A COMPARATIVE STUDY OF THE RELATIONSHIP
BETWEEN PARENTING STYLES AND BMI SCORES OF
CHILDREN IN LOW AND HIGH SOCIO ECONOMIC
AREAS

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Abstract:

Globally, childhood obesity is becoming an epidemic, which is resulting in a generation of children who will live a shorter life expectancy than their parents. Researchers claim that overweight and obesity in school-going children is on the rise with very few publications that have examined its significance and prevalence in South Africa. Recent research indicates that parenting styles are a contributing factor towards children’s weight status and obesogenic behaviours (such as eating patterns). Recent studies have identified a gap in this area where more informed research needs to be conducted on this topic. The aim of this study was to investigate the relationship between parenting styles and BMI scores of school children in low and high socio-economic areas. A quantitative cross-sectional study, with correlational, comparative research design was conducted. This study used a multi-stage sampling procedure which included convenient sampling and cluster sampling to identify the areas as well as the schools relevant to the study. The sample size consisted of all the grade 2 learners in the 4 randomly selected schools (200 male and 166 female learners) with a primary caregiver (366). The final sample consisted of 366 learners and 366 primary caregivers from the 4 different schools which provided a final sample of 732 participants. The parents completed the Parenting Style and Dimensions Questionnaire (PSDQ) and the BMI of the children was manually taken. Findings of the study show that authoritative parenting styles are higher in high socio-economic areas but this style of parenting has a higher prevalence in both socio-economic areas when compared to the other parenting style typologies. Furthermore, the BMI scores in low socio-economic areas were documented as being more in line with the WHO growth curves assigned to that age group as compared to the high socio-economic areas that did not meet those growth curve markers. There was no clear correlation identified between the parenting style and increased BMI scores.
DECLARATION

I declare that A comparative study of the relationship between parenting styles and BMI scores of children in low and high socio economic areas is my own work, that it has not been previously submitted for any degree or examinations, and that all sources have been acknowledged.

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Signed:

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Definition of key words

Parenting styles

Parenting styles can be defined as the child rearing behaviour of parents or the care givers of the children which involves control of the amount of child’s actions and behaviour to the degree of nurture. (Education.com, 2006)

Authoritarian parenting

Authoritarian parenting styles can be seen as a parenting style where the parent is in total control and children are expected to “obey” the parent. Failure to do so will result in severe punishment. (Kopko, 2007)

Authoritative parenting style:

Authoritative parenting is a parenting style where parents encourage their children to be independent yet they maintain the limitations and control of the child’s action. (Kopko, 2007)

Permissive parenting style:

Permissive parenting is a parenting style that involves passive parenting with no demands on the child. Permissive Parents believe that they need to give into their child’s every wish in order to demonstrate their love. (Kopko, 2007)

Uninvolved parenting styles

Uninvolved parenting is a type of parenting style where the parent has no involvement in the rearing of the child. The responsibility of this parenting style is seen as much less than the other three parenting styles. The parents only provide the basic needs of the child. (Kopko, 2007)

BMI Scores

BMI Scores is defined as a calculation of a weight status based on height and weight, because these measures can be obtained with reasonable precision in a variety of settings including field studies, clinical practice, and research. (Brown, 2009).
Weight

Weight is a reliable indicator of body fat in children. Although it does not measure weight directly it correlates directly to the amount of body fat that is present. (Centre for Disease control and Prevention, 2012)

Socio economic areas:

Socio economic areas is a term given to areas to describe the concerns associated with the interaction of social and economic factors (Tulloch, 1993)

Self Determination Theory

Self Determination Theory is defined as a framework for the study of human motivation and personality with a focus on how social and cultural factors influence a person’s psychological wellbeing (Deci and Ryan, 2000).
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CHAPTER 1

INTRODUCTION

1.1 Background and Rationale for the Research

Overweight children are becoming one of the most serious public health challenges that the world faces in the 21st century (World Health Organization [WHO], 2013). In a 2010 global WHO survey, the estimated amount of overweight children was recorded at 42 million. With almost 30% of the youth in South Africa being overweight (Goedeke et al., 2005), there is definite cause for concern. According to The World Health Organization South Africa, 2009 annual report, 32.7% of children between the ages of one and nine are obese in the Western Cape alone. This therefore poses a possible problem for children in South Africa as an increase in weight results in an increase in the BMI scores of the child.

A BMI score is the term used to calculate if a child or person is overweight by using the height and weight measurements. Overweight can be defined as a BMI score that exceeds the 95th percentile (Kyung et al., 2006). There are many serious health implications that come with being overweight, namely hypertension, diabetes, cardiovascular disease, cancer and many more. These health implications can lead to poor life choices later in the children’s lives. In a study done by Amusa and Goon (2011) on primary school children in Tshannda, Vhembe district in Limpopo, it was discovered that for those children who had an increased BMI score were also noted to have an increased blood pressure reading. The conclusion of this study was that more routine blood pressure checks should be conducted in primary schools as part of the physical examinations to assess an increase in BMI scores leading to overweight children. The circumstances and environment that the child grows up in are being investigated for the root cause of overweight children (Patrick et al., 2013). Childhood is seen as an important life stage
for primary prevention of disease as it is during this life stage that any behavioural tendencies which are adopted will be carried into adulthood (Patriek et al., 2013). Parents are a part of the environment that children grow up in and can therefore be seen as a contributing factor to the weight gain in children (Patrick et al., 2013).

Patrick et al. (2013) states that parents are the primary socializing agents for children and therefore growing evidence supports the role of parents in children’s increasing weight. A parenting style is seen as a characteristic which is a constant factor in shaping the daily activities, eating patterns and social skills of the child (Kyung et al., 2006). Therefore parenting styles can be seen as having a direct effect on the eating habits or patterns of a child. With regard to the increase in the body weight, the area of parenting styles would be an ideal place to begin.

According to Roman (2008), socio economic statuses are important because they can enhance material and social resources available to children which will then improve the parental emotional wellbeing leading to improved parenting styles. Parenting styles differ in South Africa due to the different challenges that South African parents face daily as a result of the different socio economic statuses that existed due to the apartheid regime (Roman, 2008). Some of these challenges include unemployment, financial stress, increasing petrol prices, increasing food prices, stress of maintaining a specific lifestyle with the rising economical costs of living and so on. Due to these stressors, low socio economic areas and high socio economic areas are becoming more defined (Roman, 2008). This leads to unfavourable child outcomes such as depression, poor social achievement and psychological development (Kyung et al., 2006). As a result, poor eating habits are attained by the children, increases the BMI scores leading to overweight children.
Due to Apartheid, South Africa has a history of economic inequality. This is due to the unfortunate circumstances where South African citizens were forced to live in areas according to their race. Nineteen years later, these demarcated racial areas still exist (Roman, 2008). Socio economic statuses in South Africa can be seen as the “a continuous index based on one or more variables applied at either an individual or higher level” (Higgs, 2008:7). Therefore this can be understood that a high socio economic area would be seen as an area that contains a larger scale of variables resulting in a better quality of life such as quality food, quality education and a high quality of life. When compared to the low socio economic area, it is noticed that less of these variables are present. Children within South Africa are directly affected by the socio economic statues of different areas as this affects their diet, schooling, education and ultimately their future (Goedeke et al., 2005). This means that the weight of a child is directly affected by their environment that they live in. The purpose of this study will be to compare the relationship between parenting styles and BMI scores of children in low socio economic areas and high socio economic areas.

1.2 Conceptual framework

This study uses Self-determination theory (SDT) as a framework to understand the variables. It is based on three fundamental psychological needs of humans. These needs are autonomy, the need to feel self-defined; competence, the need to feel competent; and relatedness, the need to feel connected to others (Strasser, 2007). If all three needs are addressed in any situation, then intrinsic motivation can occur. Likewise if these needs are unsupported or dissatisfied they can have a detrimental effect on the wellbeing of that person (Deci & Ryan, 2000). More importantly, SDT focuses on how social and cultural factors affect a person’s sense of decision making as well as their initiatives which then contributes to their wellbeing and quality of performance (Deci & Ryan, 1985; 2000)
Within the self-determination theory, the focus is on the environment, which either enhances or hinders the four basic needs of an individual or children in this study (Deci & Ryan, 2000). For this current study, the focus is on socio economic statuses and parenting styles which form the environment that relate to BMI scores. As the environment has a direct effect on an individual’s psychological needs (Patrick et al., 2013), the role of socio economic status as well as parenting styles come into question when evaluating overweight children.

In a study conducted by Patrick et al (2013) within the context of SDT, it was emphasized that recent research conducted on children’s weight status and obesogenic behaviours (eating patterns etc.) show that parents along with parenting styles contribute to child obesity behaviours and weight. This means that how a parent parents, has a direct effect on the BMI scores of the child which lead to increased weight. According to the study, parents act as socializing agents during critical developmental stages of a child’s life and therefore parents are seen as the prime agents to facilitate healthier lifestyles in the youth (Patrick et al., 2013). The method of parenting chosen by the parent is greatly affected by social and environmental factors (Patrick et al., 2013), which mean that the socio economic status will surely play a significant role in the BMI score of children. Vollrath et al (2012), has investigated parenting styles as the main risk factor for overweight children.

This study requires the use of the Self Determination theory to understand the different psychological aspects of parents which results in different parenting styles that possibly contribute to BMI scores in children. Within South Africa, there are many challenges that affect the psychological functioning of the parent which may directly affect the psychological functioning of the child. This study aims to compare the relationship between parenting styles and BMI scores of children in low socio economic areas and high socio economic areas.
1.3 Problem statement

Overweight children are becoming the most serious health challenge that the world faces (WHO, 2013). With an increase in this health problem comes a lack of research for possible solutions. Puckree et al (2011), states that overweight and obesity among school children has reached epidemic proportions but there is few published reports on the prevalence and significance in South Africa. Patriek et al (2013) has emphasized the concern of global childhood obesity and the further investigation into parenting styles as the root cause. The study also emphasized the need for more informed literature on parenting styles and its role in childhood obesity. There has been much research done on parenting styles (Authoritarian, Authoritative, Permissive and Uninvolved parenting styles) and weight in children (Kyung, et al., 2006; Puckree et al., 2011; Amusa & Goon, 2011) but none were done by comparing the use of high and low socio economic statuses within primary school children. Socio economic status was important for this study for two reasons. Firstly, there was limited research on the comparison of high and low socio economic areas in South Africa (Puckree et al., 2011) and secondly, the socio economic status defines the environment that the child grows up in as it has an effect on the parenting styles of the parent. In the research that was done, there were limited if no studies that applied to the challenges children in South Africa face. Previous research suggests that there was a need for these types of studies as increased BMI scores in children is on the increase (Patrick et al.,2013) With an increase in BMI scores comes an increase in weight which results in many illnesses such as high blood pressure and diabetes (Amusa and Goon, 2011). This study fills existing knowledge gaps of increasing BMI scores in children by looking at parenting styles as the starting point. This quantitative study compares the relationship between parenting styles and BMI scores of children living in low and high socio economic areas.
1.4 Research question

- What was the prevalence of BMI scores in low and high socio economic areas?
- What was the prevalence of parenting styles in low and high socio economic areas?
- What was the relationship between BMI scores and parenting styles in low and high socio economic areas?

1.5 Aim and objectives of the study

1.5.1 Aim

The aim of this research study was to compare the relationship between parenting styles and BMI scores of children within low and high socio economic areas.

1.5.2 Objectives

The objectives of this research were to:

- Determine the parenting styles of parents within high and low socio economic environments;
- Assess BMI scores of children within high and low socio economic environments;
- Determine if there is a relationship between parenting styles and the BMI scores of children;
- Compare the relationship between parenting styles and the BMI scores of children within high and low socio economic areas.
1.6 Hypotheses

This study hypothesized that:

- There will be significant relationship between the parenting styles and BMI scores in children.
- There will be a higher BMI score reading in high socio economic areas than the low socio economic areas

1.7 Significance of the study

This study was expected to provide more information to the different socio economic areas with regards to which parenting style is more prevalent in their community and whether this type of parenting style directly affects weight in the children of that society. This study was of a benefit to parents as it provided guidelines to effective parenting and improve their parenting styles, guardians who look after children so that they can be educated on the origin of the child’s behavioural patterns, teachers as they are more aware and informed of the background of the child and thus can intervene accordingly, fellow researchers as research in the different socio economic areas are relevant to South Africa, the different communities as they are then aware of the areas that can be improved and South Africa as a whole as it will provide a better youth for the country.

1.8 Ethics of the research

For this study, permission was requested from the Senate Higher Degrees committee and the Western Cape Education Department to conduct the study. All parents of the participants were provided with an informed consent form which explained the aim and the purpose of the study. Informed consent was obtained from all the parents of the participants as well as assent from
the participants. The details of the researcher as well as the supervisor was provided on the consent and assent forms should the participants have needed clarity on any aspect of the study. All participants were assured of confidentiality, the condition of being sealed or hidden by only the researcher and supervisor having access to the data collected. The data collected was under lock and key at all time to ensure confidentiality of all those involved. Anonymity, the state of being unknown, was provided as confidentiality was highly maintained by the use of a coding system of a number instead of name that was used to ensure anonymity and only two researchers, namely the researcher and the supervisor, having access to the collected information. Participants were informed that they could leave the study at any point without consequences. All measures were taken to make sure the participants were comfortable in the study and to avoid anyone feeling the need to leave. To avoid any discrimination or embarrassment, the BMI scores were not disclosed to the learners but should they have require help the correct referrals were made. The referral process was made available to the parents on request. All participants in the study received a summarized copy of the research findings.

1.9 Structure of the Thesis

Chapter One:

Chapter one introduces the background for the study which focuses of the increasing epidemic of childhood obesity globally and then funnels down to South African childhood obesity incorporating parenting styles within low and high socio economic areas. This chapter also includes the conceptual framework, problem statement, research questions, aims, objectives, hypotheses, significance of the study and ethics of the study.
Chapter Two:

Chapter two introduces the Self-determination theory which lays out the understanding of human behaviour and how humans interact with one another as well as how the environment like social and cultural influences affects an individual’s psychological wellbeing. This chapter also divulges the different sub theories that exist under the self-determination theory which provides a better understanding of intrinsic and extrinsic motivations.

Chapter Three:

Chapter three presents the literature review of the study which speaks about childhood obesity both globally and locally. It incorporates the causes and risk factors as well as the environmental challenges that are faced by children daily. This chapter includes the parenting style of parents and elaborates on the different typologies that exist. The effects of socio economic statues and parenting styles on the BMI scores of children are also addressed in this chapter.

Chapter Four:

Chapter four presents the methodology of the study that incorporates a 3 fold design which is a cross sectional comparative correlational study. The population sample as well the method of sampling is covered in this chapter. The chapter included a detailed explanation of both pilot studies as well as the amendments made to the instrument and the final study. Lastly, the reliability, validity and all ethical components of the study are illuminated within this chapter.

Chapter Five:

This chapter presents the findings of the study. The analysis of the results was done using Statistical package in social sciences (SPSS) and the BMI scores of the children was calculated
using the WHO Anthro Plus program. The results of the study are presented using tables and charts. The results chapter presents the tabulated results of the parenting styles within low and high socio economic areas as well as graphical representation of the BMI scores of the children in low and high socio economic areas. A comparison of the parenting styles within low and high socio economic areas as well as a comparison of the BMI scores within low and high socio economic areas is presented in this chapter.

**Chapter Six:**

The final chapter presents a discussion about the results in detail and provides an overall conclusion of the study. The chapter starts off with a discussion of the BMI scores in low and high socio economic areas globally; narrows down to research conducted in South Africa and then debates the findings of the current study. The chapter follows the same outline for parenting styles within low and high socio economic areas and it ends off with a discussion on parenting styles linking to the BMI scores of children. The limitations and the recommendations are also debated in this chapter.
CHAPTER 2

THEORETICAL FRAMEWORK

2.1 Introduction

This chapter introduces the main theory of the study which is the self-determination theory that was designed by Deci and Ryan in the 1970’s. The purpose of this chapter is to explore the use of this theory in daily human interaction as a means to identify the motivating factors that develop certain behavioural patterns of human beings. The first part of this chapter introduces and explains intrinsic and extrinsic motivations with a focus on both parents and children to provide an understanding of the motivations behind human behavioural patterns. The extrinsic and intrinsic motivational factor forms the basis for understanding human motivation which then expands into the self-determination theory. In this chapter the six sub-theories of the self-determination theory are explored in relation to the behavioural patterns of parents and behavioural patterns of child that lead to increased BMI scores. Lastly, the chapter elaborates on the self-determination theory and parenting which leads to the final section of the chapter that focuses on self-determination theory within the different socio economic areas.

2.2 Intrinsic and Extrinsic Motivation

Motivation can be defined as the process that starts and continues goal-orientated behaviours and is used to describe why a person does something (Cherry, 2013). A person who feels no stimulation to act is characterized as unmotivated while someone who is activated or energized to complete a task is called motivated (Deci & Ryan, 2000). According to Deci and Ryan (2000) researchers have been assessing the motivation of people by understanding motivation as a one
notion, which is not the case. When assessing motivation, the amount of motivation and the orientation of the motivation needs to be taken into account (Deci & Ryan, 2000).

Self-determination theory distinguishes between the different orientations of motivation and gives rise to Intrinsic and Extrinsic motivation. With regards to children, intrinsic motivation has come out as relevant as it results in high quality learning and creativity (Ryan & Deci, 2000).

Ryan and Deci (2000) states that humans in a healthy state are active, curious and inquisitive beings that enjoy learning and exploring which is a crucial component in developing cognitive, social and physical skills. Although intrinsic motivation is an internal motivation it can also form a relationship between individuals and activities which seem to provide a satisfaction of the psychological needs of that individual (Ryan and Deci, 2000). The researcher is of the opinion that this type of intrinsic motivation which forms a relationship between the individual and the activity applies to both parents and children in this study. For example, with children if they have an increased BMI score and couple it with an activity to reduce that BMI score but have the motivation that they are doing this to be healthy and feel good about themselves the results will be more positive. The researcher agrees with Rhee et al (2006) and Ryan and Deci (2000) that intrinsic motivation is very important in childhood as the childhood behaviours that develop often extend into adulthood so if the activities identified in childhood are coupled with internal motivations that satisfy the basic psychological needs of the child this intrinsic motivation can last into adulthood.

In multiple studies conducted by Deci, Nezlek and Sheinman (1981), Ryan and Grolnick (1986), Benware and Deci (1984) and Grolnick and Ryan (1987), have noticed that autonomy supported children learn more, are more inquisitive, more curious and are more eager to tackle challenges in school where as children who are overly controlled learn less, loose creativity
and struggle with challenging or creative concepts (Deci & Ryan, 2000). The participants of this study are school going children which implies that should an autonomy support approach be taken when approaching BMI score of children there will be a more favourable response and thus a more positive outcome with regards to childhood obesity.

Although intrinsic motivation is clearly important and more fruit bearing, most people do not do activities that are intrinsically motivated, in fact from schooling ages the intrinsic motivation becomes weaker as the child progresses through school and this is where extrinsic motivation becomes stronger and more prominent (Ryan and Deci, 2000). Extrinsic motivation is a concept that an activity is done with rewards, grades or fear of option of others etc which means that majority of the time activities are not done with any type of internal motivation such curiosity or desire (Ryan and Deci, 2000). An example of extrinsic motivation in this study would be a child wanting to decrease their BMI scores but doing so out of either fear of what others think of their weight or because they are being forced to by their parents.

Although intrinsic and extrinsic motivation seem to contrast each other, Ryan and Deci (2000) state that the self-determination theory proposes that there is a certain degree of autonomy in extrinsic motivation and that it is not completely separated from intrinsic motivation. An example of this in this study would be a parent who goes to work daily to provide food for his child is seen as extrinsically motivated but if that parent is finding personal satisfaction and a desire to do that job it is noted that he is also intrinsically motivated as well. Another example for this study would be a child who wants to lose weight out of fear that they will be ridiculed for being overweight is understood as being extrinsically motivated but if the child wants to for example increase their exercise as they find it enjoyable and thus loses weight we can say that the child is also intrinsically motivated.
In this study intrinsic and extrinsic motivation is relevant as it creates the motivators that children adopt in childhood leading into adulthood which can directly contribute to the increase or decrease of BMI scores.

2.3 Self-determination theory

Motivation forms a strong part of human interaction on a daily basis. As human beings we are a very interactive species in that we need to constantly interact with each other as well as our surroundings thus drawing motivation and inspiration from our surroundings (Deci & Ryan, 2000). Be it parents, teachers or employers, people struggle daily to motivate those they mentor in life or in the work place (Deci & Ryan, 2015). People can often find motivation externally in external motivators or factors such rewards, grades, fear of negative opinions of others or evaluations, or internally in by internal motivators or factors such as curiosity, care, abiding morals and values or interests and passion (Deci & Ryan, 2015). These external factors or stimuli are known as extrinsic motivators and the internal factors or stimuli are known as intrinsic motivators.

Self-determination theory (SDT) can be seen as a general theory of human motivation that address the extent to which human behaviours are encouraged and eager as compared to human behaviours that are pressured or compelled (Patriek et al., 2013). The Self-determination theory is unique in the sense that is takes both intrinsic motivators (e.g. engaging in behaviours as it is enjoyable) and extrinsic motivators (e.g. engaging in behaviours for an independent outcome) into context with acknowledging a degree of variation in the extrinsic factors (Deci & Ryan, 2015). Patriek et al (2013) states that by acknowledging this degree of variation in the extrinsic factors, it is thus understood that not all extrinsic factors are equal, which is important in the broader spectrum of health behaviours that fall along the lines of extrinsic motivations. For example, people encouraging their children to engage in behaviours for separable outcomes
that vary in the degree to which they are integrated with one’s self such as a parenting forcing their child to do rugby hoping they enter into the SA rugby league but in reality the child enjoys soccer and would love to just play the sport.

Self-determination theory (SDT) represents a theory that creates a structure for the study of human motivation and personality. It is based on three fundamental psychological aspects of humans needs. These needs are autonomy (the need to feel self-defined), competence (the need to feel competent) and relatedness (the need to feel connected to others) (Strasser, 2007). If all three needs are addressed in any situation, then intrinsic motivation can occur. Likewise if these needs are unsupported or dissatisfied they can have a detrimental effect on the wellbeing of that person. More importantly SDT focuses on how social and cultural factors affect a person’s sense of decision making as well as their initiatives which then contributes to their wellbeing and quality of performance (Deci & Ryan, 1985; 2000). The role of the social context in facilitating or undermining children’s intrinsic motivation and internalization is highlighted by the self-determination theory (Joussemet et al., 2008).

SDT is based on an organismic dialectical approach (Deci & Ryan, 2000). This indicates that people are seen as active organisms with evolving tendencies to grow, master challenges and integrate new experiences into a logical sense of themselves (Deci & Ryan, 2000). Deci & Ryan (2000), explains that constant social support is needed in order for these natural developmental tendencies to grow and thrive, which implies that a positive social context will encourage active engagement and psychological growth of an individual whereas a negative social context will encourage a lack of social integration. Thus, SDT’s predictions about behaviour, experience and development is based on this dialect between the active organism and social context (Deci & Ryan, 2000). Within the SDT, the sustenance for a healthy social development and functioning are outlined using the Basic Psychological Needs for autonomy, competence and relatedness (Deci & Ryan, 2000). This means that should these basic needs be
met, a socially well functional individual will emerge and should these needs be dissatisfied a socially “crippled” individual will emerge presenting with behavioural traits such as aggression, prejudice and certain types of psychopathy (Patrick et al., 2013).

According to Saavedra et al (2014) the Self-determination theory has been used to constructively identify relationships between childhood obesity and any variables that could influence these children. By using the SDT to identify these variables Hwang and Kim (2011) are of the opinion that preventative measures can be designed to thus prevent child hood obesity and in this regards SDT has been extensively applied to the research field of childhood obesity. In studies using the SDT with childhood obesity, it has been noticed that children who have increased BMI scores leading to being obese present with high levels of demotivation and extrinsic motivation as well as low intrinsic motivation when compared to other children with BMI scores within the normal range (Saavedra et al., 2014). It has also been noted that children with high BMI scores who present with high levels of intrinsic motivation will have a stronger will power and stronger perseverance when assigned to an intervention program when compared to other children with similar BMI scores (Hwang & Kim, 2011). In this study, the self-determination theory fit perfectly in as it helps the researcher to identify the different relationships formed by the child with an increased BMI scores to variables that may be directly or indirectly contributing to their BMI scores thus leading to childhood obesity. The Self-determination theory is important to this study as the human motivation of the parent plays a big role in the parenting style that they would choose and thus directly influence the BMI scores of the child. The human motivation of the child is also important in this study to assess their life choices which lead to increased BMI scores and thus childhood obesity. Socio economic status play a direct role in the motivations of the parent which leads to their choice of parenting style and thus contribute to and increase or decrease of the BMI scores of the children.
2.4 Sub-Theories within the Self Determination Theory

According to Deci and Ryan (2000), the self-determination theory has five mini theories that have developed from many field and laboratory research to explain a set of motivational phenomena with each mini theory addressing one aspect of motivation or personality functioning.

2.4.1 Cognitive Evaluation Theory (CET)

The cognitive evaluation theory suggested that there are two types of motivational systems namely intrinsic motivators and extrinsic factors which develop from the individuals working environment and is controlled by others (Deci & Ryan, 2000). Meer (2013), explains that an extrinsic motivator is “when you are motivated to do something because of external rewards and/or punishment associated with it” whereas, an intrinsic motivator is completely independent of any external reward and is done solely to benefit the individual. For example, a child is encouraged to read a novel as part of the school curriculum. If the child reads this novel for the purpose of obtaining a good grade, this is extrinsic motivation. However, should the child read the novel for the purpose of enjoyment and not for grades, this is called intrinsic motivation (Meer, 2013).

The Cognitive Evaluation Theory states that a powerful extrinsic motivator can result in a lowered intrinsic motivation (Deci & Ryan, 2000) which can damage the overall motivation in the long run (Meer, 2013). Within the context of children, intrinsic factors can be seen as children’s exploration and play whereas extrinsic factors are seen as a lifelong developed skill (Deci & Ryan, 2000). CET stipulates that there are factors in the social context of the child that can create inconsistency in intrinsic motivation thus meaning that although a child will obtain a feeling of competency while completing an action it does not necessarily mean that this will
enhance their intrinsic motivational levels unless a sense of autonomy accompanies this feeling of competence (Ryan and Deci, 2000).

In a study conducted by Decaluwe and Brael (2005), directly using the CET model among a population of children suffering from overweight and obesity, it was established that the CET model is seen as a risk factor for eating disorders such as erratic eating which results in an increased weight gain within children. To understand childhood weight gain, Decaluwe and Brael (2005), explained that a number of adverse factors in childhood such as a negative self-esteem, parental depression, sexual or physical abuse, parental problems, repeated exposure to negative comments lead to erratic dietary routine. This erratic routine can vary from over eating to starving or even over eating which leads to an increased BMI score leading to obesity or malnourishment. Decaluwe and Brael (2005) have also stated that childhood obesity coupled with these adverse factors in childhood leads to adult obesity.

2.4.2 Organismic Integration Theory (OIT)

The Organismic Integration Theory focuses mainly on the extrinsic motivators within its different forms and how these different forms affect the individual within a social context. (Deci & Ryan, 2000). Deci and Ryan (2000) describe the organismic integration theory as the extent to which a behavioural regulation has become internalized by the individual which means that any belief originates from the individual rather than external sources. This extrinsic motivation will then directly affect persistence as well as performance of that individual (Ryan et al., 2009). For example, people have different views on exercise although they all agree that it is good for a person’s health as well as to decrease their BMI scores to decrease obesity. Ryan et al (2009) claims that OIT model proposes more internalization of extrinsic goals which is better maintained over time as it is given by free will. The main extrinsic motivator here is that exercise is good for your health but as there are many subtypes to this extrinsic factor, it
will be internalized differently which then results in the different views on one topic such as exercise can make me lose weight which will make me healthy, or exercise will lower my blood pressure which will make me healthy or exercise will make me detox which will make me healthy. Ryan and Deci (2000) claims that the Organismic Integration Theory details the different forms of extrinsic motivations and the different factors that either promotes or deters internalization for the development of positive developmental patterns.

In a study conducted by Ryan et al (2009), they state that the cause of increasing overweight children is due to the cultural change of diet and activity globally. Focussing mainly from an activity point of view, Ryan et al (2009) claim that children do not “go out” to seek the excitement of life as it is readily presented to them in video games, TV and other sedentary activities which is the cause of overweight and obese children today. In a study that they had engaged with in 1996 on morbidly obese individuals and motivation for engaging in treatment, it was found that those with more autonomous (independent) motivation showed higher attendance to the treatment sessions, higher completion rates as well as maintenance of their weight loss in a two year follow up period. In collating this information with this study, it can be noted that in order to ensure substantial weight loss in overweight and obese children as well as maintaining this weight loss, there has to be strong autonomous motivation that has to be rooted into the child which will then stimulate a desire to persevere on this path to a healthy body and lifestyle.

### 2.4.3 Causality Orientations Theory (COT)

Causality orientation theory is described by Deci and Ryan (2000) as: “individual differences in people's tendencies to orient toward environments and regulate behaviour in various ways”. This means that two people can react very differently in similar situations and that each
person’s reaction to any circumstances will be different. COT assesses three types of causality orientation: firstly an autonomy orientation, which states that a person acts out of interest and is appreciating what is occurring. These behaviours are chosen based on the individual’s needs and integrated goals. These self-determined behaviours are seen to be linked to more creativity and better cognitive flexibility, which intern enhances competence (Deci & Ryan, 1985).

Secondly a control orientation, which states that the individual is focusing only on rewards and outcomes within a controlled environment while lacking autonomy (Deci & Ryan, 2000). This type of orientation is non-integrated and lacks creativity as well as flexibility as the will power of the individual is diminished (Deci & Ryan, 1985). An example of this within a parental context would be an authoritarian parent who provides a strict dietary routine to the child. The child would then adhere to this routine out of fear of punishment rather than autonomy.

Thirdly, impersonal orientation which is characterized by anxiety concerning competence (Deci & Ryan, 2000). This type of orientation is studied as personal helplessness, where the behaviours are neither intrinsically or extrinsically motivated resulting in the individual not being able to direct their behaviour in a way that would yield the desired results (Deci & Ryan, 1985). An example of this would be when an individual is overcome by a bout of rage that leads to uncontrolled behaviour. In the context of this study an impersonal causality orientation could prove detrimental to the child’s overall health as this provides an instable environment in which to grow. The role of parents is strongly viewed in this regard.

Parents play a fundamental role in imparting the necessary values and regulations which will enable the child to effectively engage in society. According to Landry and Koestner (2008), the central socialising goal is “internalization” where the child “takes in” the social regulations, adopts them and then applies them autonomously. In the context of this study, causality orientation theory can be used when assessing the situation of dietary protocols for an
overweight child by an authoritarian parent and an authoritative parent. While an authoritarian
parent will not allow the child to indulge in any luxuries which will lead to either over eating
when exposed to that food and thus poor dietary outcomes, an authoritarian parent will allow
the child to partake in their dietary schedule but within limits as this allows the child to have
more control over their lives leading to better dietary as well as psychological outcomes
(Kyung et al., 2006).

2.4.4 Basic Psychological Needs Theory (BPNT)

Basic Psychological Needs Theory elaborates on the psychological needs being directly
associated with psychological health as well as wellbeing (Deci & Ryan, 2000). This theory
states that a positive psychological wellbeing is reliant on autonomy, competence, and
relatedness which are the three fundamental psychological needs that form the foundation of
SDT.

In a study conducted by Patrick et al., (2013), it was emphasized that recent research conducted
on children’s weight status and obesegenic behaviours (eating patterns etc.) show that parents
along with parenting styles contribute to child obesity behaviours and weight. According to the
study, parents act as socializing agents during critical developmental stages of a child’s life.
Hence the reason for parenting styles being investigated as a contributing factor to childhood
obesity. Therefore parents are seen as the prime agents to facilitate healthier lifestyles in the
youth. This study (Patrick et al., 2013) emphasizes the scientific gap that exists for more
informed literature to be conducted on parenting styles as a domain for childhood weight and
obese genic behaviours.

Soenens and Vansteenkiste (2009), conducted a study on the negative effects of parental
psychological control leading to disturbances in the psychological functioning of the child. In
the study, parental control was referred to as the parent’s behaviour that negatively intrude on
the child’s thoughts and feelings. According to Baumrind (1991), the authoritarian parenting style is the parent who has strict discipline and never takes the child’s feelings into consideration for any decision making. The child is instructed to obey the parent and should this not be done, severe punishment will be the result. In bringing these two studies together, it is clear that parental psychological control and authoritarian parenting styles can be seen as one concept, both resulting in a disturbance of the psychological functioning of the child.

2.4.5 Goal Contents Theory (GCT)

Goal Contents Theory developed from goals that arise from basic needs satisfactions and will therefore be individually different (Deci & Ryan, 2000). This means that each individual will have different goals based on their different needs which arise from similar situations to others. For example, two individuals can live in a low socio-economic area, but the one individual has a goal to have a house in Claremont thus having a desired goal to go further and achieve so much more and the other individual only aims to make ends meet in his household.

This study requires the use of the Self Determination theory to understand the different psychological aspects of parents which results in different parenting styles that directly contribute to BMI scores in children. Within South Africa, there are many challenges that affect the psychological functioning of the parent with directly affect the psychological functioning of the child.

2.4.6 Relationship Motivation Theory (RMT)

The Relationship motivation theory is the sixth mini theory of the self-determination theory and it is concerned with the relationships of individuals that bring about interaction which is fundamental in the wellbeing of individual as it satisfies the psychological need of relatedness (Deci & Ryan, 2015). According to Deci and Ryan (2015), the psychological need of
relatedness speaks to the development and maintenance of close personal relationships such as best friends or romantic partners but the needs of competence and autonomy are also satisfied in high quality relationships. In this study the relationship between parent and child is of utmost importance maintaining the relationship motivation theory. From this we can understand that should a parent and child have a high quality relationship, the basic psychological needs of relatedness, autonomy and competence will all be obtained resulting in the overall wellbeing of both the parent and child.

2.5 Self-determination theory and Parenting

All humans have the need or instinct to want to feel connected, capable and independent and thus develops certain behavioural patterns to fulfil this psychological need (Joussemet et al., 2008). This concept applies to parents and their children as well. There has been as substantial amount of research done where the self-determination theory has examined parenting styles in supporting children psychological needs. According to Ward et al (2011), before anyone can tackle the concept of parenting styles to parents of school aged children that are experiencing increased BMI scores and thus weight gain leading to childhood obesity, the understanding of the family context and how it influences the BMI scores of the child as well as the behavioural patterns of both child and parent needs to be established. Thus the self-determination theory provides the structure for underrating what motivates both parent and child to build intrinsic motivation to adopt certain behavioural patterns (Ward et al., 2011). It is from this that we can understand that the parenting style that the parent chooses forms the environment in which the child grows and it is important to assess these environments and the parenting style when looking at why the child is experiencing increased BMI scores.

The self-determination theory identifies the authoritative parenting style as supporting the psychological needs of the child by providing structure in the form of a menu of options to
choose from and thus provides a basis for recommended behaviour (Patriek et al., 2013). An authoritarian parenting style has been identified by the self-determination theory as having a lack of autonomy and thus does not support the psychological needs of the child as little or no input is given from the child (Patriek et al., 2013). The self-determination theory declares that permissive, uninvolved or neglectful parenting styles have an autonomy support component but it lacks boundaries, guidance and structure thus making it unsuccessful in satisfying the psychological needs of the child (Patriek et al., 2013).

2.6 Self-determination theory and Socio economic status

According to Patriek et al (2013), the self-determination theory conceptualizes the social context in terms that it can either support or impede the basic psychological needs for autonomy, competence and relatedness and thus provoke external forms of motivation to become more internalized. In this study this means the social context that the parents and child are in can support or obstruct the individual’s capacity to act independently and thus validate their behaviours. This relates directly to Ward and Wessels (2013) stating the different challenges that faced South African parents and how these challenges determine their parenting style (Gould and Ward, 2015). Joussemet et al (2008) supports this concept by stating that external pressure from a social context on the child that does not support developmental trends will end up having a negative effect on the development of that child. The self-determination theory has identified the role of the social context in facilitating or undermining the child’s intrinsic motivation and thus states that when a child’s need for autonomy is supported in order to fulfil their basic psychological needs the child will thrive (Joussemet et al., 2008).

In this study the role of socio economic status that the child is in can either facilitate or undermine their need for autonomy and an example of this would be that in a low socio economic area where poverty and crime are at large (Rawatlal et al., 2015), children develop
anxiety and depression as a result of their autonomy being taken away and thus their basic psychological needs are not fulfilled but are then replaced by feeling of helplessness and fear both of which are extrinsic motivators.

2.7 Conclusion

Human motivation forms an integral part of the daily interaction activities of human beings, whether it be through internal motivating factors or external motivating factors. Internal motivating factors are factors that motivate us from within such as passion, while extrinsic motivating factors are factors that motivate us from our external environment such as fear. This chapter focuses on Deci and Ryan’s Self-determination theory (SDT) which is a general theory of human motivation that address the extent to which these internal and external motivators contribute to human behaviours and thus allow human beings to identify their triggers of motivation. This chapter identifies the five sub theories with the self-determination theory which speaks about the different types of intrinsic and extrinsic motivations that exist and how these motivations affect the BMI scores of child thus leading to obesity in children. SDT also addresses parents and their intrinsic and extrinsic motivations which form the background of their motivation to perform their daily tasks. This theory identifies parents as playing a role in the environmental structuring of their children through their habits and thus their motivations can become those of the child as well. This study uses the self-determination theory to recognize the challenges that socio economic status presents to the parents and the effect that these challenges play on the motivational behaviour of the parents which plays a direct role in the motivational behaviours of the children which contributes to increased BMI scores and this childhood obesity. The following chapter focuses on the childhood obesity epidemic as well as the contributing factors that feed into it.
CHAPTER 3

LITERATURE REVIEW

3.1 Introduction

This chapter introduces the literature review of this study. Within this chapter the childhood obesity epidemic has been explained in detail with a focus on the health consequences as well as environmental factors that children are faced with. The chapter expands into the factors that are associated with childhood obesity and these hints on the parental influences which lead to a detailed exploration of the different parenting styles as well as an investigation into parenting styles and the BMI score of children. The last part of the chapter focuses on the effect of socio economic status on both parenting styles as well as BMI scores of children.

3.2 Childhood Obesity

Childhood obesity and overweight has become a growing concern for both developing as well as developed countries (Mogre et al., 2013). The World health organization (WHO) has classified obesity/overweight as the fifth leading cause of global morality and one of the greatest health challenges for various leading chronic diseases (Muthuri et al., 2014). It is estimated that more than one billion adults are overweight and at least 300 million are obese (Kruger et al., 2005). Strauss and Pollack (2001) identified that the prevalence of childhood obesity and especially school going children has drastically increased worldwide since the 1970’s. Globally, it has been shown that overweight or obese children are between a 4 and 7 percentages at a higher risk than normal weight child of becoming overweight or obese adults (Mogre et al., 2013). According to Kiskawi et al (2014), the pattern of non-communicable diseases has shifted drastically in most developing countries as a direct result of an increase in
the rates of obesity and the rapid emergence of the metabolic syndrome. Obesity is now being linked to an increased risk of developing non-communicable diseases in both developing and developed countries (Kishawi et al., 2014). Internationally, the measurable trends of BMI score of children suggest that there is an increase in the weight of child and thus the increase in the percentage of overweight and obese children (Van Niekerk et al., 2014).

The numbers of children, who are overweight in South Africa, is increasing (Goedeke et al., 2005). Van Heerden (2009), states that 25% of the girls in South Africa are either overweight or obese. Increased BMI scores which lead to an increase in weight can be described as an imbalance between the energy intake and the energy expenditure resulting in the excess being stored in the fat cells which lead to an expansion of the fat cell storage (Goedeke et al., 2005).

According to a study done by Johnson (2010), the main concern about the increasing prevalence of overweight children is that these children are more likely to become overweight adolescents and lead to overweight adults. With an increase in weight emanates many other health risks which can directly affect the quality of life of the child such as heart disease, hypertension, diabetes, and psychological problems of the 21st century (Muthuri et al., 2014).

3.3 Health consequences of childhood obesity

Childhood obesity has destructive health consequences on children with approximately 60% of overweight children presenting with at least one cardiovascular risk factor and 25% presenting with one or more risk factors (Goedeke et al., 2005). With the rise in a child’s BMI scores and then weight, so do the complications and risks which directly contribute to the quality of life of that child. A few of the increased risks for diseases associated with an increase in the BMI scores of a child will be discussed below.

- High blood pressure or hypertension is associated with an increase in the BMI scores and thus an increase in the weight of the child which results can contribute to
a range of cardiovascular diseases such as angina pectoris, coronary heart disease, hypercholesterolaemia, atherosclerosis etc. (Centres for disease control and prevention, 2012; Mogre et al., 2013; Goedeke et al., 2005; Kishwai et al., 2014; Johnson, 2010)

- Impaired glucose tolerance as a result of increased abdominal obesity which results in diabetes (Centres for disease control and prevention, 2012; Kishwai et al., 2014; Goedeke et al., 2005; Johnson, 2010)

- Breathing problems such as asthma due to a build-up of adipose tissue surrounding the rib cage (Centres for disease control and prevention, 2012; Goedeke et al., 2005; Johnson, 2010)

- Joint problems as a direct result of a sedentary lifestyle due to the inability to obesity as well the strain that the excess adipose tissue exerts on the still developing joints of the child and orthopaedic problems, bowing of legs due to the excessive weight (Centres for disease control and prevention, 2012; Mogre et al., 2014; Goedeke et al., 2005; Johnson, 2010)

- A wide range of social and psychological problems such as poor self-esteem, lack of motivation, eating disorders, distorted body images, unhappiness and the inability to make friends which can continue into adulthood (Centres for disease control and prevention, 2012; Goedeke et al., 2005; Johnson, 2010).

The concept of children’s health has evolved to more than merely the absence of disease. It can now be defined as: “the extent to which individual children or groups of children are able or enabled to (a) develop and realize their potential, (b) satisfy their needs, and (c) develop the capacities that allow them to interact successfully with their biological, physical, and social environments” (Kuo et al., 2012). This definition has brought about a shift in the paradigm of children’s health care and the assessment thereof as it encompasses the biological, social,
behavioural and physical environments in which the child develops as playing a major role in any health deteriorations (Kuo et al., 2012). A strong link has been made between the environment that children grow up in, namely the parenting styles and socio economic status, and the increased BMI scores leading to overweight children (Patrick et al., 2013).

Preventative interventions are being aimed at parents of overweight children, who are seen as the main role players in the physical activity as well as eating behaviours of the child (Gerards et al., 2014). According to a study done by Gerards et al (2014), a systematic review on parents perceptions of their children’s weight was conducted and it was established that more than 50% of parents with overweight children underestimate their children’s weight and therefore perceive them as being of a normal weight. This can be a very dangerous perception as should this be left untreated, there can be detrimental effects on the life of the child. In these cases the causes of the obesity of the child needs to be established and thus interventions need to be put in place to remedy the situation.

In this study the problematic issue of childhood obesity has been elucidated to reveal the realities of this current epidemic.

3.4 Environmental challenges affecting children

The number of challenges facing children within these different environments can significantly affect their wellbeing and health outcomes. Kuo et al (2012) have identified certain areas of concern such as social determinants of health, environmental health and life course health development. Within social determinants of health, Kuo et al (2012) explains that adverse effects of childhood directly affect adult health and untimely social integrity. These social determinants can range from bulling in school to family or social rejection as well as physical or sexual abuse.
Environmental health focuses on the physical environment that the individual develops in as being an important aspect to health as it directly affects the wellbeing of children (Kuo et al., 2012). Within environmental health, environmental hazards are recognized. These hazards can be severe pollutions, polluted water, pesticides, herbicides, ionizing radiation and many more (Centre for disease control and prevention, 2009). These environmental hazards have a detrimental effect on children as they aggravate certain existing conditions such as asthma or even prompt the onset of other conditions such as bronchitis (Centre for disease control and prevention, 2009).

The life course health development framework shows the connection between the individual and their life experiences that shapes human development. Kuo et al (2012) identified poverty as the number one stress factor that children can experience. Along with this, longitudinal studies have noted that children who experience socio-economic disadvantage are more likely to develop conditions such as obesity, depression, high levels of inflammation, hypertension and many more (Kuo et al., 2012).

3.5 Factors associated with overweight children

Childhood obesity can be seen as a multi-factorial condition that can be a result from many lifestyle factors as well as the environments of the children (Johnson, 2010). Although genetics is a risk factor of obesity in children, the recent obesity epidemic can be noted to be more likely a result of the changes in the child’s environment rather than an inherited risk (Johnson, 2010).

According to Johnson (2010), the changes in the child’s environment are linked to behavioural patterns that influence the risk for being overweight. These behavioural patterns can include but are not limited to: energy intake, unhealthy eating habits (increased sweetened beverages), sleep deprivation, physical inactivity (television viewing time and playing of video games) and parenting styles along with parenting influences.
3.5.1 Energy intake

According to Johnson (2010), Caprio et al (2008) and Dammann (2009), an excess of energy intake can lead to an increase in the risk of child obesity as energy intake can be a result of the child’s food choice or reflection of the child’s environment. An excess of energy intake due to a child’s food choice can reflect as the choice of eating junk foods due to their availability in for example school tuck shops or readily available vending machines within the schools (Johnson, 2010).

According to Moens et al (2006), the energy intake of a child is directly influenced by the family and the environment of the child. When looking at the family influence with regards to energy intake, parental support and parental control is assessed with regards to the types of food allowed to be eaten and the foods that are encouraged to be eaten (Moens et al., 2006). From this statement it is clear that the energy intake of the child is monitored by the parent’s restriction from eating certain high caloric foods and the pressure of the parent on the child to eat more high nutritive foods.

An excess of energy intake due to the reflection of the child’s environment can be seen as poor communities where healthy food options are located too far from the child’s residential area thus having the child resort to cheaper, less nutritive, high fat, high preservative foods that increase the energy intake of the child thus leading to an increased risk of childhood obesity (Johnson, 2010). A low family income, race and socio economic statuses also play a significant role in the eating habits of a child and thus the lead to an increase in the energy intake and consumption which then leads to an increased risk for childhood obesity (Caprico et al., 2008).

In this study, the BMI score of children was assessed as a means to establish any causes related to an increase in BMI scores and thus weight gain of children leading to an increased weight into adulthood.
3.5.2 Sweetened beverages

In a study conducted by Mrdjenovic and Levitsky (2001), an increase in childhood obesity was correlated to an increased consumption of high caloric beverages instead of water or milk. These beverages include fizzy drinks as well as the non-fizzy sweetened drinks and juices. An intervention research was done by Ebbeling et al (2006) providing a strong foundation which deduced that a decrease was noted in the weight reading of children, who had an elevated BMI score, when a simple replacement of sugar –sweetened beverages with water or “diet” beverages was made to the diet (Johnson, 2010)

In this study the BMI score of children in high and low socio economic areas was assessed. It can be seen that high caloric foods directly contribute to an increase in the BMI scores of the children and ultimately lead to weight gain of the child. This study aimed to establish if there is a difference in the caloric intake between high and low socio economic areas that will lead to an increase or decrease of BMI scores of children.

3.5.3 Physical inactivity

It has been noted that children who lead a primarily sedentary lifestyle have a greater risk of increasing their weight gain and thus their BMI scores (Laurson et al., 2008). Physical inactivity falls under the umbrella of a sedentary lifestyle. When observing children and weight gain, the focus falls upon where the child spends most of their time which would include their time spent at a school. Schools have been seen as a favourable target for interventions with regards to children obesity as children spend a lot of time in the class room setting (Johnson, 2010). According to Johnson (2010), there have been some successful school based interventions that have attempted to increase physical activity within the school setting and have thus resulted in a lowering of the BMI scores in those grade school children. With a decrease in the BMI scores as a result of an increase in the physical activity of the child, there
is a decreased risk for developing other health related risks such as hypertension, diabetes, cardiovascular disease, cancer and many more (Johnson, 2010). Physical activity has many causes but the two main causes identified within children are television watching and video games (Cheng, 2005 and Laurson et al., 2008)

According to a study conducted by Cheng (2005), a positive correlation was made between the amounts of time spent in front of the television to an increase in childhood obesity and unhealthy eating habits. Intervention studies which have aimed to reduce the time spent watching television have confirmed higher physical activity rates and thus lower BMI score in children (Johnson, 2010). A study conducted by Francis et al (2003), states that the more time spent watching television the greater the exposure to unhealthy food options. Due to the countless promotional advertising of high sugar, high fat and low nutritive foods. Interestingly enough, Macfarlane et al (2009) conducted a longitudinal study and identified the link between children who ate dinner while watching television and an increased BMI score when compare to children who did not watch television while eating. This can be understood as when a child eats while being distracted by the television they not only lose focus on the process of eating but tend to eat more which would understandably contribute towards an increased weight gain and thus increased BMI scores (Macfarlane et al., 2009)

Another aspect of sedentary activity which is common in children of the 21st century is the use of video games. According to Skinner et al (2004), there is significant evidence to prove that there is a connection between the increased use of video games and an increase weight gain in children (Johnson, 2010). However, as technology is advancing the introduction of new interactive video games have been seen to be quite popular amongst the young generation (Maddison et al., 2009). With the introduction of interactive video games, the activity levels of the children is increased and as result studies have shown a decrease in the BMI scores of children and thus a reduced weight gain (Johnson, 2010; Maddison et al., 2009).
Within this study, television use and the use of video games or the lack thereof contribute towards the environment in which the child grows and develops. As studies have shown, the increased use of television and sedentary video games directly contribute towards an increase in the weight of the child and thus an increase in the BMI scores. This can be seen as one of the contributing factors towards weight gain the children.

3.5.4 Sleep deprivation

According to the Centre for disease control and prevention (2011), children between the ages of 5 and 12 need to obtain at least 9 to 11 hours of sleep daily. A decrease in the amount of hours of sleep increases the risk of weight gain and thus increased BMI scores in childhood and into adulthood which can lead to obesity in adults (Johnson, 2010). The link between decreased sleep patterns, increased television watching and decreased physical activity was identified in a study conducted by Padez et al (2009) who also identifies that parents who have low education levels have children who sleep less (Johnson, 2010).

This study looks at the BMI scores of children and the parenting styles of the parents. The style of the parenting that the parents adopt can be seen to establish the environment in which the child is raised (Rhee et al., 2006). Thus sleeping patterns fall in the environment of the child, it can be seen as a contributing factor to increased BMI scores of children.

3.5.5 Parental influence

Rhee et al (2006) clearly states that the role of the parent is crucial in developing the framework in which children develop the environmental, social and behavioural patterns. Patrick et al (2013) had labelled parents as the socializing agents which directly govern the eating and activity patterns of the child. This is understood as the parents are the role models for children and thus children will mimic what they are repeatedly exposed to from their parents. Therefore
parents have a direct control over the behavioural activities of the child such as diet habits, activity habits which include television watching and sleep patterns (Johnson, 2010).

In this study, the different parenting styles were assessed within the high and low socio economic areas as parents are the main role models in children. For this study, the style of parenting within low and high socio economic areas was investigated as a link to the increased or decreased BMI scores of children.

3.6 Parenting styles

Parenting styles can be defined as the manner in which parents parent their children. The manner in which a parent brings up their child is termed as a parenting style (Lautof, 2008). According to Latouf (2008), parenting can be defined as: “a general pattern of care giving that provides a context for specific episodes of parental childrearing behaviours, but it does not refer to a specific act or specific acts of parenting” (Gupta & Theus, 2006: 21). It is seen as possibly the most important position as the parent is the first of contact between the child and the world. It is from the parent that the child develops or mimics social and behavioural patterns and thus learns about the world (Patrick et al., 2013; Rhee et al., 2006). Latouf (2008) suggests that there is no “good” or “correct” way of parenting but the parenting depends on the positive impact on the child’s holistic development.

There are three themes that have been recognized when assessing the parenting styles of parents. These themes form the foundations upon which the four parenting style types have been built (Skinner et al., 2005). Skinner et al (2005) explains these themes in detail as, the first theme is parental warmth and caring, which indicates that the foundation of care giving as well as the child’s development is dependent upon love and affection from the parent. The second theme is parental provision of structure, which refers to the discipline, rules and boundaries that the parent designs for their child in order for the child to maintain clear
guidelines as to what is expected of them. This is seen as really beneficial to the child in the development of self-efficacy and the internalization of rules and regulations of society. The third theme is autonomy support, which speaks to the parents about involving their children in daily activities pertaining to their lives as well as to encourage and acknowledge their children’s opinions. The role of autonomy support allows the child the freedom of expressing themselves and allows the parent better understanding of what their child is experiencing. This theme benefits both parent and child in setting rules and boundaries within the home (Skinner et al., 2005). When these parenting dimensions are used in combination they create the parenting typologies which assist researchers in reaching a consensus with regards to parenting styles (Skinner et al., 2005).

Psychologist, Diana Baumrind (1971; 1991) identified four types of parenting styles based on the two aspects of comfort and control. Kopko (2007) explains parental control and parental warmth in detail as, parental control refers to the manner in which the parent manages their child’s behavioural patterns. This can range from being very controlling and demanding to setting very little rules and boundaries for the child. Parental warmth refers to the manner in which parents respond to their child’s behaviour. They can either be accepting and supportive or unresponsive and objective. These parenting styles were later elaborated on by Maccoby and Martin in 1983 (Olvera et al., 2009). The four types of parenting styles are: Authoritative, Authoritarian, Permissive and Uninvolved. Although Kopko (2007) identified four types of parenting styles, for this study only 3 was used.

3.6.1 Authoritarian

Authoritarian parents are strict disciplinarians with a little or no display of love. Children are instructed to follow parent’s instructions without question and there is no engaging in family rules or any debates around the standards set by the parent (Kopko, 2007). Parents evoke
phrases such as: “do as you are told” or “because i am the parent that’s why”, thus resulting in the authoritarian parent demanding uncompromising obedience and discipline (Latouf, 2008). Grolnick (2003) states that authoritarian parents are strict enforcers of rules and should these rules be disobeyed then strict punishment will be delivered. Authoritarian parents enforce control in the lives of their children, which includes control of the child’s behaviour, eating patterns, constant correct of speech or actions of the child. Parental needs are often placed before the child’s needs and although authoritarian parents display self-respect they often lack respect for their child (Grolnick, 2003). According to Kopko (2007), child of authoritarian parents learn that following authority and rules are valued more than any independent behaviour or being unique which often results in the child choosing a rebellious path or becoming extremely dependent and not having the courage to make their own decisions.

Gupta and Theus (2006) states that authoritarian parents who enforce strict rules and strict punishments along with little interaction with their child are often parents who suffer more from stress and stress related disorders. From the point of the researcher this stress could be as a result of many environmental concerns which could include socio economic status and the challenges that are faced within each community.

According to Latouf (2008), parents adopt the authoritarian type of parenting style as they either do not have the time, energy or cannot be bothered with explanations of their rules or they are trying to instil the respect for authority into their children.

Interestingly according to Gottam (1997), authoritarian parents do not lack sensitivity towards their child but rather would like to protect them by enforcing strict guidelines by which they can shape the child’s life. These parents believe that negative behaviours are “noxious” and thus the child should not engage with them or dwell on them for long. They believe that the faster these negative behaviours are dealt with the better for the child and any explanations of
the matter would only prolong the situation for the child (Latouf, 2008). The researcher is also of the opinion that these parents may also just be displaying that which they were taught as a child therefore reliving their childhood.

Baumrind (2003) acknowledged that children of authoritarian parents were moody, unhappy and aimless in class and did not get along well with other children leading to low achievements and low esteem in older years. Children of authoritarian parents often view their parents are rejecting and unloving and should children should be constantly humiliated and doubted it can result in a maladaptive tendencies. One aspect of these maladaptive tendencies can be that the child becomes compulsive resulting in them becoming perfectionists (Latouf, 2008).

3.6.2 Authoritative

Kopko (2007) explains authoritative parents as parents who enforce firm discipline along with love and understanding. These parents listen to the opinion of the child and encourage debates along with discussions but keeping in mind that the ultimate responsibility lies with the parent. Authoritative parents allow their child the freedom to be independent yet maintain firm boundaries for the child. They do not enforce rules without providing reasons and are willing to listen and entertain their child’s viewpoint. This type of parenting allows the child to learn how to engage in discussions and learn to negotiate which results in the child becoming more socially competent, conscientious and independent (Kopko, 2007). Latouf (2008), explains authoritative parents as those parents who listens to the child’s explanations and request and takes the needs of the child in to account when making any decisions. Although they provide rules and boundaries, authoritative parents understand that mutual respect is essential in the relationship between child and parent.

Gonzalez-Mena (2006) eloquently explain that authoritative parents understand that they have more worldly experience than that of their child therefore their duty as a parent is to guide,
protect and facilitate learning of their child. They employ firm rules with a flexible approach taking into account the needs of both the parents and child and thus leaving both parent and child satisfied (Latouf, 2008). Dobson (2002) states: “children tend to thrive the best in an environment where these two ingredients, love and control, are in balanced proportions.”

Authoritative parents provide discipline to their children by setting clear-cut goals and taking interest in ensuring that their child achieves these goals (Grolnick, 2003). Thus when the child achieves these goals they are praised and commended which leads to a two-way nurturing and loving communicative relationship (Grolnick, 2003). The emphasis of this parenting style is based on control, reassurance and agreement rather than strict rules and regulations.

Dobson (2002), explains that children love to test the limits set by their parents so to establish what they can get away with. They do this by picking fights with their parents to ensure that their parents are still the ones enforcing the rules and thus the security. This is where the strict rule enforcing comes in as well the reassurance of security of the child by explaining the rules set down by the parent (Dobson, 2002).

From the opinion of the researcher, the authoritarian and authoritative parent both have rule enforcing qualities yet the authoritative parent enforces using love, understanding and communication whereas the authoritarian parent enforces using discipline, criticism and punishment.

The outcomes of authoritative parenting results in the child becoming self-reliant, confident, responsible and strongly motivated to complete tasks on their own resulting in individuals who are socially and intellectually successful as well good communicators towards their peers as well as parents (Latouf, 2008). It is interesting to note that children raised by authoritative parents display a nurturing approach towards child from authoritative or uninvolved parents (Grolnick, 2002).
3.6.3 Permissive and Uninvolved (neglectful)

Kopko (2007), identifies permissive parenting and uninvolved parenting as similar yet with distinct differences. For this study permissive and uninvolved parenting styles will be taken as one unit but the differences between the two will be explained below.

Kopko (2007), explains permissive parents are extremely loving but undemanding as they do not like to say “no” to the child out of fear of disappointing them. The parent believes that the only way to show their love and affection wards their child is to give in to every wish of their child resulting in them evoking statements such as “you don’t need to do your chores if you do not feel like doing them.” Children are allowed to do as they please without much discipline to guide them. This results in children making life changing decisions without the guidance of the parent. The parent is of the opinion that they are a resource for the child should they seek any advice they will be available for them, otherwise they will not be actively involve unless asked (Kopko, 2007).

Children of permissive parents results in the child having few boundaries and understanding from a young age that negative actions do not have serious consequences (Kopko, 2007). As a result, these children develop self-centred approaches to life leading to a lack of self-control and selfish tendencies which impairs their relationships with their peers, teachers and any future relationships (Kopko, 2007).

Uninvolved or neglectful parents display minimal if no amount of love towards their children. They minimize their interaction time with the children to such an extent that they can be classified as “neglectful.” The parents completely uninvolved in the child’s schooling activities, needs and whereabouts with only the basic needs of the children are provided for (Kopko, 2007). Parents do not display any affection towards the child and as a result the child is left to their own devices. Parents of uninvolved parenting styles show little interest in what
the child is trying to communicate as they see the child’s emotions as irrelevant to their development (Latouf, 2008). They can even ridicule the child’s emotions resulting in a development of negative behavioural patterns (Latouf, 2008). According to Kopko (2007), these parents can be seen to be either victims of their circumstances such as an overwhelming life, job or situation resulting in them having just given up due to frustration or pure tiredness, or these parents can be seen as self-centred where they choose to constantly put themselves and their needs before that of the child’s. This dismissive type of parenting style is shown to have poor problem solving techniques between parent and child (Latouf, 2008). Research shows that as a result of this type or parenting the child adopts the same behavioural patterns or neglect fullness resulting in impulsive behaviour patterns due to issues surrounding self–regulation (Kopko, 2007).

In a study conducted by Brink (2006), it was stated that some child commence to overpower their parents as a result of the neglectful or uninvolved behaviour of the parents. The child challenges the authority of the parent by constantly nagging for the things they want until the parent just gives in. From this the child learns the technique of manipulation of situations to their advantage due to the lack of authority within the household (Latouf, 2008).

According to Grolnick (2003), the effects of neglectful parenting on a school going child’s education as well as their behaviour within a school context where authority is enforced is very negative. These children are seen to display attributes of a lack of self-respect, lack of self-control and a lack of consideration for their peers and the teachers. Academically, these children will perform poorly and achieve low grades due to their lack of creativity, motivation and autonomy. The study also states that socially these children will have a low cognitive and social competence resulting in poor social skills such as the inability to make friends and therefore lead to poor self-esteem as well as self-centeredness (Latouf, 2008).
It is likely that parents would adopt different parenting styles depending on their circumstances within their lives as well as cultural differences. In a study conducted by Dornbush et al (2003) conducted a study on group differences in children reporting on parenting styles. The results of the study concluded that there was evidence to support that parenting styles do differ between different cultural groups. Latouf (2008) claims that the parenting styles adopted by the parent are also based on the temperament of the parents and the quality of their relationship with one another. This is believed to create an emotional climate for the child which helps to mould the child’s personality and behavioural patterns.

The most favourably looked upon parenting style is that of the authoritative parent as it manages the parental control along with parental affection (Steinberg, 2011). Thus proving that the most positively effective parenting style is the authoritative parenting style.

As displayed above, the role of the parent in moulding the child is curtail as the parent is the entity that creates the environment in which the child can thrive and grow. With this being said, in this study the focus is on parenting styles and the BMI scores of children. The role that the parents play in creating an environment in which the child’s BMI scores can either increase or decrease is being investigated in this study.

### 3.7 Parenting and BMI scores of Children

The different parenting styles as well as what contributes to parents choosing their parenting style has been addressed above. It is now important to assess how the different parenting styles affect the BMI scores of children and in turn contribute to childhood obesity.

Patrick et al (2005) states that an authoritarian parent will enforce a restrictive approach to the child’s diet and thus restrict the child from eat certain foods with the promise of punishment should the child disobey. As a result the parent controls what the child can and cannot eat with
little regard for the child’s choices or preferences which leads to the child becoming fixated or obsessed with those foods that they are not allowed to consume (Patrick et al., 2005). Rhee et al (2006) discovered that children of authoritarian parents were at a considerably higher risk to become overweight than authoritative parented children.

Permissive parenting and Uninvolved parented are grouped together when address the nutritional aspect of children as both of these groups allow their children to eat what they want and how much. Permissive parents have a tendency to not be able to say no their children out of fear of disappointing their child (Kopko, 2007). As a result permissive parents are categorized as “nutritionally neglectful” as there is little or no structure provided with regards to eating patterns and eating choices (Patrick et al., 2005). Uninvolved parents are not involved much in any part of their child’s life and as a result the child is left to make their own decisions and choices (Kopko, 2007). As a result the child will eat anything and in any amount with no guidance or restrictions (Patrick et al., 2005).

Authoritative parenting is parents who provide a strict guidance for their children with explanations of the rules have been put in place (Kopko, 2007). Authoritative parents explain to their child why they cannot eat too much of certain types of food and work out an agreement with the child so that there is an mutual agreement (Rhee et al., 2006). As Patrick et al (2005) explains, authoritative parenting provides a balance when it comes to nutrition of children as they encourage healthy eating but the child is also given choices about other eating options and choices.

In the researcher’s opinion, the authoritative parenting style is noted to be the most effective in controlling and managing increased BMI scores of children leading to childhood obesity. This style of parenting would also be ideal in promoting healthy eating amongst the youth of this country.
3.8 Socio-economic status

Socio-economic statuses can be defined as “a continuous index based on one or more variables applied at either an individual or higher level.” (Roman, 2008, p. 79). Socio-economic status (SES) is normally classified into high and low. This high and low classification is measured by indicators such as parental education, household income and occupational status. It was noted that parental education and occupational status show larger correlations and effect sizes rather than income as income is subject to change as the child gets older (Roman, 2008). According to The City of Cape Town (2004), the social wellbeing in Cape Town is measured using The City Development Index (CDI), which is the average of infrastructure (water, sewerage, telephone and electricity), health (life expectancy, divided by infant mortality), education (adult literacy and gross enrolment) and income (mean household income), or the Human Development Index (HDI) which is the average of health (based on life expectancy), education (based on adult literacy and gross enrolment indices) and income (based on mean household income). These two components overlap in terms of income, health and education. Using these levels of indices, the City of Cape Town can identify the distribution of social depravation and identify the areas within Cape Town with the greatest need (The City of Cape Town, 2004). These indices set clear guidelines as to the areas that are of a low or high socio-economic status within Cape Town. This study is based in schools from these areas as per The City of Cape Town’s indices.

Within the high and low socio-economic areas there are many challenges that exist. According to Roman (2008), in a high socio-economic area the challenges would consist of the stress of maintaining good health care and education, the stress of maintaining a good job as well as have higher earning potential, the stress of good schools for the children and so on. Within a low socio-economic area, the challenges would be poor health care, high crime rate, poor safety
of children, lack of nutritionally sustaining food and so on (Roman, 2008). These indices form the environment that the child grows up in and thus directly affects their wellbeing and BMI scores.

According to Rawatlal et al (2015) there is worldwide substantial evidence that supports the link between how low socio economic statuses impact the way a family operates in terms of the parent-child relationships and it contributes towards any negative outcomes of the children. These negative outcomes include but are not limited to stress, depression, physical illness and any challenging behaviours that can result in children (Rawatlal et al., 2015).

Hoff et al (2002), states that: “social standing, power, financial advantage, and prestige, encapsulated within the construct of SES, are robustly associated with the overall well-being of families” with the understanding that parental education, household income and parental occupation are clear cut indicators for socio economic status and each of these indicators have a substantial effect on the development of the child. The effects for these indicators on the development of the child will be discussed in detail under SES impacting on parenting styles.

For this study, the socio economic status is important as it affects the parenting styles of parents which define the environment that the child grows up in thus affecting the BMI scores of children.

3.8.1 SES impacting on parenting styles

As Roman (2008) mentioned above, there are many challenges that exist within the high and low socio economic areas. These challenges directly affect the parents which affect the environment that the parents design for their children.

In the South African context, parents are faced with a wide variety of challenges. Among these challenges are poverty, exposure to violence, HIV and single parenthood (Ward and Wessels,
2013). According to Gould and Ward (2015), poverty in South Africa is seen as a risk for parenting as it directly affects the financial funds of the parent thus making the parent unable to provide for the necessities of the child such as nutritional foods, health care and education to the best of their ability. Understandably, this would frustrate parents and thus make parenting a more difficult task.

As mentioned by Dornbush et al. (2003), parents decide on their parenting styles as a result of their circumstances or cultural backgrounds. With parents in South Africa struggling with poverty, the parents are more likely to suffer from depression or frustration with a result that a depressed or frustrated parent would be more likely to enforce punitive punishments with inconsiderate behavioural techniques when dealing with their child (Gould and Ward, 2015). Gould and Ward (2015) have also noted that mothers in these situations are less affectionate towards their child and others resort to the use of harsh punishment while some parent’s just resort to leaving their child unattended and the child is left to their own devices.

In the opinion of the researcher, this behavioural pattern can become one of two types of parenting styles. It can either evolve into the authoritarian parenting style where the parent vents their frustration of their financial situation on the child. It can also evolve the uninvolved or neglectful parenting style where the parent does not have the time or the interest to interact with their child. Both of these evolutions as a result of poverty could lead to negative outcomes for the child such as juvenile drug and alcohol abuse, juvenile crime or risky sexual patterns (Gould and Ward, 2015).

In a study conducted by the Institute of security studies and the University of Cape Town (2012-2013), it was found that child who suffered from aggression, violent behaviour, anxiety or depression were child who were exposed to harsh punishment from parents who were stressed or depressed. During this study it was also noted that more than 50% of parents had
requested help with regards to their parenting styles in order to better overcome the challenges of parenting.

As a result of poverty in South Africa, violence is also on the increase with the result of the children of South Africa being exposed to violence with in the community or within their homes via harsh disciple or between their parents (Gould and Ward, 2015). Ward and Burton (2007), assess that child who are exposed to violence early in their lives experience difficult concentrating in school, become anxious and result in depression. Additional to this they develop a tendency to become more aggressive towards adults and as they grow older this aggression boils over onto their peers and future relationships.

Hoff et al (2002), states that each indicator used to measure SES has a profound effect on the development of the child. For example, parental education and more accurately maternal education, has been strongly linked to the type of bond between child and parent. In a study recently conducted by Zhang (2012), where parental education and household income in relation to the family environment was investigated with the result that there was a better parent-child relationship in homes where the mother had a tertiary education. As a result of the parents especially the mother having a tertiary education, a stronger and more positive effect on the family relationships was noticed and this provides a more positive structural environment for the child which leads to more positive outcomes in the child (Rawatlal et al., 2015).

In South Africa the effects of the apartheid regime is still perceived and the political history of this country has caused significant damage to the SES of families (Rawatlal et al., 2015; Roman, 2008). Due to this period, many parents of today were unable to obtain a higher education and therefore fall short in the SES indicators which place them in the lower SES. As a result, the parents maintain a low standard of living due to the high unemployment rate and
low earnings (Makiwane & Berry, 2013). This results in children living in poorer households which directly impacts on their psychological, emotional, physical development (Makiwane & Berry, 2013).

Holborn and Eddy (2011) maintain that in 2008 at least 40% of family structures within South Africa were led by the mother of that family of which the consequences of a father less household are prevalent in the child. Children exhibit symptom such as depression, aggression and emotional problems (Holborn & Eddy, 2011).

As this study falls in the South African county, the relevant effects of apartheid on the SES which leads to a crippled environment in which the child grows is very important.

### 3.8.2 SES impacting on BMI scores of children

South Africa has been traumatized by the effects of the apartheid regime. Although it would be incredible to believe that this appalling period in South African history is long gone and forgotten, the effects of that time frame is still present today in the fact that different socio economic areas exist. It is even more disheartening to see that the different socio economic areas are affecting the youth of this country by targeting the health of the children.

Hiller-Brown et al (2014) states that evidence from epidemiological studies have shown that BMI scores of children leading to a high childhood obesity level is higher in children from the low socio economic areas. The study also claims that there are many existing systematic reviews that scrutinize the effects of interventions that reduce overall levels of obesity however, the effects of inequalities in obesity have been left untouched. As a result of this the understanding of addressing inequalities in obesity has become a very profile topic on the public health agenda (Hiller-Brown et al., 2014). Law et al (2007) have mentioned that there is an increasing acknowledgment of the policy makers that to effectively approach complicated
health concerns such as childhood obesity by reducing health inequalities involves integrated policy actions from different intervention levels such as from the community, society and individual levels and this has be considered over the life course of the child which starts with childhood. Whitehead (2007), speaks of four different levels of intervention when approaching the inequalities of childhood obesity.

These four levels are 1.) Strengthening individuals which is based on strategies to improve the overall health of any disadvantaged individuals, 2.) Strengthen communities by working to improve the overall health of disadvantaged communities and local areas by building social networking and mutual support, 3.) Improve the living and school environments by reducing any harmful exposure to chemicals and pollutions as well as health damaging material, 4.) Promotion of a health macro policy by improving the economic, cultural and environmental framework that support the standard of living of the community (Whitehead, 2007). It is understood that these four pillars form the pillars of inequality that govern childhood obesity and by not addressing these concerns we will not be able to effectively approach interventions to decrease childhood obesity.

Having examined the four intervention pillars of inequality that govern childhood obesity, Graham and Kelly (2004) established that these interventions are reinforced by one of three approached to health inequality. These three approached to health inequality are 1.) Disadvantage, which speaks about improving the position of the most disadvantaged individuals or communities, 2.) Gap, which speaks about reducing the gap between the best and the worst off communities, and 3.) Gradient, which speaks about reducing the overall social gradient so that the difference between the two socio economic areas are significantly reduced (Graham and Kelly, 2004). According to Hiller-Brown et al (2014), interventions to reduce childhood obesity in different socio economic areas are either targeted by directly targeting
those who are disadvantaged or in the low socio economic areas or these interventions are
universal which means that they are interventions that will influence the entire social gradient.

This study is based in a South African context which means that the children in South Africa
are directly affected by the inequalities of the different socio economic areas that exist due to
the apartheid regime. As a result, there are many different aspects to childhood obesity that
affect children and communities. This study is an attempt to further understand the different
aspects of childhood obesity so that better interventions can be designed with all the updated
facts and thus be more effective.

3.9 Conclusion

Childhood obesity has become a global epidemic resulting in children living a shorter and
poorer quality of life as compared to their parents. Since children are our future, the quality of
our future comes into question when addressing childhood obesity. This chapter address
childhood obesity globally with focus on the increasing rate of childhood obesity within South
Africa. The health consequences, environmental challenges and factors associated with
childhood obesity are addressed in this chapter in an attempt to comprehend the implications
as well as contributing factors that feed into this epidemic. The role of parent are addressed in
this chapter via the parenting styles adopted by the parent in order to understand the
contribution that parents make with regards to the behavioural patterns adopted by their
children and can thus be seen as part of the contributing factor towards childhood obesity. Socio
economic status has been included in this chapter as this study is based in Southern Africa,
where socio economic status is not only still very much prevalent but plays a strong role in
parenting styles as well as nutritional status of the child. The following chapter concentrates
on the methodology and data collection of the study.
CHAPTER 4

RESEARCH METHODOLOGY

4.1 Introduction

This chapter outlines the use of quantitative methodology to conduct the data collection with a social constructivist approach. The chapter includes a descriptive analysis of the data, data collection and analysis procedure, instruments, and the issues of ethical considerations. Reliability and validity are also focused on.

4.2 Research design

Babbie and Mouton (2001), define research methodology as “the techniques and procedures employed in the process of implementing the research design and underlying assumptions”. In simple terms, research methodology is a systematic way to solve a problem by establishing the procedures by which researchers describe, explain and predict phenomena related to their study (Rajeskar et al., 2013). The role of methodology in research is crucial as the methodology designed by the researcher is a clear plan of the methods used to obtain a solution to the chosen problem (Rajeskar et al., 2013).

A quantitative research method is defined as “explaining phenomena by collecting numerical data that are analysed using mathematically based methods in particular statistics.” (Mujis, 2011, p. 1). In simple terms this means that quantitative research focuses on collecting numerical data and distributing it among specific groups of people (Sibanda, 2009), as well as testing the hypothesis of the study.

The current study consists of a threefold study design. Firstly, it is a cross sectional study as this design observes the participants of a study at a specific time (Leedy & Omrod, 2014). As
the main variables that were measured were weight and height of the learners, a cross sectional approach is deemed fit as the learners heights and weights at a specific age in their lives was relevant to the study. Parenting styles was another variable that was measured in this study and a cross sectional study allowed the researched to assess the parenting style used by the parent at this specific time period before any interventions were put in place.

Secondly, the study is a correlational study as this design compares the relationship between two variables. This design was chosen as a significant difference or comparison is being investigated between parenting styles with BMI scores in children a high socio economic areas and parenting styles with BMI scores of children in low socio economic areas. Thirdly, the study is a comparative study as this research design examines the extent to which differences in one variable are related to differences in the other variable (Leedy & Omrod, 2014), which in this study is the differences between parenting styles and BMI scores.

4.3 Population and sample of the main study

This study was conducted in the Bellville/Belhar area which is 20 km from the Cape Town city centre. Originally founded as a railway station as it is on the line from Cape Town to Stellenbosch and Stand, Bellville is now home to popular institutions of education such as Cape Peninsula University of Technology as well as the University of the Western Cape (Steenkamp, 2009). The population for this study was all children between the ages of seven up to ten at primary schools. This age group was selected based on a study by Lararou et al (2008), where it was stated that since cognitive outlines and social psychology is developed during childhood, which is during the ages of five to eight, parents have an effect on the dietary preferences and habit of their child which may influence their weight status as well as wellbeing. Children at this age are in grade two in primary schools. This study was a multi-stage sampling process. In the first stage, a convenient sampling process was implemented as the area chosen
(Bellville/Belhar) is within the vicinity of the University of the Western Cape which makes the schools easily accessible. The second stage of sampling was, cluster sampling. The purpose of cluster sampling was to divide the 15 primary schools in the Bellville/Belhar area into low and high socio economic groups based on the fees per learner per year of each school. The fee of each school was obtained from the Western Cape education department website. As per the information collected on the primary schools in the Bellville/Belhar area (summarized in Appendix F), the low socio economic schools are identified by the low fees per year (R120 – R460 per learner per year) and the high socio economic areas are identified by the high fees (R2300 – R17800 per learner year). In the third stage of sampling, four (4) schools were randomly selected that is 2 primary schools within the category of high socio economic status and 2 primary schools from within the category of low socio economic status, from the 15 schools identified in the Bellville/Belhar area. All learners with a parent (primary care giver) were invited to participate in the study. The class list was the sampling frame and all learners with a primary caregiver were invited to participate in the study. No child was allowed to participate in the study without parental consent and own assent. The questionnaires were numerically coded to protect the identity and ensure confidentiality of both the parent as well as the child. The sample size consisted of all the grade 2 learners in the 4 randomly selected schools (200 male and 166 female learners) with a primary care giver (366). The final sample consisted of 366 learners and 366 primary caregivers from the 4 different schools which provided a final sample of 732 participants.

4.4 Data collection instruments

The data for this study was obtained via structured questionnaires (Appendix D and E) about the parenting styles sent to parents (primary care giver) via the learners as well as requested email addresses on the consent form (Appendix B) along with an information sheet (Appendix
A) explaining the entire study and the manual measuring of the children to calculate their BMI scores. Each parent (primary care giver) was given a Parenting Style and Dimension Questionnaire, PSDQ, (Robinson et. al., 2001) to complete, which was developed by Robinson, Mandleco and Hart in 2001 using the parenting styles of Baumrind (Makwakwa, 2009). The questionnaire was translated into Afrikaans and back into English as the language of preference in the Bellville suburb is Afrikaans (Appendix E). The questionnaire has been simplified to Standard English and Afrikaans so that the items are easily read and understood. Should there have been any difficulty in answering any of the items on the questionnaire, the parents as well as the staff of the schools were assured that the researcher was easily contactable for any further explanations (Appendix A). This questionnaire is a 32 item questionnaire that assesses the parenting styles of the parent. According to Robinson et.al (2001), the PSDQ was designed for two reasons: (1) to measure the three global parenting styles consistent with Baumrind’s categories and (2) to measure the dimensions and internal structures within those categories. This PDSQ has been previously used and is currently being used in research projects in the Western Cape (Makwakwa, 2009; Roman et al., submitted to journal 2014). In the Roman et al study, the Chronbach Alphas were as follows:
In the Makwakwa (2009) study the Chronbach Alphas were as follows:

<table>
<thead>
<tr>
<th>Parenting Style</th>
<th>Alpha</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authoritative parenting</td>
<td>.91</td>
<td>Mothers</td>
</tr>
<tr>
<td></td>
<td>.97</td>
<td>Fathers</td>
</tr>
<tr>
<td>Authoritarian parenting</td>
<td>.86</td>
<td>Mothers</td>
</tr>
<tr>
<td></td>
<td>.96</td>
<td>Fathers</td>
</tr>
<tr>
<td>Permissive parenting</td>
<td>.61</td>
<td>Mothers</td>
</tr>
<tr>
<td></td>
<td>.89</td>
<td>Fathers</td>
</tr>
</tbody>
</table>

Table 4.1. A table indicating the Chronbach Alphas reading of the different parenting styles within two different studies.

Thus, as can be seen the reliability of the instrument has been consistently adequate for use in the Western Cape. According to Boone & Boone (April 2012), the Likert scale can be defined as a method to measure attitudes, character and personality traits. The participants will have to respond on a Likert rating scale of 1 to 4, 1=Not at all like me, 2= Not like me, 3= Somewhat like me, 4= A lot like me (Boone& Boone, April 2012).

The responses from the questionnaire were combined to form an attitudinal measurement scale, which could determine the different parenting styles. The questionnaire required only one parent, the primary care giver, to answer. To accommodate for low responsiveness, the
questionnaire was to be emailed to the willing participants as well as a hard copy being resent via the learner to the parent. All teachers as well as the principle were involved in sending weekly reminders to the parents about answering the questionnaire and returning it timeously to the school with the learner. The height (using a tape measure) and weight (using a digital scale) was taken for each learner and the BMI was calculated using the formula obtained from Iannelli (2005) after an assent form was signed by each willing child participant (Appendix C). This BMI score was tabulated on to an excel sheet. Additionally the information of each child namely their age, gender, weight and height was added onto the WHO, 2009 AnthroPlus program which contains an anthropometric calculator and thus generates a growth chart per child.

4.5 Data collection of pilot study

The study was approved by the Senate Research committee at the University of the Western Cape. Permission was granted by the Western Cape education department to conduct this study within schools. Of the four selected schools (two in low and two in high socio economic areas), two schools (one in low and one in high socio economic areas) were randomly selected to conduct the pilot study. A meet and greet session was set up with the principle of each of the schools to introduce the researcher and provide all the relevant documentation upfront, such as the approved proposal of the study, the Western Cape education department permission letter as well as the Senate research committee approval letter. On request from the researcher, each principle provided the researcher with a letter of consent, stating that they granted permission for the researcher to conduct research within their schools.

Two pilot studies were conducted during the course of this study as the researcher was not satisfied with the outcome of the first pilot and thus conducted a second pilot to test the changes made as a result of the poor outcome of the first pilot.
4.5.1 Pilot study one

The participants of the study were grade 2 learners. These learners ranged from the ages of 8 to 10 years old. Of the 85 learners who participated in the first pilot study, 36 were male which equates to 42% of the participants and 49 learners were female which equates to 58% of the participants.

Before the commencement of the pilot study, the consent forms as well as parenting style questionnaire were sent to the parents via the learners one week before the height and weight of the learners was to be conducted. Each parenting style questionnaire was coded with a numerical system. In order for the learners to remain anonymous and their information to remain confidential, a class list was requested from the principals of the schools and the consented returned coded questionnaire was noted next to the name of the learner on the class list, which remained with the researcher at all times during the course of the study. For ethical purposes, only the learners who had returned the questionnaire with the consent of the parents were selected for this study. Those learners who had been granted parental consent to participate in the study were then informed of the aim of the study and allowed to decide if they would like to be a part of the study or not. Those who agreed to be a part of the study were provided with a consent (assent) form that was attached to the parental consent form and parenting style questionnaire. The consented learners were then lined up all at once, with the teachers present to supervise, and their height and weight was taken. The weight was taken using a digital scale, the height was taken using a tape measure. The BMI of the consented learners was then calculated using the WHO Anthropometric calculator. The WHO Anthropometric calculates the BMI percentile of the child using their height, weight and age. With the use of this information the WHO anthropometric calculator conducts a nutritional survey on the learner. It uses a graph to plot the median, the average value of where a child’s BMI scores should be for their age, + 1 SD,
the 85th percentile which equates to an adult BMI score of 25kg/m2, +2SD, the 97th percentile which equates to an adult BMI score of 30kg/m2 and lastly +3SD, which equates to an adult BMI score of 35kg/m2 (WHO, 2013).

In addition to noting the increased BMI scores, the WHO anthropometric calculator also assess the underdevelopment of the learner. As with the increased BMI scores noted as +1SD, +2SD and +3SD there is also the underweight BMI scores noted as -1SD, -2SD and -3SD respectively. These readings note children who are malnourished and underweight for their age. -1SD is associated with normal and not seen as an alarming score due to it being close to the median reading, -2SD is seen as very underweight and -3SD is noted as severely malnourished (WHO, 2013).

4.5.2 Challenges of the first pilot and changes made

The first pilot was conducted with the parenting style questionnaire being dropped off a week in advance to the significant schools but this proved to be too short a timeline for parents. Besides the parents sending the questionnaire back after the prescribed date, those questionnaires that were returned for the study proved to be very minimal. To combat this, the time of the questionnaire being dropped at the schools and the height and weight collection of the learners was extended to 2 weeks. A total of 27 of the 196 forms were returned. This equates to a 13% return rate.

The instrument was also amended but adding in the learner’s height, weight and age into the back of the questionnaire with the researcher asking the learner his or her age while taking the height and weight.
Having all the willing participants together all at once for the height and weight measurements proved to be a chaotic and disorderly situation. This was amended by calling up the willing participants one class at a time.

The challenge that arose with the questionnaires was that the parents or guardians did not answer all the questions on the questionnaire which resulted in blank spaces being submitted back to the researcher. The reason for the blank answers was investigated with the principles of the schools for possible solutions to be implemented in the second pilot study. Another challenge that was noticed was that some parents provided consent but did not fill in the questionnaire. The reason for this was also investigated with the principles of the schools.

4.5.3 Pilot study two

The second pilot was conducted 2 weeks later with the questionnaires as well as consent forms having been handed to the parents 2 weeks in advance. This proved to be more fruitful as there was a more positive response from parents. The educators were encouraged to remind the learners to bring the questionnaires to class. Reminder notes were made in the learner’s homework books on a weekly basis as reminders to parents. Of the 256 consent forms sent out, 85 were returned and these 85 learners were used in the study. This equates to a 33% return rate which is seen as an improvement from the 13% in the first pilot.

The learners were very welcoming and excited to have a new face in the class. On explaining what the study was about and what they were needed, the learners were eager to fill in the children consent (assent) forms and participate in the study. They were especially excited lining up and having their height and weight taken. Field notes were made to streamline the process for a better implementation during the main study.
The reason for the blank questionnaires or answers was that the parents or guardians did not fully understand the questions. Upon this discovery, the principles of the schools set up a meeting with the parents who were experiencing difficulty and the researcher to explain the questions to them in a language and manner that they could understand.

The teachers were requested to note the code of the returned questionnaire next to the learners name on the class list to maintain anonymity. All returned questionnaires were requested to be kept in their relevant classes. The researcher conducted the height and weight of each willing learner by visiting each class separately so to avoid disrupting too much of the learning time. The age of the learner was asked during the weight and height taking.

4.5.4 Changes for main study

After a successful and satisfactory second pilot study the only change that was noted to be implemented in to the main study was the extension of the timeline from dropping off the questionnaires at the schools to the taking of the measurements of the learners. This timeline was extended from two weeks to three weeks to allow parents or guardians ample time to complete the questionnaire and to allow time for interaction to those parents or guardians who experienced any difficulty in understanding the questions asked.

4.6 Data collection of Main study

The data collection for the main study which incorporated all four schools (two from low and two from high socio-economic areas) was conducted on two separate days. The reason for this was to ensure accuracy and quality by minimizing the risk of negligence on the part of the researcher which could be due to fatigue or decreased concentration.

Of the 514 questionnaires sent out, 186 were returned on or before the day of the learners measurement taking and these 186 learners were used in this study of which 52% were male.
and 48% female learners. This equates to a 36% response rate which is a 3% improvement on the 33% response rate during the second pilot study. Of the 186 learners who took part in the study, 56% were from the lower socio economic areas and 44% were from the higher socio economic areas.

4.7 Data analysis of Main study

Once the data was collected and scored according to the requirements of the instruments used, the data was then entered in the WHO AnthroPlus program which required the age, height and weight of each learner. The code used on the questionnaire was entered instead of the learners name to maintain anonymity. The WHO AnthroPlus program calculated the BMI score of each child as well as a graphical representation of their BMI status. Once the entries are complete the program designs a graphical representation of the BMI scores present in the different socio economic areas.

The data collect was then collaborated and analysed by means of the Statistical Package in the Social Science (SPSS 21.0). The analysis will reveal descriptive statistics which could include the frequencies, means and standard deviation of the variables. The statistical analysis also used inferential statistics such as the t-tests, which is used to compare two variables. The analysis is done to specifically answer the research questions, aims and objectives of the study. Additionally, the analysis would also test the hypothesis of the study.

4.8 Reliability and Validity

The Cronbach’s Alpha will be used to test the reliability of the instrument. Reliability can be defined as: “the extent to which results are consistent over time and an accurate representation of the total population under study is referred to as reliability and if the results of a study can be reproduced under a similar methodology” (Joppe, 2000). The reliability will be ensured by
each weight and height reading being done thrice to ensure the reading is the same. Validity is used to determine whether the results of the research are truthful and valid and that the research correctly measures what it was intended to measure (Joppe, 2000). For this study, the validity of the instrument has been assessed in the original study of the instrument.

4.9 Ethics

For this study, permission was requested from the Senate Higher Degrees committee and the Western Cape Education Department to conduct the study. All parents of the participants were provided with an informed consent form which were explained the aim and the purpose of the study. Informed consent was obtained from all the parents of the participants as well as assent from the participants. The details of the researcher as well as the supervisor was provided on the consent and assent forms should the participants need clarity on any aspect of the study. All participants were assured of confidentiality, the condition of being sealed or hidden by only the researcher and supervisor having access to the data collected. The data collected was under lock and key at all times to ensure confidentiality of all those involved. Anonymity, the state of being unknown, was provided by means of a coding system with a number instead of a name in order to ensure anonymity. Only two researchers, namely the researcher and the supervisor, had access to the collected information. Participants were informed that they could choose not to participate or leave the research process at any point without consequences. All measures were taken to make sure the participants are comfortable in the study. To avoid any discrimination or embarrassment, the BMI scores were not disclosed to the learners but should they have required help, the correct referrals were made. The referral process was made available to the parents should they request it. All participants in the study received a summarized copy of the research findings.
4.10 Conclusion

This chapter presents the research design of this study which was a cross sectional, correlational comparative study with a multi-stage sampling process. The pilot study was conducted twice due to the poor response rate and the changes were piloted before final implementation. This chapter outlines the process of data collection for both the pilot and the main study with the ethical consideration for the participants being kept in mind at all times. The following chapter analyses and presents the data collected in this chapter.
CHAPTER 5

RESULTS

5.1 Introduction

This chapter provides the results of the conducted study. The chapter starts off with an analysis overview and description of the study sample which then leads into the demographic profile of both parent and child participants. The analysis was conducted using the Statistical Package for the Social Sciences 22 (SPSS). The results of the different parting styles with low and high socio economic areas are tabulated within this chapter and lastly, the chapter presents the results of a comparison of the BMI score of the children within low and high socio economic areas.

The following table provides an explanation of the variables used in SPSS as a means of understating the results.

<table>
<thead>
<tr>
<th>Variable abbreviation</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>Identification of the child participant</td>
</tr>
<tr>
<td>School</td>
<td>Socio economic area of the school</td>
</tr>
<tr>
<td>Sex</td>
<td>Sex of the parent</td>
</tr>
<tr>
<td>Age</td>
<td>Age of the parent</td>
</tr>
<tr>
<td>Race</td>
<td>Race of the parent</td>
</tr>
<tr>
<td>LA</td>
<td>Living arrangements of the parents</td>
</tr>
<tr>
<td>Language</td>
<td>main language spoken by the parent</td>
</tr>
<tr>
<td>MSparent</td>
<td>Marital status of the parent</td>
</tr>
<tr>
<td>educationP</td>
<td>Education level of the parent</td>
</tr>
<tr>
<td>weight</td>
<td>Weight of the child</td>
</tr>
<tr>
<td>height</td>
<td>Height of the child</td>
</tr>
<tr>
<td>sexC</td>
<td>Sex of the child</td>
</tr>
<tr>
<td>AgeC</td>
<td>Age of the child</td>
</tr>
<tr>
<td>BMI</td>
<td>BMI score of the child</td>
</tr>
</tbody>
</table>
5.2 Analysis Overview

There were two hypotheses projected in this study. In chapter 1 the following hypothesis were presented:

**Hypothesis one:**

- There is significant relationship between the parenting styles and BMI scores in children.

**Hypothesis two:**

- There is a higher BMI score reading in high socio economic areas than the low socio economic areas

5.3 Internal consistency of measures

This study uses the Parenting Style and Dimensions Questionnaire (PSDQ) as developed by Robinson, Mandleco, Olsen, & Hart (2001) to measure the variables that are used in the study. The PSDQ is addressed to one of the parents or guardian of the child and measures their perceptions of parenting by asking them to answer 32 questions using a Likert scale where the responses 1 = Never, 2 = Once in a while, 3 = About half the time, 4 = Very often, 5 = Always. To test the reliability of this instrument, Cronbach Alpha coefficients were used (Gliem & Glem, 2003). Table 5.1 illustrates the Cronbach Alpha coefficients for parenting styles (September, 2014). According to September (2014), an acceptable reading for Cronbach Alpha coefficients is above 0.75 while even a 0.6 reading can be considered moderate acceptable.
Table 5.1. Table to show the internal consistencies of the measures

<table>
<thead>
<tr>
<th>Parenting Styles</th>
<th>No. of Items</th>
<th>Total Items</th>
<th>LSES Items</th>
<th>HSES Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSDQ</td>
<td>32</td>
<td>.74</td>
<td>.73</td>
<td>.77</td>
</tr>
<tr>
<td>AUTIVE</td>
<td>15</td>
<td>.85</td>
<td>.88</td>
<td>.74</td>
</tr>
<tr>
<td>AUTRIAN</td>
<td>12</td>
<td>.78</td>
<td>.78</td>
<td>.79</td>
</tr>
<tr>
<td>PERM</td>
<td>5</td>
<td>.60</td>
<td>.62</td>
<td>.48</td>
</tr>
</tbody>
</table>

A Cronbach Alpha coefficients above .70 is considered to be acceptable in most social science research situations (Bruin, 2006). Therefore the alphas show a good reliability of the instruments used to measure the variables.

5.4 Description of the study sample

The study sample for this study consisted of all grade 2 learners between the ages of 7 and 10 with one parent or guardian within two low and two high socio economic areas schools. The final sample of this study consisted of 732 participants which equated to 200 male and 166 female learners with 366 primary care givers.
### Table 5.2 Demographic information of the parents

<table>
<thead>
<tr>
<th>Variables</th>
<th>Breakdown Variables of SES Variables</th>
<th>Low SES</th>
<th>High SES</th>
<th>n = 163</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>22</td>
<td>15</td>
<td>37</td>
<td>23.6%</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>77</td>
<td>43</td>
<td>120</td>
<td>76.4%</td>
</tr>
<tr>
<td>Living arrangements</td>
<td>In the same home</td>
<td>67</td>
<td>42</td>
<td>109</td>
<td>66.9%</td>
</tr>
<tr>
<td></td>
<td>In separate homes</td>
<td>23</td>
<td>11</td>
<td>34</td>
<td>20.9%</td>
</tr>
<tr>
<td>Race</td>
<td>Black</td>
<td>17</td>
<td>15</td>
<td>32</td>
<td>19.6%</td>
</tr>
<tr>
<td></td>
<td>White</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0.6%</td>
</tr>
<tr>
<td></td>
<td>Coloured</td>
<td>80</td>
<td>42</td>
<td>122</td>
<td>74.8%</td>
</tr>
<tr>
<td></td>
<td>Asian</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0.6%</td>
</tr>
<tr>
<td>Education</td>
<td>Matric</td>
<td>41</td>
<td>22</td>
<td>63</td>
<td>38.7%</td>
</tr>
<tr>
<td></td>
<td>1st year level</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1.8%</td>
</tr>
<tr>
<td></td>
<td>2nd year level</td>
<td>4</td>
<td>4</td>
<td>8</td>
<td>4.9%</td>
</tr>
<tr>
<td></td>
<td>3rd year level</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1.2%</td>
</tr>
<tr>
<td></td>
<td>4th year level</td>
<td>0</td>
<td>4</td>
<td>4</td>
<td>2.5%</td>
</tr>
<tr>
<td></td>
<td>Higher than matric</td>
<td>6</td>
<td>7</td>
<td>13</td>
<td>8%</td>
</tr>
<tr>
<td></td>
<td>Less than matric</td>
<td>16</td>
<td>6</td>
<td>22</td>
<td>13.5%</td>
</tr>
<tr>
<td></td>
<td>Unknown</td>
<td>48</td>
<td></td>
<td></td>
<td>29.4%</td>
</tr>
<tr>
<td>Home language</td>
<td>English</td>
<td>26</td>
<td>34</td>
<td>60</td>
<td>38%</td>
</tr>
<tr>
<td></td>
<td>Afrikaans</td>
<td>58</td>
<td>9</td>
<td>67</td>
<td>42.4%</td>
</tr>
<tr>
<td></td>
<td>Isikhosa</td>
<td>12</td>
<td>7</td>
<td>19</td>
<td>12%</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>4</td>
<td>8</td>
<td>12</td>
<td>7.6%</td>
</tr>
<tr>
<td>Marital status</td>
<td>Married</td>
<td>42</td>
<td>36</td>
<td>78</td>
<td>47.9%</td>
</tr>
<tr>
<td></td>
<td>Single</td>
<td>46</td>
<td>14</td>
<td>60</td>
<td>36.8%</td>
</tr>
<tr>
<td></td>
<td>Divorced</td>
<td>4</td>
<td>7</td>
<td>11</td>
<td>6.7%</td>
</tr>
<tr>
<td></td>
<td>Cohabitting</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1.2%</td>
</tr>
<tr>
<td></td>
<td>Widow</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>1.2%</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>1.8%</td>
</tr>
</tbody>
</table>
As per the results in Table 5.2, majority of the parent participants in both low and high socio economic areas were females (76.4 %) who were predominantly coloured individuals (74.8%) that were living in the same house as their child (66.9%) and had obtained at matric certification (38.7%) as their highest form of education.

According to the results in Table 5.2, in low socio economic areas the most frequently spoken language at home was Afrikaans (35.6%) where as in the high socio economic areas the main home language spoken was English (20.9%). Another difference noted between the different socio economic areas were that in low socio economic areas majority of the parent participants were single (28.2%) where as in the high socio economic areas majority of the parent participants were married (22.1%). When combining the martial statuses together to create a situation where the child has either two parents or a single parent raising them, the results illustrate that 49% of the parental participants consisted of parents in a relationship (Married and cohabiting) where as 44.7% of the parental participants were not in any relationship (single, divorced or widowed).

Table 5.3 Demographic information of the children

<table>
<thead>
<tr>
<th>Variables</th>
<th>Breakdown of the Variables</th>
<th>n = 163</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>24</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>34</td>
<td>54</td>
</tr>
</tbody>
</table>

Table 5.3 depicts that in both low and high socio economic areas the majority of the participants were female (54%).

5.6 Parenting styles

In this section of the study, the data collected has been tabled in order to identify the prevalence of parenting style within high and low socio economic areas. Table 5.4 presents the Mean (M) and Standard deviations (SD) for the PSDQ answers on authoritarian parenting. Within Table
5.4, the sub factors of authoritarian parenting styles are included such as Connection dimensions, regulation dimensions and autonomy granting dimensions.

Tables 5.5, indicates the means (M) and standard deviations (SD) of an authoritative parenting style and include the sub factors of physical coercion dimensions, verbal hostility dimensions and non-reasoning or punitive dimensions.

Table 5.6, depicts the means and standard deviations of permissive parenting styles and include the indulgent dimensions.

| Table 5.4 Mean (M) and Standard Deviation (SD) of the Authoritative Parenting Style |
|------------------------------------------|-------------|-------------|-------------|-------------|
| **Authoritative Parenting Style**       | **Sub factor 1 – Connection Dimension (Warmth and Support)** | **M** | **SD** |
| No | Item | LSES | HSES | LSES | HSES |
| 7  | I encourage my child to talk about their troubles | 3.60 | 3.82 | 0.88 | 0.54 |
| 1  | I am responsive to my child’s feelings and needs | 3.68 | 3.74 | 0.76 | 0.70 |
| 12 | I give comfort and understanding when my child is upset | 3.66 | 3.69 | 0.75 | 0.63 |
| 14 | I praise my child when they are good. | 3.76 | 3.91 | 0.66 | 0.35 |
| 27 | I have warm and intimate times together with my child | 3.46 | 3.57 | 0.98 | 0.86 |
| **Sub factor 2 – Regulation Dimension (Reasoning/ Induction)** | | | |
| 25 | I give my child reasons why rules should be obeyed | 3.46 | 3.70 | 0.92 | 0.60 |
| 29 | I help my child to understand the impact of their behaviour by encouraging them to talk about the consequences of their own actions | 3.44 | 3.53 | 0.92 | 0.69 |
| 31 | I explain to my child the consequence of their behaviour | 3.67 | 3.59 | 0.70 | 0.65 |
| 11 | I emphasize the reasons for rules | 3.39 | 3.61 | 0.82 | 0.62 |
I explain to my child how I feel about their good and bad behaviour.

<table>
<thead>
<tr>
<th>Sub factor 3 – Autonomy Granting Dimension (Democratic Participation)</th>
</tr>
</thead>
</table>
| 21 I show respect for my child’s opinions by encouraging them to express their opinions.
| 9 I encourage my child to freely express themselves even when they disagree with me.
| 22 I allow my child to give input into family rules.
| 3 I consider my child’s desires before asking them to do something.
| 18 I take into account my child’s preference in making plans for the family.

Responses were on a Likert scale of 1 = Never, 2 = Once in a while, 3 = About half the time, 4 = Very often, 5 = Always

As per the results tabulated in Table 5.4, in low and high socio economic areas, majority of the participants within the connection dimension that illustrates to the display of warmth and support (LSES: $M = 3.76; SD = 0.66$ and HSES: $M = 3.91; SD = 0.35$) perceived themselves as “praising my child when they are good”. This is followed by participants in high socio economic areas ($M = 3.82; SD = 0.54$) claiming to “encourage my child to talk about their troubles”. Furthermore, the results depict that those participants in low socio economic areas claim to be “responsive to my child’s feelings and needs” ($M = 3.68; SD = 0.70$).

Within the regulation dimension sub factor, Table 5.4 illustrates that in low socio economic areas, majority of the participants ($M = 3.67; SD = 0.70$) claimed to” explain to my child the consequence of their behavior” while in high socio economic areas the majority of the
participants \((M = 3.70; \ SD = 0.92)\) claimed to “give my child reasons why rules should be obeyed”.

Lastly, within the autonomy granting dimension sub factor, the results in Table 5.4 portray that the majority of participants in both high and low socio economic areas \((LSES: \ M = 3.50; \ SD = 0.84 \text{ and } HSES: \ M = 3.65; \ SD = 0.55)\) professed themselves as “showing respect for my child’s opinions by encouraging them to express their opinions”. This was followed by participants in high socio economic areas claiming “encourage my child to freely express themselves even when they disagree with me” \((M = 3.44; \ SD = 0.80)\) while participants in low socio economic areas claimed to “take into account my child’s preference in making plans for the family” \((M = 3.24; \ SD = 0.89)\).

**Table 5.5 Mean (M) and Standard Deviation (SD) of the Authoritative Parenting Style**

<table>
<thead>
<tr>
<th>Sub factor 1 – Physical Coercion Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>6</td>
</tr>
<tr>
<td>32</td>
</tr>
<tr>
<td>19</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sub factor 2 – Verbal Hostility Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
</tr>
<tr>
<td>16</td>
</tr>
<tr>
<td>13</td>
</tr>
<tr>
<td>23</td>
</tr>
<tr>
<td>30</td>
</tr>
</tbody>
</table>
Sub factor 3 – Non-reasoning/ Punitive Dimension

<table>
<thead>
<tr>
<th></th>
<th>I punish my child by taking privileges away from them with little if any explanations</th>
<th>2.51</th>
<th>2.58</th>
<th>1.09</th>
<th>1.13</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>I use threats as punishment with little or no justification</td>
<td>2.00</td>
<td>1.71</td>
<td>0.97</td>
<td>0.80</td>
</tr>
<tr>
<td>26</td>
<td>I punish my child by putting them off somewhere alone with little if any explanations</td>
<td>1.82</td>
<td>1.57</td>
<td>1.06</td>
<td>0.89</td>
</tr>
<tr>
<td>28</td>
<td>When my child asks why they have to conform to what I say, my response is: “because I said so, or I am your parent and I want you to”</td>
<td>3.00</td>
<td>2.63</td>
<td>1.15</td>
<td>1.09</td>
</tr>
</tbody>
</table>

Responses were on a Likert scale of 1 = Never, 2 = Once in a while, 3 = About half the time, 4 = Very often, 5 = Always

In Table 5.5, the results depict that in both high and low socio economic areas, majority of the participants in the physical coercion dimension sub factor (LSES: $M=2.64; SD=1.02$ and $HSES: M=2.54; SD=1.05$) portrayed themselves as “spanking my child when they are disobedient” which was closely followed by “I use physical punishment as a way of disciplining my child” (LSES: $M=2.15; SD=1.08$ and HSES: $M=2.00; SD=1.00$).

While in the verbal hostility dimension sub factor, the results in Table 5.5 clearly display that participants in both low and high socio economic areas perceived themselves as” I yell or shout at my child when they misbehave” (LSES: $M=2.75; SD=1.02$ and HSES: $M=2.79; SD=1.05$).

Lastly in the non-reasoning dimension sub factor, Table 5.5 depicts that majority of the participants (LSES: $M=3.00; SD=1.15$ and HSES: $M=2.63; SD=1.09$) had perceived themselves as responding to their child with “When my child asks why they have to conform to what I say, my response is: “because I said so, or I am your parent and I want you to” which
was closely followed by “I punish my child by taking privileges away from them with little if any explanations” (LSES: M=2.51; SD=1.09 and HSES: M=2.58; SD=1.13).

Table 5.6 Mean (M) and Standard Deviation (SD) of the Permissive Parenting Style

<table>
<thead>
<tr>
<th>No.</th>
<th>Item</th>
<th>LSES</th>
<th>HSES</th>
<th>LSES</th>
<th>HSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>I state punishments to my child and do not actually do them</td>
<td>2.62</td>
<td>2.55</td>
<td>1.09</td>
<td>1.00</td>
</tr>
<tr>
<td>17</td>
<td>I threaten my child with punishment more often than actually giving it</td>
<td>2.64</td>
<td>2.79</td>
<td>1.17</td>
<td>1.07</td>
</tr>
<tr>
<td>15</td>
<td>I give into my child when they cause a commotion about something</td>
<td>2.29</td>
<td>2.02</td>
<td>1.14</td>
<td>1.01</td>
</tr>
<tr>
<td>8</td>
<td>I find it difficult to discipline my child</td>
<td>2.28</td>
<td>2.00</td>
<td>1.09</td>
<td>1.06</td>
</tr>
<tr>
<td>24</td>
<td>I spoil my child.</td>
<td>2.54</td>
<td>2.66</td>
<td>1.10</td>
<td>1.10</td>
</tr>
</tbody>
</table>

Responses were on a Likert scale of 1 = Never, 2 = Once in a while, 3 = About half the time, 4 = Very often, 5 = Always

Table 5.6 indicates the means and standard deviation amounts for the permissive parenting style. In this table the results depicts that for both high and low socio economic areas, parents perceived themselves as “threaten my child with punishment more often than actually giving it” (LSES: M=2.64; SD=1.17 and HSES: M=2.79; SD=1.07). This is followed by participants in low socio economic areas claiming to respond to their child with “I state punishments to my child and do not actually do them” (M=2.62; SD=1.09) while participants in high socio economic areas responded with “I spoil my child” (M= 2.66; SD= 1.10).
Table 5.7 Total mean scores for the sample for parenting styles (HSES in parenthesis)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Min</th>
<th>Max</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parental Connection</td>
<td>1.00</td>
<td>4.00</td>
<td>3.64</td>
<td>0.62</td>
</tr>
<tr>
<td></td>
<td>(2.20)</td>
<td>(4.00)</td>
<td>(3.72)</td>
<td>(0.42)</td>
</tr>
<tr>
<td>Parental Regulation</td>
<td>1.20</td>
<td>4.00</td>
<td>3.52</td>
<td>0.64</td>
</tr>
<tr>
<td></td>
<td>(2.60)</td>
<td>(4.00)</td>
<td>(3.63)</td>
<td>(0.39)</td>
</tr>
<tr>
<td>Parent Autonomy</td>
<td>1.20</td>
<td>4.00</td>
<td>3.23</td>
<td>0.61</td>
</tr>
<tr>
<td></td>
<td>(2.40)</td>
<td>(4.00)</td>
<td>(3.34)</td>
<td>(0.45)</td>
</tr>
<tr>
<td>Authoritative Parenting</td>
<td>1.67</td>
<td>4.00</td>
<td>3.49</td>
<td>0.51</td>
</tr>
<tr>
<td>style</td>
<td>(2.67)</td>
<td>(4.00)</td>
<td>(3.59)</td>
<td>(0.31)</td>
</tr>
<tr>
<td>Parental Physical Coercion</td>
<td>1.00</td>
<td>4.00</td>
<td>2.01</td>
<td>0.74</td>
</tr>
<tr>
<td></td>
<td>(1.00)</td>
<td>(4.00)</td>
<td>(1.96)</td>
<td>(0.72)</td>
</tr>
<tr>
<td>Parental Verbal Hostility</td>
<td>1.00</td>
<td>3.75</td>
<td>2.28</td>
<td>0.71</td>
</tr>
<tr>
<td></td>
<td>(1.00)</td>
<td>(3.75)</td>
<td>(2.34)</td>
<td>(0.68)</td>
</tr>
<tr>
<td>Parent punitive</td>
<td>1.00</td>
<td>4.00</td>
<td>2.32</td>
<td>0.63</td>
</tr>
<tr>
<td></td>
<td>(1.00)</td>
<td>(4.00)</td>
<td>(2.11)</td>
<td>(0.63)</td>
</tr>
<tr>
<td>Authoritarian Parenting</td>
<td>1.00</td>
<td>3.50</td>
<td>2.21</td>
<td>0.56</td>
</tr>
<tr>
<td>Style</td>
<td>(1.08)</td>
<td>(3.75)</td>
<td>(2.15)</td>
<td>(0.54)</td>
</tr>
<tr>
<td>Permissive parenting Style</td>
<td>1.00</td>
<td>4.00</td>
<td>2.46</td>
<td>0.69</td>
</tr>
<tr>
<td></td>
<td>(1.00)</td>
<td>(4.00)</td>
<td>(2.40)</td>
<td>(0.59)</td>
</tr>
</tbody>
</table>

According to the Table 5.7, the results depict that the authoritative style of parenting is most prevalent in both low and high socio economic areas although it is higher in high socio economic ($M= 3.59; SD=0.51$) areas than low socio economic areas ($M= 3.49; SD=0.31$).
Table 5.8  Group differences: Parenting styles and BMI scores (HSES in parenthesis)

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th></th>
<th></th>
<th></th>
<th>df</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI</td>
<td>105</td>
<td>17.43</td>
<td>2.82</td>
<td>0.28</td>
<td>161</td>
<td>-1.02</td>
<td>0.31</td>
</tr>
<tr>
<td></td>
<td>(58)</td>
<td>(17.90)</td>
<td>(2.83)</td>
<td>(0.37)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Authoritative</td>
<td>78</td>
<td>3.49</td>
<td>0.51</td>
<td>0.57</td>
<td>123</td>
<td>-1.15</td>
<td>0.25</td>
</tr>
<tr>
<td></td>
<td>(47)</td>
<td>(3.59)</td>
<td>(0.31)</td>
<td>(0.45)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Authoritarian</td>
<td>88</td>
<td>2.21</td>
<td>0.56</td>
<td>0.60</td>
<td>138</td>
<td>0.66</td>
<td>0.51</td>
</tr>
<tr>
<td></td>
<td>(52)</td>
<td>(2.14)</td>
<td>(0.54)</td>
<td>(0.75)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Permissive</td>
<td>90</td>
<td>2.46</td>
<td>0.69</td>
<td>0.73</td>
<td>143</td>
<td>0.53</td>
<td>0.60</td>
</tr>
<tr>
<td></td>
<td>(55)</td>
<td>(2.40)</td>
<td>(0.59)</td>
<td>(0.80)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According to Table 5.8, there is no significant difference between low and high socio-economic areas for parenting styles and BMI scores.

Table 5.9 Comparing scores for parenting styles in low and high socio-economic groups

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Low SES</th>
<th>High SES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Authoritative</td>
<td>3.49</td>
<td>0.51</td>
</tr>
<tr>
<td>Authoritarian</td>
<td>2.21</td>
<td>0.56</td>
</tr>
<tr>
<td>Permissive</td>
<td>2.46</td>
<td>0.69</td>
</tr>
</tbody>
</table>

Table 5.9 presents the mean and stand deviation scores parenting styles between low and high socio economic areas that have been extracted from Table 5.5, Table 5.6 and Table 5.7 to be combined into one table for the convenience of the reader. The results once again indicate that within high and low socio economic areas the authoritative parenting style is more prominent although it is more evident in high socio economic areas than low socio economic areas.
5.7 Comparing BMI scores in Low and High socio economic groups

Table 5.10 BMI score of children in low and high socio economic areas.

<table>
<thead>
<tr>
<th>Age of Child</th>
<th>Low SES</th>
<th>High SES</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>17.30</td>
<td>18.35</td>
</tr>
<tr>
<td>8</td>
<td>17.65</td>
<td>17.17</td>
</tr>
<tr>
<td>9</td>
<td>16.86</td>
<td>15</td>
</tr>
<tr>
<td>10</td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td>11</td>
<td>0</td>
<td>25</td>
</tr>
<tr>
<td>Mean Score</td>
<td>17.43</td>
<td>17.86</td>
</tr>
</tbody>
</table>

As previously mentioned, the data collected from the children was entered into the WHO AnthroPlus program. This is a program which calculates the BMI score of the child from the age, height and weight measurements of the child. The data collected from the child that is inserted into the program is compared to the standard WHO growth of children in that specific age group. The program then designs a graph for each child that depicts their growth in comparison to the global standard for children of that age group.

Anthropometry has been widely used in the assessment of health and the risks involved especially with children (WHO, 1995). The WHO AnthroPlus program works on anthropometric indices that are a combination of measurements. For the calculation of the BMI score of children the 3 most commonly used anthropometric indices are 1.) weight-for-height, 2.) height-for-age, and 3.) weight-for-age. The anthropometric indices are expressed in term of the Z-score or SD score. According to WHO (2013), the Z- scores or SD scores equate to the following:

- +1 SD: the 85th percentile which equates to an adult BMI score of 25kg/m2 which translate to being overweight.
- +2SD: the 97th percentile which equates to an adult BMI score of 30kg/m2 which translates in to being obese.
+3SD: which equates to an adult BMI score of 35kg/m² which translates into being severely obese.

Figure 5.11. Comparing the BMI scores of children in low socio economic areas with that of the WHO growth pattern

From the figure 5.11. above, the results depicts that children in low socio economic areas are obtaining BMI scores that are relatively close to the growth curve guidelines set up by WHO for children in the ages of 7 to 10 years of age. The data reveals that the Z scores of these children are not in the excessively plus (+) category which would indicate obesity and neither are they in the minus (-) category which would indicate malnourishment or underweight children.
Figure 5.12. Comparing the BMI scores of children in high socio economic areas with that of the WHO growth pattern

Figure 5.12 portrays that children in the high socio economic areas are noticeably deflected from the WHO growth curve guideline. The data depicts that majority of the children are categorized above the zero Z scores, shows that majority of the child in high socio economic areas are thus overweight or obese by the results falling into the +1 SD to +5 SD.
The figure 5.11 and 5.12 illustrates the BMI scores in percentages amongst the different ages of the grade two children in low and high socio economic areas. From this data the following observations between high and low socio economic areas were noticed:

- The age group where the biggest difference in BMI scores were noticed are at age 9 years old (LSES: $M = 16.86$ and HSES: $M = 15$).

- In high socio economic areas there were no children present at the age of 10 while low socio economic areas contained a 15% of age 10 children.

- In low socioeconomic areas there were no children at the age of 11 whilst high socio economic areas contained a 25% of children at the age of 11 present.

- According to the mean of the entire sample, high socio economic areas ($M = 17.86$) contain high BMI scores than low socio economic areas ($M = 17.43$).
Table 5.14  The correlation between parenting styles and BMI scores within low and high socio economic areas

<table>
<thead>
<tr>
<th>Variables</th>
<th>BMI of child</th>
<th>Authoritative Parenting style</th>
<th>Authoritarian Parenting style</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI of child</td>
<td>LSES</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>HSES</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Authoritative Parenting style</td>
<td>LSES</td>
<td>.02</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>HSES</td>
<td>.12</td>
<td>-</td>
</tr>
<tr>
<td>Authoritarian Parenting style</td>
<td>LSES</td>
<td>-.08</td>
<td>-.17</td>
</tr>
<tr>
<td></td>
<td>HSES</td>
<td>.08</td>
<td>.09</td>
</tr>
<tr>
<td>Permissive Parenting style</td>
<td>LSES</td>
<td>-.01</td>
<td>.01</td>
</tr>
<tr>
<td></td>
<td>HSES</td>
<td>.20</td>
<td>.11</td>
</tr>
</tbody>
</table>

*Correlation is significant at the 0.05 level

According to Table 5.14, there was no correlation established between parenting styles and BMI scores of children within low and high socio economic areas.
5.8 Summary of findings

The results presented in this chapter show that the authoritative parenting style is more prevalent within low and high socio economic areas but have a higher prevalence in high socio economic areas. Permissive parenting is the second prevalent parenting style which is then followed by the authoritarian parenting style. The results presented via the graphs of the BMI score of children in low and high socio economic areas clearly indicate that children within the low socio economic areas are more inclined to follow the WHO growth chart than those within the higher socio economic areas.
CHAPTER 6

DISCUSSION; CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

The current study is a comparative study of the relationship between the parenting styles most prevalent in the low and high socio economic areas of South Africa and the BMI scores of children in grade two of primary schools also within low and high socio economic areas. This chapter presents a discussion about the findings of the study. The data collected in chapter 4 and the results presented in chapter 5 are examined in relation to the aims and hypothesis presented in chapter 1. Incorporation of the self-determination theory elaborated in chapter 2 and the explanation of the childhood obesity epidemic with its contributing factors will be made in this chapter. Lastly a reflection on the limitations of the study will be made and recommendation will be offered.

6.2 BMI scores of children and socio economic status

A study conduct by Wang (2001) examined the situation of childhood obesity across multiple continents with the objective of comparing the relationship between socio economic status and childhood obesity. The results of Wang’s study indicated that within higher socio economic areas the BMI scores were higher and thus the obesity rate was higher within these countries. Although Wang (2001) clearly indicates that the prevalence of childhood obesity varies remarkably among different countries with different socio economic ranks, the majority of the countries included in the study indicated that higher socio economic areas provided increased BMI scores within children and thus leading to childhood obesity. The variance of the prevalence of childhood obesity is present it the study conducted by Sundblom et al (2008) in
Stockholm in Sweden, where the childhood obesity of both boys and girls was investigated over a period of four years. The results of this study indicated that prevalence of childhood obesity in 10 year old boys was higher among lower socio economic areas those of the girls within the same age and socio economic group. The results of these studies correspond with the current study which indicates that within the higher socio economic areas the children had Z scores that was plus one and more indicating overweight and obese levels as compared to the lower socio economic areas where the Z scores were more within the normal range for children within that age group within the South African context.

Another study conducted in England by Stamatakis et al (2010) investigated the prevalence of childhood obesity among different socio economic areas over a ten year period. The results depicted that despite the stabilization of the BMI scores of children leading to stabilization in the overall childhood obesity rate over the ten year time frame, the social inequalities continued to grow and this has directly affected children in the lower socio economic areas. The researcher is of the opinion that within the South African context the situation is of a similar nature in that the children within the lower socio economic areas are affected by the social inequalities the most.

Within the South African Context, a similar study provided the same results as Wang (2001). Temple et al (2006) indicate that the reason for the lowered BMI scores in low socio economic areas within South Africa is that most of the children brought their lunched from home which consisted of healthier options such as brown bread, fruit, eggs etc as compared to the tuck-shop options of sweets and chips. It was also noted that children from low socio economic areas presented with a more traditional diet structure which was composed of a high legume and vegetable intake with a low consumption of sugar and animal products (Temple et al., 2006).
In this current study, the results are in agreement with that of Temple et al (2006) and Wang (2001) which state that the lower socio economic areas have decreased BMI scores of children and are more inclined to follow the WHO growth standard for children within that the age group of 7 – 10 years old. The researcher is in agreement with Temple et al (2006) in stating that one of the reasons for the decreased BMI scores could be the fact of the traditional diet that the lower socio economic areas implement with their children. When looking at the higher socio economic areas, the results clearly indicate that children in this area have deviated significantly from the WHO growth curve standard for their age group. This means that the growth curve line is situated more in the + Z score which indicated that majority of the children in this age group are borderline obese leading up to morbidly obese children.

Deci and Ryan’s Self-determination theory (2000), provides an explanation of how intrinsic and extrinsic motivators can influence the lives of not only the parents but the children as well. The researcher is of the opinion that if children with a high BMI score are intrinsically motivated to lower their BMI to improve their health and thus their future, they are more inclined to stick to a designated plan and thus are more likely to achieve their desired goals. Ward et al (2011) encourages the practice of the principles of the Self-determination theory when addressing the BMI scores of children as establishing the motivating factors for both parent and child which determine their behavioural patterns is crucial in designing an intervention plan for both parent and child to reduce the BMI scores of children and thus reduce childhood obesity.

6.3 Parenting styles and socio economic status (SES)

A study conducted by Bornstein (2002) in New Jersey claims that there is accumulating evidence in the field of parenting styles along with SES impacting children. The study also states that different indices of SES provides insight on different relation to both parent and
child outcomes and therefore the various indicators of SES should not be considered interchangeable. When observing parenting styles and SES it has been noted that parenting in higher socio economic areas are more child-centred and autonomous while parents in lower socio economic areas provided a more parent-centred approach (Bornstein, 2002). Deci and Ryan’s Self-determination theory highlights the intrinsic and extrinsic motivators that encourage the formation of the different parenting styles and thus directly impacting the environment of the child. Ward et al (2011) implicates the self-determination theory as providing the structure for underrating what motivates both parent and child to build intrinsic motivation to adopt certain behavioural patterns. Authoritative parenting style is seen as the ideal of the parenting style due to its positive outcomes seen in the child than emerges from an authoritative parenting environment (Rhee et al., 2006). In the current study, the results obtained indicates that the higher socio economic areas presented a higher result for authoritative parenting style ($M=3.59$; $SD=0.38$) while low socio economic areas presented a lower authoritative parenting style result ($M=3.49$; $SD=0.51$).

According to Roman (2008), socio economic status can be classified as a continuous index that is based on one or more variables applied at either an individual or at a higher level which is classified as low or high based on measurable indicators such as parental education, household income and occupational status. The greatest disadvantage of these measurable indices is that they obscure the source of the effects of socio economic status both on parents as well as the children (Bornstein, 2002). According to Bornstein (2002), there are only three measurable indices that are important to children: 1.) financial capital, in which the parent can provide the essentials for the child, 2.) human capital, in which the parent is able to effectively communicate with their child and 3.) Social capital, in which the parent provides the competences for the child to be able to connect to the larger community. Patriek et al (2013) has identified the self-determination theory as a model that conceptualizes the social
context so that it can either support or hinder the basic psychological needs for autonomy, competence and relatedness. In this study this means the social context that the parents and child are in can support or obstruct the individual’s capacity to act independently and thus validate their behaviours. Within this study, the results depict that the most prevalent parenting style was that of the Authoritative parenting but this typology of parenting is noticeably more prevalent within the higher socio economic areas. According to the results of this study, majority of the parent participants were coloured female with their highest form of education being a matric which coincides with Bornstein’s study (2002) that higher socio economic areas with a higher parental education is more favourable to the authoritative parenting typology than in lower socio economic areas where the parental education is lower. Hoff et al (2002) also agrees that the maternal education level is strongly linked to the type of parent child bond that develops which directly influences the parenting style that is adopted. This is evident in the current study as majority of the parental participants were female (76.4%) who had obtained a matric education level (38.7%) with the leading parenting style typology in both low and high socio economic areas being authoritative parenting.

Since authoritative parenting was most prevalent in both high and low socio economic areas for this study, a more detailed analysis of the results of this parenting style will be conducted. A further break down of the results show that within the authoritative parenting style category under the connection dimension sub factor, majority of the parents in both low and high socio economic areas claimed to “praise my child when they are good” although this is more prevalent in the higher socio economic areas ($HSES: M= 3.91, SD= 0.35; LSES: M= 3.76, SD= 0.66$). This indicates that since children are praised their self-esteem will grow and this will be seen as an extrinsic motivation to continue to thrive which is a positive outcome (Deci & Ryan, 2015). Under the regulation dimension sub factor, within high socio economic areas the parents claimed that “explain to my child how I feel about their good and bad behaviour”
(M=3.72; SD= 0.68) while in low socio economic areas the parents claim to “explain to my child the consequence of their behaviour” (M=3.67; SD= 0.70). These results correlate with Rhee et al’s (2006) study where authoritative parenting is seen as that parenting style where the parents acknowledge their children’s feeling and opinions but maintain the leading role as the parent by enforcing discipline and rules. Lastly, under the autonomy granting dimension, majority of the parents in both low and high socio economic areas claim that they “show respect for my child’s opinions by encouraging them to express their opinions” (LSES: M= 3.50, SD= 0.84; HSES: M= 3.65, SD= 0.55) which directly correlate to Skinner et al’s (2006) study which state that by authoritative parents providing strong autonomy support, they provide a platform for children to be more tolerable to other opinions and preferences and since the results of this study indicate that high socio economic areas present a higher prevalence for increased BMI scores, they children will be more open to intervention in these areas as a results of the higher autonomy support.

According to the results of this study 49% of the children’s home contained two parents where as 44.7% contained single presents. This indicates that almost 50% of children in South Africa come from single parent households. According to Ratwatlal (2015), the socio economic status impacts the manner in which the family develops their parent- child relationships and can directly contribute to any negative outcomes of the child such as stress, depression and possible physical illness such as heart disease as a result of the increase BMI scores leading to childhood obesity. With this in mind, the financial difficulties alone, such as providing for all the needs of the child from food, clothes and schooling, of a single parent raising a child can be an enormous strain. The researcher is of the opinion that if socio economic areas can have a direct effect on the BMI scores of children and socio economic areas can also have an effect on parenting styles then the results of an investigation into the effects of socio economic status on
single parents leading to negative outcomes in children in low and high socio economic areas would be interesting.

6.4 Relational aspects of Parenting styles and BMI scores of children

Patrick et al (2013), emphasises the role of parents in the lives of their child by claiming that parents are the primary socializing agents in their children’s lives and therefore there is growing evidence that supports the role of parenting styles in the increase of childhood obesity globally. There is also an increased need for research into the emotional and relational environments that parents create in their interactions with their children which focusses on parenting styles specifically (Patrick et al., 2013). Rhee et al (2006) claims that the results of his study conducted across the United States portrays that children who were raised by parents who had adopted an authoritative parenting style were the least at risk of developing increased BMI scores which leads to child hood obesity. The authoritarian and permissive parenting styles were seen to develop the most high risk children for an increased BMI scores and were thus the most susceptible parenting styles for childhood obesity. Rhee et al (2006) also explains the reasons for these results in that the authoritative parenting style is considered the ideal parenting style that yields the most positive outcomes for the child such increased self-regulatory, fewer risk taking behaviours and more dietary self-control as children are allowed to eat the foods they like with the guidance of the parent. In contrast, the authoritarian parting style provides a strict control over the child’s eating habits and activity times with no consideration about the child’s feeling or desires. By being strict disciplinarians, the authoritarian parenting style limits the child in growth and exploration in that should children have a desire to eat a particular food, they would over indulge when the parent is not around, resulting in an increased BMI score as a result of the strict control (Rhee et al., 2006). Lastly, the permissive parenting style provides love, support and autonomy yet lacks the parental
guidance altogether results in children who have a good self-confidence yet lack self-control completely leading to an over indulgence in those items that they find pleasurable (Rhee et al., 2006). In the current study, the parenting style that was most prevalent in both low and high socio economic areas was the authoritative parenting style. However the high socio economic areas had a significantly higher prevalent rate of authoritative parenting when compared to the lower socio economic areas. When comparing the BMI score of the children in the low and high socio economic areas, the BMI scores where significantly higher within the high socio economic areas indicating that children within the higher socio economic areas are more inclined to becoming over weight and obese as compared to the children in the lower socio economic areas. Although Rhee et al (2006) indicates that authoritative parenting styles yield the most positive outcomes and the children are less likely to become over weight and obese, the results obtained in the current study did not provide a clear indication of this as the higher socio economic areas had the higher rating for authoritative parenting as well as the higher BMI scores for the children.

Venture and Birch (2008) conducted a study in Pennsylvania that assessed if parenting styles affect the weight of the child. The results of this study proved that parenting styles was one of the variables that signified an increase in the BMI scores of children and thus lead to childhood obesity however; a significant link indicating that parenting styles have a direct effect over the BMI scores of children leading to childhood obesity was not established. Venture and Birch (2008) have urged that more studies be conducted in this field to establish a clear link between parenting styles having a direct effect on the BMI scores of children. Ventura and Birch (2008) also claim that looking at the literature reviewed, only 7 studies assessed parenting styles and child weight while only 2 studies focused on the influence of parenting styles on the weight of the child. The results of the current study are in agreement with Ventura and Birch (2008) that parenting styles is just one of the components that create the environment that nurture children.
and that more research will need to be conducted in this field to link the influence of parenting styles on BMI scores of children.

A study piloted by Goulan et al (2006) investigated the childhood obesity by assessing two categories: 1) parents with children vs 2.) Parents alone. The findings of this study indicated that the group that contained the children with the parents involved in the child’s weight loss efforts experienced a significant decrease in the child’s overall weight when compared to the groups who contained the children only or the parents only. It was thus established that the role of the parent in weight loss of the child was crucial. In previous studies, it was demonstrated that when parents were targeted for childhood obesity rather than the children there was a greater loss of weight due to implemented behavioural changes and the maintaining of these changes (Goulan et al., 2006). These behavioural patterns consisted of the parents regulating the quantity and quality of the child’s dietary program thus implementing more fruits and vegetables as well as decreasing high sugar and high fat foods. A physical component was also inserted in that more physical activity was implemented and less sedentary activity was encouraged. As a result of the parent’s involvement, the children loss weight faster and became more health conscious as the parents had become the role model for them (Goulan et al., 2006). When children were targeted alone and without the involvement of the parents there was less compliance, less weight lost and less motivation to start or stay in the designed program while if parents were targeted alone, they experienced difficulty in convincing their child of the benefits of the program and thus received the same negative outcomes as with the child alone group (Goulan et al., 2006). Other findings of this study indicated that there was a significant negative correlation between permissive parenting style and BMI scores while a significantly positive correlation was observed between authoritative parenting style and a decrease in the BMI scores of the child (Goulan et al., 2006). From this study, the role of the parent in the
prevention of childhood obesity is crucial, more so the type of parenting style that the parents adopt can influence the BMI scores and thus lead to or prevent childhood obesity.

Within this study, there was no direct correlation between parenting styles and BMI scores of the children. The researcher is of the belief this result is due to the environment created by the type of parenting style adopted by the parent being composed of many different components which lead to increased BMI scored of children. These components are the parents influence over the child’s dietary routine as well as content consumption, the physical activity of both parent and child, and the intrinsic and extrinsic motivators that motivate both parent and child. Due to the two participating group namely parents and children being evaluated separately; the researcher believes that an incomplete picture was created. This means that should the children also have been asked about the parenting style that they experience and if they were as if the two groups were evaluated together the result might have portrayed differently.

According to Rhee (2008), the role that parents play in the prevention as well as treatment of childhood obesity is very important as parents influence their children’s behavioural patterns, eating habits, activity levels and including the child’s healthy dietary routine. The environment created in the home by the parent through specific parenting styles, attitudes towards foods and sedentary lifestyles can either assist with or extinguish the ideology of a healthier approached towards weight loss leading to decreased BMI scores and thus more healthier lifelong influences.

6.5 Limitations

Each study experiences certain limitations and this study has also experienced its limitations. The limitations experienced may have impacted the finding of this study:
• Although every effort was made by the researcher in collaboration with the principles of the school to assist the parent in filling out the questionnaire as well as answer any questions around the study that the parent may have had, the completion of the questionnaire experienced two challenges, firstly, the low response rate which had improved due to the implementation of the second pilot study and secondly the return of blank questionnaires and secondly the return of incomplete questionnaires.

• This study was a correlational study which assessed participants in one particular time frame which may have yielded limited results due to the limited time allocated to the study. Research shows that longitudinal studies in this field are more fruitful due to the extended time frame.

• The study sample size can be seen as a non-representative sample and thus cannot be generalized to the entire population of parents within low and high socio economic areas as majority of the parental participants classified themselves as being of a “coloured” race therefore these findings cannot be assumed to be the same for other racial groups.

• The study sample consisted of mostly mothers (n= 76.4%) with a small contribution from fathers (n=23.6%) who were willing to participate. This could have been the contributing factor for the majority of parents presenting with the authoritative parenting style as mother are more likely to provide nurturing than fathers would.

• The measurable indicator for SES in this study was the school fees of the randomly selected schools within the Bellville area. This might not have been the ideal indicator for SES of participants in this area as Bellville schools have general schools fees for both high and low socio economic areas.

• When assessing the results of the parenting styles, the results might be different if both parents had filled out the questionnaire as compared to just one parent.
6.6 Recommendations

Further studies in the area of parenting styles within a South Africa are definitely required as the research done is limited. A specific focus should be on the effects of the parenting styles on the environment of the child and thus looking at the positive and negative outcomes that those parenting styles might have on the child. Another requirement for a study would be that both mother and father fill in the questionnaire so that it can be established if both parents use the same parenting styles or do they differ as this would also impact the environment that the child grows up in and thus impacting the child directly. During the study the impact of socio economic status on parenting styles was quite evident, an intervention study in this regard would prove beneficial for the South African community as a means to educate and improve the lives of both parent and child.

As a result of this study, recommendations can be made to the following health practitioners:

- Natural medicine practitioners, to conduct further studies in the field of childhood obesity relating to the contributing factors such diet, physical activity and overall health of the child as well as implement healthy diet plans not only in the homes which would directly improve the environment of the child but in the schools which can be considered the second home of the child in an attempt to provide education as well as optimum nutrition of the child within low and high socio economic areas.

- Social work practitioners, to conduct further studies into parenting styles within the South African context to establish more about parenting styles and their role in childhood obesity within the low and high socio economic areas.

- Psychologists, to conduct further studies into the intrinsic and extrinsic motivators for both parents and children to establish where the optimal motivation will arise from so that the root for behavioural patterns leading to the choice of parenting style by the
parent can be established as well as the behavioural patterns of obese child can be studied. This can be done in low and high socio economic areas to establish if there is a difference between these two groups within the South African context.

Further research on different samples using longitudinal studies would prove beneficial in the studies of parenting styles and childhood obesity within South Africa as these types of studies have been conducted internationally but not locally. Research into the effects of feeding practices in relation to parenting practices rather than parenting styles would provide valuable insight into the home environment of the child thus presenting the researcher with treasured information into contributing factors of childhood obesity within a South African context.

Another focus point could be assessing the environment of the child having a direct effect on the BMI scores of children which lead to childhood obesity within the South African context as a means to implement an intervention to prevent childhood obesity. Assessing the eating habits as well as activity levels within low and high socio economic areas for children would provide viable insight into the increasing obesity rate within South Africa. More so, the children’s view point needs to be taken into consideration so that a holistic picture is created and thus can result in a more effective intervention in the prevention of childhood obesity within South Africa.

6.7 Conclusions

This study focused on comparing parenting styles and BMI scores of children in low and high socio economic areas. Although this study did not depict any strong relationships between parenting styles and the BMI scores of the children within low and high socio economic areas, the results displayed a valid link that exists between BMI scores of children and socio economic areas as well as parenting styles and socio economic areas. Although the findings had limitations and should be interpreted cautiously, the findings suggest that the majority of the
parents in South Africa have adopted an authoritative parenting style which is more prominent in the higher socio economic areas than the low socio economic areas. The findings also suggest that children within the higher socio economic areas are more inclined towards childhood obesity than children within the lower socio economic areas. The research is in support of these findings.

The researcher is in agreement with the literature that parenting styles adopted by the parent creates the environment that nurtures the child and this environment is composed of many components that lead to an increase in the BMI scores of children. In order to assess how parenting styles affect BMI scores in children and how this leads to childhood obesity, these components will need to be assessed individually to create a complete picture of the household environment that the child is in.

Childhood obesity is a rising epidemic and a dangerous one at that. Research into the contributing factors of childhood obesity as well as interventions should definitely continue as the future of South Africa lies in the future of the children.
References


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