

# **The influence of wellness in weight loss**

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**by**

**Nokuthula Eunice Dlamini**

**20033156**

**SUPERVISOR:**

**Professor R.M. Dlomo-Sibiya**

**CO-PROMOTER:**

**Professor J.D. Thwala**

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## **DECLARATION**

**I, Nokuthula Eunice Dlamini, declare that this thesis, submitted in fulfillment of the requirements for the award of Doctor of Philosophy, in the Department of Psychology, University of Zululand, is wholly my own work unless otherwise referenced or acknowledged. The document has not been submitted for qualifications at any other academic institution.**

## **ABSTRACT**

In recent years, significant attention has been given in the popular and academic press to an 'obesity crisis' that supposedly, is both ever increasing and sweeping across the world. The study was undertaken to explore the influence of wellness in weight loss. Although it is not known why the prevalence of obesity has increased so suddenly and markedly specifically in the past twenty years, experts agree that the rise is unlikely to be related to a sudden shift in genetic or biological factors within the individual. The causes are largely environmental or a consequence of the mismatch between our physiology and an environment where food is abundant and physical activity unnecessary. Moreover, there seems to be an increasing belief that psychological instability and childhood experiences play a great role in this epidemic.

The present study focused on the influence of wellness in weight loss. The holistic approach to deal with this study was undertaken looking at mental, physical and spiritual wellness. Specifically the study looked at food or diet (healthy food and nutrition as important in promotion of good health), fitness or exercise, meditation (helps reduce stress), mental or emotional health and community (social isolation leads to severe stress, which in turn may result in unhealthy behaviour).

The results were interesting in that, there was a significant loss of weight amongst the participants at the end of the study; participants demonstrated a positive change and displayed willingness to take better care of their selves to stay well. Qualitatively, participants reported an increase in daily physical activities, healthier dietary choices, feelings of optimism and greater self acceptance. Thus wellness shows promise as a weight loss intervention.

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## **CHAPTER ONE: ORIENTATION TO THE STUDY**

### **1.1 Introduction**

The research under study explored the influence of wellness in weight loss. This chapter lays a foundation of this study. The theoretical background, research problem, objectives, motivation and the significance of the study are stated.

### **1.2 Theoretical background to the study**

Obesity is increasing worldwide and is becoming one of the world's biggest health problems (Rossouw, Grant & Viljoen, 2011). Recent reports suggest that if no action is taken, obesity may soon overtake cigarette smoking as a serious health risk. Furthermore, reports warn that, being overweight and especially being obese, increases the risks of many health problems including Type II Diabetes, Cardiac disease, certain Cancers, Strokes, Osteoarthritis, Hypertension, Depression, back and joint pains, gallstones, fatty liver, Infertility, breathlessness, snoring, difficulty sleeping and excessive sweating (Sanders, 2001).

Even though people know the risks and weight loss steps to take, to overcome obesity, they still fail to shed extra weight. Many people do not address the multiple factors leading to obesity. Unhealthy eating patterns and sedentary lifestyles are well known causal factors, but the crucial role that psychological factors play in obesity is often ignored (Biddle, Fox & Boutcher, 2002).

Biddle, Fox and Boutcher, (2002) further assert that, the causes and dietary mechanisms of obesity are fairly well understood, but progress in obesity reversal and prevention has been very slow. Physical inactivity and nutrient-poor calorie over consumption are accepted as the two primary causes of obesity.

The direct medical costs associated with physical inactivity in the United States alone were \$29 billion in 1987 and nearly \$76.6 billion in 2000. Engaging in regular physical activity is associated with taking less medication and having fewer hospitalizations and physician visits (Biddle, Fox & Boutcher, 2002). However, the concerning factor is more than 60% of US adults do not engage in the recommended amount of activity, and approximately 25% of US adults are not active at all (Pauly & Herring, 1999).

By comparison, the average American woman consumes 1732 calories per day and the average man, 2478 calories. Weight gain has been closely linked to a steady rise in soda and "junk food" consumption, increased portion sizes, and frequent snacking without traditional "family meals." In Italy, the minister of health requested that restaurants decrease their portion sizes (Drewnowski & Greenwood 1986).

According to Hicks (2005), in the UK, about two-thirds (66 per cent) of adults are now overweight or obese. Of these, 22 per cent of men and 23 per cent of women are obese (at least two to three stone overweight), meaning their weight is putting their health considerable at risk. The level of obesity has tripled in the past 20 years, and is still rising.

Hicks (2005), further warns that obesity is rising among children too. In the past ten years it has doubled in six-year-olds (to 8.5 per cent) and trebled among 15-year-olds (to 15 per cent).

In his article, Hicks (2005) refers to the data compiled by the International Obesity Task Force (IOTF) in May 2004 that England and Scotland have some of the highest levels of obesity in Europe. While they still have some catching up to do with the US in terms of research - where one in three women and more than one in four men are obese - the way things are going in the UK, US could be there by 2010.

Furthermore, the worldwide increase of obesity is also spreading to areas of developing countries where there is easier access to an over-processed diet and less need to be active in daily lives.

In South Africa, one in three men is overweight or obese, while for women it is more than one in two (Friedman 2003: Armstrong, Lambert, Sharwood & Lambert, 2006). The number of people who die in South Africa due to malnutrition is almost the same as the number of people who die because of diseases associated with obesity. The obesity problem has clearly created a double burden of diseases across Africa. Developing countries that still have to overcome malnutrition now have to treat people for illness caused by being overweight.

The data highlighted by Kahn (2006) on South Africa's overweight and obese children raises specific concerns about black girls, after it was found that the number of girls battling with weight problems nearly doubled between the age of six and thirteen. The data, from a sample of more than 10 000 primary school children from five provinces, is the first of its kind in South Africa, among children aged six to thirteen, to quantify the prevalence of obesity and overweight in a way that can be compared with international trends (Caelers, 2006). Almost 25% of young girls, and 17% of young boys, are either overweight or obese, according to new study of South African primary school children (Kahn, 2006).

About 17% of South Africans are overweight or obese. Statistics show that more than 40% of women older than 35 are obese and 20% are overweight. Obesity is highest in Black women and White men (Caelers, 2006).

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

In South Africa one in three men is overweight or obese, while for women it is more than one in two (Caelers, 2006). The number of people who die of malnutrition in South Africa is almost the same as that of people who have

diseases associated with obesity. The obesity problem has clearly created a double burden of diseases across Africa. Developing countries that still have to overcome malnutrition now have to treat people for illness caused by them being overweight (Lichtarowics, 2004).

The data on South Africa's overweight and obese children raises specific concerns about black girls, after it found that the number of girls battling with weight problems nearly doubled between the ages of six and thirteen years.

Almost 25% of young girls and 17% of young boys are either overweight or obese, according to a recent study (Kahn, 2006).

The concern is why people are gaining weight at this rate, and what could be done to deal with this problem.

1.3.1 Study assumptions are:

- Obese people that are exposed to wellness program are likely to have an increased awareness of the phenomena and how to deal with it.
- Exposure of obese people to the wellness program is likely to change their attitude towards their general wellness.
- Obese people exposed to the wellness program are more likely to change their behavior than their counterparts who are not exposed to the program.

Research questions were:

1. Does weight loss happen after the intervention (wellness strategies)?
2. Do scores change from pre-test to post-test as a result of the intervention?

#### **1.4. Motivation for the study**

Dealing with obesity maybe one of the biggest problems facing individuals, health care and health care professionals and systems today. Because of its genetic and environmental underpinnings, its social significance and its psychological determinants, obesity is a problem far too complex for any single discipline to deal with effectively.

Overall wellness has lately been seen as the solution to many problems facing society today. The belief is that it brings balance between emotional, physical, cultural, spiritual and psychological aspects of a human being. However, the question the research wants answered is, can wellness help resolve this worldwide phenomena of obesity? This motivated the researcher to do this study to explore if wellness can influence in weight loss.

### **1.5. Objectives of the study**

The objectives of the study were as follows:

- 1.3.1. To explore whether wellness has influence on weight -loss.
- 1.3.2 To apply therapeutic methods to assist with improving weight loss and maintenance.

### **1.6 Limitations to the study**

1.6.1 The South African literature from the study on obesity was limited, the researcher mainly used literature from other countries e.g. United States of America. In South Africa there are programs in place but very few are evaluated.

1.6.2. The results of the study cannot be generalized because the sample was too small and did not cater for different geographical areas. However the results can help South Africa to start realizing the gaps in this phenomenon and invest more on programs to deal with it and moreover have stringent evaluation processes to ensure success.

### **1.7 Résumé**

This chapter highlighted the general orientation to the study, its goals and objectives, limitation to the study. The next chapter will review the literature in relation to the obesity phenomenon, its causes, influencing factors and what could be done to deal with it.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter gives an intense discussion on what obesity is, what causes it, and how to assess obesity in adults. Furthermore, the psychological theories of eating disorders, namely, emotional disorders, binge eating disorders, emotional eating, food addiction and body image dissatisfaction are discussed. This chapter further describes the epidemiology of obesity looking at culture, economics, settlement patterns, technology and psychological reasons as factors that contribute to this phenomenon. Towards the end of the chapter, the complications of obesity are looked at and the methods that have been tried to deal with obesity are comprehensively discussed.

#### **2.2 What is obesity?**

Obesity comes from the Latin word 'obesus' meaning having eaten well. It can be defined as an abnormal accumulation of fat in the stores of adipose tissue throughout the body (Macleod, 1974; Prentice, 2005). Saunders (2001) defines obesity as body weight that is twenty per cent above desirable body weight for a person's age, sex, height and body build. Furthermore, Omari and Caterson (2005) define obesity as a condition that results from an environment with readily available food, including food of high energy density, and decreasing physical activity. These environmental factors are then modulated by a susceptible genotype.

#### **2.3 Assessing for obesity**

Omari and Caterson (2005) explain that overweight and obesity is assessed in adult by calculating the Body Mass Index (BMI; weight in kilograms divided by

the square of the height in metres). Obesity is defined as a BMI of 30 kg/m<sup>2</sup> or more. This and other BMI cut off points, based on associations between BMI and chronic disease and mortality have been adopted for use internationally by the World Health Organisation.

### **2.3.1 Classification of adults according to BMI**

Classification	BMI	Risk of co- morbidities
Underweight	<18, 50	Low
Normal range	18, 50 to 24, 99	Average
Overweight	>25, 00	
Pre-obese	25, 00 to 29, 99	Increased
Obese class 1	30, 00 to 34, 99	Moderate
Obese class 2	35, 00 to 39, 99	Severe
Obese class 3	>40, 00	Very severe

However, the problem with using BMI as a measurement tool is that very muscular people may fall into the “overweight” category when they are actually healthy and fit. Another problem with using BMI is that people who have lost muscle mass, such as the elderly, may be in the “healthy weight” category—according to their BMI—when they actually have reduced nutritional reserves. BMI, therefore, is useful as a general guideline to monitor trends in the population, but by itself is not diagnostic of an individual patient’s health status (National Institute for Health, 2001).

## **2.4 Causes of obesity**

The causes and risk factors for obesity are many, with most patients having a combination of reasons that contribute to their obesity problem.

### **2.4.1 Genetics**

According to Omari and Caterson (2005), inherited genetic variation is an

important risk factor for obesity, with evidence indicating that the total body fatness and fat distribution are influenced by genetic factors. Genetic factors may contribute to some 25-70% of cases of obesity. They also believe that genetic factors modulate the degree of effectiveness of diet and physical activity interventions for weight loss

According to Stunkard and Wadden (1993) studies of genetic factors in human obesity start with one well-established fact, human obesity is a familial disorder. The British Nutrition Foundation (1999) attests that heritability is the proportion of the total variation of a character that is attributable to genetic, as opposed to environmental factors. Most studies have used BMI as an indicator of fatness. The foundation warns that it must be recognized that the set of genes and environmental factors, which influence the general degree of obesity, may be different from those influencing various aspect of the regional distribution of fat.

In a number of large scale family studies in different ethnic populations that the British nutrition foundation conducted, it was shown that a familial correlation in the degree of obesity, with a parent to offspring correlation of about 0.2 and a correlation around 0.25 for brothers and sisters of the same gender. The assessment of genetic effects in twin studies is based on the difference in resemblance of monozygotic and dizygotic pairs, which share all the genes or, on average, half the genes respectively (Stunkard, Harris, Pederson & McClearn, 1990). Such studies show a much higher correlation of the obesity measures amongst the monozygotic pairs, than among the dizygotic pairs, which provides strong evidence for a genetic influence. Genetic influence appear to account for 50-70% of the difference in BMI in later life in both monozygotic and dizygotic twins brought up apart, whereas the childhood environment had little or no influence.

According to Rice, Borecki, Bouchard and Rao (1992) an important concept in relation to genetic influences in obesity, is that of susceptibility genes. A



susceptibility gene is defined as one that increases susceptibility, or risk, for the disease, but is not necessary for disease expression. They explain that an allele in the susceptibility gene may make it more likely that the carrier will become affected, but the presence of that allele is not sufficient, by itself to explain the occurrence of the disease. In other words, possession of such genes does not predestine an individual to become obese, but merely lowers the threshold for the development of the condition.

#### **2.4.2 Fat deposit size**

According to Prentice (2005) adipose tissue can be regarded as a collection of cells, which are larger or smaller depending on their content of fat. Thus two major variables can be recognized, namely the number of cells and the size of cells, depending on the amount of fat in each. He argues that overfeeding in the first year of life appears to be followed by an abnormal proliferation of fat cells.

#### **2.4.3 Diet**

Dietary induced obesity is usually associated with overeating and overweight, but Stunkard and Wadden (1993) argue that these effects can be dissociated, that is, small increases in per cent body fat can occur without elevation of body weight, and overweight and obesity can occur in the absence of increased calorie intake. This was later emphasized in the work of Ehrman, Gordon, Visich & Keteyian (2003).

According to Boutayeb and Boutayeb (2005) many obese patients find it hard to accept that the principles of conservation and expenditure of energy apply equally to themselves as to the non-obese. Frequently, they are convinced that they gain weight inordinately on an intake of food and drinks that can be taken with impunity by their non-obese peers. They argue that their failure to lose weight while restricting their intake of food must have an explanation in either a glandular or a metabolic disorder, which would account for the apparent breach of the laws of thermodynamics.

It has to be assumed, albeit cautiously, that while patients may not deliberately attempt to mislead the physician, they can be expected to present the facts about their dietary habits in the light most favourable to themselves, so that in most circumstances their estimates are likely to be a little more than anecdotal value.

Studies of diet and health make the tacit assumption that the recorded intake represents the habitual intake of the individual. Black, Goldberg, Jebb, Livingstone and Prentice (1991) are of the same opinion as Prentice (2005) in that the difficulties in measuring food intake can be considered in three main categories: precision, random accuracy and bias. The precision of dietary assessment can be readily assessed on the basis of repeated measures. The potential for inaccuracy can be overcome by the selection of appropriate sample or within the data analysis. Random inaccuracy will tend to lead to false negative findings, by reducing the strength of true relationships, but will not generate misleading false positive association. However bias remains the potentially serious problem, which may generate false conclusion.

Black *et al.* (1991) advised that the extent of bias in dietary surveys has become increasingly apparent. Few subjects report consuming food they did not eat, yet many fail to report all the food they do consume. The extent of under-reporting in obese subjects is greater than amongst the lean counterparts. The exaggerated bias observed in obese subject causes particular difficulties in the analysis of the relationship between the dietary factors and obesity. In consequence, the data concerning differences in food consumption between lean and obese people must be interpreted with caution.

#### **2.4.4 Endocrine factors**

Endocrine disorders may contribute in a minor way to a patient's difficulties in maintaining a normal weight. For example, in Cushing's syndrome, adrenocortical hyper-function which is often associated with a gain in weight and

an increase in body fat, mainly confined to the head, neck and trunk, but sparing the limbs. In pregnancy endocrine factors contribute to the increase in weight. In hypothyroidism, diminished energy expenditure, may be associated with gain in weight. According to Prentice (2005) these endocrine variables are certainly unimportant or irrelevant for most obese patients.

The association of obesity and diabetes mellitus is well recognized and is particularly important because of the increased morbidity and mortality that these two conditions carry. Obesity is associated with increased insulin secretion and with increased resistance to the action of insulin; both of these are reversible with weight reduction. When diabetes has become manifest in an obese patient, it is sometimes possible to reverse the diabetic biochemical abnormalities by weight reduction alone.

#### **2.4.5 Appetite and feeding patterns**

Mela and Rogers (1998) attest that there can be no doubt that people, who consume more calories than they require matching their energy output, will gain weight. According to them excellent evidence exist in animal models that damage to hypothalamic centres can lead to obesity and from this, it is sometimes deduced that an imbalance between appetite and satiety centres lead to overeating. The interpretation of these experiments in rats and studies in obese and lean humans has shown that the fat rats and the obese humans share certain differences from their normal counterparts. Both are less responsive than normal to satiety, (that, knows when to stop eating) and surprisingly, after deprivation from food, both eat less than normal controls. In this sense, they are said to be under-responsive to internal cues, in misjudging an appropriate response to their nutritional status. By contrast, with free access to food, they over-respond by eating excess food they find particularly palatable, but eat less than normal controls when the food offered is unpalatable. Thus they are said to be hyper responsive to external cues, in this case the attractiveness of the food offered.

Many people develop a habit, sometimes deliberately, of taking one large meal a day rather than three smaller meals. These are grounds for suggesting that such a habit is more likely to be associated with obesity than a more evenly spaced intake of the same amount of food at intervals throughout the day (Prentice, 2005).

#### **2.4.6 Physical activity**

The human body has evolved to accommodate vigorous physical activity and inactivity can be regarded as the abnormal rather than normal state (Prentice & Jebb, 1995). It should, therefore, not be surprising that inactivity is associated with ill health. Similarly, to high-energy intake, chronic low energy expenditure has the potential to produce a long-term positive energy balance and consequent weight gain. According to Caspersen, Powell and Christenson (1985) energy expenditure is a function of basal metabolic rate (BMR), dietary induced thermogenesis (DIT) adaptive thermogenesis (shivering and non-shivering heat production) and physical activity. Of these they believe, physical activity offers the greatest scope for an individual to increase energy expenditure.

Although exercise will implicitly produce health benefits, any concurrent stimulatory effect on appetite could prove counterproductive to weight reduction and management (Verger, Lanteaume & Louis-Silvestre, 1994). In addition there is a public perception that “exercise makes you eat more” and this is often given as an excuse not to exercise. It is, therefore, important to assess accurately the long-term effects of increased physical activity on appetite, macronutrient intake, energy intake and subsequently, on energy balance, and to convey these findings to the public.

#### **2.4.7 Psychological factors**

Biological research identifies obesity as the consequence of a sustained positive energy balance and there is an increased understanding of the underlying

genetic and physiological processes (Stunkard & Wadden, 1993). Psychological research, on the other hand, is concerned with the association between behavioural, cognitive and emotional processes and obesity (Mills, 1994). The psychological processes themselves could be either genetic or environmental in origin. According to Mills (1994) a number of different psychological models of the nature and causes of obesity have been put forward. They range from psychosomatic theories, which propose that unconscious conflicts motivate the individual to overeat, to psycho-physiological theories, which suggest that disturbances of the processes of appetite regulation are responsible for overeating.

## **2.5 Culture and obesity**

Cultural and economic factors play critical roles in the etiology of obesity and the increase in obesity prevalence (Bodley, 1985). Cahnman (1968) defines culture as the learned patterns of behavior and thought characteristic of a social group; culture forms the context of people's lives, and to a large extent that context is beyond an individual's control. Cahnman (1968) further explains that this concept of culture includes material aspects, such as diet and activity patterns that are directly causal to fat deposition and the causation of obesity. From his definition, one can then conclude that culture appears to have social and cognitive components, including social pressures and ideals of beauty that are more indirectly related to obesity.

As a result of this explanation, Bodley (1985) put emphasis on the importance of examining economic, social and ideological factors that contribute to the causation of overweight and obesity. In explaining this concept of culture, Cahnman (1968) believed that it includes many unconscious and taken-for-granted circumstances that greatly limit individual choice and behavior. Cahnman (1968) relates to an example of normality to emphasize his point. According to him, some things are considered normal and therefore accepted as part of life, for example, eating out every Friday or staying in every Sunday to watch

television for hours, or driving to the corner store to buy bread.

As Baba and Zimmet (1990) observed, the cultural and economic context, historically shaped by powerful socioeconomic forces like corporations, constrain individual choices in habitual behaviors. Furthermore, a consumer-oriented capitalist economy establishes a fantasy of personal choice about work, diet and activity patterns. This makes it difficult for individuals to fight the cultural forces that lead toward fatness; it is a culturally constructed environment, and alarmingly has become normal part of living.

Stunkard (2000) observed that in a capitalist economy, increased physical activity has become a commodity to be purchased (exercise equipment, health club membership) and lower calorie intake often involves the purchase of special commodity (diet foods). He further observed that thinness has been inverted in its historical symbolic association to poverty and manual labor to become a marker of excess leisure time and economic prosperity.

As a result, obesity and overweight, which are positively evaluated in many societies, have, therefore, become issues of social stigma and ridicule.

Looking at above discussion one easily realizes that the etiology of obesity is complex. As Stunkard (2000) asserted, obesity is caused by excess adipose which in turn is caused by the interaction of genetic predisposition operating in necessary "environmental" conditions. It is a diathesis of genes and the particular human-made context or "environment," although the exact nature of the causal relationship is not understood (Stunkard, 2000).

In further discussing this phenomenon of obesity, Stunkard, Harris et al. (1990) explicate that genetic predisposition may affect a variety of possible physiological processes, including basal metabolic rates and leptin receptor activity influencing the deposition of fat during periods of positive energy imbalance. They stress that

individuals with fat phenotypes are likely to develop adult obesity but it is important to note that genetic inheritance alone does not cause obesity (Stunkard, Harris et al. 1990). Understanding the role of "environment," particularly teasing apart the diverse contributions of culture, economy and individual psychology remains an important research goal for the design of effective prevention and treatment programs.

## **2.6 The Descriptive Epidemiology of Obesity**

In his attempt to discuss the role of culture in the etiology of obesity Bodley (1985) asserted that it is imperative to outline some basic features of obesity epidemiological distribution in regard to time, place, and person. As it is common with many diseases, obesity exhibits a non-random historical and social distribution.

Therefore, Bodley (1985) explains that any theory of the etiology of obesity must account for those distributions. Observing from an anthropological or archaeological view of time, the current "epidemic" of overweight and obesity is very recent. Bodley (1985) highlights that for 99% of history; the exclusive productive economic pattern of human culture was one of hunting and gathering (a practice which involved chasing animals for many hours. This activity involved running. This method of food provision demanded that the hunter or the gatherer is physically fit and strong to withstand long distances of running and carrying the hunted animal back to the family (Gould, 1980).

As a benefit the running and carrying hunted animals kept the members of this community very fit and obesity was unheard of. There was no surplus of food and there was constant mobility). Today, this original human lifestyle is rare (although it can still be observed in the Khoi San of the Kalahari and Botswana), it must be noted though that few such groups have been the subjects of intensive cultural and biological investigation therefore one cannot scientifically conclude that this lifestyle was a reason for such percentages of obesity. However, one important

finding has been that there are no reported cases of obesity among people following a traditional hunting and gathering way of life (Gould, 1980). As Bodley (1985) highlighted, such food foragers do not store surplus food and, in general, demonstrate an egalitarian distribution of food brought into camp.

In his discussion of this phenomenon, Bodley (1985) asserted that obesity was essentially nonexistent until after the invention of farming some 10,000 years ago, and more specifically until after the Industrial Revolution. He further explains that throughout the developed world, the incidence of obesity has been climbing at an alarming rate. Nevertheless, obesity appears to be a serious and widespread health problem in only certain kind of societies. The general observation is that almost all these societies are characterized by economic modernization, some affluence, food surplus, and social stratification (Bodley, 1985). This observation then slightly narrows down the question of what social groupings are most at risk of obesity.

Pauly and Herring (1999), identified three facts about obesity and social distribution that are particularly well-argued in trying to answer the above epidemiological question about who is most at risk. Firstly the gender difference in the total percent and site distribution of body fat, as well as the prevalence of obesity; secondly, concentration of obesity in certain ethnic groups and thirdly, the powerful and complex relationship between social class and obesity. Of these three factors the third one which is the relationship with social class is the most important, and the most closely related to culture and economy.

In one of the studies that Sobal and Stunkard (1989) reviewed, they concluded that social class is a powerful predictor of the prevalence of obesity in both modernizing and affluent societies, although the direction of the association is different. They realized that in most developing countries, there appear to be a strong and consistent positive association of social class and obesity for men, women, and children.



This observation had been made prior by Arteaga, Dos Santos et al. (1982) who highlighted that there is an inverse correlation between social class and protein-calorie malnutrition. This observation was later confirmed by Goodman and Leatherman (1998), Pena and Bacallao (2000) who indicated that, when examining health indicators within households in developing countries, there appear to be a common finding of undernourished children living in the same household with obese adults.

When looking at history, it appears common that the positive correlation between social class and fatness is a logical and expected pattern in that socially dominant group with better access to resources should have better nutrition and better health.

However, it is important to highlight that, the association of obesity and social class among women in affluent societies is not constant throughout the life cycle. Affluent women are evidently thinner than their counterparts. This was confirmed by Garn and Clark (1976) and later by He and Karlsberg (2001) who specifically verified a pattern of reversal in which economically advantaged girls are initially fatter (they have access to all the opulence when they are younger) than their poor counterparts, but as adults they show less overweight and obesity (because of their affluence they have access to commodities such as physical activities, they can afford gym membership and diet foods).

Stunkard (2000) agrees and further explains that the opposite correlation of obesity and social class for females in affluent societies is extremely strong and carries with it important socially symbolic associations. He further highlights that the role of economy and the availability of resources for the purchase of foods with high fat contents should not be minimized. The example at hand to emphasize this point is that of a review of nutrition transition done by, Drewnowski and Popkin's (1997) which indicated that with improved economic

purchasing power there seems to be a limit on the per capita demand for protein and carbohydrates, but no such limit in the demand for fat. In other words, there appears to be no limit for the demand for fat. Dobbing (1987) explained this desirability of fat, both on an individual and social level, as having strong evolutionary roots and that it is related to the neurophysiology of human preferences for the taste of sweetness.

The food industries have since gained insight to this biological drive to prefer sweet and fat foods, and have not wasted anytime to exploit it to increase profits. As such, the etiology of obesity has to do with both biology and culture and from an economic viewpoint with both supply and demand.

Brown (1991) appended the element of sexual dimorphism to try and explain the obesity phenomenon. He asserted that the greatest degree of sexual dimorphism in humans is in the site of distribution of fat tissue. Women have much more peripheral body fat in the legs and hips than men; this gender dimorphism has evolutionary roots, since energy storage in peripheral fat has an adaptive advantage in maintaining pregnancy and lactation during periods when diet cannot be supplemented. This pattern of gender differences appears to be universal since it is found in contemporary hunting and gathering groups like the Khoi San as well as in complex industrial countries. In his explanation, Brown (1991) appears to suggest that this phenomenon is deeply rooted in evolution which is a natural adaptation for survival.

The above argument by Brown (1991) raises question about the common methodology used to measure obesity. As highlighted by Omari and Caterson (2005) obesity is assessed in adults by calculating the Body Mass Index (BMI) However, Bjorntorp (1988) warns that when obesity is measured in terms of BMI rather than alternative measures of fat deposition like waist-hips ratio or waist circumference, the epidemiological significance of central body fat characteristic of males can be underestimated. In other words, peripheral body fat appears to

be epidemiologically benign, so that the real medical concern should be concentrated on the phenomenon of central body fatness. In this regard, Attie and Brooks-Gunn (1987) raised their concern that the morbidity and mortality related to obesity may be more of a problem in men than women, despite the cultural phenomenon that psychological concern with weight is found predominantly in women.

## **2.7 Culture and Individual Psychology**

In the literature on the etiology of obesity, the idea of environment is often referred to as a causal factor. Weinsier, Hunter, Heini, Goran and Sell (1998) define environment as a term that refers to a host of factors that are not a part of human genetics or biology. They further explain that environment is distinguished from an individual's psychological makeup, including aspects of personality. Differentiated in this way, one may then understand environment as referring to an incredibly wide variety of possible causal factors, from diet to activity patterns to customs to ideology. The term 'environment' sometimes invokes the field of Psychology, indirectly referring to early childhood experiences (De Young, 1999). This term according to De Young (1999) reflects an analytical bias towards the level of the individual; many social scientists, including anthropologists, do not think that the individual human is the most cogent level for analysis. This is because individual behaviors are often strategic and contingent on social context (the behavior of others) as well as on local economic conditions and symbolic meanings that are socially constructed.

As observed by Hill and Peter (1998) the term 'environment' also implies the ecological context. This has the ill-starred implication that causal factors are not socially created, that they are fixed and not subject to change. 'Environment' is, therefore, considered as the fixed context in which people live, like the geography and ecology. This somehow has a connotation that these are things that we don't have power to change. They are socially embedded and "just how things are" In reality, all aspects of the human environment are influenced by

current and past human behaviors; it is historically contingent. Our 'environment' has been created, not by a single individual but by the entire society. Therefore, examining the etiology of obesity from a social perspective orients hypotheses about why the epidemiological patterns of obesity are a certain way, and not why a particular individual is obese. Instead of the term 'environment,' Bodley (1985) recommends that it may be preferable to use the concept of culture, with both its material and cognitive aspects.

In his writing, Bodley (1985), explains that culture refers to the learned patterns of behavior and belief characteristic of a social group. As such, culture encompasses *Homo sapiens'* primary mechanism of evolutionary adaptation that has distinct advantages of greater speed and flexibility than genetic evolution. Bodley (1985) emphasizes that culture is a central concept in Anthropology even though the precise nature of culture has been a matter of considerable academic debate.

Bodley (1985) further explains that culture refers to a consensus of ideas, beliefs, and behaviors that is constantly changing. Simple societies that were traditionally studied by anthropologists were once thought to have single and unchanging culture that could be described from a single point of view; this notion is no longer accepted. As Bodley (1985) observed, in both 'simple' and complex societies, individuals may have multiple social roles in diverse social contexts in which they act and think differently. Because of this variation, there are often significant differences between what individuals say they ought to do, what they say they do, and what an independent observer may describe as their actual behavior.

De young, (1999) further emphasized that, the productive and distributive economy of a society is key to the overall cultural system The mode of economic production (e.g. hunting and gathering, horticulture, agriculture or industrialism) determines the availability of surplus food. The social system used in the

determination of the division of labor and the distribution of resources may also be considered part of culture. Such determinants of work and wealth influence energy input, expenditure and the possibility of excess calories that can be stored in fat. These economic aspects of culture, and one's position in the social structure, are generally beyond the control of an individual (Shore, 1996).

On the other hand, Kiell (1973) attested that individual psychological attributes like personality, eating style, dietary restraint, or body image may reflect the diversity of thought and behavior found between people within a social group. The origin of such individual psychological attributes are not well understood, and may be genetic or due to early childhood experiences.

One of the important questions that may be asked to what extent does the individual psychological variation fall within the parameters set by society and culture. Dobbing (1987) suggested that the only way to examine such a question is through cross-cultural comparison. Cultural behaviors and beliefs are usually learned in childhood and they are often deeply held and seldom questioned by adults who pass this 'obvious' knowledge and habits to their offspring. In this regard, Dobbing (1987) concludes that cultural beliefs and values are largely unconscious factors in the motivation of individual behaviors. They are culturally constructed, deeply felt (embodied), and form the core of an individual's daily living pattern.

Dobbing (1987) further attested that cultural beliefs define 'what is normal' and therefore form the basis of peer pressure for social conformity, as well as consumer choices in a market economy. As such, culture shapes individual's beliefs and goals while at the same time constraining the choice of available and acceptable behaviors.

The concept of culture as Bodley (1985) highlighted is clearly related to social categories like social class and ethnicity. It is not membership in a lower social

class *per se* that causes higher rates of morbidity and mortality from both infectious and chronic diseases, but rather elements of the overall living conditions that characterize the group (e.g. levels of nutrition, hygienic conditions, crowding, or access to health care). As such, it is appropriate to think of cultural features of a particular social class. As Valentine (1980) explains, for members of the lower social classes, anthropologists have shown that their cultural beliefs and practices often (but not always) function as adaptations to conditions of economic deprivation. Obesity in the poor may therefore reflect their concern with economic insecurity.

Some anthropologists' approach to culture emphasizes its cognitive dimensions. In his description of cultural models Shore (1996), explained them as learned templates (cognitive schema) used for thinking, meaning creation, and the construction of rituals and narratives. The identification of cultural models assists in the interpretation of social practices that are meaningful for members of a society.

From the above discussion, it has become evident that a culture is an integrated system; as a result what happens in one part of the system has direct impact on the other parts of the system. The economic change that happened years ago e.g. the invention of agriculture or the industrial revolution, had drastic implications for population size, social organization and associated beliefs

## **2.8 Obesity and the Industrial Food System**

Bodley (1985) observed that in the North American culture, food which forms a huge part of the societal culture is based on the highly mechanized agricultural system. Their food is energy enhanced and calorie rich. What is concerning is that the lifestyle the American lead is sedentary and there is usually no output for energy consumed and this lead to weight gain.

According to Bodley (1985) industrial food production not only means that

Americans eat at a higher trophic level on the food chain, primarily by eating meat, but also that they have a wide variety of energy-enhanced and calorie rich foods available to them. Bodley (1985) further explains that the American society's complex post-industrial economy allow members access to high calorie diets without requiring physical energy expenditures in food production. To a large extent, it is the power of the economy, and this society's position within the global political economic system, that provides the material infrastructure for their current epidemic of obesity concluded (Bodley, 1985).

Goodman and Leatherman (1998) explained that the industrial food production system involves the processing of foods for storage, distribution, and purchase by consumers in a competitive market. The transformation of food through industrial processing often involves the addition of transfat, sugar, salt or other preservatives to appeal to consumer taste preferences. Goodman & Leatherman, 1998 further explained that the transformation of potatoes in potato chips is a good example. The potato serves primarily as a physical matrix for carrying fat and salt, so that they might be more honestly labeled 'fat and salt chips.' Similarly, butterfat and sugar are industrially transformed into ice cream, a food that is rich in both symbolism and calories. This is alarming since ice cream and fried chips have become part of everyday life and these have become very affordable that everyone can have access to them. Even those who cannot afford to buy full meals in restaurants and cafes can still afford to buy chips and ice cream. One of the most important aspects of this food processing system is the fact that fat-added or value-added product provides a much higher margin of profit for food manufacturers.

Bodley (1985) observed that the food industry spends a remarkable amount on advertising, particularly on television, for high-calorie, high-profit products (The television that people spend hours watching and not doing any physical activities). As observed Dobbing (1987), this industry exploits the human evolutionary heritage that accounts for the consumer's 'sweet tooth' and 'fat

tooth.’ The food industry’s goal is to produce increased revenues and profit for capitalist owners, not to provide an adequate or healthy diet to society. This profit motive shapes both the availability of certain foods (it is hard to find fresh fruits and vegetables in a common markets), as well as the manipulative use of advertising to create consumer desire for certain food products. As Mercola (2004) observed, the industrial food system, therefore, changes culture.

## **2.9 Fast Food as a Fat Delivery System**

Few years ago some key members of the tobacco industry admitted that cigarettes function primarily as a nicotine delivery system providing addicts access to a drug upon which they depend (Boyle, Gray, Henningfield, Seffrin & Zatoski, 2010). This was a breakthrough in the public health system. The negative health consequences of cigarette smoking, therefore, are a by-product of a political economic system. Boyle, Gray, Henningfield, Seffrin and Zatoski, (2010) saw the similarity in fast food industry concluding that the world’s fast-food industry, part of the industrial food complex, serves as a “fat delivery system” for millions.

The appeal of fast food, restaurant food, and convenience food to middle class people caught in the ‘time squeeze’ of frantic daily schedules is an important part of culture change. As stated in the Census US Bureau, (1994) the number of restaurants in the United States is at an all-time high, as consumers have become increasingly dependent on them as a source of meals and snacks. There seem to be not enough time in a day to prepare a home cooked meal therefore fast food is an available option.

Spurlock (2010) conducted an experimental study to explore the impact of eating fast foods exclusively over a long period of time. The study was conducted over twenty five days and the results were alarming. The researcher gained an astounding twenty five pounds and his blood pressure was pushed to shocking levels. What was alarming in this study is how much the researcher began to



crave the fast food; it slowly evolved to slight addiction. This became a very convenient addiction given the hurried lifestyle of today's society.

McCrorry, Hays, Vinken, Greenberg and Roberts, (1999) observed that an increased percentage of household food income is spent on meals consumed outside the home (in restaurants or fast food joints) and an increasing consumption of fast food within that category may be related to the rising prevalence of obesity. Men consume restaurant food nearly twice as often as women. In South Africa one observes this every day when men are mostly seen in cafés and kiosks that serve fast food buying high calorie foods. As Lin and Frazao (1997) observed that several studies have shown that the nutritional quality of foods consumed outside the home are inferior because they contain much more total fat, saturated fat, cholesterol, and sodium per unit energy. Jeffery and French (1998) warned that the frequency of eating at fast food restaurants was positively associated with total energy intake and percentage of energy from fat, as well as BMI in both men and women

As McCrorry et al. (1999) discovered, people who ate more frequently at fast food restaurants also have lower dietary fiber intakes. This is because most restaurant food is highly refined to ensure that they cook fast, last longer and taste better. McCrorry et al. (1999) demonstrated that, in particular, the consumption of fried chicken and hamburgers were both correlated with body fatness. They suggest four factors contributing to the increased energy derived from restaurant meals: (1) restaurant meals tend to be higher in fat and energy density, (2) restaurants usually serve large portions, (3) they serve food that is highly palatable, and (4) most fast food and restaurants provide the consumer with dietary variety.

Horton and Drougas, (1995) explained that many studies in obesity have shown that individuals who consume an excess amount of energy from fat, as opposed to carbohydrates or protein, have a propensity to store body fat at higher rates.

These studies imply that individual dietary restraint and conscious control over food intake are a necessary protective mechanism against a high-fat, high-energy density diet. In other words, the 'environment' of our material culture and political economy is 'obesogenic,' and individuals must consciously and constantly fight against this cultural current to either lose weight or maintain a proper weight.

There has been a marked trend in recent decades for restaurant meals to increase portion size as a strategy both to attract consumers and increase profitability. This has become a trend in almost all the South African fast food places as well.

This is readily noticeable in most drive-through at the local fast food restaurant when, after having placed an order, the consumer is asked, "Would you like to 'super-size' that order for an additional 75 cents?" Super-sizing has become common occurrence in the restaurant industry today. A patron sees value for his/her money if he gets a whole packet of fried chips more just by mere adding 75 cents. As Hill and Peters (1998) explain, underlying these larger portion sizes is an American capitalist value of "getting the most for your buck." Since America is a trendsetter of notice and most franchises in many developing countries including South Africa are American. These countries can't help but follow the standards set by America based on the principle of "getting the most for your buck." Wansink (1996) asserted that the purchase of a meal in a restaurant is based upon a market principle of maximizing consumer value.

Drewnowski and Popkin (1997) highlighted that the heavy reliance on fast food restaurants appears to be a very different socio-cultural context from a meal eaten with one's family at home, where sharing a meal rather than getting a good deal or matching individual palates are central to the cognitive cultural model of food consumption. Moreover, increased portion sizes and increased caloric density of restaurant food increases profitability for the food industry.

Drewnowski and Popkin (1997) observed that higher fat content is synonymous with the price of the food product, often seen with steak, chocolate, and ice cream. Owing to the desirability and palatability of energy dense foods, people eat larger portions per sitting (Stubbs & Harbon 1995; Schiffman, Graham, Suggs & Sattely-Miller 1998). Much work has been done in the area of innate preferences for sweets and fat in infancy and early childhood. Birch, (1992) asserted that it is possible that preferences for or associations with 'fat texture', since there is no basic 'fat taste' like a 'sweet taste,' would be evolutionarily adaptive because of the energy-dense quality of fat.

### **2.10 Technology and obesity**

Almost every house in South Africa has a television set. The more affluent families have motor vehicles, washing machines, and food processors. (To help chop fruits and vegetables fast). The more affluent people even have escalators in their homes to avoid the inconvenience of climbing stairs. This advancement in technology has been wonderful in improving people's lives however, it has had a negative effect as well as people have become heavily reliant on them and no longer use the energy through ingesting food to do some of the normal chores at home.

In many communities the sound of children playing and laughing in parks and streets has become such a rare occurrence that when this is observed, the shock of it is alarming. Rienzo, Button and Wald (2000) noted that if one were to open ones window on a sunny afternoon, what would one hear? Odds are these days that one will hear birds chirping, but not the sound of children playing. In some instances parents of children who play outside in parks have been deemed negligent and uncaring, exposing their children to the risk of being abducted, kidnapped or raped. It is however important to note that with rise in heinous crimes most parents prefer to have their children indoors watching television or playing video games that to be playing outside exposed to elements that prey on young children and adolescent. It has become a safety issue. Most parents

believe that their children would rather be safe and fat than be abused and killed.

Rienzo, Button and Wald (2000) further attested that researchers have discovered that 20% of children partake in only two periods of strenuous activity per week. This is a cause for concern as we see more children and adolescents engaging in less physical activities and obesity is on the rise. Astonishingly, while obesity may stem from many sources, its genetic factors alone can't account for the huge increase in rates over the past few decades (Baranowski & Durant, 1994). As Baranowski and Durant (1994) observed, increases in body mass have been noted in both children and adolescents of all ages, races and gender groups. The main question to ask then would be, where did this epidemic come from? Well, while genetics may provide one reason, Baranowski and Durant (1994) feel that the real culprits stem from our society (in a form of lifestyle we lead). Specific lifestyle reasons for obesity are the increase in Internet usage, computer games, video games and television viewing.

Social networks like Facebook, Twitter and Myspace have become daily activities for the young and old in the 21<sup>st</sup> century. Eberstadt (2003) observed that 'Surfing the web' has truly become a sport of the 21<sup>st</sup> century. With computers in almost every household, workplace and dormitory, computers have become a crucial necessity. Internet access provides us with everything from scientific research to online shopping. The question that one may ask is, what can a person do online for over three hours per day? In the workplace, the Internet provides a way to communicate through e-mail, instant messaging, and research. For students on the collegiate and high school level, the Internet has begun to replace the library.

As Eberstadt (2003) observed, instead of going to the library to take a book, resources for a research paper are predominately found online. Young and old find interest on the Internet by playing online games. This interest on the internet take away from children's time spent outside. Adolescents and adults on the other hand even meet friends through the internet.

Dietz (2004) raised his concerns regarding this abundance and access to technology. He argued that when children play inside on computer games, they take away from time that could be spent being active. As a result, sedentary games like computer ones are reasons why children are more obese than ever before (Dietz, 2004).

Schwartz and Puhl, (2003) made the similar observation regarding video games. They explained that video games were first introduced primarily in the 1970s as a leisure activity for children. However, what once was a childhood leisure activity has now turned into competitive sports for some and complete addiction for many. Obesity and video games go hand in hand when it comes to children and adolescents (Dietz, 2004).

One may wonder how Dietz (2004) can come to such a conclusion. Well Gortmaker and Dietz, (1985) explained that playing video games requires no energy greater than resting metabolic rates, and it, furthermore, reduces the time spent in more high-energy activities. However it would be unfair to demonize video games and blame them for all the obesity challenges facing the world today. For many, video game use is a source of fun and entertainment. This entertainment is healthy when it is integrated into their lives in a balanced manner. However, when the use get out of control, it becomes problematic, for example when it begins to interfere with everyday activities. Children, adolescents and some adults play video games up to hours when they return from school or work and perform less physical activities. It is no wonder this affects their weight.

Like video games and internet, television is another form of entertainment that indirectly promotes sedentary lifestyle. The more television children and adolescents watch, the greater the likelihood that they will become overweight. Baranowski and Durant (1994) made a crucial observation that twenty years ago,

a family was lucky if they had only one television in their household. Now, televisions appear in almost every room of the house. The worst part is that watching television is an easy habit to get hooked on. If learned at a young age, bad television viewing habits will most likely carry on to adult years, and get worse as time progresses.

According to Rienzo, Button and Wald (2000) other factors surrounding television have also been known to add to people's obesity. For one thing, since watching television is a motionless behaviour; people feel like they should eat while watching. Not just any food, however, but high calorie snack foods e.g. chips and sweets. These high-caloric snack foods do nothing but add to our obesity. the question that may arise thereof would be, why exactly do we feel the need to eat while watching television? Mercola (2004) suggests that it could be due to the fact that there are so many commercials on television airtime today. Not just any commercials though, but fast food commercials. All of which promote poor eating habits. Food companies spend millions of dollars on commercials so that we will buy their food. The more we see these adverts, the more we feel the need to buy and eat these high calorie foods.

## **2.11 Social and psychological reasons for obesity**

### **2.11.1. Eating as a compensation for something missed.**

When a child is born, he or she relies heavily on the primary object (parent or caregiver) for nourishment, safety, care and comfort (Greenberg & Mitchell, 1983). If at some point there is disturbance in this primary relationship, the results may be detrimental. In cases where this disturbance happens in early infancy, and is never compensated for in a real manner, the person as a child and later as a grown-up will try to compensate the loss by some false means. Others compensate by drinking, gambling and for others food and over-eating can be such a false compensation for something lacking in early infancy. Physical contact whether in a form of a hug or touch can be very reassuring and comforting and the lack thereof may leave one longing for that intimate touch and

if not satisfied the longing for touch may be replaced by the longing for food which in most cases is readily available

Another reason for this is the lack by children of necessary body contact with other human beings which is a misinterpretation that body contact is equal to sexual abuse. In South Africa we have seen an alarming growth in adult and child sexual abuse. It is estimated that 500000 rapes are committed in South Africa annually (Medical Research Council, 2010). This alarming statistic has left many parents hyper vigilant about any form of physical contact. The modern society misunderstanding health authorities and other authorities systematically frighten adults from having skin contact with children, and also frighten children from seeking bodily contact with adults and other children.

#### **2.11.2 Eating as reaction to abuse**

Sexual abuse is nowadays invoked as a standard explanation for all kinds of problems in the western societies, including obesity. There has not been a substantial study done to prove this. However in some cases this may be right.

The psychological dynamics as explained by Kiell (1973), in those cases where this explanation holds may be the following: The child recognizes that the attractiveness of its own body is the source of the abuse. Then the child decides to make itself unattractive by means of over-eating and gaining high percentage of weight to prevent further abuse. This pattern will then persist into adulthood, often without being conscious anymore.

Sexual abuse is, of course, only one kind of abuse a child or adult person can be subjected to. Many people live in a situation of constant violence, or threats of being subjected to violence. In these cases a person may over-eat to comfort himself, or he may over-eat to get a physical shield of fat as a protection against

the violence or eat to make himself bigger so as to withstand the pain. The pattern of over-eating caused by such a situation can persist also when the threatening situation has passed, either because of pure habit, or because the fear of violence still persists. Believing that at some stage the violence will come back and when it does, he or she should be ready.

### **2.11.3 Eating as means to feel secure**

Our country statistic indicates increasing statistics on violent crimes in general (Medical Research Council, 2010). This alarming statistic is not isolated to South Africa alone. No society is totally safe, and every human being at some point in his or her life feels a need for more safety in his or her daily life. Over-eating makes the body bigger, and the fat has the ability to work as a kind of guard against physical threats. Some people will, therefore, be tempted to over-eat to get a shield of fat against physical dangers. To a certain degree this thought is right. A thick layer of fat covering the body will to some extent work as a physical shield.

However, this logic is not complete. There are serious adverse effects with this logic. The health dangers from the excessive fat are greater than the protection it gives. In the earliest times of the human species, the supply of food was insecure. Therefore, every human being had a natural instinct to eat as much as possible and get fat when food was present (this still happens in the animal kingdom with animals like bears). When times become hard and food scarce then, one could use the accumulated fat as energy source, and as a result lose all the weight gained in times of abundance. Even though the supply of food usually is abundant and constant in modern western societies, this instinctive measure against starvation is still present in a modern man's psychological workup. The result is a constant temptation to over-eat because of the fear of starvation and thus weight gain.



## **2.12 Psychological theories of eating disorders and obesity**

### **2.12.1 Emotional disorders**

The view that psychological or psychiatric disorders play a significant role in the aetiology of obesity is widespread, especially among non-psychologists. The main support for this idea comes from psychotherapeutic case studies, which gives account of the emotional disorders of obese patient (British Nutrition Foundation, 1999). However, case reports of patients who have been referred for psychotherapy are neither drawn from representative samples, nor use replicable methods. The British foundation argue that larger scale comparative studies, using objective measures of personality or psychiatric disorders, are necessary to provide a secure basis for generalizations about obesity.

The psychosomatic theory of obesity proposed that certain personality characteristics or dispositions are linked with obesity (Kaplan & Kaplan, 1957). These have ranged from psychodynamic theories of conflict and defence (Mills, 1994), to the suggestion of low self-control among obese people. Again there has not been adequate research in this area. However, among certain sub-groups such as severely obese and obese binge eaters, there do appear to be higher than normal levels of emotional distress and lower self-esteem (Telch & Agras, 1994). Friedman and Brownell (1995) noted that psychologists have neglected this area of research, therefore, suggest that a new generation of studies is needed to establish the circumstances under which obesity can produce adverse psychological effects and the best means of prevention.

Although personality and emotional factors probably play only a minor role in the aetiology of obesity, they may be more important in relation to responses to treatment. Emotional distress is often cited by patients as an explanation of why they have failed to comply with treatment and studies of the relapse process,

suggest that low mood is related to low mood (LaPorte, 1990).

One aspect of emotional behaviour that is attracting attention from researchers from diverse background is stress. Community studies have shown a link between stress and weight gain (Van Strien, Rookus, Bergers, Frijters & Defares, 1986) and experimental research suggests that stress might be associated with consumption of higher fat foods (McCann, Warnick & Knopp, 1990).

The British Nutrition Foundation (1999) also brought forward to attention the growing interest in the role of sympathetic nervous system in abdominal fat deposition. Arguing that if cortisol plays a fundamental role in the regulation of abdominal fat stores as has been suggested by some theories (Bjorntorp, 1996), then stress is implicated in the aetiology of some variants of obesity. As with emotional disorders, it is also possible that stress comprises treatment compliance, and, therefore, stress management training could be a valuable adjunct to dietary advice in some cases.

### **2.12.2 Binge eating disorder**

Stunkard (1959) identified binge eating as one of eating patterns observed in obese patients, but it received little attention until recently. In the fourth revision of the Diagnostic and Statistical manual (DSM-IV), binge eating disorder (BED) was identified as a specific disorder for the first time. It is categorised as one of the “eating disorders not otherwise specified”, and therefore diagnosed only when anorexia nervosa and bulimia have been excluded. According to this definition binge eating is defined as eating objectively large amounts of food with a subjective sense of loss of control, at least twice a week. A diagnosis of BED also requires that the binge eating problem has been present for at least six months and causes marked distress.

According to Mussell (1995), there have been few studies of the epidemiology and natural history of BED. But he further notes that observations from one small

scale study of women receiving treatment for BED showed the onset of binge eating was reported to have been in the late teens and to have predated the onset of obesity or dieting.

Another study identified the onset of dieting in BED patients (15.0 years) to have been later than the onset of binge eating (14.2 years), contrasting with the reverse pattern for patients with bulimia (dieting at 16.2 years, binge eating at 19.8 years) (Raymond, Mussell, Mitchell, DeZwaan & Crosby, 1995).

The question of the timing of onset of dieting and binge eating is particularly significant according to Mussell (1995), because the literature on bulimia nervosa, which provides one of the closest parallels, identifies dieting as a major aetiological feature in binge eating. In a survey of clinic attendees of obese patients and who reported binge eating at least once a week done by Wilson and Fairburn (1993), the patients denied ever dieting. This was confirmed in a community samples taken by Spitzer, Devlin and Walsh (1992-93) although it had comparatively fewer cases, 50% had never dieted or been overweight. However, among the obese clinic samples, dieting and weight variation was high in those with, than without, BED. The observation suggests that careful exploration of the role of restraint in the aetiology of binge eating among obese people is required, and caution should be exercised in recommending strict dieting to obese patients with BED, until we have better understanding of its effects.

### **2.12.3 Emotional eating**

Emotional eating deserves a mention in its own right, in that significant numbers of obese patients who do not report frank binge eating, nevertheless, report being more likely to overeat, or relapse from a diet, in negative emotional states (Mussell, 1995).

The idea that emotional cues can lead to overeating is, of course, fundamental to

the psychosomatic theory of obesity (Kaplan and Kaplan, 1957), which suggests links with early childhood experiences in which eating and comfort were linked. The empirical support for this theory is minimal. Schachter, Goldman & Gordon (1968) found no evidence that eating reduced fear in old people. Clinical experience indicates that most adults describe only transient comfort from eating, with shame, disgust and frustration being the most common emotions after an episode of binge eating. Furthermore, there is little evidence beyond clinical case histories to support the idea of stronger childhood links between eating and emotions for obese than normal weight adult. However, Mussell (1995) warns that this area has not been well researched, and the absence of evidence should not be confused with evidence against.

#### **2.12.4 Food addiction**

The concept of addiction is used loosely in the popular nutrition literature to denote a problem of control of eating, which is outside of volition British Nutrition Foundation (1999) behind it lies the medical model of addiction, which proposes that a substance may, by virtue of exposure, modify the central nervous system, so that withdrawal symptoms and cravings are experienced when the substance is withheld (Sanders, 2001). Relief of withdrawal also functions as a powerful reinforcer, which amplifies any inherently reinforcing features of the drug. Few addiction specialists would analyse food in this nature, since food consumption is both normal and essential to maintain life. However there are some features of food intake regulation which have parallels in the addiction field Orford, (1984) and these include cravings for specific substances and extreme difficulty in self-control.

Craving for foods are widely reported in the normal population, being more common in women than men and reported particularly in connection with pregnancy and the pre-menstrual period (Weingarten & Elston, 1990). The idea that self-control might be especially difficult because of biologically based drives for consumption is another feature. Hunger is a powerful drive that organizes an

elaborate repertoire of food seeking and consumption behaviours and consequently, the self-control required to keep energy intake to below the level of energy expenditure may be a psychobiological challenge for people of any weight. Food intake is also rewarding, both in terms of assuaging hunger and the sensory experience of delicious food. However, at the root of the addiction theory is the idea that some individuals might crave food because of particular constituents that meet biological need.

Wurtman and Wurtman (1986) proposed the idea that some people crave, and overeat, carbohydrates because it raises the levels of brain serotonin, which in turn reduces feelings of depression or anxiety. One particular form of depressive illness, seasonal affective disorder (SAD), is characterised by atypical depressive episodes, which tend to occur seasonally. Patients with SAD also commonly report overeating during the depressive episode particularly on carbohydrate foods. SAD has been hypothesized to be caused by a light-mediated depletion of serotonin, which causes both the depression and overeating (Wurtman & Wurtman, 1986). The strongest support for this theory comes from the efficacy of serotonergic drugs in the management of SAD, although these drugs are now widely used across the spectrum of depressive disorders. There is experimental evidence that high carbohydrate meals increase the availability of tryptophan (the precursor of serotonin) and, as a precursor concentration is the rate limiting step in serotonin activity, carbohydrate consumption, therefore increases brain serotonin. However, it is yet to be established that carbohydrate-mediated changes in the brain tryptophan have a functional impact.

#### **2.12.5 Body image dissatisfaction**

No discussion of the psychological aspects of obesity is complete without some discussion of body image. Many, but by no means all, fat people are dissatisfied with the appearance of their body. In some, this reaches the point of intense self-loathing and avoidance of exposure. Obese children may be tormented by their peers and humiliated by their teachers, especially in connection with sport

activities. Some obese adults try to avoid situations where physical exposure is required, such as sports or close physical contact, thereby compromising their health and happiness still further. Some health professionals regard a negative body image in obese people as normal and they themselves are disgusted by fat patients, describing them as weak-willed, ugly and awkward. Patients are fully aware of such attitudes.

Stunkard and Wadden (1993) also attest that obese individuals in America and other industrialized nations suffer significant prejudice and discrimination. Daily when looking at television programs and magazines, they are reminded that 'thin is in'. Contemptuous attitudes are expressed in jokes heard on streets and on late night talk shows, as well as in the nation's respected news weeklies. Such prejudice has been observed in children as young as six years of age, who described silhouettes of an overweight child as lazy, dirty, stupid, ugly, cheats and lies.'

Weight related prejudice is often accompanied by discrimination. According to Stunkard and Wadden (1993) two studies found lower acceptance rates into prestigious colleges among obese as compared with non-obese students, despite comparable scholastic performance in the two groups. It also happens in the work place, many employers are not keen on hiring obese individuals under any conditions, and some would hire them only under specific circumstances. The police, armed forces, fire departments and airlines will not hire significantly obese individuals and reprimand or discharge persons who fail to maintain a weight deemed acceptable to the employer. Discrimination extends to a variety of social interactions. Landlords, for example, are less likely to rent properties to overweight individuals. In marrying, almost twice as many obese women fall as rise in the social class. In virtually every aspect of life, the overweight is reminded that they live in a society that hates fat.

Body image dissatisfaction in relation to weight and shape emerges as the

consequence of mismatch between the individual's body image and their concept of their ideal body. Contemporary western ideals for body shape emphasize extreme slenderness, and, therefore, many people, even those with healthy weights, perceive their own body shape in negative terms. However, the intensity of an individual's reaction to the self-ideal discrepancy varies. Obese binge eaters generally express more body image distress than non-binging eaters, although neither group reaches the level of body image distress of patients with bulimia nervosa (Raymond et al., 1995). Body image distress also varies in relation to social and cultural position. Obese women express more body image distress than men, and White women express more dissatisfaction than Black women.

### **2.13 Complications of obesity**

In addition to aesthetic considerations and psychological repercussions, obesity leads to mechanical disabilities, predisposes to metabolic and cardiovascular disorders and so reduces the expectancy of life.

#### **2.13.1 Mechanical disability**

The human skeleton is not well adapted to carry an extra load, consequently flat feet and osteoarthritis of the knees, hips and lumbar spine are more common in obese people who are also less mobile and more accident prone. The abdominal muscles that support the viscera and those in the legs, whose contractions promote venous return, are less efficient with consequent abdominal and diaphragmatic hernias and varicose veins. Adipose tissue around the trunk interferes with the mechanics of respiration and predisposes to bronchitis. Chronic infections of the skin occur between folds of fat under the breasts and the axillae (Prentice, 2005).

#### **2.13.2 Metabolic disturbances**

Obesity may be associated with an elevated level of cholesterol and triglyceride in the blood (Gasteyger & Tremblay, 2002). Perhaps in consequence obese

people develop gallstones more frequently than those of normal weight. The association of obesity, diabetes mellitus and atherosclerosis may also be developed through disordered lipid metabolism. Gout afflicts the obese more commonly than others.

### **2.13.3 Cardiovascular disease**

Apart from atherosclerosis, obese people suffer from hypertension more commonly than those of normal weight (Kemp, Pienaar & Schutte 2011). The work of the heart is increased by the extra mechanical effort needed in moving the overweight body and by increased peripheral vascular resistance in patients with hypertension. This coupled with the tendency to coronary atherosclerosis, account for the liability to angina pectoris and cardiac failure among obese people in middle life.

### **2.13.4 Life expectancy**

Obesity according to Durstine and Moore (2003) constitutes a poor risk from the standpoint of life insurance. Statistics of life insurance show that men forty five years of age, who are of medium height and frame and weigh 90 kg which is 16 kg above the average, can expect to live four years less than men of comparable build who weigh 68 kg. The risk of obesity in women is somewhat less.

## **2.14 Can Psychotherapy help?**

A weight loss program offered by diet industry often result in initial weight loss but typically the weight is regained with interest and the treatment is resoundingly unsuccessful in the long run (Mills, 1994). The same goes for diet books. Why? There appear to be physiological reasons why considerable rapid weight loss tends to cause the body to use calories in food more efficiently. More importantly, though, these programs fail to address the underlying psychological causes of excessive weight gain, and often exacerbate them.



Nevertheless, when the lifestyle, relationship and underlying psychological issues involved have been adequately addressed in psychotherapy, people who are basically healthy maintain a healthy weight. (Unfortunately this is not necessarily the case for people who have a metabolic disease or whose movement is severely restricted by a medical condition).

There is a wide variation in the type of psychotherapeutic interventions required by men and women with overeating problems, and in the amount of time those interventions will take (Mills, 1994). It could be mere few sessions or longstanding psychotherapy. More often, though, long-standing weight problems are bound up with many issues about lifestyle and ways of relating to others (centrally, in most cases, not being in control of one's life and inability to say no) and to unconscious false beliefs and emotional blocks to self-assertion that go deep. To correct these problems usually takes at least a year of weekly therapy, typically followed by some less intensive follow-up work. (For people who obtain appropriate psychotherapy soon after the problem develops, the process is normally quicker).

### **2.15 Will any kind of psychotherapy do?**

The therapist needs to have a good grasp of weight problems and eating disorders and how to work with them. As Mills (1994) suggests, for most overweight people a combination of cognitive, behavioural and in-depth therapy is needed (an integrated approach). Many therapists can only do one type. If only practical and behavioural approaches are taken to weight management, the emotional blocks will remain in place, and in most cases the therapy will fail. If only the in-depth approach (psychodynamic, insight-oriented, analytical etc.) is taken, mountains of time can be spent avoiding the issue, and often the therapy will either fail altogether or take much longer than necessary. Psychotherapy takes a serious commitment. Not everyone is willing to make it.

## **2.16. Résumé**

In this chapter the review of literature in relation to the obesity phenomenon, its causes, influencing factors and what could be done to deal with it, have all been discussed. Taking into consideration the negative impact obesity can have on an individual, it confirms the seriousness of the problem and the urgency to find methods that are effective to fight the problem.

Having discussed the literature review with relevant information in this chapter, the following chapter will discuss the research methodology that will serve as the background to the research process in the study.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

Literature review has given the study a significant background on obesity in terms of what causes it and the effect it can have on an individual. This chapter will focus on the research methodology that will help the researcher explore the influence of wellness in weight-loss.

As Neuman (1997) suggested the research methodology is what made this research scientific. The research method is a plan designed for the process of finding a solution to the research problem posed by the researcher.

In trying to explore whether wellness has any influence in weight-loss, the researcher opted for a non-random quasi experimental single group pre-test-post-test study. The study was designed to be a definitive test of the hypothesis (wellness does have influence on obesity).

This chapter will describe research methods and procedures that were followed in the test.

#### **3.2 Research design**

In this research, diverse approaches were utilised, each approach with its own philosophical assumption and principles and its own stance on how to do research as suggested by Neuman (1997). According to Leedy's (1997) definition, in designing this research project, the researcher planned and visualised the data and problems associated with the employment of the data in the entire research project.

In conducting this research, the researcher decided to conduct a quasi-experimental study specifically the single group pretest-posttest design. This design was used to evaluate the benefits or influence of wellness in weight-loss. It aimed to demonstrate the causality between an independent variable (wellness) and dependent variable (weight loss). The researcher opted not to randomize the intervention because the nature of the study subject would have proved inappropriate to randomize, and also because of the limited sample size that was available.

This design was employed because it can use both pre-intervention and post-intervention measurements as well as non-randomly selected control groups. this design is most often used to evaluate the impact of an intervention by comparing pre-test scores with the post-test scores.

The traditional pre-test post-test measures work on the assumption that the respondent's assessment and understanding of the concept being measured could change as a result of the intervention. In theory, if the post-test score is significantly greater than the pretest score, it indicates that change occurred in the variable of interest (Drennan and Hyde, 2008). However this design has a significant limitation which is the lack of control group. Drennan and Hyde, (2008) define the control group as a group of subjects that closely resemble the treatment group in many demographic variables, but not receiving the factor under study and thereby serving as a comparison group when treatment results are evaluated

### **3.3 Sampling**

A non-proportional quota sample of 13 obese people was selected to participate in the study about the influence of wellness in weight loss. This methodology was deemed appropriate for the study because it is less restrictive, inexpensive and convenient to administer. In addition, it allowed the researcher to specify the number of sampling units, she wanted in each category i.e. gender, ethnicity and

age, drawing the sample that had the same proportions of characteristics as the whole population (Gribbons & Herman; 1997 & Trochim, 2000). The purpose of this method of sampling was to draw a sample that had the same proportions of characteristics as the whole population. Subjects were selected non-randomly according to the fixed quota. The sample had to be visibly obese/overweight to be selected.

This method appealed to the researcher because it helped ensure that smaller groups are adequately represented in a sample.

The sample of the study was drawn from the population between the ages of 18 and 65 who appeared overweight. The population that was accessible to the study consisted of people who visit the Umlazi, Cato Ridge and Camperdown Medical Centres who appeared to have been overweight. They, in fact acknowledged that they were overweight and had the ability to articulate and communicate their thoughts, feelings and perceptions regarding the researched topic and were not pregnant or wheelchair-bound. The reason the pregnant and wheelchair bound participants were excluded is because their obesity is non-syndromic. In pregnancy, weight gain is expected and a person may gain weight of obesity proportions and immediately after birth, lose the weight and go back to pre-pregnancy BMI. In the case of people who are wheelchair bound, they were excluded because part of the wellness program demanded that people get physically active and some of the people in wheelchairs are unable to do such activities.

A total of 36 participants were recruited, however 23 participants dropped out at different stages of the study, with few giving variety of reasons and others just disappeared and did not state reasons.

### 3.3.1 The following table shows the demographics of the sample selected

**Table 3.3.1: Demographic Information of Study Participants**

Total Sample (N=13)

Characteristics	Number	Percentage
<b>Gender</b>		
Male	5	38.5
Female	8	61.5
<b>Age</b>		
18 – 30	3	23
31 – 40	5	38.5
41 – 50	3	23
51 – 60	2	15.4
61 – 65	0	0
<b>Marital status</b>		
Married	6	46.2
Divorced	1	7.7
Single	4	30.8
Not married but in a relationship	2	15.4
<b>Education</b>		
Senior certificate	4	30.8
No senior certificate	2	15.4
Tertiary education	6	46.2
<b>Ethnicity</b>		
African	10	76.9
White	3	23.07
Indian	0	0
Coloured	0	0

**Table 3.3.2:** mean, median and standard deviation of age, weight and height for pre- intervention

	<b>Age</b>	<b>Weight (kg)</b>	<b>Height (m)</b>	<b>BMI</b>
Mean=	36yrs	129.4	1.62	40
Median=	37	13.3	1.62	40
SD=	8.5	16.08	6.3	8.9

### 3.4 Data collection

As defined by Rubin and Babbie (1993) data formed the basis of analysis in this study. The researcher decided not to make the raw interviews, records and self-reports available for the sake of confidentiality and anonymity.

Every attempt was made to standardize the data collection process while maintaining participants' anonymity. The standardization process included a list of instructions that described how participants should be interviewed, the venue, the types of questions the scale used to weigh them and the intervention.

The objective of the research was introduced adequately to the respondents. This was done to ensure that the respondents trusted and believed in the intention of the study so as to keep them away from avoiding the questions and give misleading answers. The questions on sensitive issues were phrased in a very positive way. Enough time was allocated to interviews and the respondents were assured of the anonymity of the collected data throughout the sessions of interviewing.

The researcher used semi-structured interviews (using an interview guide) as a

preferred way of gathering information. This method involved direct personal contact with each participant who was asked to respond to questions. All the participants were seen in the researcher's therapy rooms. It must be emphasized that there was no previous interaction with the participants prior to the study. All the participants were unknown to the researcher until they were recruited as they fitted the fixed quota. Participants were not charged for services received. The interview responses were written down. The interviews were conducted with a high degree of flexibility. This means that the researcher used a list of topics rather than using fixed questions, since this is a very sensitive topic. This helped to keep the interview going in cases where the respondent fell silent. Units of measurement used were kilograms for weight and meters for height.

### **3.4.1. Process of Data Collection**

#### **3.4.1.1. Pretest**

In this study, four therapeutic methods of wellness namely, body image, stress and coping, depression and BMI were tested. The participants were given a stress questionnaire, to explore their stress levels and how they cope with stress. The researcher also did a body image assessment in order to find out how participants viewed themselves. Beck's Depression Inventory (a self-report inventory which measures severity of depression) was used to assess for depression. Exploring the depression phenomenon was deemed important to ensure that if there are any depressed participants, they get appropriate intervention. The participants were weighed using the same scale and their height was measured to determine their BMI's. A semi-structured questionnaire was used to guide the interview.

#### **3.4.1.2 Intervention**

The researcher opted for the holistic approach in dealing with weight loss. The approach in this study focused on diet or food, fitness, meditation, mental or emotional health and community involvement. These are amongst the myriad of approaches that can be used to ensure wellness.



#### **3.4.1.3. Post-test**

The participants were given the questionnaire similar to the ones that they had to fill in pretest and the results were compared to see if there is a difference and if wellness has any influence on weight loss.

### **3.4.2 Tools for data collection**

#### **3.4.2.1 Stress questionnaire**

This questionnaire is purely a simple indicator of the amount of stress that one may be experiencing within his/her particular lifestyle. The stress questionnaire given was a self-scoring. It was chosen because its ability to introduce issues of stress and the effects it has on the human body. Point system was used to score the questionnaire, for example:

4 points or less = least likely to suffer from stress related illnesses

5 - 13 points = more likely to experience stress related ill-health.

14 points or more = most prone to stress

#### **3.4.2.2 Body image questionnaire**

This tool assess for a collection of ever changing, descriptive and evaluative beliefs about one's appearance that are learned through one's environment (Kater, 1998).

#### **3.4.2.3 Beck's Depression Inventory**

This is a self-reporting inventory that measures the severity of depression. This tool was included in this study because most obesity studies have linked obesity to depression. The Beck's Depression inventory appealed because its basis is on negative cognition about the world the future and self; assumption being that a depressed person may be severely stressed and have a negative body image and some cope with these negative feelings by overeating.

#### **3.4.2.4 Semi-structured interview questionnaire designed by the researcher**

### **3.5 Intervention Process**

A holistic approach was utilized during the sessions as intervention methods to assist the participants reach a level of wellness and hopefully lose weight too. The study used food or diet, fitness, meditation, mental or emotional health and community involvement as the best package in dealing with the problem.

#### **3.5.1 Food/diet**

It is believed that healthy food and nutrition is important in promotion of good health and prevention of disease.

#### **3.5.2 Fitness**

Fitness emphasises engaging in daily moderate exercises, based on the belief that exercising burns more calories and boosts one's metabolism by building lean muscle mass.

#### **3.5.3 Meditation**

This has been shown to reduce blood pressure, improve circulation, decrease heart and respiration rate, relax muscles, reduce cortisol steroid hormone, produced by the adrenal gland, and is released in response to stress, and to a low level of blood glucocorticoids) levels and boost digestion. Some studies even suggest that it helps develop healthy eating behaviour patterns.

#### **3.5.4 Mental/ emotional health**

A growing body of data ties negative and positive emotional states to wellness or ill-health. The negative emotions have toxic effect on the immune system and on health in general. However, optimism and emotional closeness to others have been found to be conducive to physical well-being.

### **3.5.5 Community**

Obesity and excessive weight gain are clearly a social problem, one that now affects about half the population. Undoubtedly, the sedentary nature of modern society and the availability of ready-to-eat high-calorie foods are part of the problem. No doubt, too, some people become obese more readily than others because of differences in metabolism.

Social isolation (the subjective sense of being cut off from people and having no one to turn to) doubles the chance of sickness and death. Encouraging community involvement in dealing with obesity problem and for support and understanding was emphasized and encouraged.

### **3.6 Intervention design**

A total of 18 sessions per individual were designed for the 13 month cycle. As part of the intervention clients were taught about nutrition, types of exercises, mental relaxation, how to deal with stress and interpersonal relationships. The process was divided into stages. All participants received both therapy and participated in the weight loss intervention. This was done to ensure that the study was standardized for all participants.

#### **3.6.1 Stage 1**

During the first three sessions, history was taken and a customised plan for each and every participant was designed. Time management lesson was done to ensure that each participant kept to a specified cycle.

Participants were encouraged to join a social group whether is a choir, cooking, exercise or any other common interest group of their choice.

Wellness education was done for each participant. This included explaining the BMI and difference between being obese and overweight. Participants were encouraged to partake in a form of exercise; however, it was emphasized that

each exercise session should not be less than 30 minutes. They were informed that physical activity is not limited to walking or running, but gardening, house chores, doing laundry or playing with children counts but only if it is structured.

Benefits of physical activity were discussed including that it increases energy, improves sleep and strengthens muscle and bones (Dietz, 2004). Moreover it was emphasized that in the long run it helps control weight, reduces stress and help keep the heart and the lungs healthy as Dietz (2004) further enlightens.

### **3.6.2 Stage 2**

Participants were encouraged to keep journals of their physical activities, food intake and if they are on any medication (medication was explored to ensure that there are no other influences that may distort the results and risk validity).

### **3.6.3 Stage 3**

Participants were encouraged to report on social activities they were participating in even if it was charity work, 'stokvel '(**Stokvels** are invitation only clubs of twelve or more people serving as rotating credit unions or saving scheme in South Africa where members contribute fixed sums of money to a central fund on a weekly, fortnightly or monthly basis.) or church group.

### **3.6.4 Stage 4**

Participants were encouraged to discuss their challenges and possible options were discussed. Relaxation techniques were also included.

### **3.6.5 Stage 5**

Importance of goal setting was emphasized. Goal refers to setting a target behaviour that you want to reach e.g. losing 5 kg permanently in 6 months. Two types of goals were discussed namely short and long term goal. Participants were encouraged to pace themselves and focus on short term goals as it would help them reach the long term goal.

The sessions at the stage discussed goals in-depth emphasizing that there are three parts to a goal, namely, the specific behaviour, how often you do the activity and how long you do the activity. This also formed part of their contract that they will be part of the study for at least 12 months even though the participation was voluntary and participants were free to leave at any stage.

Participants were encouraged to have one or two long term goals and instructed to set smaller short-term goals to help them achieve their long term goals.

### **3.6.6 Stage 6**

In this session rewards were discussed. Two forms were emphasized, namely, extrinsic rewards (these are rewards that one can buy, eat or get from someone else e.g. compliments on one's new and improved look or a new dress) and intrinsic rewards (these rewards are the ones you cannot touch, but feelings inside you e.g. better body image, higher self-esteem, self-pride, free of stress and general wellness)

Participants were encouraged to write down the rewards they longed for.

### **3.6.7 Stage 7**

In this stage participants were requested to follow the FITT principle in all five spheres of wellness (namely, psychological, physical, emotional, spiritual and social). The FITT principle is a set of rules that must be adhered to in order to benefit from any form of fitness training program(Hales, 2007). These rules relate to the Frequency, Intensity, Type and Time (FITT) of exercise.

These four principles of fitness training are applicable to individuals exercising at low to moderate training levels and may be used to establish guidelines for both cardio-respiratory and resistance training.

The FITT principle is used to guide the development of unique and bespoke fitness plans that cater for an individual's specific needs (Hales, 2007)

**F= Frequency** (how often one eats well, exercise, take care of one spiritually, mental care and social involvement).

**I = Intensity** (how much effort does one put in each activity).

**T = Time** (how much time does one dedicate to each activity).

**T = Type** (type of activity one performed towards becoming well e.g. running, joining a choir, joining gym etc.).

Participants were encouraged to keep modifying all components of the FITT principle to avoid being bored doing the same thing. The reason for this is that if you keep on doing the same activity at the same intensity for the same duration you are bound to get bored.

### **3.6.8 Stage 8**

Limitations and preferences were discussed. Although all participants fitted the obese description, some were in different levels of obesity than others. Therefore, preferences, abilities and limitations were discussed intensely to ensure that everyone is given an opportunity to set goals that were realistic for each respondent.

### **3.6.9 Stage 9**

Every participant was assisted in drawing up his or her wellness program that will cover all the aspects of wellness ensuring that each one was specific to each ones capability. This had to be specific, e.g. 'I will eat fish on Wednesday and Friday, attend church on Sunday afternoon, have "me time" on Saturday morning and go for thirty minutes brisk walks Monday, Wednesday and Friday mornings before I go to work.'

Participants were encouraged to include the FITT principle in each and every

component of wellness.

#### **3.6.10. Stage 10**

The importance of finding a wellness buddy was emphasized as it would help once they have wellness buddies to discuss goals and encourage each other. They were reminded that the wellness buddy could be a friend, family member, partner, colleague or even a pet; however they were encouraged to find someone or something that can be regularly active with them.

#### **3.6.11. Stage 11**

Participants were told about barriers to wellness (these are barriers that prevent us from being well). They can be internal (lack of motivation) or external (bad weather). They were asked to note things that they foresaw as potential barriers to their wellness activities and how they were planning to overcome the barriers.

#### **3.6.12. Stage 12**

All participants were encouraged to keep on monitoring their goals to ensure that they are on track. They should also review if the goals they have modified are still realistic. They should also modify their wellness plan to reflect their change in goal.

### **3.7 Data analysis**

Data analysis in this study entailed breaking down the data into constituent parts to obtain answers to the research question and then testing of the research hypotheses. However, analysis of research data did not in itself provide the answer to research question; as a result the interpretation of data was done.

Data that was collected from the participants was about their understanding of the problem under study and willingness to participate in treatment to achieve results.

The researcher opted to use both qualitative and quantitative methods to analyze the data. Descriptive statistics was used to describe and summarize the demographics of the sample (refer to tables 1 of subsection 3.3.1). A t-test for dependent groups was performed on the summated subscale scores from pretest to post-test.

### **3.8 Ethical considerations**

In accordance with the principles of informed consent the following was discussed with each participant:

- The aims, methods, anticipated benefits and potential hazards of the research.
- His or her right to abstain from participation in the study and his/her right to terminate at any time of his or her participation and the;
- Confidential nature of his or her replies

The identity of individuals from whom the information was obtained in the course of the study was kept strictly confidential. At the conclusion of the study, any information that revealed the identity of individuals who were participants in the research was destroyed. Data was kept locked as per ethical guidelines prescribed by the Health Professions Council of South Africa.

### **3.9. Résumé**

This chapter dealt with the description of the research design and methodology of the study that is being evaluated. The next chapter provides the presentation of the findings in a form of detailed analysis and the interpretation of the data.



## CHAPTER FOUR

### PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS

#### 4.1 Introduction

This chapter focuses on data and interpretation of data obtained from the research process. The findings are presented in tabular form. In all the tables pre-test and post-test scores are tabulated and so does the difference in scores after treatment.

#### 4.2. Interviews

##### 4.2.1 Participants 1

Female      height=1,58m      weight=99.92kg      age=46yrs  
BMI=39

She is a Human Resources Manager in a big company; she is divorced with two children. Her pre-test assessment indicated no Depression, mild stress and poor body image.

Her father passed away, but her mother is still alive. She is from a poverty stricken background, but was loved by both parents. She is from a very close family with a strong support system. She is a single parent; she remembers that she started gaining weight immediately after getting married. Her husband had a senior position at his work and was hardly at home. During her marriage, she remembers feeling very lonely, and when children came she was overwhelmed by the family responsibility of being a mother, wife and manager and lacked husband's support. She recalls suffering from chronic fatigue. She craved for her husband attention, but each time she reached out to him, she felt rejected by him. She struggled to lose post-pregnancy weight and in the midst of it all, fell pregnant again. This one was not planned but since it was within marriage it was accepted. The baby came and the stress went up again. The work, the family

and the husband demands all proved hard to deal with. For the first time in her life she felt all alone and missed the warmth and love from home.

She started to doubt her capabilities as a mother, wife and manager. She currently lives in an affluent neighbourhood, drives a beautiful and expensive car but says she would trade it all for a simple life in the rural area as people cared there.

She has tried many ways to lose weight including medication and yoyo dieting. However, the weight-loss does not last. As soon as she stops the diet she gains the weight back and more. Her main fear is that her children are gaining weight too, she feels that she is failing her children as a mother by not being exemplary. She still displayed grief towards her father.

Therapy focused on self and identity.

#### **4.2.2 Participants 2**

Female      height=1,59m      weight=87 kg      age=24yrs  
BMI=27

The client is a single factory operator. She hails from another province and her whole family resides in her home of origin only her cousin is in Kwa-Zulu Natal. However, they do not live together. She was raised by her mother and stepfather; she grew up believing that this was her biological father. She only found out the truth when one day a strange woman came to her and told her she was her paternal aunt and would like to show her, her father. She remembers the shock and confusion and the hope that when she reached home her mother would tell her that it was all a big lie. Her mother confirmed it, and she felt betrayed and could hardly trust after that. She eventually met her father, who initially appeared loving and caring; he promised her a lot of things but did not fulfil even a single one and just disappeared from her life. This left her longing and feeling she did

not belong anywhere things had changed as if overnight, people she had known as siblings were now half siblings. She remembers being engulfed by anger and despair. At some point life seemed too much for her that she attempted suicide. The participant presented with severe symptoms of depression. She was referred to the psychiatrist for treatment and a close follow up was maintained.

#### **4.2.3 Participant 3**

Female      height=1,60m      weight=89kg      age=29yrs  
BMI=27

The client is an engineer in a big oil company. Both parents are still alive. She is the only child. She has had two miscarriages, one when she was 21years old and the other when she was 27. Her partner is emotionally supportive but is unemployed. Work is hectic and she has to work overtime to support her family and boyfriend. She never told her parents about both pregnancies and losses and she feels guilty. She is also afraid of not being able to bear children and her boyfriend pressures her to try again. Although she was never a thin person, in the past 8 years she has gained a tremendous amount of weight. She is concerned about her weight and looks in general but has never done anything serious to deal with her weight problem. For her, food is a reward for hard work.

Part of her therapy included bereavement counselling and dealing with guilt which was offered by the social worker based at the medical centre.

#### **4.2.4 Participant 4**

Male      height=1,67m      weight=142kg      age=38yrs  
BMI= 41

The client is a married truck driver with two children. He has Hypertension and Type II Diabetes. He is a first born at home. His father was emotionally abusive. From an early age, he had to play a protective role for his mother and siblings.

His sense of self identity was enmeshed with the assumed role of a caregiver and protector of his mother and siblings that his sense of self was affected. He left school before he could complete his grade 12 and has struggled through life ever since. According to him food had always made him feel good. Although his father was emotionally abusive, he provided good food for them and eating would make everyone feel better. He believes that is where he learned comfort eating.

His therapy included trauma counselling and self-care.

#### **4.2.5 Participant 5**

Female      height=1,59m      weight=116kg      age=54yrs  
BMI=36

She is married with no children. Her mother died when she was very young and she does not remember her. She was raised by her stepmother. She grew up believing that her step mother was a very cruel woman. Her father loved but very strict and used corporal punishment with a cane in. Her father has since passed away. She is married to a very loving husband, however, sometimes feel empty inside. She started gaining weight when she was in college. She remembers that as a student she always vowed that when she starts working, she will buy all the nice things she never had growing up e.g. cakes, sweets, fried chicken, cool drinks, etc. When she started working she did exactly that and she gradually started gaining weight. She remembers that people would pay her compliments on how nice and round she looked and that proved to be good for her self-esteem. However, she was not aware that she had a problem that was getting out of hand until it was very late. She then started embarking on yoyo dieting and she has been doing this almost all her life. Sometimes she becomes angry at her father for not standing up for them and perceived him to love the stepmother's children more. She still cries over her mother's absence.

Her therapy covered abandonment and grief

#### 4.2.6 Participant 6

Female      height=1,63m      weight=165kg      age=44yrs  
BMI=62

The client is married with four children. Her husband is a soldier man who has a drinking problem. She comes from a dysfunctional family of three daughters. She is a middle child. She remembers that she had to work hard to get attention from both parents. Her father suffered from alcoholism and her mother just did not care. According to her, she was not anyone's favourite growing up as her mother was very close to her older sister and father to her younger sister. At the age of 12 she was gang raped by the lifeguards at the beach. She did not tell anyone, even the members of her family. She somehow managed to suppress the incident and gradually gained weight. She has been in and out of hospital because of a back problem and other physical ailments that have no organic causes. She has been told to lose weight by most doctors and she has tried but failed. She says that she would like to lose weight; however, she seems to unconsciously feel safe in her current body.

Therapy focused on trauma counselling and self-care.

#### 4.2.7 Participant 7

Male      height=1,65m      weight=179kg      age=47yrs  
BMI=54

The client is a married service man with two children, one teenage daughter with behavioural problems and a son with a learning disability. His marriage has had problems for a long time with wife threatening to leave him as she does not love him anymore. According to him, he has always been a big child; however his sedentary lifestyle seems to have escalated the problem further. He is a good cook and loves food. He has a huge library of movies that he enjoys watching

every day when he returns from work. He has Type II Diabetes and Hypertension. Both his parents lived with Alcoholism and he has a history of Depression.

Therapy focused on self-acceptance and love

#### **4.2.8 Participants 8**

Female      height=1,62m      weight=137.2kg      age=30yrs  
BMI= 42

The client is a beautiful young professional who is single with no children. She has never been in a relationship. According to her, she would love to have a partner, but has strong fear and lack of trust when it comes to men.

Her father cheated on her mother and this led to severe emotional abuse at home. This, according to her left her scarred. She felt betrayed by her father and was ashamed. Her home situation was embarrassing as everybody in the neighbourhood knew about it. She started spending more time indoors to try and avoid contact with people and during that time she gained weight, the problem went on until she was very stressed and ashamed of her image that she relied on food for comfort. She has tried many things to lose weight but failed. She is currently in a good position at work but her self-confidence is acutely low because of her weight.

Therapy focused on self-care and love

#### **4.2.9 Participant 9**

Female      height=1,59m      weight=102.4kg      age=34yrs  
BMI=32

The client says she has always been a big girl. She enjoys food. Her parents are still married, but her father has always had extra marital affairs. However, when

he was around he was a very loving father and they missed him dearly when he was not around. When her father came home they would have big meals and feast on everything on the table and when he was not around they would be miserable and start eating. All her sibling and mother are also obese.

She loves food especially sweet things. She has tried many things to lose weight but has not been successful. At some stage she started exercising and embarked on a diet fad. She lost a great deal of weight but soon became tired and lost interest and gained it all back and more.

Therapy focused on feelings of abandonment and self-care

#### **4.2.10 Participant 10**

Male height=1,62m weight=145.6kg age=34yrs  
BMI=45

The client is a senior manager in a big company. He is not married but is in a relationship. He has no children. Still takes care of his mother and his father has never been in his life. He was severely bullied at school which led to a very low self-esteem. Although middle class he says he does not feel it. He mostly feels angry and ashamed.

He only had a big brother but he was killed many years ago in the political violence. His body was badly damaged that it was a closed coffin. He looked up to his brother and he still longs for him all the time. His mother is also not over the death of his brother and he sometimes feels inadequate and invisible. He does everything for his mother yet he feels his mother is not acknowledging him.

It appears that unconsciously he feels the bigger he gets, the more noticeable he will be

Therapy focused on self-care, anger management and grief counselling

#### **4. 2.11. Participant 11**

Male height=1,7m weight=163kg age=52yrs  
BMI=48

The client is married with children; he comes from a very poor background. He has five siblings and they are still alive.

His father was not employed and mother was a domestic worker and many a time they went without the daily needs. He has always been angry at his parents for failing to provide and has vowed not to ever let his family go through his experience.

He buys his family everything they need and want. Their diet mostly comprises of junk food. He has his own transportation business that is doing extremely well. He lives in an affluent suburb.

Being big is symbolic of change and success. It is the opposite of thin and poor. He, however, has been told by doctors that he needs to lose weight as he is hypertensive and if he gains weight he runs the risk of dying of heart attack or stroke.

Therapy focused on anger and guilt management and self-acceptance.

#### **4. 2.12. Participant 12**

Female height=1,63m weight=123kg age=35yrs  
BMI=37

The client is not married but has one child. The father of her child is no longer in their lives. She doesn't work and still lives at home. She appeared angry and aggressive. She had always been a thin person until she finished matric. Her parents were still angry at her for having a baby out of wedlock and told her that the money they were going to use to send her to further her studies at tertiary



will be used for the baby. She regrets and resents everything. She has a poor relationship with both parents and her father is a heavy drinker.

She seemed to have lost her sense of self, she is unhappy with her image. She has tried to lose weight but to no avail. She feels like a failure. She presented with depressive symptoms. This was discussed with her and recommendations were made. The client was referred to a Psychiatrist. She was put on antidepressants and followed up.

Therapy focused on guilt management and self-care

#### **4.2.13 Participant 13**

Male height=1,68m weight=133kg age=37yrs  
BMI=39

The client is married with two children. He is on the verge of divorce. Parents are still alive and he has three siblings

His family of origin was very religious and he was also expected to follow suit. At some stage his father had an extramarital affair and this challenged everything that the client believed in especially spiritually. He became rebellious and started binge eating. He stopped going to church although he felt he did the right thing, guilt was killing him. He felt empty and vulnerable. During that period, his first daughter was born, she was not a planned baby and this put a lot of pressure on him, he ended up getting married to the mother of the baby as it was the right thing to do. Deep down, he felt neglected and betrayed by his father and in turn he neglected himself. He, however, wants to make amends and change his life around and this will start with him changing the way he looks and feels.

Therapy focussed on issues of guilt and abandonment

### 4.3 Body image scores

The objective of this tool was to look at the collection of ever changing, descriptive and evaluative beliefs about one's appearance that are learned through one's environment (Kater, 1998).

**Table 4.3.1: Pretest and posttest scores for body image**

<b>Design</b>		<b>Pre-</b>	<b>Post-</b>	<b>Difference</b>	
One group pre-test post-test	Participants	<b>O</b>	<b>O2</b>	<b>D</b>	<b>D2</b>
Body Image	1	18	12	6	36
	2	27	19	8	64
	3	27	12	15	225
	4	24	16	8	64
	5	25	16	11	121
	6	29	15	14	196
	7	29	16	13	169
	8	23	14	9	81
	9	17	9	8	64
	10	19	15	4	16
	11	24	17	7	49
	12	21	16	5	25
	13	18	11	7	49
<b>TOTAL</b>		<b>301</b>	<b>188</b>	<b>113</b>	<b>1159</b>
<b>Mean score</b>		<b>23.2</b>	<b>14.5</b>	<b>8.7</b>	<b>89.15</b>
<i>df</i>	<i>p</i>	<i>t-crit</i>		<i>t-obt</i>	
12	.001	4.32		8.16	

Looking at the mean scores of this tool, one can see that there was a significant improvement in body image for all the participants. The mean difference was 8.7. The percentage was higher for males (65%) than that of females (60.4%) in terms of how they perceived themselves with regards to body image. This was

not very alarming as various studies have been conducted for decades that show that self-esteem is consistently related to body image dissatisfaction for women, and women consistently exhibit a more negative body image than men (Pope, Phillips & Olivardia, 2002). Even when both men and women are consistent exercisers, the women have more negative body image. In this study, most men were of African descent and in the African culture being overweight is encouraged, accepted and a sign of wealth.

Women are genetically and biologically predisposed to have a higher percentage of body fat than men. This leads to a standard of thinness that is more extreme for women than for men (Rodin, Silberstein, & Striegel-Moore, 1984). Consequently, there is a stronger relationship between body image dissatisfaction and self-esteem for women. In fact, Kostanski and Gullone (1998) found that being female and having low self-esteem lead to body image dissatisfaction among participants with healthy body weight.

While the difference in pre-test and post-test is positive, it was found to be statistically significant. The results of the t-test yielded significance of 8,16 (at  $\alpha=0.001$ ), meaning that for the whole group of participants the difference between the pre-test average score and post-test average score was statistically significant.

The percentages confirm the above, but most interestingly it suggests that wellness does have an impact on the individual's outlook in life and how the person perceives himself or herself.

#### **4.4 Beck's Depression Inventory**

This is a self-reporting inventory that measures the severity of depression. This tool was included in this study because most obesity studies have linked obesity to depression.

**Table 4.4.1: Pretest and posttest scores for Beck's Depression Scale**

Beck's Depression	Client	O1	O2	D	D2
	1	13	8	5	25
	2	43	18	25	625
	3	18	10	8	64
	4	16	10	6	36
	5	18	11	7	49
	6	25	17	8	64
	7	35	18	17	289
	8	18	11	7	49
	9	17	8	9	81
	10	14	10	4	16
	11	18	13	5	25
	12	18	11	7	49
	13	12	8	4	16
<b>TOTAL</b>		<b>265</b>	<b>153</b>	<b>112</b>	<b>1388</b>
<b>MEAN SCORE</b>		<b>20.4</b>	<b>11.8</b>	<b>8.62</b>	<b>115.67</b>
<i>df</i>	<i>p</i>	<i>t-crit</i>		<i>t-obt</i>	
12	.001	4.32		5.23	

This inventory scores also displayed an impressive improvement in the participants' cognition about the world, the future and self. Although most participants were mild-moderately depressed one was moderate-severely depressed and two severely depressed that they had to be referred for medication. Post-test scores showed a 57.7% improvement in all participants.

However, the percentage of improvement was slightly higher in males than in females. This could be attributed to many causes one which is, in most societies there is a different approach to the gender roles. While women are freer to be open with their feelings, men are expected to have the opposite effect. The male

role in society is often led by cultural roles that require him to be tough and strong and to set emotions aside. This may lead to males not reporting or under reporting their emotional distress. For example, in this study males showed 62.1% improvement and women 55.3%.

The results of the t-test yielded significance of 5,23 (at  $\alpha = 0.001$ ), meaning that for the whole group of participants the difference between the pre-test average score and post-test average score was statistically significant. The researcher is confident that wellness had a positive effect the participants' cognition about the world.

#### 4.5 Stress questionnaire

This tool assessed for a collection of ever changing, descriptive and evaluative beliefs about one's appearance that are learned through one's environment (Kater, 1998).

**Table 4.5: Pretest and posttest scores for stress questionnaire scores**

Stress scores	Client	O1	O2	D	D2
	1	7	3	4	16
	2	15	6	9	81
	3	9	5	4	16
	4	7	4	3	9
	5	8	5	3	9
	6	8	5	3	9
	7	14	6	8	64
	8	7	4	3	9
	9	6	3	3	9
	10	8	5	3	9
	11	11	6	5	25
	12	9	4	5	25
	13	7	4	3	9
<b>TOTAL</b>		<b>116</b>	<b>60</b>	<b>56</b>	<b>290</b>
<b>MEAN SCORE</b>		<b>8.9</b>	<b>4.6</b>	<b>4.3</b>	<b>22.31</b>
<i>df</i>	<i>p</i>	<i>t-crit</i>		<i>t-obt</i>	
12	.001	4.32		7.7	

The stress questionnaire scores were much more interesting in this study although the entire group of participants showed a relevant improvement in how they dealt with stress (mean = 4.3), women showed much more improvement than men. Women showed a 50.7% improvement compared to 45.4% of men. This may seem odd given the fact that women appear more prone to emotional 'rollercoaster, than men, however, women have an advantage because when they have a breakdown they express it through crying and may even talk to somebody else about their frustration giving them a better opportunity to improve stress levels, whereas men would rather hold it all inside and, therefore, may not recover as quickly as women.

The results of the t-test yielded significance at 7,7(at  $\alpha= 0.001$ ) , meaning that for the whole group of participants the difference between the pre-test average score and post-test average score was statistically significant. Stress was significantly affected by the wellness intervention.

#### 4.6. Body weight

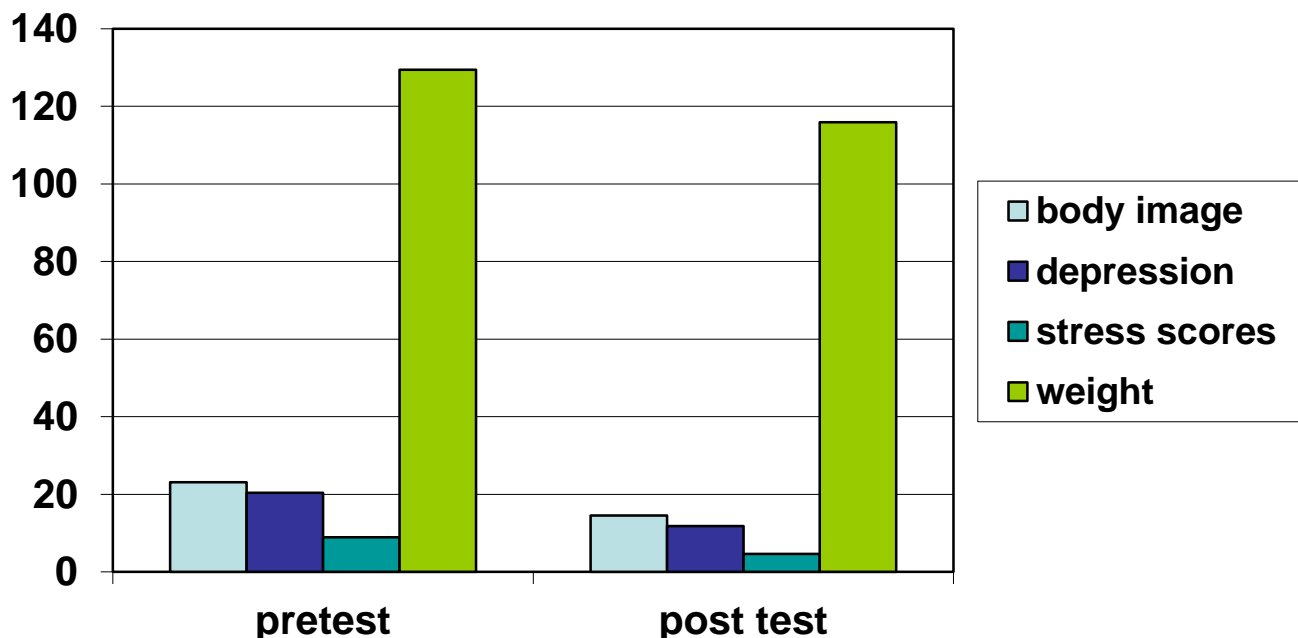
**Table 4.6: Pretest and posttest scores for body weight scores**

Weight	Client	O1	O2	D	D2
	1	99.92	92.7	7.22	52.13
	2	87	81.3	5.7	32.49
	3	89	81.9	7.1	50.41
	4	142	130.2	11.8	139.24
	5	116	103.1	7.9	62.41
	6	165	140	25	625
	7	179	161.2	17.8	316.84
	8	137	124.7	12.3	151.29
	9	102	94.9	7.1	50.41
	10	145.6	127.2	18.4	338.56
	11	163	144.8	18.2	331.24
	12	123	106	17	289
	13	133	119	14	196
<b>TOTAL</b>		<b>1681.52</b>	<b>1507</b>	<b>169.52</b>	<b>2635.02</b>
<b>MEAN SCORE</b>		<b>129.34</b>	<b>115.9</b>	<b>13.04</b>	<b>202.69</b>
<i>df</i>	<i>p</i>	<i>t-crit.</i>		<i>t-obt.</i>	
12	.001	4.32		7.91	

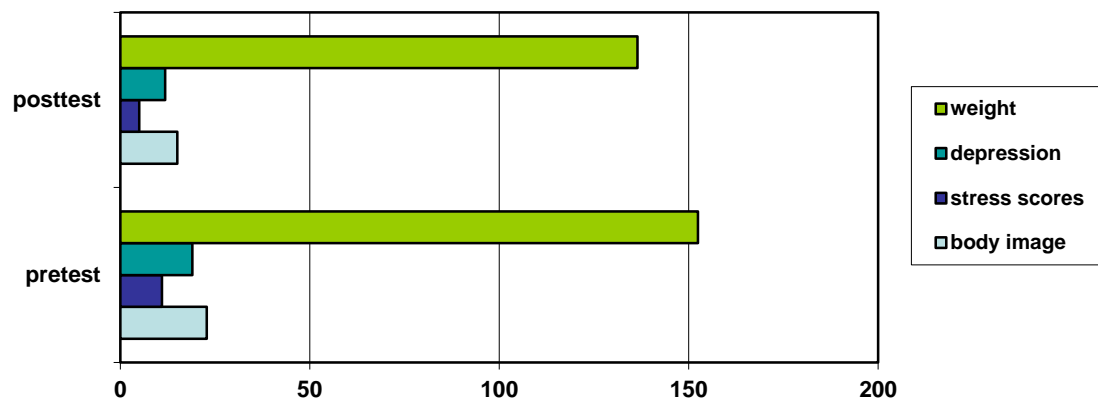
The weight scores were also very interesting. The amount of weight loss was significant. The participants combined managed to lose an average weight of 13.04% of weight in an eighteen months period. Males lost about 80.2 kg (89.5%) total combined which is higher than that of women which was 89.32 (67.9%) total combined. It must be noted that in the study sample there were 5 males and 8 females. These scores were, however, not surprising, men usually lose more weight than women. This may be because men's bodies naturally contain less fat and more muscle than women's due to the male hormone testosterone. This genetic predisposition means that men generally have faster metabolisms and, as a result, can eat more calories on a daily basis without fear of gaining weight (Kluger, 2009).

The results of the t-test yielded significance at 7.91.(at  $\alpha = 0.001$ ) I, meaning that for the whole group of participants the difference between the pre-test average score and post-test average score was statistically significant. The researcher is confident that the wellness intervention had a positive impact in weight loss.

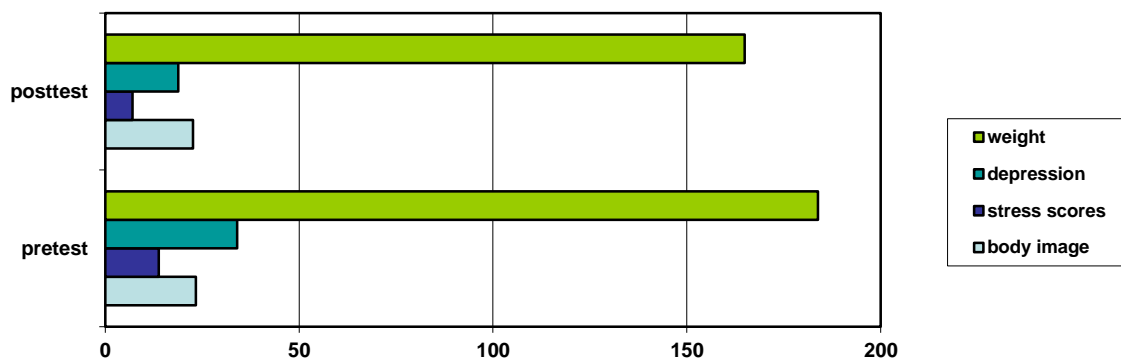
Graph 4.6: Statistical graph depicting the mean of **all scores**



Graph 4.6.1: Statistical graph depicting the mean of **male scores**



Graph 4.6.2: Statistical graph depicting the mean of **female scores**



#### 4.7 Interview Discussion

In the post intervention interview, participants were asked to describe what they learnt from the intervention or treatment, what action have been taken since the beginning of the intervention and generally anything that they wanted to report about their experience. Almost all participants reported considerable changes in the way they viewed themselves. The main theme revolved around feeling more optimistic about making healthy choices, experiencing greater self-acceptance



and engaging in healthy action. Some related that for most part of their lives they have been desperate for change which led to much anxiety and stress however they felt that desperation has been replaced by hope. Some felt that although they did not lose as much as they had hoped to, the fact that they lost something through hard work and healthy way, they feel they have accomplished what they never dreamt they would.

Others reported that the feeling of empowerment to make better choices themselves is liberating, and the confidence of knowing that with the tools learnt, better life is achievable. They felt more optimistic about the healthier future.

Most participants reported experiencing a greater sense of self-acceptance and self-love and internal happiness, they further felt that the love for one's self propels the individual to the right and healthy way of living.

It was interesting to see the participants drawing up a distinction between their selves and the weight problem. This brought much confidence that many reported not being uncomfortable when they are with people and stating their views.

Some reported that through the process they have learnt the art of self-forgiveness i.e. knowing that it is ok to stumble, as long as one picks himself or herself up and try and correct the mistakes that may have led her to stumble.

Most participants reported that they were more aware of what they ate and the physical activities that they did on each and every day. Most of them have joined a wellness centre and others have started doing more outdoor sports.

All of them reflected on the actual treatment plan, showing much appreciation on how it did not focus on their "fatness" but on their well-being and how it encompassed everything so that when one works on one issue it automatically

helps the other issue and all these issues are joined at some point (the weight) and that is the starting point. Understanding that one is chubby because of something else, whether its pain, emptiness, anger is important. Therefore tackling those issues the rest hopefully fall into place.

#### **4.8. Qualitative analysis and discussion of results**

Looking at the data and scores, at first glance it is clear that there was improvement in all the spheres. All the participants lost weight and the way they perceive their body image improved; depressive symptoms decreased and stress was lessened. There was a noticeable difference in the rate of physical and emotional changes between males and females.

Looking at this data qualitatively it became evident that most of the participants had gone through number emotional challenges. In qualitatively analysing the data of this study, the researcher opted to look at themes that emerged during the study.

In this study the researcher was interested in how the participants perceived their condition, carefully looking at their patterns of pronunciation, word choice, sentence structure understanding that this would be crucial to get the gist of the problem. It is important to remember that language is more than just sounds, words and sentences. When we speak or write something not only do we say something but we also do something.

From the study it was evident that obesity is becoming a dominant theme especially in South Africa. Obesity theme offers a mechanistic view of the body and focuses on the assumed relationship between inactivity, poor diet, obesity and health in the same breath. It presents obesity in moral and economic terms. Rail, Holmes and Murray (2007) raised concerns that obese and “at risk” bodies are constructed as lazy and expensive bodies that should be controlled and submitted to expect investigation.

In many obesity readings, obesity theme draws upon a neo-liberal notion of individualism that positions individuals themselves as primarily responsible for changing their lifestyle via a range of disciplinary measures and control techniques. As Rail et al., (2007) observed, overweight and obesity are represented as a failure to undertake certain technologies of the self while the thin body is given recognition as reflecting control virtue and goodness.

One may, however, wonder what obesity means today. Foucault (1978) observed that the obesity theme represents an awesome political power that works to incite, reinforce, control, monitor, optimize and organize forces under it. This power is fuelled by the deployment of a discursive formation centred on the notion of an epidemic. Indeed the epidemic of obesity has emerged as a product of a socially authoritative theme (obesity science) in light of which bodies may be mobilized, resources dispensed and tactics of surveillance and regulation may appear to be justified. As a discursive effect of obesity theme, obesity scientist and clinicians are presumed to know the truth of obesity and to have the moral and intellectual authority to label it a disease and to prescribe treatment.

This somehow rendered the scientists powerful and the obese powerless and at the mercy of the scientists. Today a lot of people who are struggling to deal with obesity heavily rely on drugs and potions bought from the pharmaceutical companies to deal with their problem. This was evident in this study. When participants were told that the intervention on this study would focus on overall wellness, most of them resigned stating that they had hoped that the magic pill had been found and they were not willing to go through the long process of weight loss that required lifestyle change. It may happen that because of underlying issues they have lost trust and belief in themselves only believing that something else is more powerful than they are (theme of disempowerment).

Rail et al (2007) view obesity as a construct that is forcibly materialized through

time. They argue that it is not a simple scientific fact or static condition of a body, but a process where regulatory norms materialize obesity and achieve this materialization through a forcible reiteration of those norms. They further argue that obesity as a linguistic construction is not stable, working as it does by always re-establishing boundaries and a zone of objection. This zone is often established through the BMI. Obesity also works through the endlessly repeated acts that mark individuals as obese or not obese. Therefore, one may conclude that obesity can be unveiled as not only an artificial norm but also a norm that is subject to change.

Most data from the study revealed that, with most clients, there is underlying pain that led them to overeating whether it is displayed grief, feelings of abandonment sexual abuse, neglect, stress etc. These have led to phantom hunger that is mistaken for physiological hunger. However, it cannot be concluded that pain leads to obesity because obviously there are thin people who have been through same level if not worse. One may, however, conclude that repetitive pain may be one of the factors might end up leading to overeating in some people.

In a theoretical article by Bromberg (1996) he considered some possibilities. He believed that the central issue for an eating disordered patient is that he or she is at the mercy of her own physiological and effective state because he or she lacks an experience of human relatedness and its potential for reparation that mediates self-regulation. She or he, therefore, is enslaved by his/her felt inability to contain desire as a regulatable affect (theme of powerlessness).

Theme of shame, whether because of family circumstances or because of the way people look was strongly evident in this study. This shame is a traumatic one as it emerges from pain.

In the medical model, obesity has been configured as a phenomenon with a clear cause (sloth and gluttony) clear consequence (diabetes, high blood pressure,

heart disorder etc.) and clear solution (diet and exercise). However, to understand this problem one may argue that there are numerous aspects of the causes and consequences of being obese which cannot be explained by the medical model.

The actual weight may not be the crisis that it is made out to be. However, we live in a society that is obsessed with thinness, one that detest and discriminate against the obese people and has managed to link the state of being obese with a life threatening illness. Most medical personnel will tell you to go and exercise and change your diet if you want to lose weight, assuming that these were only causes to begin with. Many people have failed either to exercise constantly or to change their diets. Therefore, the medical solutions have proven ineffective.

This, therefore, may lead one to assume the possibility that a combination of obsession, discrimination and practices that destroy the body's natural metabolism (yoyo dieting, "detox" diets and other unbalanced diets where people are encouraged to abandon energy giving foods and stick to protein giving food which we know when taken in abundance can lead to more release of ketones and prove detrimental to the kidneys.) is escalating the problem when it was not such a big problem to begin with.

In most cultures, being fat has always been admired. In Africa being fat has always been associated with beauty, riches, healthy and having access to nutritive resources. In the Zulu culture, for example, a man with a thin wife was shamed as not being able to provide, while the thin body indicated poverty and as such for the most part, has been considered undesirable. Today however, being big is despised by many people and what is heart-rending is that it is not just fat the substance that is hated, but the actual person who is obese, propelling the feelings of being unaccepted, hated, rejected and abandoned. All these negative texts create a negative script for the obese individual and expose him or her to lifelong pain of being obese and yet very hungry (phantom hunger).

The obsession with weight and losing it has proved to be more hazardous than being obese. Many people have starved themselves, taken potion, overdosed on pills endured extreme physical pain that has left some permanently disfigured all in the name of fighting obesity.

The question that arises is, are people directing all their energy to the cause of the problem or just the symptoms? Are people being encouraged by the media, society and culture to love and appreciate themselves as individuals or to detest themselves and strive for uniformity and lack of individualism?

The constant use of term obesity itself has such negative connotation that nobody wants to be associated with it. It is a reality that nobody wants to embrace and therefore leads to denial and shame.

The theme of condemnation is very evident when it comes to obesity. Even the few people who regard themselves as fat, fit and fabulous still feel ashamed if their doctors using western standards look at them with disgust telling them that they will never be healthy until they lose weight.

The theme of balance emerged strongly in this study. Most people, because of innate pain, feel unstable and imbalanced. Actually their whole lives are encompassed by instability to the extent they relate to the world in an unbalanced manner. They seem to perceive the world only in extremes. When a relationship ends, loss of loved ones, parents' divorce, for them it becomes an apocalyptic event that may lead to extreme anxiety and emotional disturbance. Because of this learnt imbalance, they struggle to even keep balance between calorie input and energy output (this has been deemed the secret of staying weight healthy).

Another dominant theme emerging from this study is that of lack of self-control

(eating too much), gluttony. In Biblical terms (Philippians 3 verse 19), this is referred to as one of the deadliest sins, and sin according to the bible is punished by death. Gluttony is linked to poor morality and discretion, therefore, being big (obese) may be perceived as the act of immorality that stains the soul. Sinners are condemned unless they repent and repentance in this text means losing weight.

Christianity theme came up strongly in this study. Christians are encouraged to strive for absolute denial of earthly desires. Being able to control all bodily longings is directly linked to holiness. This, therefore, means pleasures such as sex, alcohol and food should be controlled. Therefore, being obese may be viewed as indulging in these earthly pleasures consequently putting you in the lowest level of holiness. As Klein (1996) put it, being obese can be taken as the emblem of all mortal weight of sin arising from temptation to which the flesh has given in on.

Theme of punishment was also evident. Guilt proved to be a pre-requisite for any submission to carnal pangs and desires particularly those that are deemed excessive. Overindulgence of any kind necessitates punishment and rectification. If one overeats, one must exercise or one would gain weight. Exercise becomes a form of punishment.

Theme of fear being instilled in people was marked in this study. Looking at the BMI tables, a score of 18.5 - 24.9 is optimal; however, BMI over 25 is viewed as a serious health risk. Whether categorised as overweight, obese or morbidly obese, it is widely accepted that those with BMI over 25 should be afraid or should take action immediately if they do not want to develop a range of diseases and die early. From the interviews, the above themes came out strongly; however, after the treatment the participants seemed to have a different perspective on how they viewed themselves.

#### **4.8.1 General themes that emerged from the study as main contributors to obesity**

- Social pressures (e.g., from advertising) to have a currently fashionable body type.
- Body image issues (not liking one's body or feeling ashamed of it)
- Self-esteem issues in general, and the accompanying false beliefs (often unconscious and at variance with the person's conscious beliefs)
- An environment in which self-esteem and positive feedback can only be generated by doing for others to the point of neglecting one's own physical and emotional needs.
- Depression
- Feeling trapped or powerless
- Lack of assertiveness, whether across the board or just within the family unit
- Trying to please everybody (an impossible task)
- Being in the role of housewife and/or mother with no realistic limits to the job description (another impossible task)
- Stress, anxiety, hectic life, not being in control of one's life; lacking time to attend to health issues like exercising, preparing healthy food, and getting adequate space, rest and/or sleep.
- Insufficient pleasure, enjoyment, fulfilment and relaxation. Life may be hectic or boring or both.
- Lack of marital fulfilment
- Having experienced an emotionally or physically abusive marriage or relationship, sexual harassment at work, racism, intimidation, assault, or other abuse



- Childhood experiences that contribute to the incidence of overweight and obesity
- Learning to suppress feelings and needs (usually because the parents were unable to support the child's feelings, often because they already had a lot on their plate)
- Adult children of alcoholics' issues - Other family of origin stresses or trauma in childhood (abuse, overstressed parents, poverty, depressed or ill parent, bereavement, parents unhappily married, etc.).
- Sexual abuse and attempted sexual abuse and harassment
- Other childhood stresses (frequent moves, immigrating, bigotry, psychological or physical abuse outside the home).
- Being socialized that it is mean, selfish, bad, dislikeable or unfeminine to say no or otherwise assert oneself.
- Being socialized to distrust one's own judgement, decision-making ability, and/or intelligence.

The intervention process focused on the above themes and encouraging self-care and self-love, forgiveness and dealing with grief. The intervention seems to work as this is supported by the data scores and the qualitative analysis.

#### **4. 9 Résumé**

This chapter has dealt with the major findings of the study, in which analysis of data was explained. The discussion of each variable in comparison with the pre-test and post-test scores was done. The findings of the study showed a significant difference between pre-test and post-test results. Body image improved, depression symptoms decreased and the stress levels showed a significant decrease and even qualitatively, participants appeared more positive about their state of being and more positive about wellness.

## **CHAPTER 5**

### **CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Introduction**

The study investigated the influence of wellness in weight loss. The sample was selected and pretest-posttest enquiry was done. A holistic intervention which focused on diet, fitness, mental, emotional and community involvement was made.

The researcher used quantitative research methodology and the comparison of single group pretest-posttest design. In this chapter, the contribution of all chapters of the study are summarised and the significance of the study, limitation and recommendations discussed.

#### **5.2 Summary of results per objective**

When the study commenced, two objectives were discussed, one was to explore if wellness has influence on weight loss and the other was to look at application of therapeutic methods to assist with weight loss and maintenance.

The study indicated that most participants used food to dull the pain that comes with anxiety, depression, anger, grief, boredom and loneliness. Others ate to avoid confrontation, especially when they feel belittled, looked down upon or taken advantage of. Others ate to avoid feeling the pain of rejection and anger, especially when there was tension in their close relationships, while some ate to suppress self-doubt and these became hypercritical of themselves. Others use food to fill the gaps especially if the basic needs like trust and security are not satisfied. Whilst others use their bodies as battlegrounds for working out old resentments, others ate to avoid facing the challenges of growing up, therefore, used regression to deal with challenges. This is indicative that all the participants were at the stage not well and used food to substitute the feelings of being unwell

However, mostly for the participants in this study, the hunger originated from their minds and not their stomachs. This was an interesting discovery which confirmed Gould's thought (2007) when he stated that we eat when we are not really hungry because we have two stomachs, one real and the other phantom. According to Gould, the hunger in our bellies, signals us when our system has a biological need for food. If that was the only signal of hunger we receive, we could all be thin. However, for Gould (2007) it is the phantom stomach that causes the problems. According to him, the phantom stomach sends out a hunger signal when unruly emotions and unresolved personal agendas start pushing themselves into awareness. A short circuit occurs and one feels so hungry that he or she is compelled to eat.

During the study, the researcher witnessed the power of the phantom stomach. More than once during the interviews, the participants would relate that they suddenly felt extremely hungry especially during the difficult sessions that touched their deep seated fears and conflicts. This happened beside the fact that they had just had a meal before the sessions.

Bromberg (1996) had also looked at this phenomenon of phantom hunger, he explained that this type of hunger(phantom hunger) comes on quickly and knows what it wants and wants a lot of it. Biological hunger comes on gradually and one can satisfy it with relatively small amounts of food. Phantom hunger has such power that it drives one to go to almost any length to satisfy it.

Therefore, the one question that everybody who wants to lose weight should ask themselves is: ***why do I overeat when I am really not hungry?***

It is important that one recognize the difference between emotional hunger and physical hunger and learn how to deal with each of the emotions and situations that trigger ones phantom hunger so that one eats only when one needs to and

not when distress triggers his or her cravings.

It is essential to note that this study was very small; therefore no definite conclusions can be drawn at this point as to the efficacy. Efficacy is considered well established once such results as these are replicated.

However, the important message to take is that wellness has influence on how the person feels in terms of self-image, self-confidence and general outlook to life as the study demonstrated. When feeling this well, the person is more likely to take good care of oneself.

Most data from the study revealed that with most clients there is an underlying pain that may have led them to overeating, whether its displayed grief, feelings of abandonment, sexual abuse, neglect, etc., have led to phantom hunger that is mistaken for biological hunger. However, one may not fully conclude that pain leads to obesity because there are thin people who have been through same level of pain if not worse. Nonetheless, one may surmise that repetitive pain that may cause insatiated pangs of phantom hunger and emptiness that may end up leading to this overeating.

In his theoretical article, Bromberg (1996) considered some possibilities with regards to this phenomenon. He believed that the central issue for an eating disordered patient is that he or she is at the mercy of his/her own physiologic and affective state as he lacks an experience of human relatedness and its potential for reparation that mediates self-regulation. He or she is enslaved by his or her felt inability to contain desire as a regulatable affect (theme of powerlessness).

### **5.3 Significance of the study**

Participating in this study was important to the participants because they all expressed interest in reading the findings of the research once it was completed. It may be important and helpful for people who are struggling with weight loss to

read other people's experiences with the phenomena and see that they are not alone in their experiences and feelings.

These findings could also be enlightening to the health care workers to understand the obesity phenomena and deal with it in a sensitive manner, understanding that there is an emotional side to it, instead of dismissing all overweight people as gluttons who needs to take control of their lives.

This study will also help mental health clinicians to understand the experiences of overweight people, their turmoil and their desperate need to be heard.

The researcher being a clinician, this study has greatly affected the way the researcher thinks about overweight people and how she would work with a client who is experiencing this phenomenon. The researcher had not anticipated the depth and honesty that was evident from the participants. It was from these participants' stories that the researcher realized not only what a complex issue obesity and weight loss is but also the secrecy and pain that surround the issue itself.

#### **5.4 Limitations of the study**

At first glance it appears that the study was a success, one group was studied pre-intervention and post-intervention and results were compared. The results were positive and suggested that wellness does have an influence in weight loss. However, there was a possibility that this study would not show clearly that the results were due to the intervention.

As highlighted in the study design chapter, the pre-test post-test design has significant limitation. To improve on this design, a control group could have been utilized. Due to lack of control group in this study, one cannot conclude that the intervention directly affect the decrease in weight. It is possible that weight-loss may have been due to the other factors that were not explored. In the follow up

study, a control group will have to be utilized. The results at first glance are very exciting, but there was no evidence that the change in weight was related to the intervention. The small sample size makes it very difficult to generalize the results to a larger population.

Results of the study show that there was a significant decrease in weight and increase in self-concept when pre-test and post-test scores were compared.

The researcher used the following controls to limit the phenomena of test effect:

- (a) Subjects received no feedback about pre-test scores prior to receiving the treatment and taking post-test.
- (b) Thirteen months passed between the pre- test and post-test.
- (c) Used themes from the interview and feedback from the participants to confirm the findings.

The study's small sample makes generalization at this stage sketchy at best. Furthermore, the study focuses on the urban and semi urban sample and the results at this stage are thereby biased. To develop general conclusion applicable to wider population, future investigations would need to include participants from more geographical areas.

It was not difficult to find participants who viewed themselves as obese and who wanted to lose weight, however, the study lost most participants when they were informed of how the study will proceed. Twenty eight people had showed interest but after the study was explained to them, the others dropped out and the study was left with thirteen participants. For some the process proved very long, others felt they do not need to talk about their feelings or alter their behaviour, but want a magic pill or potion that would solve their problems immediately. The control group was not utilized in this study and this would have enhanced the internal validity and, therefore, confidence with which results could be ascribed to the intervention.

Despite the mechanisms employed to ensure rigor and reduce bias, several limitations may be inherent in this study. A number of participants dropped out of the study reporting that it was taking too long and results not immediately evident. Had the researcher used a large group with enough numbers, it would have catered for the unforeseeable dropouts which may have affected the outcome.

### **5.5 Recommendations**

This was the first known study that focused specifically on the influence of wellness in weight loss. From this study, it became evident that wellness does have a significant influence in weight loss.

Based on the findings and experience of the study, the recommendations are:

- South Africans need to embark on a wellness drive that will see lifestyle modifications in terms of food choices, physical activities and mental and emotional care. To support this initiative, facilities that support this venture should be made accessible.
- It is appreciated that there are facilities that already exist that do offer support in terms of wellness. South Africa already boast a number of spa facilities and fitness centres, however, these centres charge exorbitant amounts of money, thus rendering them inaccessible to many individuals who cannot afford to pay the prescribed fees. It is recommended that the South African government develops a funded program that will either utilise the existing facilities or build new ones that will be accessible to everyone preferably free of charge.
- There is a significant value that is placed on physical appearance in our societies today, moreover there is a common belief that obesity results

from laziness or lack of willpower. Overweight individuals often feel embarrassed and ashamed. It is therefore recommended that all health care workers are made aware of these study findings so that they can have a general understanding and awareness of what overweight people go through and the type of support they need.

- There are many causes of Obesity; therefore a holistic approach should be applied in dealing with it. Governmental departments, specifically the Department of Health and the Department of Sports and Recreation should have specific programs that promote physical activities, where awareness of association between physical activities and optimal weight is raised.
- South African Government should also actively engage in dealing with this scourge at policy level, where policies that are aimed at creating an environment conducive and supportive of change such as promotion of physical activities and dietary education at school and tertiary levels are discussed.
- It is strongly recommended that all the above recommendations remain culturally sensitive.

## **5. 6. General experience with the study**

The researcher started the study with the purpose of proving that lifestyle alone does not cause obesity. First three weeks of the study were exciting; almost all but two clients lost weight and were all keen to come to sessions (they lost between 0.5 and 1kg per week). However, in the subsequent weeks things changed, the rate of loss and excitement altered. Most clients stopped losing in a rapid rate and some presented with slight anxiety. This was a worrying factor, then it became clear to the researcher that therapy was at a stage where clients were dealing with deep seated pain and this triggered some of the participants



long standing coping strategies (food or binge eating).

With continued support most participants reported that they had managed to change their diets and engaged in some form of physical activity. Although they did not lose many kilograms, the kilograms lost were maintained throughout the course of the study. Some participants lost most when they were meeting more frequently, but when the frequency decreased, they reported feeling scared and tempted to resort to comfort eating. They reported feeling alone and missed the support that usually came with the meetings.

At the end of the study the researcher observed that not much weight was lost, at least not as much as she had hoped, however, statistically the weight loss was significant. Nevertheless, it was exciting to see the change in almost all the participant attitudes towards life. Most of them displayed an improved self-concept and positive outlook to life in general, they had learned so much about self-care that most of them showed interest in healthy living. However, some reported that their families are not yet convinced that they are really altering their behaviour. To them, it was just another diet fad that they will lose interest in soon. This proved to be putting unnecessary pressure on the participants as they felt constantly under surveillance.

Looking at this study the researcher realized that she had also used the western standards to measure this phenomenon and in doing so emphasized that obesity is a problem. However, this study enlightened the researcher that being healthy is more important than weight. Once a person focuses on health and wellness he or she takes better care of him or herself and weight loss becomes one of the benefits.

The great number of participants appeared not to have a problem with their bodies, but because of the society's attitude towards being big, they felt compelled to lose weight and this led them to doubt themselves and have a

negative self-image. The notion of self-acceptance and self-love tarnished leading to them being miserable in their selves.

The study, therefore, confirmed that there is definitely a strong influence of wellness in weight-loss.

## **5. 7. Conclusion**

The objective of the study was to explore the influence of wellness in weight loss, how obese people feel about their situation, how it affects their psychological, spiritual, physical and social lives. Each of the participants shared in great depth their unique experiences and perspective on this stressful state of being. Although there were many common points among their individual stories each of them had a unique perspective. The study results revealed hope about the resiliency of the participants and all of them showed enthusiasm to fight on, not just to lose weight but to stay well in all spheres of their lives.

The study provides initial evidence for the effectiveness of therapeutic intervention for weight-loss. The objective of the study was met and significant decrease in weight was realised.

Given the small sample size, the fact that some results were statistically significant is impressive. It was anticipated based on the sample size calculation that a larger sample size was needed to achieve statistical significance yet the author detected statistical significance with this small sample size. However, in the absence of the control group it is not possible to attribute the significant decrease in weight to the intervention

This was the first study that the researcher knew about that examined the influence of wellness in weight loss, and from this investigation it is apparent that wellness has the potential to impact obesity amongst adults in a meaningful way.

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## **Appendix A**

### **“Participant needed for the influence of wellness in weight loss study”**

Obesity is one of South Africa’s fastest growing and most troubling health problems.

The researcher decided to do this study to explore the impact negative thoughts, lifestyle and other factors have on weight gain and if counselling, diet, and exercise can assist in weight loss.

Individuals between the ages of 18-65 are sought to participate in this study, which would take a balanced approach that combines learning new eating and activity behaviours with an understanding of the attitudes and emotional issues that contribute to obesity in the first place.

Dealing with obesity requires adopting new habits that foster a healthier lifestyle

The study focuses on how thoughts and emotions are related to behaviour, especially those behaviours associated with making healthy lifestyle choices.

Individual session will be held once a week then as the study progresses the sessions will be once in two weeks.

## **APPENDIX B**

### **INFORMED CONSENT**

Dear Participant

My name is Nokuthula Eunice Dlamini. I am a candidate for Doctoral Degree in Community Psychology at the University of Zululand, Department of Psychology.

I am conducting a study that involves research with people who are overweight. This study is focused on the influence of wellness in weight-loss. Wellness viewed in a holistic way as involving emotional, hereditary, physical, social, environmental, spiritual and psychological aspect.

The findings of the study will be disseminated publicly to the University of Zululand community and may be used in published materials.

You will be interviewed individually for an hour and no more than one hour and a half. We will meet in a private place.

Participants must be between the ages of 18 and 65, appear overweight and acknowledge that they are overweight and can articulate and communicate their thoughts, feelings and perceptions regarding the topic being studied.

Although there is little risk for participating in this study, you may feel some emotional discomfort or stress in thinking about and answering questions. Your participation may help deepen the clinical understanding and by extension social understanding of this phenomenon.

There is no monetary compensation for participating in this study; however,

transport costs will be covered by the researcher.

Every precaution will be made to protect the confidentiality of participants. Only research advisors and I will have access to data. Within the research names and other identifying information will be stored away from data.

The study is voluntary. You may withdraw at any time during the data collection period and refuse to answer any question without penalty. All data collected from you will be destroyed upon withdrawing.

**YOUR SIGNATURE INDICATES THAT YOU HAVE READ AND UNDERSTAND THE ABOVE INFORMATION AND THAT YOU HAVE HAD THE OPPORTUNITY TO ASK QUESTIONS ABOUT THE STUDY, YOUR PARTICIPATION AND YOUR RIGHTS AND THAT YOU AGREE TO PARTICIPATE IN THE STUDY.**

---

Signature of the participant

---

Date

---

Signature of the researcher

---

Date



## Appendix C

The questionnaire below will give you a general assessment of your body image. More important than your absolute score, is the relative shift in score as you work toward an overall more positive relationship between self and body.

### The Body Image Assessment

Instructions: For each of the following statements, rate the degree to which it applies to you. Select only one number for each statement using the following ranking:

0 = Never

1 = Sometimes

2 = Often

3 = Always

After rating yourself on all statements, total your points to get your "Body Image" score.

1. I don't like looking at myself in mirrors.
2. Shopping for clothes makes me weight-focused and is, therefore, unpleasant.
3. I don't like to be looked at in public.
4. I avoid participating in sports or outside exercise because of my appearance.
5. I feel ashamed of my body in the presence of a special person.
6. I don't like my body.
7. I feel that other people must think my body is ugly.
8. I feel that friends and family are embarrassed to be seen with me.
9. I compare my body to others to see if they are heavier than I am.
10. Enjoying activities is difficult because I am self-conscious about my

appearance.

11. I am preoccupied with feeling guilty about my weight.

12 I have negative and self-critical thoughts about my body and appearance.

In general, your final score may suggest the following:

0 - 7            Great attitude / Keep it up!

8 - 14          Slightly dissatisfied

15 - 21        Moderately dissatisfied

22 - 28        Very dissatisfied

29 - 36        extremely dissatisfied

## Appendix D

### Beck's Depression Scale

Male/Female                      Rural/Urban                      Age-----                      yrs

- [1]    0      I do not feel sad.
- 1      I feel sad.
- 2      I am sad all the time and I can't snap out of it.
- 3      I am so sad and unhappy that I can't stand it.
- 
- [2]    0      I am not particularly discouraged about the future.
- 1      I feel discouraged about the future.
- 2      I feel I have nothing to look forward to.
- 3      I feel that the future is hopeless and that things cannot improve.
- 
- [3]    0      I do not feel like a failure.
- 1      I feel like I have failed more than the average person
- 2      as I look back at my life, all I see is a lot of failures.
- 3      I feel I am a complete failure as a person.
- 
- [4]    0      I don't feel particularly guilty.
- 1      I feel guilty a good part of the time.
- 2      I feel guilty most of the time.
- 3      I feel guilty all of the time.

- [5] 0 I don't feel I am being punished.  
1 I feel I may be punished.  
2 I expect to be punished.  
3 I feel I am being punished.
- [6] 0 I get as much satisfaction out of things as I used to.  
1 I don't enjoy things the way I used to  
2 I don't get real satisfaction out of anything anymore.  
3 I am dissatisfied or bored with everything.
- [7] 0 I don't feel disappointed in myself.  
1 I am disappointed in myself.  
2 I am disgusted with myself.  
3 I hate myself.
- [8] 0 I don't feel I am any worse than anybody else.  
1 I am critical of myself for my weaknesses or mistakes.  
2 I blame myself all the time for my faults.  
3 I blame myself for everything bad that happens.
- [9] 0 I don't have any thoughts of killing myself.  
1 I have thoughts of killing myself, but I would not carry them out.

- 2 I would like to kill myself.
- 3 I would kill myself if I had a chance.
- [10] 0 I don't cry anymore than usual.
- 1 I cry more now than I used to.
- 2 I cry all the time now.
- 3 I used to be able to cry, but now I can't cry even though I want to.
- [11] 0 I am no more irritated now than I ever was.
- 1 I get annoyed or irritated more easily than I used to
- 2 I feel irritated all the time now.
- 3 I don't get irritated at all by the things that used to irritate me.
- [12] 0 I have not lost interest in other people.
- 1 I am less interested in other people than I used to.
- 2 I have lost most of my interest in other people.
- 3 I have lost all my interest in other people.
- [13] 0 I make decisions about as well as I ever could.
- 1 I put off making decisions more than I used to.
- 2 I have greater difficulty in making decisions than before.
- 3 I can't make decisions at all anymore.

- [14] 0 I don't feel I look any worse than I used to.  
1 I am worried that I look old and unattractive.  
2 I feel that there are permanent changes in my appearance that  
make me look unattractive.  
3 I believe that I look ugly.
- [15] 0 I can work about as well as before.  
1 It takes an extra effort to get started at doing something.  
2 I have to push myself very hard to do anything.  
3 I can't do any work at all.
- [16] 0 I can sleep as well as usual  
1 I don't sleep as well as I used to  
2 I wake up 1-2 hours earlier than usual and find it hard to get back to  
sleep.  
3 I wake up several hours earlier than I used to and cannot get back  
to sleep.
- [17] 0 I don't get more tired than usual.  
1 I get tired more easily than I used to.  
2 I get tired from doing almost anything.  
3 I am too tired to do anything.
- [18] 0 My appetite is no worse than usual.

- 1      My appetite is not as good as it used to be.
- 2      My appetite is much worse now.
- 3      I have no appetite at all anymore
- [19] 0      I haven't lost/gained much weight, if any, lately.
- 1      I have lost/gain more than 2kg.
- 2      I have lost/gained more than 4.5 kg.
- 3      I have lost/gained more than 10kg.
- I am purposely trying to lose weight by eating less      yes-----      no----**
- 
- [20] 0      I am no more worried about my health than usual.
- 1      I am worried about my physical problems such as aches and pains, or upset stomach, or constipation.
- 2      I am very worried about my physical problems, and it's hard to think of much else.
- 3      I am so worried about my physical problems that I cannot think about anything else.
- [21] 0      I have not notices any recent change in my interest in sex.
- 1      I am less interested in sex than I used to be.
- 2      I am much less interested in sex now.
- 3      I have lost interest in sex completely.

<b>SCORES</b>	<b>0 -9</b>	<b>NOT DEPRESSED</b>
	<b>10 – 18</b>	<b>MILD – MODERATE DEPRESSION</b>
	<b>19 - 29</b>	<b>MODERATE – SEVERE DEPRESSION</b>
	<b>30 - 63</b>	<b>SEVERE DEPRESSION</b>

## Appendix E

### STRESS QUESTIONNAIRE

Answer yes or no

1. Do you often want to burst into tears?
2. Do you have any nervous habits?
3. Do you find it hard to concentrate?
4. Do you feel you cannot talk to anyone?
5. Do you often feel irritable?
6. Do you eat when you are not hungry
7. Do you feel you cannot cope?
8. Do you sometimes feel you cannot cope?
9. Do you sometimes feel you will explode?
10. Do you often drink to calm your nerves?
11. So you sleep badly?
12. So you rarely laugh?
13. Do you drive very fast?
14. Do you feel constantly tired?
15. Have you lost interest in sex?
16. Do you often feel miserable?

### Results

**If you have answered yes to more than five of these questions, you need stress management. Identify the problems that you think maybe leading to stress and do something about it.**



## Appendix F

### Interview questions guide

1. Motivation and readiness to lose weight.
2. What is happening in your life at the moment?
3. What is your weight history?
  - Weight at 21yrs
  - Cycles of losing and gaining weight
4. What weight loss strategies have you tried in the past?
5. What has worked?
6. What has not worked?
7. Do you understand the benefits of losing weight?
8. Do you understand the dangers of remaining overweight?
9. How will this attempt at weight loss differ from what you have tried in the past?
10. Do you have the support of your friends and family for your weight loss efforts?
11. What are your beliefs and attitudes about physical activities?
12. Are you able and willing to be physically active?
13. What is the most that you have weighed?
14. Have you ever considered/attempted committing suicide?
15. If yes, how old were you?
16. Did you have enough to eat when growing up?
17. Did you feel safe at home?
18. Were you called names at home?
19. Was there anyone in your family who made you feel special?
20. Did you feel loved at home?
21. Did you look out for each other in your family?
22. Did people in your family say hurtful or insulting things to you?

23. Was your family a source of strength and support?
24. During your first 21 years of your life, did an adult or older relative, family friend or stranger fondle or touch your body in a sexual way?
25. If yes, did any of these sexual experiences involve:
- Trickery, verbal persuasion or pressure to get you to participate.
  - Given drugs or alcohol.
  - Threats to harm you if you don't participate.
  - Being physically forced or overpowered to make you participate
26. Have you ever told anyone about this experience?
27. Do you get hungry when you feel angry, depressed, anxious, bored or lonely?
28. Do you react by getting hungry when others talk down on you, take advantage of you, belittle you or take you for granted?
29. Do you crave food when you have tension in your close relationship?
30. Do you eat when you feel that your intimate relationship doesn't satisfy some basic need like trust or security?
31. Do you eat to make up for the deprivation you experienced as a child?
32. Do you sometimes eat to assert your independence, because you don't want anyone telling you what to do?
33. Do you find that you overeat when you are faced with new challenges or to insulate yourself from fear of failure?
34. Do you overeat in order to avoid your sexuality either to stay overweight so that nobody desires you or to hide from intimate encounters?
35. Do you sometimes overeat to pay back those who have hurt you often in the distant past?