weight perception. This was also the case in Mwaba's (2009) study in which the same discrepancy was found among Black South African university students. Further investigation needs to be conducted with regard to some of the influential factors that led to a discrepancy between how people view/evaluate their body and what is the reality of their weight situation. Phetla and Skraal (2017) found similar results in their study, which indicated that even health-care professionals in South Africa have distorted perceptions of their body weight. These conclusions

[1] The self-schema refers to a long lasting and stable set of memories that summarize a person's beliefs, experiences and generalizations about the self, in specific behavioural domains. (Furnham et al., 2013).

confirm that, although people are surrounded by a large amount of information on health, there is still an unexplainable growth in weight related problems.

Body weight and weight perceptions are influenced by a number of socio-cultural, socio-environmental and psychosocial factors such as family, peers, gender, culture, ethnicity and race (Florin et al., 2011). Some researchers have even found that parents have a strong influence on not just their child's actual weight but very often even on the child's perceived weight through conscious and unconscious processes (Swaminathan, Selvam, Pauline, & Vaz, 2013). It was also found that over 50% of children who become excessively weight conscious and concerned in adulthood had parents with the same problem (Bornman, 1999). This creates a new idea and way of thinking in which weight perceptions and their related issues may originate in childhood through parental projections, critiques, reinforcements and positive feedback. This potentially speaks to the idea of weight perceptions and its associated problems, potentially being an intergenerational pattern.

Children are also said to be affected by societal pressures to be a certain weight to the extent that they too have been found to be weight conscious (Al-Mohaimeed, 2015). There also seems to be a misclassification that exits in parents with overweight or obese children, where they perceive their overweight or obese child as being healthy and well fed (Al-Mohaimeed, 2015). This increases the chances of their children misperceiving their own weight and developing a family pattern of obesity with a distorted perception of being of normal weight. Beyond this, studies have also found that children under the age of 15 years engage in weight management strategies that are often unnecessary and that could negatively affect their development (Isomaa, Isomaa, Marttunen, & Kaltiala-Heino, 2010).

Puoane et al. (2010) found in their study that Black women's perceptions of their weight was largely influenced by the weight of their peers, which is used as a comparative stance, instead of health standards or healthy body weight norms. Together with this, Bornman (1999) reported that cultural expectations with regard to what is an ideal body type played a significant role when

assessing Black South African women's self-image. In many Black cultures, being overweight or physically voluptuous is associated with being beautiful, strong and desirable. This is also evident in a study conducted by Faber and Kruger (2005) in a rural setting in KwaZulu-Natal, which discovered that overweight and obese black females had no problem with their (over)weight and perceived their weight as normal. Therefore there seems to be a preference, acceptance or positive response towards overweight or obese females within that setting.

This highlights the profound influence that psychosocial factors such as cultural expectations have on people's perspective of their weight and what is considered to be healthy. In both studies the women's ideal body type seems to be largely based on what they have been socialised to think is appropriate or acceptable. This reinforces the idea that people long for a sense of belongingness and acceptance which is obtained in various ways, such as being a certain body shape or size. Many African cultures are known to promote a fuller figured physique as it is associated with good living. Ogunjimi, Ikorok and Olayinka (2010) conducted a study on the prevalence of obesity among Nigerian nurses and found that the participants perceived obesity as being a sign of wealth and affluence. This social status seems to carry great weight as many women in these cultures or societies strive towards having a fuller figure despite being fully aware of the health risks that are involved.

On the other hand, Western cultures seem to have a preference for a slimmer body shape. Westernised people are complimented for maintaining a body weight that tends to be closer to the underweight side of the weight spectrum. At times this glorified figure could be classified as underweight and even malnourished. Being thin may be associated with good health, a sense of impulse control, class, elegance and a positive regard towards the self (Florin et al., 2011). This is completely misleading and in some cases can become life-threatening. In contrast to some African cultures, Western culture has a fundamental belief that having a low body weight is attractive.

In both cultures, weight has some level of importance as it is associated with a certain quality of life and social acceptance. However, these extreme ideals created in both cultures are not realistically healthy and can lead to a number of physical as well as psychological disorders. Physically, engaging in unhealthy eating patterns puts one at risk of developing nutritional disorders. Psychologically, struggling to meet the cultural criteria for what is considered to be the perfect body weight or shape can lead to the onset of anxiety (Faber & Kruger, 2005). Being positively acknowledged for a body shape which is actually dangerous to one's health further encourages the weight problem, be it overweight or underweight. This illustrates how body shape preferences and body image perceptions can be culturally influenced and determined.

In addition to the aforementioned factors, the media plays an influential role in a person's perspective of what constitute the ideal body weight and shape, and this adds real pressure to work towards a socially desirable body weight or shape (Zaccagni, Masotti, Donati, Mazzoni, & Gualdi-Russo, 2014). What is represented in the media as being the ideal body shape is not always based on reality but rather emphasises the misleading belief of the existence of a perfect human type (Koyuncu et al., 2010). The type of physique found in many magazines and on websites supports the Western ideal of striving towards thinness or having a slimmer physique. This has had great influence on many people, even those in non-Western cultures.

The manner in which both men and women are portrayed in the media may send out a message to many impressionable people that they are 'not good enough' or that they need to 'do something' about how they look because it does not correlate with what the media and many celebrity role models depict as being attractive, acceptable and normal (Tiggemann & Pickering, 2011). This misrepresentation of the ideal body weight could lead to psychological discomfort with one's own body image (Faber & Kruger, 2005). Wardle, Haase and Steptoe (2006) found a discrepancy between perceived weight and actual weight among young female college students, and this was related to their reported dissatisfaction with their body image. This discrepancy suggests a widespread misconception about one's weight. From this it is evident that being

exposed to all the influential channels of information now available to us, can predispose women and men to feel unattractive, have low self-esteem, hence becoming depressed and feeling pressured to try to 'fit' into the cultural norm. Van Vonderen and Kinnally (2010) explain that women often use the media as a source of guidance in terms of what they need to look like. This reinforces the expectations many people have to be a certain weight and their fear of criticism and being judged when they do not fit the prescribed body weight or shape.

There seems to be clear gender differences in weight perception. What was considered as an ideal body weight was different amongst the men and women in the study conducted by Maruf, Akinpelu, and Nwankwo (2012). They found that in many cases what is considered to be the ideal body shape is largely influenced by what the opposite gender finds attractive which, in turn, has its roots in what is socially considered as masculine and feminine. It was also found that the two genders have different conceptions of what is healthy and unhealthy, and that they engage in different weight management strategies to obtain different results. Swami and Tovee (2015) explain that both men and woman, but more so women, look to other people of the same gender for evidence of body weight competence and thus become influenced by different types of feedback.

The latest trends on online forums that promote an unhealthy perspective of the ideal body weight and body image may inadvertently have promoted health conditions such as anorexia nervosa. These forums provide their followers with a sense of belonging as it is mostly populated by people who have a strong desire to lose weight and have found that such websites have helped in their quest for extreme weight loss (Borzekowski, Schenk, Wilson. & Peebles, 2010). These forums provide their users with tips on how to fast (and actually starve) successfully, they share other dangerous weight-loss strategies such as, purging methods, and provide pictures of themselves and celebrities looking painfully thin (Borzekowski et al., 2010).

The pictures and videos posted are of people who range from being naturally slim to people who are clearly emaciated with visibly protruding bones (Borzekowski et al., 2010). These websites promote what is sometimes called 'the skeleton frame' and encourages people to strive for such a body shape. These sites put people, adults as well as children, at risk of developing an eating disorder by glamorising an unhealthy body weight and shape, thus exacerbating the risk of a serious illness. Eating disorders, such as anorexia nervosa, are seen as lifestyle choices that show strength, control and power rather than debilitating diseases that negatively hinder one's capacity to function to one's full capacity (Lewis & Arbuthnott, 2012).

A negative or positive evaluation of one's weight is precipitated by a number of internal and external factors, some of which have been discussed. Once individual have formed a negative and abject self-image, it will have a profound influence on how they feel and how they behave. We live in a society where people may feel that it is better to conform than to be different even if conformity comes with serious implications. The feedback received from the world seems to play a major role in determining one's satisfaction or dissatisfaction with one's weight. This feedback can promote either healthy or unhealthy weight standards. From what has been discussed, people seem to base their understanding of what is considered to be a healthy weight on their experiences, social influences and feedback from others instead of medical facts. Therefore understanding weight problems from a purely medical perspective is important, but limited as weight perceptions have been found to play an influential role in weight problems as they impact on weight management strategies and emotional health.

2.3.2. **Weight management strategies**

Weight management strategies are activities such as dieting and exercising that individuals choose to engage in with the ultimate hope of reaching weight related goals (Olubukola, & Olubukola, 2012). There is a need for weight management especially for people with weight problems, as untreated weight problems can lead to health disorders that negatively affect different spheres of

an individual's life (Ogunjimi, Ikorok, & Olayinka, 2010). Weight management can help to address physical problems (physical impairment), psychological problems (restore positive regard for oneself) social problems (engage in social activities), and economic problems (decrease health care costs).

Weight management is often misconstrued as implying weight loss, whereas it is a process of living a healthy lifestyle in which one engages in healthy strategies in an effort to obtain and maintain a healthy weight. To achieve a healthy weight, people who are overweight would need to lose weight, and those who are underweight would need to gain weight. With this said, the choice to engage in weight management strategies is largely influenced by one's weight perception, accurate detection of a weight problem and one's emotional response to their perceived weight (Olubukola, & Olubukola, 2012).

According to the self-discrepancy theory people are motivated to use weight management strategies to minimise the discrepancy between their perceived weight and desired weight (Vartanian, 2012). Weight management strategies are used in an effort to bring one's perceived weight closer to what is seen as the ideal weight, thus ultimately minimising the emotional discomfort created by this supposed discrepancy. This has the potential to create an overall sense of personal satisfaction with one's weight and body image. However, this sense of satisfaction does not necessarily denote good health (Walcott-McQuigg, 2005). People may be satisfied with their weight despite it being dangerously unhealthy. Much like people who are pro-anorexia may feel confident and satisfied with their thinness regardless of the health risks involved.

The logical response to perceiving oneself as overweight or unfit is to rectify it by engaging in weight management strategies, such as appropriate dieting or exercising. However, there are a number of strategies that can range from healthier behaviours, such as adopting a healthy lifestyle, to dangerous behaviours such as taking diet pills or an excessive use of laxatives (Walcott-McQuigg, 2005). Addressing weight related concerns can therefore become a time consuming and challenging process that affects both physical and mental health.

According to Wardle, Haase and Steptoe (2006), the young female college students in their study were generally unsatisfied with their weight, and the underlying dissatisfaction was due to a discrepancy between their perceived weight and ideal weight. In other words, the female students' perception of their weight was not congruent with or did not reflect the weight or body shape they desired, which left them with feelings of discontent. This sense of dissatisfaction largely influenced their decision and attempts to either lose or gain weight. Thus the research found a correlation between weight satisfaction/dissatisfaction and weight control behaviours (Wardle, Haase & Steptoe, 2006). People who are dissatisfied with their weight are more likely than people who are satisfied with their weight to engage in weight management strategies to change their current weight status.

Swaminathan, Selvam, Pauline and Vaz (2013) found in their study on body weight perception and weight control behaviours that many of the participants in their study engaged in some form of weight-loss activity irrespective of their weight status. Therefore, even though the participants' weight status may be within the expected normal range, they may still attempt to lose weight if they perceive themselves as being overweight. This correlates with what was found by Phetla and Skraal (2017) in their study on health-care workers in South Africa, which highlights the deceptive power of body weight perceptions. This also highlights the idea that people are often motivated by their desire for an ideal physique rather than by health concerns.

Similar results were found by Wharton and his colleagues (2008) in their study, that some of their participants who were underweight but perceived themselves as being overweight still engaged in efforts to lose weight despite not needing to. The fact that even in the underweight group, there were participants who reported weight-loss attempts suggests that factors other than actual weight status are operative and speaks to the effect of weight perceptions. This highlights that these participants may meet the criteria for an eating disorder despite not seeing any problem with their behaviour. This also highlights that

some people may be classified as having some form of an eating disorder but may be unable to recognise the severity of the problem.

This further raises a very important point as to the idea that individuals' weight perception may play a more influential role in their decision to engage in weight management strategies in an effort to either gain or lose weight than their actual weight status denotes. This hypothesis helps to further understand psychiatric eating disorders such as anorexia nervosa and bulimia nervosa, as they are characterised by a distorted perception of one's weight which has great bearing on the individual's weight control behaviours (Sadock et al., 2015). The weight control behaviour employed by people with these disorders range from purging to starvation. This distorted weight perception may also be the underlying reason for subclinical eating disorders that many people may not perceive as problematic, such as severe calorie restriction and an excessive preoccupation with weight loss.

According to Alfermann and Stoll (2000) the two main components that influence weight control behaviour is one's perception and satisfaction with one's weight. It has been found that people who are dissatisfied with their weight tend to engage in weight control behaviours that are often dangerous and unhealthy. This sense of dissatisfaction with one's weight seems to be a driving force in the decision to use certain weight management strategies that could be dangerous. This correlates with Mwaba's (2009) findings that the majority of South African students who were dissatisfied with their weight were more likely to engage in unhealthy weight control behaviours compared to those who were satisfied with their weight. This was accompanied by the idea that healthier methods took longer than unhealthy methods in the quest for rapid weight loss or gain. The problem with this is that unhealthy weight control behaviours, such as drinking dieting pills or restricting food intake can have a negative effect on a person's well-being (Werner, 2013).

Health problems that are associated with unhealthy weight control behaviour include the risk of being malnourished, developing an eating disorder and having respiratory problems (Cheung, 2007). Peltzer and Pengpid (2012) found

this to be true of their South African university sample. Many of the students in their study who engaged in unhealthy weight management strategies reported physical symptoms such as low blood pressure, memory problems, dizziness and fatigue. These symptoms were mostly reported by people who were using dieting pills, restricting calories and skipping meals. All of these strategies have a significant impact on individuals' functioning and well-being. By contrast, Olubukola and Olubukola (2012) reported that the participants in their study who engaged in healthy weight management strategies reported less negative symptoms. However, the overuse of healthy strategies can yield unhealthy results (Cheung, 2007), such as excessive exercise can lead to chronic fatigue and dizziness.

Medical science has developed a variety of drugs to help address the overweight epidemic; however many of these drugs have adverse side effects that negatively affect good health, and they may become ineffective in the long run. The need for a lifestyle change and diet modifications seems to be a challenging task for many people, especially for individuals whose primary goals is to lose weight. An appealing alternative for people on a weight-loss quest are the easily obtained non-prescription weight-loss products and the prescription diet pills that can aid in reaching one's weight goals. The use of such weight management strategies in an effort to lose weight can affect the body's natural way of functioning. These drugs have also been implicated in dependency and nutritional deficits after long-term use (Olubukola, & Olubukola, 2012).

This weight perception problem is not limited to the adult population, but seems to start at a very young age and grows in intensity with more access to different sources of information (including social media) and regarding weight-management strategies. A cross-cultural study by Szabo and Allwood (2006) found that, because they equate being thin with being attractive, South African adolescents engage in weight-loss activities to fit into modern clothing that is manufactured in small sizes. Even at this fragile age of adolescence, weight has become a significant focal point which has great bearing on how one perceives oneself and what is considered to be ideal.

As stated before, studies report that as an attempt to have the lean and slender body they see idealised in the media, many females use drastic and dangerous methods to lose weight, such as restricting their diet or skipping meals, using dieting pills, drinking laxatives and engaging in self-induced vomiting (Mwaba, 2009; Peltzer & Pengpid, 2012; Wharton et al., 2008). Based on these findings, it is evident that an individual's weight perception is closely related to their weight management strategies. Pro-anorexia websites make such methods seem effortless and appealing because of their quick results. These websites also create a mind-set in which 'thin is best' and the need to use drastic weight loss methods is paramount.

Putterman & Linden 2004, assert that different reasons for weight management lead to different means of weight management, which ultimately result in different outcomes and consequences. For example, a person who is looking to adopt a healthier lifestyle, compared to someone who is looking for a short-term crash diet, will manage their weight-loss strategies differently. A healthier life style requires one to follow a balanced eating plan and engage in regular exercise, whereas a crash diet is mostly simply focused on restricting calories and limiting food intake. Persons on a crash diet may see changes in their weight much more quickly than people trying to adopt a healthier lifestyle. Faster results generally require means that tend to be unhealthy and people who resort to such means often tend to regain the weight lost, which is not usually the case when a healthier lifestyle is adopted. The two different weight management strategies also result in different levels of functioning and physical well-being. A balanced lifestyle is said by Rao et al. (2011) to be beneficial and helps your body to function at its optimal capacity; whereas a crash diet, due to its restricted nutritional value, can lead to malnutrition and decreased functioning.

One of the latest trends in weight loss is surgery. Researchers have found a rapidly increasing trend of weight-loss surgery from gastric bypasses, bariatric surgery, intragastric balloons as well as laser and surgical liposuction (Rao et al., 2011). Some of the adverse consequences of these surgical treatments

include excess skin, mood disorders, eating disorders, maladaptive eating patterns and extended recovery difficulties (Ames, Patel, Ames, & Lynch, 2009). In a society which seems to struggle with delayed gratification, weight-loss surgery has become one of the quickest and most successful weight-loss strategies. Despite its promise of instantaneous weight loss the risks are high and dangerous (Rao et al., 2011).

Weight-loss surgery can sometimes be a bluff as it addresses the problem on a very superficial and the lack of weight maintenance after the surgery can result in regaining the weight lost. It also does not address the deeper emotional and psychological difficulties that possibly caused the initial weight gain (Ames et al., 2009). For example, people who engage in comfort eating are at greater risk of regaining their weight after surgery if the reason why they used food as a stress reliever and a source of emotional nurturance is not addressed. The over-advertised fast-food outlets can make it difficult to attain and maintain weight loss without the emotional difficulties associated with comfort eating.

There are a number of weight-loss strategies available to the public, from diets to medication to surgery, which all promise the same dream of quick and effective weight loss. These products and promises play into and advocate the idea promoted by social pressure of there being a perfect body weight or shape that people need to strive to attain. It also plays into the individual's desperate desire to look and feel a certain way about his or her body weight. Body weight perception can lead to a sense of discontent with one's weight which ultimately influences an individual's decision on the use of weight management strategies. One is motivated to change how they look if it doesn't correspond with how they would like to look, the 'ideal look'. This discrepancy has the potential to cause significantly negative feelings towards the self and an overall sense of dissatisfaction with life in general.

2.3.3. **Depressive symptoms**

How one perceives oneself can have great bearing on how one feels, one's thoughts and behaviour. There is an emerging body of evidence on the

relationship between weight perception and depressive symptoms. Research suggests that people who have body weight related problems may also have impaired psychological health such as depression (De Niet & Naiman, 2011). Inch and Merali (2006) found correlations between weight perceptions, body esteem and several forms of psychopathology, such as social phobias or eating disorders. They further found a connection between body image dissatisfaction and negative moods states such as depression and anxiety. According to Sadock et al. (2015), depressive symptoms can include feelings of hopelessness, worthlessness, sadness and feeling emptiness; loss of energy, insomnia, hypersomnia, diminished interest, guilt and an inability to concentrate.

Apart from the self-discrepancy theory there is a dearth of formalised theory regarding the causes and effects of weight problems. There seems to be several ways to approach the association between weight problems, dysfunctional social norms and psychological problems.

On the one hand the rationale suggests that clinical psychological disorders such as depression may be the consequence of perceived weight (Kalarchian & Marcus, 2012) in a society that has idealised an unattainable body shape, that stigmatises and ridicules people who are overweight or obese, and that has developed a weight- obsessed culture. An individual may develop psychological conditions such as depression as the result of a discrepancy between their perceived actual self and their ideal self (Vartanian, 2012). The negative feelings associated with this discrepancy may precipitate the onset of a debilitating disorder such as depression. Ting and his colleagues (Ting, Husang, Tu, & Chien, 2012) found that the participants who reported a discrepancy between perceived weight and ideal weight also reported experiencing depressive symptoms.

Weight problems are associated with physical, psychological and social issues (Florin et al., 2011). For example, physical limitations as a result of weight, such as obesity, are functional impairments that can be related to the development of depressive states. Similarly, psychological factors such as a depressogenic

schemas and thought processes that, despite one's best efforts one can never lose or gain weight, may contribute to a dysphoric mood. Lastly, social factors, in the form of discrimination, ridicule, maltreatment and stigmatisation, may account for subsequent depression in people who do not meet the ideal body weight and shape. All of these factors can lead to a person becoming socially withdrawn, feeling helpless and hopeless, experiencing excessive guilt, and a loss of desire to participate in pleasurable activities.

On the other hand, the other rationale suggests that psychological factors may be the cause rather than the result of weight problems. Depression may contribute to the development of obesity or being underweight, consequence of an abnormally increased or decreased appetite, excessive or limited eating patterns, hypersomnia and inactivity (Kalarchian & Marcus, 2012). Recurrent depressive episodes could easily make weight problems more pronounced and dangerous (Kalarchian & Marcus, 2012). People who use emotional eating as a coping mechanism can fall victim to such a progressive cycle. They may end up eating more because they are depressed, gain weight from the excessive eating pattern and, as a result of the weight gain, fall back into a depressed mood or perpetuate their current depressive episode.
Irrespective of which came first, there seems to be an association between perceived weight and psychological symptoms such as depression.

Individuals' perception of their weight may make them feel either confident or ashamed about the way they look. Generally, when individuals are unhappy with their weight, they become motivated to do something about it, as suggested by the self-discrepancy theory. However, failure to meet personal obsessions with an 'ideal' weight or body shape, or society's 'ideal' body image foisted on people, can potentially become a major source of stress. As explained by the self-discrepancy theory, failure to uphold this perceived ideal is often experienced as a personal failure to meet social obligations, which in turn results in feelings of dejection or agitation (Vartanian, 2012).

Research suggests that individuals' emotional response to their weight is largely based on their perceived weight and not necessarily on their actual

weight (Ting et al., 2012). This emotional response could take the form of not feeling ‘confident in one’s own skin’ or may become much more debilitating and show symptoms of clinical depression. Ames et al. (2009) speak of how the participants in their study who had over-estimated their actual weight reported feeling excessively guilty when eating. This sense of guilt made them feel worthless, dysphoric, hopeless, despondent and emotionally overburdened. This highlights the significant emotional burden that is associated with perceived weight abnormality and our inability to achieve our desired weight status. It also makes it easier to understand why people choose to engage in maladaptive eating patterns to relieve the emotional distress associated with an inability to meet ‘ideal’ weight standards. The emotionally overwhelming effects of distorted weight perceptions are indicated in the study.

Half of the same cohort in the study reported that when they looked at themselves in the mirror they felt genuinely unhappy with their weight and would often respond by wanting to stay at home, thus becoming socially withdrawn, and felt the need to wear clothes that would slim them down or make them look slimmer than they perceived themselves to be. This highlights how closely related weight perception and depressive symptoms are to each other.

In the light of the foregoing research outcomes, the researcher develops sensitivity for how incapacitating weight perceptions can become with regard to an individual’s overall well-being on both a physical and psychological level. This also highlights the extreme difficulty encountered in attempting to address these issues.

It is easy to develop negative emotional states such as depression based on how one perceives oneself to be, or to develop an obsession with food and either over- or under-eating when social pressures influence people to believe that their body weight or shape is wholly undesirable. This type of negative feedback may even taint one’s perception of oneself and cause significant emotional difficulties. Current research evidence shows that there is a strong relationship between negative body weight perception and depressive symptoms (Puskar, Bernardo, Fertman, Ren, & Stark, 2009). Armstrong,

Westen and Janicke (2013) discovered a trend in their study in which the participants who reported being dissatisfied with their weight and used weight management strategies also reported depressive symptoms.

Likewise, Cho, Han, Kim and Lee (2012) reported that subjective weight perception is a better predictor of an individual's physical and psychological well-being than empirical weight status. This bears out previously mentioned research findings that the choice to engage in weight management strategies, that are both physically and psychologically potentially unhealthy, is largely based on one's weight perception or perceived weight problems. People seem to respond emotionally to, and make decisions based on, their weight perceptions rather than their actual weight status. This is important to know in order to address some weight-related problems.

Daniels (2005) conducted a secondary-'analysis[2] of a study on youth risk behavioural surveillance system to identify the relationship between actual weight, weight perception, weight management behaviour and depressive symptoms. His results found that depressive symptoms were related to perceived weight and weight management behaviours, more specifically dieting, while there was no relationship between self-reported depressive symptoms and actual weight as expressed in terms of the body-mass index (BMI). This highlights the importance of perceived weight, compared to actual weight, in relation to depressive symptoms and weight management strategies. This is further supported by Kim and Kim (2001) who found in their study on weight perceptions that people with a perceived weight problem, such as being overweight, also reported psychological problems such as low self-esteem and depression.

Park (2011) explains that the discrepancy between perceived weight and actual weight is more prominent in women, many of whom report having depressive symptoms associated with their weight. Daniels (2010) supports this by

[2] Secondary analysis involves the use of existing ', collected for the purposes of a prior study, in order to pursue a research interest which is distinct from that of the original work; this may be a new research question or an alternative perspective on the original question (McLntyre, 2005).

highlighting that females are more likely to report dissatisfaction with their weight, which leads to an increased level of bodily concern and preoccupation. These preoccupations and bodily concerns can come in the form of constantly weighing yourself to check if you are gaining or losing weight, being conscious of what you wear, compulsively recording calories, or even being worried about how other people perceive your weight. These obsessive behaviours are rapidly increasing with the easy access to information and things like applications ('apps') that help track your weight loss/gain, calorie intake and nutritional deficits. Although this may be helpful it may leave the individual completely bombarded by information and may even perpetuate their obsessional nature.

Armstrong, Westen and Janicke Xie (2013) also found in their study that depressive symptoms mediated the relationship between perceived weight and weight control behaviours. These trends were also found among Chinese and Swedish populations (Ivarsson, Svalander, Litlere, & Nevanen, 2006; et al., 2003). This reinforces Park's (2011) proposed idea of the association between weight perception, weight management strategies and depressive symptoms.

Food could potentially be used as a source of psychological fulfilment as it is often associated with a sense of nurturance, comfort, love and many other positive feelings. When people feel emotionally overwhelmed and stressed, they attempt to recapture these positive feelings by soothing and comforting themselves with food. Research has recently found that people are more prone to emotional eating when their more basic emotional needs have been unfulfilled (Ansari, Clausen, Mabhala, & Stock, 2010). Wardle, Haase and Steptoe (2006) support this and further add that people who are chronically depressed tend to engage in emotional eating.

The use of food as a source of comfort during stressful times can potentially increase a person's chance of being overweight and may hinder efforts of losing weight or maintaining a healthy lifestyle. Failure to uphold weight-related goals may lead to depressive feelings and create a self-perpetuating cycle of eating when depressed and becoming depressed because of the weight gain after eating. Once this vicious cycle has been established, it can become very

difficult to break it and to regain weight control. Very often an individual may need to address the underlying physiological and or psychological problems driving the weight gain.

2.3.4. **Body Mass Index**

According to the World Health Organisation (2008), body mass index (BMI) is a measure of height and weight that is a universally accepted indicator of one's weight category. It applies to adult men and woman (Louwers et al., 2014). It is calculated by dividing individuals' mass or weight by their height squared (Mackay, 2010). In other words, BMI is a measure of relative weight that is related to an individual's mass and height.

BMI categorises people into four categories — underweight (below 18.5kg), normal weight (18.5-24.9kg), overweight (above 25kg) and obese (above 30kg) — depending on the number obtained when their BMI is calculated (Burton & Jeewon, 2013; WHO, 2008). Using a measure such as BMI allows for a person's weight to be standardised for their height, thus enabling individuals of different heights to be compared (Ogden, Carroll, Kit, & Flegal, 2014). However, it may not give an accurate indication of weight within certain populations, such as pregnant women and professional athletes (Stanten, 2006). In this study people who fell within either of these populations were screened and excluded.

There are a number of limitations that are associated with the use of BMI as an indicator or classification system for people who are underweight, normal weight and overweight. According to Bennasar-Veny (2013) BMI presents well-documented limitations, such as; a different behaviour between men and women, limited usefulness among children, pregnant women and athletes, as well as differences between ethnic groups.

This is supported by Bibiloni, Pons and Tur (2013) who further add that one of the major limitations of BMI is related to the fact that it poorly determines the composition and distribution of body fat, which can lead to a misclassification of individuals with a high muscle mass as overweight or obese and individuals

in the normal range with a high percentage of fat. In understanding that BMI does not take such factors into consideration and is limited in various ways it should be used with caution as people who may not be overweight may be classified as overweight not because of their body fat percentage but rather because of their muscle mass.

Another limitation of BMI as a scientific indicator is the fact that it does not give an indication of abdominal fat, which is the main predictor of the development of high blood pressure, stroke, diabetes and heart disease (Donini, 2013). Thus it doesn't fully capture individuals' health risks. Donini (2013) further stated that BMI is appropriate for population studies, but inappropriate for individual diagnoses because it does not provide sufficient information. Yet, despite this BMI is often used for individual diagnosis.

The reason for using BMI in this study is because it is easy to use, inexpensive, and quick. It is also a useful tool for assessing basic weight classification. Although it does not directly measure body fat, it provides a more accurate estimate of which category one may fall in, compared to just taking one's weight (Daniels, 2009). Based on what was said by Donini (2013), BMI is appropriately used within the current study. Although an individual's BMI is important to know in this study, the main focus of this study is on individuals' perception of their weight rather than the accuracy of measurements of their body mass.

2.4. **Conclusion**

The self-discrepancy theory focuses on how individuals perceive themselves and the impact this has on their emotional wellbeing and their behaviour. This theory is essentially based on the idea that the greater the discrepancy between individuals' actual and ideal selves, the greater the likelihood that they would be dissatisfied with themselves. This feeling of dissatisfaction then becomes a motivator for them to do something to change the way they look. Research on weight perception supports this as it has been found that the greater the discrepancy between individuals' perceived weight and their actual weight, the higher the risk that they would be dissatisfied with their weight and use weight management strategies that may or may not be healthy. Literature also highlights that this sense of dissatisfaction may intensify into an emotional state of depression.

Chapter 3:
Methodology

3.1. Introduction

This section focuses on how the research was conducted. This includes information on the research design, the recruitment of participants, the instruments used, and the procedure followed in collecting the data. This section will also look at the ethical considerations for this study.

3.2. Research design

This study followed a quantitative research methodology. More specifically, a correlational research design[3] was thought to be appropriate for the purpose of this study. This methodology follows an empiricist approach to research which involves gaining knowledge through careful and controlled direct or indirect observation (McIntyre, 2005). This approach also requires that the researcher be objective, detached and independent from the observed object (Wilson & McLean, 2011).

3.3. Participants

A convenient sample of 215 adult community members (≥ 18 years old) from Pretoria and Johannesburg were recruited for participation in this study. Convenient sampling was used on the basis of participants' availability and willingness to participate (Wilson & McLean, 2011). Despite the issue of accessibility, the use of a community sample in this study is consistent with trends in previous studies investigating similar variables (Puskar et al., 2009). The benefit of using a convenience sampling method is that it is economical (Spies, 2012). The disadvantage is that it is based on personal judgement, it may be biased because each member of the population does not have an equal

[3] A correlational study determines whether or not two variables are correlated, in other words, whether an increase or decrease in one variable corresponds to an increase or decrease in the other variable. (McLntyre, 2005).

chance of being in the study and the results cannot be generalised with a high degree of confidence to the larger population (Wilson & McLean, 2011).

Participants were contacted or recruited with the help of three youth organisations from selected churches in Pretoria and Johannesburg. With the aid of the organisations' databases, an open invitation was sent to all the potential participants and those who indicated interest and volunteered to participate in the research were included in the study. Two hundred and fifteen informed consent forms, letters of invitation and survey questionnaires were mailed to members of these organisations, together with a stamped self-addressed envelope. The individuals to be contacted were selected at random. The targeted sample included participants representing a diversity of socio-demographic characteristics of age, race and gender.

3.4. **Instruments**

The data were collected with the following instruments:

3.4.1. Weight status

Self-reported height and weight were used to calculate the BMI (kg/m^2).

3.4.2. Weight perception and weight concern

The following question was used to measure weight perception: 'How do you describe your weight?' Responses were rated on a 5-point scale: 1, very underweight; 2, slightly underweight; 3, about the right weight; 4, slightly overweight; 5, very overweight. Weight perception as an indicator of self-perception of body weight status is commonly used in the literature (e.g., Ting et al., 2012). This variable was divided into 'perceived overweight' (scores of 4 or 5), 'perceived normal weight' (score of 3) and 'perceived underweight' (scores of 1 or 2).

The item that was used to measure weight concern was taken from the Eating Attitudes Test (EAT-26) (Garner, 1982). The item reads: 'Are you terrified about being underweight or overweight?' Responses were rated on a 6-point scale: 1 = always; 2 = usually; 3 = often; 4 = sometimes; 5 = rarely; 6 = never. This variable was also dichotomised into 'greater weight concern' (scores of 1, 2, or 3) and 'less weight concern' (score of 4, 5, 6).

3.4.3. Weight management strategies

The following questions were used to measure weight perception: a) 'Are you trying to do any of the following about your weight?' (I am not trying to do anything about my weight, stay the same weight; to lose weight, to gain weight); b) 'Within the last 30 days, did you do any of the following?' (Exercise to lose weight, diet to lose weight, vomit or take laxatives to lose weight, take diet pills to lose weight, eat more to gain weight, I didn't do any of the above). In this study, vomiting, use of laxative, eating excessively to gain weight, and use of diet pills was categorised as 'unhealthy weight management strategies', while dieting to lose weight and exercising to lose weight were categorised as 'healthy weight management strategies', even though the latter can be abused.

3.4.4. Depressive symptoms

The Center for Epidemiologic Studies Depression Scale (CES-D) (Radloff, 1977) is a 20-item self-report measure of depressive symptoms in adolescents and adults. The measure can be completed within 10 minutes and an individual's score can range from 0 to 60, with scores of 16 and above indicating the need to seek a clinical evaluation for possible major depression (Boyd & Somberg, 2005; Gay, Kottorp, Lerdal, & Lee, 2016). Pretorius (1998) and Domingo et al. (2015) reported a good internal consistency reliability of 0.90 for this scale with South African participants.

3.5. Procedures

The data were only collected after ethical clearance had been granted by the Faculty of Humanities' Research and Ethics Committee. The participants in the proposed survey were community members residing in Pretoria and Johannesburg. The survey entailed a self-report questionnaire that was self-administered and mailed back to the researcher. The purpose of the research was explained in the open invitation letter and participants' information sheet, and participants were informed of their rights before volunteering to participate in the study. The questionnaire was only available in English.

3.6. Ethical considerations

The participants were requested to give written consent before participating in the study. Participation in this study was voluntary. Confidentiality of the participants was guaranteed, since no identifying information was sought from them. There were no foreseeable risks and discomforts anticipated by participating in this survey study.

The participants could at any point during the study choose to withdraw without any consequences. Any participants who experienced some distress as a result of completing the questionnaire were referred to the University of Pretoria's Itsoseng Clinic and Life Line Gauteng for debriefing at no cost to them. No form of remuneration for participation in this study was offered. The raw data were securely stored at the Department of Psychology, University of Pretoria (i.e., HSB 11-24) for reuse and archiving for a minimum period of 15 years. During this period other researchers may also have access to the data for further use.

3.7. Conclusion

A correlational research design was used in this study. Two hundred and fifteen youth community member participants from both Johannesburg and Pretoria were recruited using a convenient sampling method. This sample consisted of both males and females from all ethnic groups.

Chapter 4:
Results

4.1. Introduction

This section focuses on how the collected data were analysed. This includes information about the data analysis strategy and the presentation of the findings. A description of the results will also be discussed.

4.2. Data analysis strategy

All the statistical analyses were conducted with the IBM SPSS version 24.0 software package (Wilson & McLean, 2011). Self-reported weight and height were used to determine the BMI (Body Mass Index) and categorise/stratify the participants into underweight, normal weight, overweight and obese. The frequency distributions of demographic characteristics, body weight perception, BMI categories, and weight management strategies were calculated. Binary logistic regression was conducted to assess the extent to which body weight perception predicts the odds of using unhealthy weight management strategies (e.g., using diet pills) controlling for demographic data‘(i.e., gender, age and race). Lastly, linear logistic regression was used to determine the relationship between perceived weight, actual weight and depressive mood. Odd ratios were deemed to be significant at $p \leq .05$ and if 95% confidence intervals did not include 1.0.

4.3. Presentation of results

4.3.1. Descriptive data

Tables 1 and 3 present sample characteristics data. The participants in this study consisted of 215 adults (61.4% were female and 38.6% were male). The mean age of the participants was 24.53 (SD = 4.305). Among these participants about 56.7% were underweight according to their actual BMI, while only 18.1% perceived themselves as underweight. About 37.6% of the participants were of

normal weight according to their actual BMI, but 42.8% perceived themselves as being of normal weight and therefore 7.6% misperceived their weight. About 5.7% of the participants were overweight or obese according to their BMI, while 39, 1% reported perceiving themselves to be overweight or obese.

About 66.5% of the participants displayed an inaccurate body weight perception by either overestimating or underestimating their actual body weight. Almost half the participants in this study reported that they were trying to lose weight, while the rest were trying to either gain weight, stay the same weight or were not trying to do anything about their weight. From the participants who indicated that they were trying to lose weight 18.1% were only exercising, 4.2% were on a diet, 1.9% would use self-induced vomiting or use laxatives and 0.9% used diet pills. The remaining 52.6% of participants used a combination of approaches to lose weight, with dieting and diet pills being the most popular combination.

Table 1

Sample demographics

		Frequency	Percentage
Ages	18-29 years	182	85.4
	30-38 years	31	14.6
Race	Black	58	27.8
	Coloured	50	23.3
	White	64	29.8
	Asian	43	20.0
Gender	Female	132	61.4
	Male	83	38.6
Educational level	High school	124	58.2
	Tertiary	89	41.8

Note: Values for each variable do not always add up to 215 because of missing values.

Table 2

BMI, Weight perception, distorted weight perception, weight management goals and weight management strategies

Category	Total (N = 215)
BMI	
1.Underweight	119 (56.7%)
2.Normal weight	79 (37.6%)
3.Overweight	8 (3.8%)
4.Obese	4 (1.9%)
Weight perception	
1.Underweight	39 (18.1%)
2.Normal weight	92 (42.8%)
3.Overweight	37 (17.2%)
4.Obese	47 (21.9%)
Distorted weight perception	
1. No distortion	67 (31.2%)
2. Distortion	143 (66.7%)
Weight management goals	
1.None	30 (14.0%)
2.Stay the same	45 (20.9%)
3.Lose weight	103 (47.9%)
4.Gain weight	37 (17.2%)
Weight management strategy	
1.Exercise	39 (18.1%)
2.Diet	9 (4.2%)
3.Vomit or use laxatives	4 (1.9%)
4.Diet pills	2 (0.9%)
5.Eat more to gain weight	33 (15.3%)
6.None of the above	68 (31.6%)

BMI, Weight perception, distorted weight perception, weight management goals and weight management strategies

Category	Total (N = 215)
7.Combination of 2 & 4	17 (7.9%)
8.Combination of 1 & 3	1 (0.5%)
9.Combination of 2,3 & 4	7 (3.3%)
10.Combination of 1,2 & 4	11 (5.1%)
11.Combination of 1,2,3 & 4	15 (7.0%)
12.Combination of 1 & 2	4 (1.9%)
13.Combination of 3 & 4	3 (1.4%)
14.Combination of 2 & 3	1 (0.5%)
15.Combination of 1,2 & 3	1 (0.5%)

Note: Values for each variable do not always add up to 215 because of missing values.

4.3.2. **Reliability coefficients of the research instruments**

The psychometric properties of the scale were tested. The results suggested that CES-D had a satisfactory internal consistency (see Table 3).

Table 3

Cronbach's alphas of the CES-D

	α	Number of items
1. CES-D	0.86	20

Note: CES-D = The Centre for Epidemiologic Studies Depression Scale

α = Cronbach's Alpha

4.3.3. **Bivariate associations between predictor and outcome variables**

The correlation matrix of the variables was constructed to determine whether the variables are significantly related to each other. Table 4 presents the correlations among them. The results suggest that a correlation exists between distorted weight perception and actual weight as well as distorted weight perception and weight perception. A correlation was also found between weight management strategies and weight perception including distorted weight perception. Lastly, a correlation was found between depression and weight perception including distorted weight perception.

Table 4

Associations between actual weight, weight perception, weight distortion, inappropriate weight management strategies and depression

	1	2	3	4	5
1. Actual weight	1				
2. Weight perception	-0.002	1			
3. Weight distortion	-0.260**	0.438**	1		
4. Weight management strategies	-0.029	0.257**	0.211**	1	
5. Depression	-0.037	0.433**	0.216**	0.339**	1

**$p < .01$

4.3.4. **Relationship between body weight perception and weight loss management**

Binary logistic regression analyses showed that females with inaccurate weight perception were more than three times as likely as were those with accurate

weight perception to engage in inappropriate weight management strategies (odds ratio [OR] = 3.05; 95% confidence interval [CI] = 1.59 – 5.81); *p* = 0.001). The odds for males using inappropriate weight management strategies were lower (OR = 0.33). The results imply that males with an inaccurate body weight perception were no more likely to engage in unhealthy weight management strategies than were males with an accurate body weight perception. In other words, men were less likely to use inappropriate weight management strategies despite their weight perception. These results indicate that inaccurate weight perception has a significant influence on the weight management strategies among females, whereas it seems to have minimal effect on the weight management strategies among males.

4.3.5. **The prediction of depressive mood by body weight perception and actual weight status**

A linear regression analysis was conducted to test the associations (see Table 5). The model shows that depressive symptoms were predicted by body weight perception (β = 0.437, *p* = 0.00). The model explained 20% of variance in the total depressive mood score (R^2 = 0.200, F [3,] = 16.539, *p* = 0.00). However, actual weight status did not predict depressive symptoms (β = - 0.030, *p* = 0.652). The results imply that weight perception plays a more significant role in predicting depressive symptoms than actual weight. People are more prone to develop depressive mood based on their perception of their body weight rather than their actual weight.

Table 5

The prediction of depressive mood

Variables	**Model**
Weight perception	0.437*
Actual weight status	-0.030

R^2 (Adj. R^2)	0.200 (0.188)
ΔR^2	0.200
F	16.539

Note: *$p < 0.05$

4.4. **Conclusion**

The results of the study indicate that most participants have a distorted perception of their weight. This distorted perception has a bearing on their weight management strategies and depressive symptoms. Many of the participants had the desire to do something about their weight, which included both healthy and unhealthy attempts at weight management, with the majority using unhealthy strategies. This is further supported by the correlation that was found between weight perception and weight management strategies. A relationship between weight perception, weight distortion, weight management strategies and depressive symptoms was also found in this study. The results also highlight that weight perception is a better predictor of depression than actual weight.

Chapter 5:
Discussion, recommendations and limitations of the study

5.1. Introduction

The purpose of this section is to discuss the results found in this study. This discussion will also focus on how the established results relate to existing literature. Finally, it will include information on limitations of the study and provide recommendations for future studies.

5.2. Discussion

The purpose of this study was to determine whether a relationship exists between perceived weight, weight management strategies and depressive symptoms. South Africa is said to have the highest rates of obesity in sub-Saharan Africa. It is estimated that more or less 70% of its population falls within an overweight or obese weight category (Kimani-Murage et al., 2010; Kruger, 2005). However, the results of this study show that there were more participants who were underweight compared to other related studies and the statistical distribution in the general public. Such variance could be due to the fact that the participants were asked to self-report their weight and height and this may increase the probability of error in their reporting. Despite this, most participants perceived themselves as being either of normal weight, overweight or obese. There seems to be a trend in this research of participants overestimating their body weight. This corresponds to the hypothesis highlighted in the literature that many South Africans are said to have a distorted perception of their weight (Phetla & Skaal, 2017). Thus they incorrectly evaluate their body weight, which does not correspond with their actual body weight. This also raises concern with regard to the weight status of the South African population. If people are grossly misperceiving their weight, there is greater risk of more profound weight-related problems in the country, such as an increased prevalence of obesity and premature mortality.

The results indicate that most of the participants in this study had misperceived their actual body weight either by underestimating or overestimating it. Therefore they would be said to have an inflated or deflated perception of their body weight. Although this was not the focus of the study, it implies that a discrepancy was found between the participants' perceived weight and their actual weight. This trend has been consistent with other studies conducted within South Africa and other parts of the world. Peltzer and Pengpid (2012), Mwaba (2009) and Mchiza et al. (2015) all found in their studies that there was a statistically significant discrepancy between perceived weight and actual which suggested that their participants had a distorted perception of their body weight or shape.

This highlights a concern as to what criteria people use to establish which category of weight they fall within. Socio-environmental, socio-cultural and psychosocial factors such as culture, peers, family habits, and social expectations (Florin et al., 2011) seem to play a significant role in the evaluation of one's weight over the scientifically recommended norm. Therefore, even trying to educate people about weight may be a challenge if one is only able to understand their weight problems in terms of their actual weight and not their personal experience and perception of their weight. It then becomes essential to understand how different factors influence individuals' perception of what they consider to be the ideal weight and shape. This requires an appreciation for the subjective nature of weight perception and the unique impact it has on people.

If individuals' perception of their body weight does not correspond with their perception of their ideal weight, they are at risk of being dissatisfied with their weight and therefore may lead to a sense of discomfort and bodily concern (Werner, 2013). This corresponds with what was found in this research as many of the participants reported that they were trying to do something about their current weight status. This may highlight some level of dissatisfaction with one's current weight and a desire to feel more content and acceptable within one's body. This is supported by the idea that the greater the discrepancy between perceived weight and ideal weight the more motivated a person is to try

minimise this discrepancy (Vartanian, 2012). The main reasons for this is the emotional burden that is associated with not meeting the socially imposed status quo (Vartanian, 2012) and thus developing the fear of being ridiculed, marginalised and victimised (Kalarchian & Marcus, 2012) for being different in a society that may be experienced as rejecting and critical. This may be perpetuated by the experience of society as being unable to hold, accept and integrate said difference.

There are various methods or strategies of decreasing the discrepancy between perceived and actual weight in order to decrease the emotional effect it has. Some ways are healthier than others, but they all rely on the promise of helping individuals to attain and maintain their weight goal. The use of exercising, dieting pills, vomiting and the excessive use of laxatives found in this study is consistent with weight management trends in other studies conducted with a similar population in South Africa and other parts of the globe (Mwaba, 2009; Peltzer & Pengpid, 2012; Wharton et al., 2008). This study found that, although these methods may be effective, many of the participants did not use only one method of weight management, but preferred to use a combination of strategies. The most common combination preferred in this study was the use of diet pills and dieting. This correspond with what was also found in a study conducted by Harring et al. (2010) where their participants seem to strongly believe that the use of a combination of strategies may yield faster and more effective results within a shorter time period. This potentially highlights the desperate internal need to quickly fix the self in order to be accepted by society.

If, therefore, there is a discrepancy between individuals' perceived weight and ideal weight they are more likely to try to change this by adopting strategies, to address this, that could be either healthy or unhealthy. This is supported by the correlation found in this study between perceived weight and a distorted perception of weight as well as perceived weight and weight management strategies. As has been found in this study and many other studies (Mwaba, 2009; Peltzer & Pengpid, 2012; Wharton et al., 2008), the participants' perceived weight does not always align with their actual weight and thus they

are described as having a distorted perception of their weight. The correlation between weight perception and weight management strategies could potentially speak to how, based on their perception, the participants would choose to engage in various weight management strategies. The motivation or reason behind the type of weight management strategy chosen is still not clear, however, each type of strategy may yield different results for the individual in question.

In comparison to the normal weight and underweight classification categories there were fewer people in this study who were actually overweight or obese, but many of them were trying to lose weight. This highlights an important idea that individuals' decision to lose weight or do anything about their weight is largely based on their perceived weight rather than their actual weight. Swaminathan, Selvam, Pauline and Vaz (2013) found that for many of their participants, both children and adults, their weight perception was directly associated with their decision to attempt weight loss, irrespective of their actual weight status. In knowing this, very often the attempts to lose weight may be necessary but not utilised or unnecessary and dangerous.

As found in many other studies, weight perception has a significant influence on weight management strategies (Szabo & Allwood, 2006; Wharton et al., 2008). More specifically, the females in these studies who misperceived their weight were more likely to engage in inappropriate weight management strategies than their male counterparts. This trend was also found in this study as weight perception was found to have a significant effect on the weight-management strategies of females, whereas it had a limited effect on the weight management strategies of males. This may be parallel with the idea that females are at greater risk of developing eating disorders and engaging in risky weight management practices than males (Sadock & Sadock, 2015). This gender difference may be explained by the fact that many of the most prevalent eating disorders are indicative of a desperate attempt to lose weight, which may not necessarily be the goal for many males as they may idealise a more muscular physique that promotes greater muscle mass.

The evidence from this current study is consistent with literature that has found that perceived weight is a better predictor of negative mental health outcomes than objective measure of weight status (Xie et al, 2003; Ivarsson, Svalander, Litlere, & Nevanen, 2006). In this study weight perception was specifically found to be a predictor of depressive symptomology. This is supported by Kim and Kim (2001) who found in their study that weight perception predicted depressive symptoms and low self-esteem. This basically highlights the conclusion that the development of depressive symptoms is based on people's perception of their weight rather than their actual weight. This depressive reaction could be due to a number of factors, such as failed attempts to achieve what is considered the ideal weight or an overall dissatisfaction with one's perceived weight. This highlights the emotional burden associated with human experiences that are perceived to make a degree of idealisation and even perfection attainable. The difficulty to achieve such a goal in practice (such as the goal of a romanticised body weight or shape) becomes the source of severe discomfort and hostility towards the self that spirals into the depressive emotional state that many people fall victim to.

This study discovered an association between weight perception and weight management strategies. The participants' distorted perception of their weight seemed to be a contributing factor to the decision to engage in either healthy or unhealthy weight-management strategies. The study also found that weight perception and depressive symptoms are highly correlated, which highlights, the close relationship between self-evaluation and emotional well-being.

5.3. **Recommendations**

It was discovered in this study that weight perceptions and the experience associated with it can be subjective in nature and affect people in different ways. For a more in-depth understanding of how the studied variables interact with one another, future research could look at a research design using mixed methods or a qualitative rather than purely quantitative study. There is also the possibility of furthering this study by including others variables, such as specific eating disorders. How these variables interact and correlate with one another

may have positive implications for the treatment of eating disorders and related depressive symptoms. By furthering this study one may also help develop theory-based interventions that include a holistic understanding to well-being. This may help by effectively addressing some of the psychosocial effects resulting from inaccurate body-weight perception and understanding the underlying influences of weight perceptions within the South African population.

5.4. Limitations of the study

There are limitations in the study that may have influenced the results. First, the self-selection of participants in the study might have resulted in bias. Second, the participants were requested to self-report their actual weight and height and this may have had negative implications on the accuracy of the results. With this said, self-reported weight and height as a method of collecting data have been used in other studies and based on this its effects on the results may not have been significant. The focus of this study was largely based on the participants' perceptions of their weight rather than the accuracy of their reported actual weight. Third, the survey items were not extensive enough to define what was meant by terms such as 'diet' so that it could be distinguished from more extreme practices such as fasting. Finally, the ability for the results to be generalised may be limited as the sample populations may not have been large and representative enough.

5.5. Conclusion

Despite the limitations, the present study adds to previously published data that identified a correlation between weight perception, weight management strategies and depressive symptoms. In conclusion, according to the results of this study weight perception seems to play a significant role with regard to weight management strategies and depressive symptoms. The study was able to add to South African literature specifically with regard to the relationship between perceived weight and depressive symptoms. The trend found in the South African population seems to correspond with global trends.

6. **References**

Alfermann, D., & Stoll, O. (2000). Effects of physical exercise on self-concept and well-being. *International Journal of Sport Psychology, 30*, 47-65.

Al-Mohaimeed, A. A. (2015). Misclassification of childhood obesity by parents in Al-Qassim, Saudi Arabia. *Journal of Obesity and Weight Loss Therapy, 5*, 283-287.

Ames, G. E., Patel, R. H., Ames, S. C., & Lynch, S. A. (2009). Weight loss surgery: Patients who regain. *Obesity and Weight Management, 5* (4), 154–161.

Ansari, W. E. I., Clausen, S. V., Mabhala, A., & Stock, C. (2010). How do I look? Body image perceptions among university students from England and Denmark. *International Journal of Environmental Research and Public Health, 7*, 583-595.

Armstrong, B., Westen, S. C., & Janicke, D. M. (2013). The role of overweight perception and depressive symptoms in child and adolescent unhealthy weight control behaviours: A mediation model. *Journal of Pediatric Psychology*, 1, 91-53.

Bornman, E. (1999). Self-image and ethnic identification in South Africa. *The Journal of Social Psychology, 139* (4), 411-425.

Borzekowski, D., Schenk, S., Wilson, J., & Peebles, R. (2010). e-Ana and e-Mia: A content analysis of pro–eating disorder web sites. *American Journal of Public Health, 100* (8), 1526–1534.

Boyd, R. C., & Somberg, R. (2005). Review of screening instruments for postpartum depression. *Archive Women's Mental Health, 8*, 141-153.

Cash, T. F. (2015). *Multidimensional Body–Self Relations Questionnaire (MBSRQ) Encyclopedia of Feeding and Eating Disorders*. United States of America: Springer Link.

Cheung, P., Bibby, H., & Lam, S. T. (2007). A study on body weight perception and weight control behaviours among adolescents. *Medical Journal, 13* (1), 16-21.

Chithambo, T. P., & Huey, S. J. (2013). Black/White differences in perceived weight and attractiveness among overweight women. *Journal of Obesity, 2*, 1-4.

Cho, H. J., Han, S. N., Kim, J. H., & Lee, H. M. (2012). Body image distortion in fifth and sixth grade students may lead to stress, depression, and undesirable dieting behaviour. *Nutrition Research and Practice, 6* (2), 175-181.

Cole, T. J., Bellizzi, M. C., Flegal, K. M., & Dietz, W. H. (2000). Establishing a standard definition for child overweight and obesity worldwide: International survey. *British Medical Journal, 320*, 1240-1245.

Daniels, J. (2010). Weight and weight concerns: Are they associated with reported depressive symptoms in adolescents? *Journal of Pediatric Health Care, 19*, 33–41.

De Niet, J. E., & Naiman, D. I. (2011). Psychosocial aspects of childhood obesity. *Minerva Pediatric, 63*, 491–505.

Desai, M. N., Miller, W. C., Staples, B., & Bravender, T. (2012). Risk factors associated with overweight and obesity in college students. *Journal of American College Health, 57,* 109-114.

Domingo, A. K., Asmal, J., Seedat, S., Esterhuizen, T. M., Laurence, C., & Volmink, J. (2015). Investigating the association between diabetes mellitus, depression

and psychological distress in a cohort of South African teachers. *South African Medical Journal, 105* (2), 105-1060.

Faber, M., & Kruger, S. (2005). Dietary intake, perceptions regarding body weight, and attitudes toward weight control of normal weight, overweight, and obese black females in a rural village in South Africa. *Ethnicity & Disease, 15*, 238-245.

Florin, T. A., Shults, J., & Stettler, N. (2011). Perception of overweight is associated with poor academic performance in US adolescents. *Journal of School Health, 81* (11), 663-670.

Furnham, A., Badmin, N., & Sneade, I. (2013). Body image dissatisfaction: Gender differences in eating attitudes, self-esteem, and reasons for exercise. *The Journal of Psychology, 136*, 581-596.

Garner, D. M., Olmsted, M. P., Bohr, Y., & Garfinkel, P. C. (1982). The Eating Attitudes Test: Psychometric features and clinical correlates. *Psychological Medicine, 12*, 871-878.

Gay, C. L., Kottorp, A., Lerdal, A., & Lee, K. A. (2016). Psychometric limitations of the Centre for Epidemiologic Studies-Depression Scale for assessing depressive symptoms among adults with HIV/AIDS: A Rasch analysis. *Depression Research and Treatment*, *12*, 1-11.

Halliwell, E., & Dittmar, H. (2010). Associations between appearance-related self-discrepancies and young women's and men's affect, body satisfaction, and emotional eating: A comparison of fixed-item and participant-generated self-discrepancies. *Personality and Social Psychology Bulletin, 32*, 447 –458.

Inch, R., & Merali N. (2006). A content analysis of popular magazine articles on eating disorders. *Eating Disorder, 14*, 109-129.

Isomaa, A. L., Isomaa, R., Marttunen, M., & Kaltiala-Heino, R. (2010). Obesity and eating disturbances are common in 15-year old adolescents. A two-step interview study. *Nordic Journal of Psychiatry, 64*, 123-129.

Ivarsson, T., Svalander, P., Litlere, O., & Nevonen, L. (2006). Weight concerns, body image, depression and anxiety in Swedish adolescents. *Eating Behaviours, 7*, 161–175.

Kalarchian, M.A., & Marcus, M.D. (2012). Psychiatric comorbidity of childhood obesity. *International Review of Psychiatry, 24* (3), 241-246.

Kim, O., & Kim, K. (2001). Body weight, self-esteem, and depression in Korean females. *Adolescence, 36* (142), 315–322.

Kimani-Murage, E. W., Kahn, K., & Pettifor, J. M. (2010). The prevalence of stunting, overweight and obesity, and metabolic disease risk in rural South African children. *BioMed Central Public Health, 10*, 158-170.

Konstanski, M., & Gullone, E. (1998). Adolescent body image dissatisfaction: Relationships with self-esteem, anxiety, and depression controlling for body mass. *Journal of Child Psychology and Psychiatry, 39*, 255-262.

Kruger, H. S. (2005). Obesity in South Africa: Challenges for government and health professionals. *Public Health Nutrition, 8*, 491-500.

Lewis, S. P., & Arbuthnott, A. E. (2012). Searching for thinspiration: The nature of internet searches for pro-eating disorder websites. *Cyberpsychology, Behaviour, and Social Networking, 15*, 200-204.

Louwers, R., Herrera, S., Groves, B., & McCarthy, C. (2014). BMI-associated alleles do not constitute risk alleles for polycystic ovary syndrome independently of

BMI: A case-control study. *National Centre for Biotechnology Information, 37*, 47-59.

Maruf, F. A., Akinpelu, A. O., & Nwankwo, M.J. (2012). Perceived body image and weight: Discrepancies and gender differences among university undergraduates. *African Health Sciences*, (4), 464 – 472.

Merali, F. (2006). Developing an explicit strategy towards social responsibility in the NHS: A case for including NHS managers in the strategy. *Journal of Health Organisation and Management, 20* (4), 309-324.

Mchiza, Z. J., Parker, W., Makoae, M., Sewpaul, R., Kupamupindi, T., & Labadarios, D. (2015). Body image and weight control in South Africans 15 years or older: SANHANES-1. *BioMed Central Public Health, 15*, 992-1003.

McLntyre, L. J. (2005). *Need to know: Social science research methods*. New York, NY: McGraw-Hill.

Mogre, V., Mwinlenna, P. P., & Oladele, J. (2013). Distorted self-perceived weight status and its associated factors among civil servants in Tamale, Ghana: A cross-sectional study. *Archive Public Health, 71* (1), 30.

Mwaba, K. (2009). Body image satisfaction among a sample of Black female South African students. *Social Behaviour & Personality: An International Journal, 37* (7), 905-909.

Olubukola, R. O., & Olubukola, O. O. (2012). Perception of weight and weight management practices among students of a tertiary institution in south west Nigeria. *Journal of Applied Pharmaceutical Science, 2* (1), 81-84.

Park, E. (2011). Overestimation and underestimation: Adolescents' weight perception in comparison to BMI-based weight status and how it varies across socio-demographic factors. *The Journal of School Health, 81*, 57–64.

Peltzer, K., & Pengpid, S. (2012). Body weight and body image among a sample of female and male South African university students. *Gender & Behaviour, 10* (1), 4509-4522.

Phetla, M C, & Skaal, L. (2017). Perceptions of healthcare professionals regarding their own body weight in selected public hospitals in Mpumalanga Province, South Africa. *South African Medical Journal, 107* (4), 338-341.

Pretorius, T. B. (1991). Cross-cultural application of the Centre for Epidemiological Studies Depression Scale: A study of Black South African students. *Psychological Reports, 69*, 1179–1185.

Pretorius, T. B. (1998). Measuring life events in a sample of South African students: Comparison of the Life Experiences Survey and the Schedule of Recent Experiences. *Psychological Reports, 83*, 771–780.

Puoane, T., Fourie, J. M., Shapiro, M., Rosling, L., Tshaka, N. C., & Oelofse, A. (2005). 'Big is beautiful': An exploration of urban black women in a South African township. *South African Journal of Clinical Nutrient, 18* (1), 6–15.

Puoane, T., Tsholekile, L., & Steyn, N. (2010). Perceptions about body image and size among Black African girls living in Cape Town. *Ethnicity & Disease, 20*, 29-34.

Puskar, K., Bernardo, L. M., Fertman, C., Ren, D., & Stark, K. H. (2009). The relationship between weight perception, gender, and depressive symptoms among rural adolescents. *Online Journal of Rural Nurse Health Care, 9* (1), 23–33.

Putterman, E., & Linden, W. (2004). Appearance versus health: Does the reason for dieting affect dieting behaviour? *Journal of Behavioural Medicine, 27*, 185-204.

Rao, G., Burke, L. E., Spring, B. J., Ewing, L. J., Turk, M., Lichtenstein, A. H., Cornier, M. A., Spence, J. D., & Coons, M. (2011). New and emerging weight management strategies for busy ambulatory settings. *Journal of Society of Behavioural Medicine, 20*, 67-84

Ratcliffe, D., & Ellison, N. (2015). Obesity and internalised weight stigma: A formulation model for an emerging psychological problem. *Behavioural and Cognitive Psychotherapy, 43*, 239-252.

Reilly, J. J., & Kelly, J. (2010). Long-term impact of overweight and obesity in childhood and adolescence on morbidity and premature mortality in adulthood: Systematic review. *International Journal of Obesity, 35*, 891–898.

Sadock, B. J., Sadock, V. A., & Ruiz, P. (2015). *Kaplan and Sadock's synopsis of psychiatry: Behavioural sciences/clinical psychiatry* (11th ed.). Philadelphia: Wolters Kluwer.

Sira, N., & White, C. P. (2010). Individual and familial correlates of body satisfaction in male and female college students. *Journal of American College Health, 58*, 507- 514.

Swami, V., & Tovee, M. J. (2015). The relative contribution of profile body shape and weight to judgement of women's physical attractiveness in Britain and Greece. *Sex Role, 54*, 201-211.

Swaminathan, S., Selvam, S., Pauline, M., & Vaz, M. (2013). Associations between body weight perception and weight control behaviour in South Indian children: A cross-sectional study. *British Medical Journal, 3*, 1-8.

Szabo, C. P., & Allwood, C. W. (2006). Body figure preference in South African adolescent females: A cross-cultural study. *African Health Sciences, 6* (4), 201-206.

Ting, W., Husang, C., Tu, Y., & Chien, K. (2012). Association between weight status and depressive symptoms in adolescents: Role of weight perception, weight concern, and dietary Restraint. *European Journal of Paediatrics, 171*, 1247-1255.

Truter, L., Pienaar, A. E., & Du Toit, D. (2010). Relationships between overweight, obesity and physical fitness of nine-to-twelve-year-old South African children. *South African Family Practice, 52* (3), 227–233.

Vartanian, L. R. (2012). Self-discrepancy theory and body Image. *Encyclopedia of Body Image and Human Appearance, 2,* 711-717.

Walcott-McQuigg, J. A. (2005). Weight control behaviour and women: A cross-cultural perspective. *Journal of International Women's Studies, 7* (2), 152-168.

Wardle, J. J., Haase, A. M., & Steptoe, A. A. (2006). Body image and weight control in young adults: International comparisons in university students from 22 countries. *International Journal of Obesity, 30* (4), 644-651.

Werner, A. (2013). Weight control behaviour and weight concerns in young elite athletes: A systematic review. *Journal of Eating Disorders, 1* (18), 1-13.

Wharton, C. M., Adams, T., & Hampl, J. S. (2008). Weight loss practices and body weight perceptions among US College Students. *Journal of American College Health, 56* (5), 579-584.

Wilson, S., & McLean, R. (2011). *Research methods and data analysis for psychology*. London: McGraw-Hill.

Xie, B., Liu, C., Chou, C., Xia, J., Spruijt-Metz, D., & Gong J, et al. (2003). Weight perception and psychological factors in Chinese adolescents. *Journal of Adolescent Health, 33,* 202–210.

Zaccagni, L., Masotti, S., Donati, R., Mazzoni, G., & Gualdi-Russo, E. (2014). Body image and weight perceptions in relation to actual measurements by means of a new index and level of physical activity in Italian university students. *Journal of Translational Medicine, 12* (1), 1-16.

7. **Appendices**

7.1 Appendix A: Information sheet and consent form

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Humanities

Department of Psychology

INFORMATION FOR PARTICIPANTS

PROJECT TITLE: 'BODY WEIGHT PERCEPTION, WEIGHT MANAGEMENT STRATEGIES, AND DEPRESSIVE SYMPTOMS IN A SOUTH AFRICAN COMMUNITY SAMPLE'.
PROJECT LEADER: ITUMELENG KHUTLANG

1. You are invited to participate in the following research project:

"'Body weight perception, weight management strategies, and depressive symptoms in a South African community sample'.

2. Participation in the project is completely voluntary and you are free to withdraw from the project (without providing any reasons or consequences) at any time.

3. It is possible that you might not personally experience any advantages during the project, although the knowledge that may be accumulated through the project might prove advantageous to others.

4. You are encouraged to ask any questions that you might have in connection with this project at any stage. The project leader will gladly answer your question(s).

5. There are no known consequences of completing a questionnaire about body weight perceptions and weight management strategies. However, some individuals may react apprehensively; being sensitive to completing questions about situations that were not particularly comfortable for them. If this happens, you will be referred for debriefing at the University of Pretoria's *Itsoseng Clinic* and *Life Line Gauteng* at no cost.

6. Should you at any stage feel unhappy, uncomfortable or concerned about the research, please contact the researcher (Ms I. Khutlang) on: 083 942 4038 or her study supervisor (Dr M. Makhubela) at the University of Pretoria, tel: 012 420 2830.

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Humanities

Department of Psychology

CONSENT FORM

PROJECT TITLE: BODY WEIGHT PERCEPTION, WEIGHT MANAGEMENT STRATEGIES, AND DEPRESSIVE SYMPTOMS IN A SOUTH AFRICAN COMMUNITY SAMPLE

PROJECT LEADER: ITUMELENG KHUTLANG

I, _____ hereby voluntarily consent to participate in the following project:

'BODY WEIGHT PERCEPTION, WEIGHT MANAGEMENT STRATEGIES, AND DEPRESSIVE SYMPTOMS IN A SOUTH AFRICAN COMMUNITY SAMPLE'

I realise that:

1. The study investigates whether a relationship exists between perceived weight, weight management strategies and depressive symptoms.

2. The research project, i.e. the extent, aims and methods of the research, has been explained to me.

3. The procedure envisaged may hold some risk for me that cannot be foreseen at this stage (i.e., psychological distress as a result of completing a questionnaire on body weight perception).

4. The Faculty of Humanities' Research and Ethics Committee at the University of Pretoria has approved that individuals may be approached to participate in the study.

5. The project sets out the risks that can be reasonably expected as well as possible discomfort for persons participating in the research, an explanation of the anticipated advantages for myself or others that are reasonably expected from the research and alternative procedures that may be to my advantage.

6. I will be informed of any new information that may become available during the research that may influence my willingness to continue my participation.

7. Access to the records that pertain to my participation in the study will be restricted to persons directly involved in the research.

8. Any questions that I may have regarding the research, or related matters, will be answered by the researcher.

9. If I have any questions about, or problems regarding the study, or experience any undesirable effects, I may contact the project leader (Ms I. Khutlang: 0839424038).

10. Participation in this research is voluntary and I can withdraw my participation at any stage.

11. The raw data will be securely stored at the Department of Psychology's storage room (HSB 11 - 24) for a minimum period of 15 years for archiving and reuse. During this period the raw data might also be used for further research by other researchers.

12. I indemnify the University of Pretoria and all persons involved with the above project from any liability that may arise from my participation in the above project or that may be related to it, for whatever reasons, including negligence on the part of the mentioned persons.

_____ _____

SIGNATURE OF PARTICIPANT SIGNATURE OF WITNESS

_____

SIGNATURE OF PERSON THAT INFORMED
THE RESEARCHED PERSON

Signed at_____ this ____ day of _____ 20__

7.2 Appendix B: Questionnaire

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA
Faculty of Humanities

Department of Psychology

BODY WEIGHT PERCEPTION AND WEIGHT MANAGEMENT STRATEGIES STUDY QUESTIONNAIRE

SECTION A: DEMOGRAPHIC INFORMATION

SECTION	SCALES	ITEMS
A	Demographic information	8
B	Weight perception and weight concern	2
C	Weight management	2
D	Depressive symptoms	20

1. What is your gender?

1.	Male	
2.	Female	

2. My age: _____ years

3. What is your race?

1.	Black	
2.	Coloured	
3.	Asian	
4.	White	

4. What is your level of education?

5. Are you pregnant?

6. Weight (kg)

7. Height (m)

8. Are you a professional athlete?

YES	NO

SECTION B: WEIGHT PERCEPTION AND WEIGHT CONCERN

Please circle the appropriate number

	How do you describe your weight?
1.	Very underweight
2.	Slightly underweight
3.	About the right weight
4.	Slightly overweight
5.	Very Overweight

	Are you terrified about being underweight, overweight or obese?
1.	Always

2.	Usually
3.	Often
4.	Sometimes
5.	Rarely
6.	Never

SECTION C: WEIGHT MANAGEMENT

Please circle the appropriate number

	Are you trying to do any of the following about your weight?
1.	I am not trying to do anything about my weight
2.	Stay the same weight
3.	Lose weight
4.	Gain weight

	In the last 30 days, did you do any of the following
1.	Exercise to lose weight
2.	Diet to lose weight
3.	Vomit or take laxatives to lose weight
4.	Take diet pills to lose weight
5.	Eat more to gain weight
6.	I didn’t do any of the above

SECTION D: EMOTIONAL RESPONSE TO WEIGHT PERCEPTION

Instruction: Below is a list of some of the ways you may have felt or behaved. Please indicate how often you've felt this way during the past week, by placing a cross mark in the appropriate column. Respond to all items.

During the past week….	Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	All of the time (5-7 days)
1. I was bothered by things that usually don't bother me.	0	1	2	3
2. I did not feel like eating; my appetite was poor.	0	1	2	3
3. I felt that I could not shake off the blues even with help from my family.	0	1	2	3
4. I felt that I was just as good as other people.	0	1	2	3
5. I had trouble keeping my mind on what I was doing.	0	1	2	3
6. I felt depressed.	0	1	2	3
7. I felt that everything I did was an effort.	0	1	2	3
8. I felt hopeful about the future.	0	1	2	3
9. I thought my life had been a failure.	0	1	2	3
10. I felt fearful.	0	1	2	3
11. My sleep was restless.	0	1	2	3
12. I was happy.	0	1	2	3
13. I talked less than usual.	0	1	2	3

14. I felt lonely.	0	1	2	3
15. People were unfriendly.	0	1	2	3
16. I enjoyed life.	0	1	2	3
17. I had crying spells.	0	1	2	3
18. I felt sad.	0	1	2	3
19. I felt that people disliked me.	0	1	2	3
20. I could not ‘get going.’	0	1	2	3

7.3 Appendix C: Ethical Clearance Letter

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Humanities
Research Ethics Committee

13 June 2016

Dear Prof Maree

Project:	**Body weight perception, weight management, and depressive symptoms in a South African community sample**
Researcher:	**I Khutlang**
Supervisor:	**Dr S Makhubela**
Department:	**Psychology**
Reference number:	**16305834(GW20160514HS)**

Thank you for the response to the Committee's correspondence of 10 June 2016.

I have pleasure in informing you that the Research Ethics Committee formally **approved** the above study at an *ad hoc* meeting held on 13 June 2016. Data collection may therefore commence.

Please note that this approval is based on the assumption that the research will be carried out along the lines laid out in the proposal. Should the actual research depart significantly from the proposed research, it will be necessary to apply for a new research approval and ethical clearance.

The Committee requests you to convey this approval to the researcher.

We wish you success with the project.

Sincerely

Prof Maxi Schoeman
Deputy Dean: Postgraduate Studies and Ethics
Faculty of Humanities
UNIVERSITY OF PRETORIA
e-mail:tracey.andrew@up.ac.za
Kindly note that your original signed approval certificate will be sent to your supervisor via the Head of Department. Please liaise with your supervisor.

Research Ethics Committee Members: Prof MME Schoeman (Deputy Dean); Prof KL Harris; Dr L Blokland; Dr R Fasfalk; Ms KT Govinder; Dr E Johnson; Dr C Panebianco; Dr C Puttergill; Dr D Rayburn; Prof GM Spies; Prof E Taljard; Ms B Teebe; Dr E van der Klashorst; Mr V Sithole