

**Eating Disorder Symptomatology Among Black Female Teenagers in a
Rural Area of KwaZulu-Natal: A Cross-sectional Study**

by

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Declaration

I declare that the mini-dissertation hereby submitted to the University of KwaZulu-Natal for the degree of MSocSc (Clinical Psychology) has not been previously submitted by me for the degree at this or any university; that it is my own work in design and execution, and that all material contained therein has been duly acknowledged.

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Signature: ... 

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Dedication

This work is dedicated to my wife, Patricia Munyai and my children, Ndivhuwo, Hulisani and Mukundi who have always stood by me, motivated, loved and continuously supported me during my studies.

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Abstract

The purpose of this study was to explore the prevalence of eating disorder symptomatology and statistical relationship between eating disorder pathology and body image among Black female teenagers in a rural area of KwaZulu-Natal. Furthermore, the influence of body mass index (BMI) and socioeconomic status were explored. A literature review of eating pathology was conducted and the content thereof was compared to the study hypotheses. Different theories (the vulnerability model, social comparison theory, cognitive behavioural theory and bioecological theory of human development) were adopted to examine multiple potential vulnerabilities and maintenance of eating disorders amongst Black female teenagers in rural areas. Research in this field has revealed that acculturation to a Western value system and body image ideals appear to affect the prevalence of eating disorders among Black women. There is a paucity of South African research on cross-cultural attitudes and behaviours associated with eating disorders among Black teenagers in rural areas.

The sample comprised 184 Zulu female public high school learners in a rural area of KwaZulu-Natal between the ages of 13 and 19 years. Data were collected with a demographic questionnaire and the Eating Disorder Inventory.

The results showed a possible link between dysfunctional metacognitive beliefs and eating disorders. No correlation was found between socioeconomic status and eating disorders. Most of the participants (52.2%) were classified in the normal weight category (BMI), whereas the remaining participants were classified in the obese class III and underweight, which may suggest that some of the participants may have displayed patterns associated with eating disorders. The results are discussed in relation to the literature, recommendations for future research based on the limitations of this study, are made.

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List of abbreviations

BMI	Body Mass Index
SANHANES	The first South African National Health and Nutrition Examination Survey
EDs	Eating disorders
DSM-5	Diagnostic and Statistical Manual of Mental Disorders (DSM-5, American Psychiatric Association, 2013)
AN	Anorexia nervosa
BN	Bulimia nervosa
B	Bulimia
BD	Body dissatisfaction
BED	Binge eating disorder
BMI	Body mass index
DT	Drive for Thinness
DZ	Dizygotic
EAT	Eating Attitudes Test
EDI	Eating Disorders Inventory
HSSREC	Humanities and Social Sciences Research Ethics Committee
I	Ineffectiveness
IA	Interoceptive Awareness
ID	Interpersonal Distrust
KZN	KwaZulu-Natal
MF	Maturity Fears
MZ	Monozygotic
P	Perfectionism
UKZN	University of KwaZulu-Natal
WHO	World Health Organisation
5-HT	Serotonin

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CHAPTER 1

INTRODUCTION

1.1 Background to the study

The first South African National Health and Nutrition Examination Survey (SANHANES-1, 2011) examined the extent South Africans experience body image stereotype problems. The survey revealed that although more than 60% of South Africans 15 years and older appeared to be happy with their current body size, 12% were overweight and 10% were underweight, and were attempting to lose and gain weight, respectively. It is noteworthy that the results of the survey also indicated that although over 85% of South Africans were aware of large and thin body sizes, only 18.2% of children and 14.2% of adults, respectively were able to identify normal and/ or healthy body sizes. However, in a follow-up, SANHANES-1 (2013) revealed contrasting results: young girls between 10 and 14 years of age reported a negative body image. Furthermore, 68% of females perceived they were large and thought that their actual body mass index (BMI) was higher than their ideal BMI (SAHANES-1, 2013). Studies have also found that women have employed extreme weight-loss measures such as restricting their food intake and exercising excessively (SAHANES-1, 2013; Mchiza et al., 2015). Body image disturbances and extreme weight-loss measures such as restricting food and exercising excessively were observed in both samples, which may be interpreted as a sign of the development of eating disorders amongst teenagers. Strober, Freeman and Morrel (1997) identified these behaviours as salient features that are recognised as significant in the cause, development and maintenance of eating disorders. Given the significance of the exacerbating effect of eating disorders on teenagers' health and well-being, it is imperative that trends and characteristics of the phenomenon are studied thoroughly and understood comprehensively (Puoane et al., 2010; Wertheim & Paxton, 2011). Since 2013, no known study has been conducted to examine the prevalence of eating disorders amongst Black South African rural female teenagers. Therefore, it is imperative that research on the prevalence of eating disorders in this population is conducted "to inform researchers, guideline developers and policy-makers about burden of disease, thereby supporting the process of identification of priorities in healthcare, prevention and policy" (Harder, 2014, p. 289). This may have implications for the planning and allocation of health service resources (Szabo & Allwood, 2004).

1.2 Research problem

The transformation that South Africa has undergone has had an impact on self-perception, personal identity and gender roles, all of which have been linked to the development of eating disorders (Gard & Freeman, 1996, as cited in Gahman, 2008). Findings from cross-cultural studies have indicated many possible risks associated with eating disorders, including modifying gender roles (Ruggiero et al., 2001) and despite cultural changes, frustration with continual inequalities (Szabo & Le Grange, 2001). Data suggest that South Africa's socio-political transition is not only confined to eating disorders, but is also linked to increasing identity conflict (Van der Reis & Mabaso, 2005). Studies conducted after 1994 have shown that not only White women are perceived as being at high risk, but Black women have also been shown to present with body image difficulties and eating disorders (Marais et al., 2003; Mchiza et al., 2015).

The focus of this study was on rural Black female teenagers who were hypothesised as experiencing eating disorder symptomatology. Urban female Black teenagers and other racial groups were excluded from this study because eating disorder challenges in these groups have already been reported by several South African studies (Marais et al., 2003; Revelas, 2012; Szabo et al., 2006).

The clinical literature on eating disorders has indicated that 90-95% of those with eating disorders are female (Striegel-Moore et al., 2009; Wassenaar et al., 2000). However, Black South African women remain underrepresented in studies on eating disorders.

Although the sentiment that has emerged throughout studies conducted on eating disorders in South Africa is that Black women are no longer 'immune' to eating disorders, relatively few studies have examined Black female teenagers in rural areas. Consequently, the purpose of this study was to examine the prevalence of eating disorder symptomatology in a sample of Black rural female teenagers.

1.3 Aims of the study

The aims of the study were to:

Determine the prevalence of eating disorder symptomatology among Black female teenagers in a rural area of KwaZulu-Natal.

Determine whether there is a statistical relationship between eating disorder pathology and body image among Black female teenagers in a rural area of KwaZulu-Natal.

1.4 Objective of the study

The objective of the study was to assess the prevalence of eating disorder symptomatology among Black female teenagers in a rural area of KwaZulu-Natal.

Specific research questions and hypotheses are specified in section 3.2 below.

1.5 Research layout

This study consists of six chapters, which are structured and presented below:

Chapter 1: Introduction

This chapter is the current chapter and presents the background, research problem, and motivation for the study. It further offers the objectives of the study.

Chapter 2: Literature review

Chapter two presents a broad overview of eating disorders, emphasising concept clarification used throughout the study, epidemiology, and risk factors. The Bioecological theory of human development, which Bronfenbrenner developed (Bronfenbrenner,1979), is employed in this study as the theoretical framework to explain various factors that may contribute to eating disorders.

Chapter 3: Methodology

The chapter begins by defining the study's aims, hypotheses and research questions. The research methodology and issues to consider in ethical research are discussed.

Chapter 4: Results

This chapter presents the study's research findings in relation to the study's hypotheses.

Chapter 5: Discussion

The findings are interpreted and discussed in relation to the existing literature, focusing on the research questions.

Chapter 6: Conclusion and Recommendation

This chapter concludes with significant points that have been established and their broader implications. This section also includes the study's limitations and recommendations for future research on this topic.

CHAPTER 2

LITERATURE REVIEW

In this chapter, a broad overview of eating disorders with emphasis on concept clarification, epidemiology and risk factors is provided. Furthermore, the Bioecological theory of human development, which Bronfenbrenner developed (Bronfenbrenner,1979) was employed in this study as the theoretical framework to explain various factors that may contribute to eating disorders, is outlined. However, an explanation of the literature search strategy is presented first, below.

2.1 Literature search strategies

Before determining the study's goals, a literature review was conducted to screen for evidence gaps in eating disorders studies relevant to the target population. Gaps were translated into potential goals for the study, followed by a list of ideas for the literature review search. A structured search strategy was adopted without date restrictions in February 2019 and December 2020. The scoping searches sources were PsycINFO, Pubmed, Google Scholar and Research Space-UKZN.

The search term was "Eating Disorders", and additional terms were teenagers, adolescents and rural areas. Reference lists from resulting articles were also searched. Relevant articles in this review include those reporting on eating disorders amongst teenagers or adolescents. Papers not written in English were excluded, and duplication was avoided. Filters such as language, accuracy and study design were utilised to focus a literature search. The filters chosen were based on the research question, and the nature of the evidence sought through the literature review. Sixty-two thousand five hundred results were returned from the search terms. These results were sifted for relevance, and 258 were relevant. The rest was rejected because of language, target population, lack of accuracy and citation. The review examined the definition of eating disorders, contributing factors and prevalence amongst the target population.

2.2 Concept clarification

- **Eating disorders (EDs)**

Eating disorders are characterised by extreme unease related to weight and body shape, which

has a consequent effect on eating attitudes and behaviour. This, in turn may significantly impair an individual's physical, emotional, cognitive, and social functioning of an individual (Szabo, 1998). The term *eating disorder* is commonly employed to refer to a range of eating disorders that are characterised by varying degrees of severity and duration. The Diagnostic and Statistical Manual of Mental Disorders (DSM-5, American Psychiatric Association, 2013) classifies the following eating disorders: “anorexia nervosa (AN), bulimia nervosa (BN), binge eating disorder (BED) and a composite category referred to as eating disorders not otherwise specified (EDNOS)” (p. 329).

- **Anorexia nervosa (AN)**

AN is defined as the “refusal by individuals to maintain minimal normal body weight, for example, the individual weighs less than 85% of the weight that is considered normal for that person's age and height” (APA, 2013). AN presents with features like self-induced starvation and a drive for thinness even though the person is not clinically overweight, a morbid fear of getting fat, which is usually accompanied by the presence of medical signs and symptoms resulting from starvation (Sadock & Sadock, 2015). Furthermore, a major diagnostic factor includes individuals' increasing dissatisfaction with their body and obsession to lose weight and thus, they engage in restrictive eating behaviours (Franko & Striegel-Moore, 2002).

- **Bulimia nervosa (BN)**

According to the DSM-5, BN is characterised by recurring episodes of binge eating in which individuals suffer a sense of a lack of control over eating during the episode and subsequently prevent weight gain by using inappropriate compensatory methods (APA, 2013). Unlike patients with anorexia nervosa, those who suffer from bulimia nervosa typically maintain their body weight (Sadock & Sadock, 2015). The severity of their preoccupation with body image, weight, eating, and exercising may predict their extreme resistance to treatment.

- **Binge eating disorder (BED)**

The DSM-5 notes that BED is characterised primarily by recurrent episodes of an uncontrolled intake of an unusually excessive amount of food during a short period of time, associated with a feeling of loss of control over eating. These episodes occurred in private and are often accompanied by feelings of guilt, shame, and psychological distress. In contrast to binge eating in bulimia nervosa, “binge eating in BED occurs without regular inappropriate compensatory behaviours aimed at preventing weight gain, such as self-induced vomiting, fasting, or laxative misuse” (Sadock & Sadock, 2015, p. 520).

- **Body mass index (BMI)**

BMI “is used to calculate the index of weight relative to height ... to classify underweight, normal, overweight and obese status (WHO, 2000)” (Thulo, 2015, p. 5). The formula for calculating BMI is “weight in kilograms divided by the square of height in metres” (WHO, 2000, p. 8). BMI may be employed to classify individuals’ weight (Table 1).

Table 1
Classification of Adults According to BMI

Classification	BMI	Risk of comorbidities
Underweight	<18.50	Low (with an increased risk of other clinical problems)
Normal weight	18.50 – 24.99	Average
Overweight	≥25.00	
Obese class I	30.00 – 34.99	Moderate
Obese class II	35.00 – 39.99	Severe
Obese class III	≥40.00	Severe

Note. Adapted from World Health Organization (WHO, 2000, p. 9)

According to the World Health Organization, it is noteworthy that “BMI does not distinguish between weight associated with muscle and weight associated with fat; it varies according to body build and proportion” (WHO, 2000, p. 8). In this study, BMI was employed without distinguishing between weight linked to either body muscle or fat.

- **Obesity**

Individual with excessive fat that may have an adverse effect on their health suffer from obesity (WHO, 2000). The BMI classifies obesity as one whose BMI>30.

- **Body image**

Body image may be defined as “a psychological experience that focuses on the person’s feeling and attitude towards their own body” (McCrea et al., as cited in Uys & Wassenaar, 1996, p. 1). Hagman et al. (2015) as cited in Thulo (2017, p. 6) noted that “body image comprises various dimensions and encompasses individuals’ thoughts, perception, attitudes and behaviours towards their own body. These dimensions include the cognitive or affective, behavioural and perceptual dimensions”.

2.3 The base rate and epidemiology of eating disorders

Epidemiology may be defined as "... the study of the distribution, incidence, prevalence, and duration of disease" (Sadock & Sadock, 2007, p. 170). In comparison to other psychiatric disorders, relatively limited research has been conducted on the epidemiology of eating disorders (Smink et al., 2012). Furthermore, most epidemiological studies have relied on self-report measures; thus, their reliability and validity may be questioned (Sadock & Sadock, 2007).

2.3.1 Epidemiology of eating disorders in the United States of America, United Kingdom and Europe

Combined data from various sources have revealed that between 0.9% and 2.0% of females and 0.1% and 0.3% of males suffer from anorexia nervosa. Furthermore, 1.1% to 3.0% of adolescent females suffer sub-threshold anorexia. Moreover, 15- to 24-year olds with anorexia are 10 times more at risk of dying in comparison to their same-aged peers who do not suffer from the eating disorder (Stice & Bohon, 2012). Mond et al. (2014) found that subclinical eating disordered behaviours, including binge eating, purging, laxative abuse, and fasting to lose weight, are almost as common among males as females.

Reliable rates of anorexia nervosa are rarer among children than for adolescents. Pinhas et al. (2011) conducted a survey among 2,453 paediatricians in Canada during a two-year period in an endeavour to determine incidence rates of eating disorders in 5- to 12-year-olds revealed that the incidence of restrictive eating disorders was estimated to be 0.0026%, that is, 2.6 cases per 100,000 in this age group. In addition, at any given point of time in the United States, United Kingdom, and Europe, 1.0% of both young women and men satisfy the diagnostic criteria for bulimia nervosa. Moreover, between 1.1% and 4.6% of females and between 0.1% and 0.5% of males are likely to develop bulimia nervosa. Furthermore, 2% to 5.4% of adolescent females suffer from sub-threshold bulimia nervosa (Stice et al., 2012). Smolak (2011) revealed that 40-60% of 6- to 12-year-old girls were concerned about their weight and/or having too much fat. This concern appears to last throughout life. Weight stigma has been revealed to be significant risk factor for low self-esteem, body dissatisfaction, depression and physical problems (Andreyeva et al., 2008).

Different sources in the United States, United Kingdom and various countries in Europe have shown that between 0.2% and 3.5% and 0.9% and 2.0% of females and males, respectively are likely to suffer from binge eating disorder. Furthermore, Stice and Bohon (2012) noted that

approximately 40% of those with binge eating disorder are male and 1.6% of adolescent females suffer sub-threshold binge eating disorder (Stice et al., 2012). Westerberg and Waitz (2013) revealed that 30% of individuals who search for weight loss treatments are likely to exhibit signs of binge eating disorder.

2.3.2 Epidemiology of eating disorders in Africa (South Africa)

Although the literature on eating disorders amongst White South Africans can be dated to the 1970s, the first case of an eating disorder in a Black adolescent female was reported in the 1990s (Szabo et al., 1995). Subsequently, many Black people have been diagnosed and treated for eating disorders (Vahed, 2015). A 10-year review (1987–1996 inclusive) (Gabriel & Szabo, 2001) of patients suffering from anorexia nervosa patients who were admitted to the specialised inpatient eating disorders unit of Tara Psychiatric Hospital (Gauteng, South Africa) demonstrated that while 98% of the admissions were females, only 2% were males. While there was one male admitted during the first 5 years of the study, only four were admitted during the next five-year period of the study. During this ten-year period, no Black patients were admitted. However, Delpont and Szabo (2008) reported that between 1998 and 2004, Black females accounted for 3% ($n=13$; 7 of those with a diagnosis of anorexia nervosa) of admissions to this same unit.

In a review of South African epidemiological studies, Szabo (2009) found that approximately 20% of adolescent females and 10% of young adult females, respectively from all races in rural and urban areas exhibited signs of abnormal eating attitudes, which were possibly linked to eating disorder vulnerability. It is anticipated that the incidence of eating disorders amongst Black individuals may increase in South Africa because studies have revealed “disordered eating and abnormal eating attitudes are emerging amongst Black South African adolescents” (Caradas et al., 2001; le Grange et al., 2004, p. 439).

2.4 Body image from traditional and western perspectives

Body image is a complex construct and may be regarded as a component of personal identity that represents individuals’ thoughts, feelings, perceptions and behaviour towards their bodies (Yamamotova et al., 2017). Research on body image has been conducted for almost a century and has revealed much regarding its correlates, predictors, consequences, and treatments (Cash, 2004). Evidence has indicated that while thin women are preferred in western societies, larger women are preferred in many non-western societies (Steyn et al., 2012).

Several studies have demonstrated that “sociocultural variables including familial interaction patterns, parental attitudes towards weight control and the desire to be slim and thin may have an impact on the development of eating disorders” (Wertheim et al., 1999, as cited in Adlard, 2006, p. 33). Furthermore, stress of any kind may be a precipitating factor. This concurs with a multi-ethnic study conducted by Mchiza et al. (2005) in South Africa, which revealed that familial norms and interaction may have led to eating disorders amongst White girls because of their mothers’ preference for a thin body ideal. Mchiza et al. (2005) further revealed that Black girls and Black mothers had a different perception in that they did not consider themselves large. These findings may be related to ethnic perceptions of preferences for a large body (Mchiza et al., 2005). Puoane et al. (2010) also found that traditional cultures, especially those of Black South Africans prefer large bodies because such is associated with fertility, wealth, and beauty. Black South Africans are not unique in their idealisation of larger bodies. Similar findings have also been revealed among Kenyans (Furnham & Alibhai, 1983), Ugandans (Furnham & Baguma, 1994), Moroccans (Rguibi & Belahsen, 2006), Ghanaians (Frederick et al., 2008), and Nigerians (Dike, 2009). In western countries, data suggest that perceptions of ideal body size have evolved since the 1940s as evidence has demonstrated that a thin body has not always been the preference. Similarly, it is apparent this is also true for non-western societies (Calogero et al., 2007). Garner et al. (1980) postulated that what is perceived to be ideal and beautiful may evolve over a period. Marais et al. (2003) stated that studies have shown an increasing number of Black and White women with symptoms of eating disorders in South Africa, which, as stated previously, challenges the notion that Black people do not suffer eating disorders and dissatisfaction with their bodies. Szabo et al. (2007) emphasised the significance of location in their study: while Black women who resided in urban areas related the desire to be thinner, those in rural areas wished to be bigger. However, regardless of whether participants were from urban or rural areas, Marais et al. (2003) and Szabo et al. (2006) found a positive relationship between westernisation and body image concerns. The extent of disordered eating problems in developing societies such as South Africa is revealed in these findings.

2.5 The vulnerability model

Several different etiological factors such as genetic, other biological and environmental factors may lead to the development of eating disorders. Differing perspectives and evidence support the principle: there does not currently seem to be a known unitary or exact cause of eating disorders

(Treasure et al., 2007). By examining Zubin and Steinhauer (1981) and Rutter (1997, 2002), this review examines potential sources of vulnerability and does not discuss aetiological debates.

In assessing etiological factors, Treasure et al. (2009) adopted the more traditional Maudsley model with its three extensive categories of “predisposing, precipitating and perpetuating factors” (p. 60). While predisposing factors include biological/genetic predisposition, precipitating factors consist of environmental triggers and perpetuating factors allow the disorder to linger and remain. However, these categories are not distinct and separate. A single factor, for example, a mood disorder could be classified as any of the three factors (Rees, 2015). Moreover, by employing Zubin and Steinhauer’s (1981) model and Rutter’s (1997, 2002) research, it may be deduced that “predisposing factor could be biological or environmental” (Rees, 2015, p. 21).

The manner in which the brain processes information, emotions and behaviours may contribute to the development and maintenance of eating disorders. While some of these factors are fixed and related to genes, others are result of environmental and upbringing factors (Treasure et al., 2007). For example, individuals may have a predisposition to develop AN because of a particular brain function pattern (biological) or may have been exposed to their mother’s restrictive eating patterns (social and environmental). Similarly, a biological factor may be sensitive to an environmental factor and thus, contribute to the development of AN (Rees, 2015).

Zubin and Steinhauer (1981, as cited in Rees, 2015) noted that sources of vulnerability may not be orthogonal. A single factor may be classified in more than one category. Family discord (social), for example, may occur because individuals with AN may interpret the world as critical towards women’s body shapes (psychological) than those without AN (Rees, 2015). Thus, the sources of vulnerability should not be considered mutually exclusive (Rutter, 2002; Zubin & Steinhauer, 1981), but rather “integrative and interrelated” (Rees, 2015, p. 22).

2.6 Sources of vulnerability associated with eating disorders

To understand the prevalence of eating disorders amongst teenagers, research on the sources of vulnerability, which are likely to involve several complex factors including biological, psychological, socio-economic and sociocultural factors was reviewed. Because it remains difficult to identify specific causal/etiological factors in eating disorders and several other psychopathologies, it has been argued that identifying possible sources of vulnerability might be

a more appropriate quest (Zubin & Steinhauer, 1981). In this study, the sources of vulnerability should not be viewed as mutually exclusive (Rutter, 2002; Zubin & Steinhauer, 1981, as cited in Rees, 2015). The concept of vulnerability was employed in this study to explain why some people develop eating disorders and to describe situations of vulnerability on which intervention programmes could be based. It is also compatible with Bronfenbrenner's work (Bronfenbrenner, 1979).

2.6.1 Biological sources of vulnerability

Eating disorders present with a lack of appetite and uncontrollable appetite in anorexia nervosa and bulimia nervosa, respectively (APA, 2013), thus increasing endeavours to search for biological vulnerabilities of these disorders. Although this study did not focus primarily on genetics and neurophysiological sources of vulnerability, various studies have examined several biological vulnerabilities associated with eating disorders.

2.6.2 Genetic sources of vulnerability

Research on genetic transmission of eating disorders gained prominence in the 1980s (Strober, 1991). In a twin and family study of 25 monozygotic and 20 dizygotic twins with anorexia nervosa, Holland et al. (1988) revealed concordance rates of 56% and 5% in the monozygotic and dizygotic groups, respectively. While monozygotic (MZ) twins result from a single ovum fertilised by a single sperm, dizygotic (DZ) twins result when two different ova are fertilised by two different sperm. Thus, whereas MZ twins are genetically identical as they originate from the same zygote, DZ twins, on average, share half of their genome (the same as non-twin siblings) even though they share prenatal environment (Hogenson, 2013). In an early review of twin and chromosomal studies, Strober (1991) revealed findings that concurred with the theory that anorexia nervosa results inherited dispositional personality features that in combination with various environmental triggers seem to predispose individuals to developing an eating disorder.

In a review of twin studies, La Buda et al. (1993) demonstrated that concordance rates for MZ twins and DZ twins with anorexia nervosa were 56% and 7%, respectively. In a similar review, Kipman et al. (1999) estimated that MZ twins and DZ had concordance rates of 44% and 12.5%, respectively. Accordingly, La Buda et al. (1993) and Kipman et al. (1999) suggested cautiously that genetic factors may have a more considerable influence than familial factors in the development of anorexia nervosa.

Wade et al. (2000) explored shared genetic and environmental risk factors of major depression in 2,163 female twins. Although they suggest that a 58.0% heritability was involved in anorexia nervosa, the shared environment was also a possible causal factor for eating disorders – thus showing why a vulnerability model rather than an unitary causal model is appropriate for understanding aetiology. Polivy and Herman (2002) emphasised the latter when they noted that even though twin and family studies have revealed that eating disorders may be transmitted genetically, this evidence may not be conclusive because emphasis is placed on environmental factors as much as genetic factors. Bould et al. (2015) in a study on genetic vulnerability that employed data from a cohort study of 158,679 children aged between 12 and 24 years assessed the influence of various psychiatric illnesses as risk factors for the development of offspring eating disorders. The results showed that parental anxiety, mood, specifically, major depression and bipolar disorder as well as personality disorders appeared to be risk factors for the development of children with eating disorders. Dring (2015) argued that more emphasis should be placed on exploring environmental factors, chiefly family environment, than on examining genes when endeavouring to understand the causes of eating disorders. The results also revealed that the environment cannot be disentangled from genes when the sources of eating disorder vulnerability are explored.

2.6.3 Neurophysiological vulnerability

Studies that have examined brain structure abnormality by employing positron emission tomography scans have revealed that patients suffering from anorexia nervosa had increased activity in the caudate region (Delvenne, 1996; Herholzcv, 1987). In their review, Polivy and Herman (2002) noted that appetite is generally regarded as being responsive to hormonal controls. However, such explanations are problematic because eating disorders are not simply appetite disorders. On the contrary, Chan and Ma (2004) found that cerebral blood flow, appetite and satiety dysregulation as well as central nervous system problems may be attributed to the development and maintenance of eating disorders, particularly anorexia nervosa.

Neurobiological research has revealed that abnormalities in the serotonin (5-HT) system influence the experience of mood, feeding and impulse control and impairments in serotonin regulation affect signals of satiety, thus leading to binge eating (Kaye et al., 2005).

Kaye et al. (2006) in a study on neurocircuit function and eating disorders found that brain changes in the orbital and dorsolateral prefrontal cortex regions that develop significantly during

and after puberty are characterised by increased activity in these cortical areas. This is associated with the cause of the excessive worry, perfectionism and strategising that are common in individuals suffering from eating disorders including anorexia nervosa. Studies have concurred that although brain abnormalities appear to increase the vulnerability of eating disorders, the direction of causality in the relationship between brain abnormalities and the development of eating disorders remains uncertain.

2.6.4 Psychological sources of vulnerability

Clinical observations (Bruch, 1978; Nilsson et al., 2007) and empirical research (Bardone-Cone et al., 2010; Cassin & von Ranson, 2005; Lilenfeld et al., 2006) have indicated that psychological factors may influence the aetiology and maintenance of eating pathology significantly. In this study, personality factors such as perfectionism and self-esteem were explored to identify potential risk and maintenance factors. However, views as to whether individuals with predisposing personality profiles may experience eating disorders in the future have remained constant. A review of common psychological themes and characteristics that have been identified as psychological predictors of eating disorders follows.

2.6.4.1 Perfectionism

Perfectionism is a “multidimensional construct, which comprises personal and social components” (Hewitt & Flett, 1991, p. 456; Shafran & Mansell, 2001). Self-oriented perfectionism is related to “individuals’ expectations of themselves as well as the motivation to realise that perfection where socially prescribed perfectionism refers to perceptions that individuals have of others’ expectations of them such as parents, coaches and peers” (Hewitt & Flett, 1991, p. 456). Studies using the Eating Disorder Inventory (EDI) have consistently demonstrated that individuals diagnosed with anorexia nervosa had elevated perfectionism in comparison to healthy controls. Furthermore, both the maladaptive and striving dimensions of perfectionism as a multidimensional construct were higher in those with anorexia nervosa (Sutandar-Pinnock et al., 2003).

Bulik et al. (2003) in a study on the relationship between perfectionism and psychopathological conditions, including eating disorders, revealed that increased unease about mistakes was associated with anorexia nervosa and bulimia nervosa. This implies that perfectionism may predict eating disorders, especially AN more than other pathologies such as, obsessive-

compulsive disorder and in women, may work in conjunction with low self-esteem.

Castro et al. (2004) showed higher scores on self-oriented and socially prescribed perfectionism amongst adolescents who had higher total scores in the Eating Attitudes Test (EAT). Castro et al. (2007) found similar results in 108 female patients with eating disorders (75 with AN and 33 with BN), 86 psychiatric patients (anxiety, mood and/or adaptive disorders) and 213 healthy controls who completed the Child and Adolescent Perfectionism Scale, the EDI and the EAT. They revealed that self-oriented perfectionism was significantly higher for those participants with anorexia and bulimia in the eating disorder group than the other two groups. One may infer that societal stereotypes and expectations about thinness have become entrenched in adolescents' culture, which may lead to maladaptive perfectionism that is linked to the development of eating disorders.

According to Slaney et al. (2001), maladaptive perfectionism as a perceived discrepancy is characterised by "individuals' perceived failure of not meeting one's performance standards" (p. 131). In western literature, findings have consistently demonstrated women with symptoms of disordered eating such as dieting and engaging in bulimic behaviours also tend to have elevated levels of maladaptive perfectionism (Bardone-Cone et al., 2007). Individuals who focus more on the discrepancy between their ideal thinness standards and reality may feel less satisfied with their body shapes if they fail to meet such standards, which may lead to eating attitudes and behaviours that are disordered to achieve a 'perfect' body shape.

2.6.4.2 Eating disorders and self-esteem

Empirical studies on eating disorders have revealed that self-esteem moderates perfectionism and feeling overweight when bulimic symptoms are predicted (Bardone et al., 2010; Vohs et al., 1999). They also found that women scoring high on perfectionism who believe they are overweight display bulimic symptoms only if they have low self-esteem, that is, if they are doubtful of attaining their high body standards. However, women who have high self-esteem and the same diathesis-stress conditions are less likely to display bulimic symptoms.

2.6.4.3 Affect

In their review of literature on psychosocial risk factors for anorexia nervosa, Keel and Forney (2013) arrived at the conclusion that various personality features such as emotionality and

perfectionism predispose individuals to anorexia nervosa indirectly as these features may lead them to internalise thin ideals in society. Furthermore, negative peer influences may, in turn, make them vulnerable to eating disorders. Keel and Forney added that in both clinical and nonclinical samples, perfectionism is a source of vulnerability and maintenance factor for eating pathology.

2.6.5 Socio-economic sources of vulnerability

Research has revealed that there is a clear association between various social variables, including socio-economic status, socio-demography and instability within the family and the onset and maintenance of psychiatric problems with eating disorders (Gard & Freeman, 1996; Gibbons, 2001; Nevonen & Norring, 2004). Studies on eating disorders have demonstrated that individuals in higher socioeconomic groups are more likely than those in lower socioeconomic groups to suffer eating disorders (Nevonen & Norring, 2004). Studies that have compared the frequencies of eating disorders in different ethnic groups in Africa demonstrated a significant association between socio-economic class and disordered eating (Gard & Freeman, 1996). Furthermore, the prevalence of eating disorders was higher among white upper and middle classes than amongst Africans minority groups (Nevonen & Norring, 2004). Research has suggested that in some countries, eating disorders are more common among the middle and upper classes. The latter finding, could be related to characteristics such as access to local health care facilities, socio-cultural norms and the availability of treatment (Nevonen & Norring, 2004).

Gard and Freeman (1996) concluded that socio-cultural factors have an equal impact on all groups. Later studies have suggested that eating disorders no longer affect only high socio-economic status families, but rather other socio-economic groups are equally at risk. Neumark-Sztainer and Wall (2006) found that the rates of eating disorders were more prevalent in the lowest socio-economic groups. They further revealed that females from lower socio-economic groups exhibited more signs of disordered eating behaviour.

To understand these findings, one may deduce that members of higher socio-economic groups may exhibit healthier attitudes to dieting because of enhanced access to healthcare, weight loss programmes, health clubs and healthier foods. However, they may be easily influenced by society's socio-cultural ideals such as the idealisation of a slim body. Therefore, they tend to start dieting which places them at a higher risk to develop eating disorders (Connors, 1998; Nevonen

& Norring, 2004). On the contrary, families from lower socio-economic groups are disadvantaged because of their lack of adequate healthcare, insurance cover and scarce knowledge of healthy dieting and eating habits (Nevonen & Norring, 2004). However, the large-scale Swedish school-based study revealed no differences in the socioeconomic status of families who had disturbed attitudes and behaviours related to food, weight and body (Bould et al., 2016).

2.6.6 Sociocultural sources of vulnerability

Garfinkel and Garner's study, conducted in 1982 (as cited in Polivy and Herman, 2002, p. 191), revealed that "the idealization of slimness and consequent likelihood of eating disorders were more prevalent in the upper socio-economic strata of the cultures that are characterised by abundance". This notion has changed because as cultures have become globalised and homogenous and media images have permeated every sector of society, eating disorders have become popular (Gard & Freeman, 1996; Pike & Striegel-Moore, 1997).

The cultural models stress that being exposed to the thin ideal, internalising the ideal and experiencing a discrepancy between the self and ideal may lead to body dissatisfaction, dietary restraints and restrictions (Polivy & Herman, 2002). The authors cautioned that eating disorders are always not culture-bound and do not occur uniformly in all cultures.

2.6.6.1 Eating disorders and family dynamics

In early psychoanalytic case reports, Bruch (1978) stated that families with girls with anorexia nervosa failed to "transmit an adequate sense of confidence and self-value to these children" (p. 39). Later studies revealed that parents who commented directly about their children's physical appearance as well as their own dieting and binge eating behaviours all had a significant influence on their children's internalisation of a perfect body shape and body dissatisfaction. Szabo and Hollands (1997) found that family, especially maternal figures, play a role in determining eating attitudes amongst adolescents in South Africa. Most girls (59%) who scored positively on the EAT reported that they were influenced to lose weight by their mothers or peers. Ericksen et al. (2003) cited in Adlard (2006, p. 25) revealed that "parents and adult caregivers, besides serving as role models, exert an influence on young children's eating habits and activities". This was confirmed by Neumark-Sztainer et al. (2000) who found that adolescents who have low perceptions of family communication, parental caring and parental expectations are at risk of developing eating disorders. Those who report sexual and/or physical abuse are also at an

increased risk for suffering eating disorders.

Davison and Birch (2001) found that “eating disorders may be associated with parenting styles and family characteristics including parents’ dietary intake, nutritional knowledge, activity patterns, child feeding practices, and peer and sibling interactions” (p. 2). This is in accordance with Brown and Ogden (2004) who revealed that “children whose parents use food to control their child’s behaviour exhibit higher levels of body dissatisfaction” (p. 269). Blackmer et al. (2011) demonstrated that family-origin-climate that does not permit much individuality, emotional expression and support may be linked to young adults experiencing an increased risk of disordered eating behaviours and body image concerns.

2.6.6.2 Trauma and sexual abuse

Abuse, trauma, and childhood sexual abuse have often been linked to factors of eating disorders (Thompson & Wonderlich, 2004). Trauma is associated with more significant comorbidity in eating disorders patients, which includes and is often mediated by either partial or sub-threshold posttraumatic stress disorder which may be a risk factor mainly for bulimia nervosa (Brewerton, 2007). The spectrum of traumatic experiences comprises more than sexual abuse and may include victimisation, trauma and neglect (Fisher et al., 2010). It is imperative to take cognisance that many individuals who suffer abuse do not develop an eating disorder, including anorexia nervosa, bulimia nervosa and binge-eating disorder (Fisher et al., 2010). A brief review of trauma and sexual abuse as risk factors for developing eating disorders, in particular, anorexia nervosa and bulimia nervosa, follows.

- *Anorexia nervosa*

Reyes-Rodríguez et al., 2011 in Behar et al. (2016) noted that “patients with anorexia binge/purging subtype suffer higher rates of sexual, physical, and emotional abuse and physical as well as emotional neglect than in their restricting counterparts” (p. 159). Research has revealed that 13.7% of women with anorexia nervosa have met criteria for posttraumatic stress disorder. The risk of having the disorder was significantly lower in individuals with restricting anorexia nervosa than those with purging subtype without binge eating. In this survey, 64.1% of the participants with posttraumatic stress disorder reported the first traumatic event before they suffered anorexia nervosa. Those with an eating disorder reported the most common traumatic events included sexually related traumas during childhood (40.8%) and adulthood (35.0%) (Reyes-Rodríguez et al., 2011). Similarly, a systemic review and meta-analysis revealed that the

association (odds ratio) between eating disorders and child sexual abuse for anorexia nervosa, binge eating disorder and bulimia nervosa was 1.92, 2.31 and 2.73, respectively (Caslini et al., 2016).

- ***Bulimia nervosa***

Research has shown that women who struggle with BN have suffered higher rates of child sexual abuse than those without BN (Fisher et al., 2010). Welch and Fairburn (1996) revealed that although “both sexual and physical abuse do not appear to be specific for the development of bulimia nervosa, they are risk factors. The study further revealed that sexual abuse, including a repeated and severe category, present only in a small number of patients. Although sexual abuse involving physical contact was reported by 35% of the cases, a minority of those with BN also reported physical abuse” (pp. 633–640). Wonderlich et al. (1997) conceded that child sexual abuse is a nonspecific risk factor for bulimia nervosa, primarily when a psychiatric comorbidity exists. Sancu et al. (2007) found that bulimic symptoms were 2.5 times higher among Australian female adolescents who reported one episode of child sexual abuse and 4.9 among those who informed two or more episodes of child sexual abuse, in comparison to those with no episodes. Julie (2015) noted that 30% of patients with bulimia nervosa had a history of child sexual abuse. Furthermore, the patient's age, particularly at the abuse and its duration, were found to be significant risk factors for developing eating disorders (Julie, 2015).

Steiger et al. (1996) noted that the association between developmental adversities (e.g., child sexual abuse and physical abuse) and bulimic syndromes might be attributable to comorbid personality pathology, which could be an enhanced predictor of object-relations disturbances, primitive defences and hostility. However, dissociation and submissiveness in those with BN have been linked to the most severe forms of abuse in individuals with bulimia. In addition, its occurrence in adulthood was preceded almost always by abuse during childhood (Léonard et al., 2003). Bulik et al. (1989) noted that women with bulimia from families in which child sexual abuse had occurred were more likely to have a personal history of major depression, relatives who abused drugs, and a disturbed family environment.

2.7 Body dissatisfaction

In relation to the state of consciousness in which an altered body image perception is present, related but different terms are often employed interchangeably such as body image distortion, body image misperception, body image disturbance, negative body image, altered body image,

and body dissatisfaction (Spreckelsen et al., 2018).

Body image distortion is a multidimensional symptom, which comprises various components of body image. Body image is conceptualised as a “multidimensional construct that encompasses a behavioural component involving body-related behaviours such as checking behaviours, a perceptual component that constitutes the perception of body characteristics including estimation of one's own body size or weight and a cognitive-affective component that involves cognition, attitudes, and feelings toward one body” (Cash, 2004, p. 2). “The perceptual component involves identifying and estimating the body which indicates the accuracy the individuals' evaluation of their body size, shape, and weight in comparison to the actual proportions thereof. Finally, the affective component includes feelings that individuals develop towards their body and their satisfaction or dissatisfaction about their body” (Yamamotova, 2017, p. 1667). “Negative thoughts and feelings in relation to one’s body may be defined as body dissatisfaction” (Cash, 2004, p. 2), which is considered to be the most critical global measure of stress related to the body (Grogan, 2017). Body image disturbance, which is a diagnostic criterion for AN, may manifest as a disturbance of percept and concept that is distortion and body dissatisfaction, respectively (Lewer et al., 2017).

Perceptual disturbance may be defined as the failure to evaluate the size of one’s body accurately. While body dissatisfaction comprises the attitudinal or affective perception of one’s body as well as negative feelings and cognitions body image disturbances believed to occur on a behavioural level such as body avoidance, body checking, and dieting (Gaudio et al., 2014; Lewer et al., 2017).

“The relationship between eating disorders and body dissatisfaction has been widely recognized and described as one of the most consistent and robust risk and maintenance factors for eating pathology” (Stice, 2002, pp. 832–833). Body dissatisfaction is considered to be the result of promoting dieting and negative affect, thus increasing the risk of eating pathology (Stice, 2002). Cardi et al. (2014) “employed behavioural tasks and a self-report measure to explore the processing of social rank-related cues and implicit self-concept in 50 healthy controls, 46 individuals with an eating disorder and 22 people who had recovered from an eating disorder. The results showed that heightened sensitivity to social comparison and negative self-evaluation may lead the development and maintenance of eating disorders” (pp. 543–552).

Brechan and Kvaalem (2015) revealed that the effect of body dissatisfaction on disordered eating was completely mediated but that of, body image on eating disorders was partly mediated. However, the importance of body image and self-esteem effected restrained eating and compensatory behaviour directly. Laporta-Herrero et al. (2018), in a study of 204 adolescent patients suffering from various eating disorders demonstrated that those with higher levels of body dissatisfaction had lower self- esteem and a greater likelihood of disordered eating attitudes.

2.7.1 Eating disorders and peer factors

Adolescence is often described as a tumultuous period of self-discovery when girls “live in continuous fear of not being loved and acknowledged” (Bruch, 1978, p. 58). Polivy and Herman (2002) added that adolescent girls are vulnerable to influence. They noted further that “modelling, encouragement, bullying, and social mocking influence eating attitudes and behaviours during this stage” (p. 194). Studies on the likability construct of peer influence have demonstrated that likability plays a substantial role in predicting eating-related concerns amongst children and adolescents (Oliver & Thelen, 1996; Tiffany et al., 2008).

Studies on appearance and eating disturbance have shown that social comparison mediates the effect of appearance-related teasing on body image and eating disturbance (Thompson et al., 1999). Furthermore, perceptions of friends’ views and actions that are related to body image and dieting significantly predict individual body image concern and eating behaviours (Paxton et al., 1999; Pilecki et al., 2016).

2.7.2 Eating disorders and media

Like the other two sociocultural factors (family dynamics and peer pressure), the media have played a pivotal role in disseminating standards of female perfect body types. Many authorities have attributed the increase in body dissatisfaction in non-western societies to what Lee (2004) referred to as “the toxin of Westernization” (p. 617). Becker et al. (2002) found that the introduction of western television to the traditional culture of Fiji led to the increase of body dissatisfaction and disordered eating among young women. Studies on the association between the media and eating disorders have found that the media perpetuates and glorifies unrealistic standards of physical beauty, which may be linked to the development of eating disorders among vulnerable teenagers specifically (Jung & Forbes, 2007). The study conducted by Neumark-Sztainer et al. (2012) on the effect of exposure to images of idealised beauty in the media found that the immediate impact of the media on body image was more substantial and normative for

girls and contributed considerably to the development of body dissatisfaction.

The influence of western media on body image and perceived attractiveness has also been considered. According to Szabo and Allwood (2006), South African women appear to have fallen into the trap of media portrayed images that suggest thinness equals beauty. Szabo and Allwood (2006) revealed that young South African women abused diet pills and laxatives so as to lose weight. They further found that many young South African females had a negative body image and had an immense desire to be thin. Evidence has indicated that not only media-based messages perpetuate the thin beauty ideal. Moreover, political climate and cultural ideals have had an influence on the public's perception of the ideal female body (Stice et al., 2003).

As noted previously, although many decades of research has assumed that eating disorders occur, particularly among adolescents in middle and upper socioeconomic groups in western cultures, increasing evidence suggests otherwise (Caradas et al., 2001; le Grange et al., 2004). Various studies have concurred that cultural differences, socio-economic status, media influence and acculturation have an impact on the metamorphosis and international incidence of eating disorder symptoms (Nakai et al., 2013).

2.8 Theoretical perspectives

Previously, one specific theoretical perspective (e.g., biological, cognitive-behavioural, psychodynamic) or an integrative perspective (e.g., biopsychosocial model) has posited risk and etiological factors of psychiatric disorders (Jacobi et al., 2004). Regardless of the theoretical perspective, the underlying mechanisms of the model may lead to a (smaller or broader) range of factors that predispose one to developing a disorder (Jacobi et al., 2004).

Several theories can be employed to explain pathogenesis of eating disorders and their impact on individuals. For the current study, different theories were employed. Cognitive-behavioural theory was employed to explain the onset of eating disorders, followed by social comparison theory to shed light on how adolescents may develop eating disorders. As discussed earlier, the vulnerability model was also employed to explain the interrelated sources of vulnerability. The bioecological theory of human development (compatible with the vulnerability model) was used as the primary theoretical framework to conceptualise eating disorders.

2.8.1 Cognitive-behavioural theory

Eating disorders may originate from several factors such as perfectionism, interpersonal distrust, interoceptive awareness, maturity fears, drive for thinness, bulimia and body dysfunction (Astudillo & Meza, 2013; Mulholland & Mintz, 2001). For example, the ways in which teenagers think about themselves may result in how they feel about themselves, which subsequently may lead to the decisions they arrive at in relation to body image factors. Cognitive behaviour theory was pioneered by Beck in the 1960s and is based on the notion that there is interaction among individuals' cognition, emotions and behaviour, that is the way they think, feel and behave, respectively (Beck, 1995). Simply, individuals' thoughts determine their feelings and behaviours, which Beck referred to as automatic thoughts. Clark (1995) asserted that the cognitive therapy model does not consider the human mind as a passive receptacle of environmental and biological influences and sensations, but asserted that individuals are involved actively in construing their reality. Williamson et al. (2004) debated that eating disorders are one of the strongest indications for cognitive-behavioural psychotherapy. Furthermore, factors such as fear of fatness and body image are aspects of broader constructs and can be conceptualised cognitively.

2.8.2 Social comparison theory

Social comparison theory was first pioneered by Festinger in 1954 (Festinger, 1954; Gibbons & Buunk, 1999). It posits that individuals have an innate drive to evaluate themselves, often by comparing themselves to others. Individuals make all kinds of judgements about themselves and analyse the self in relation to others. One of the primary ways that individuals engage in to make these judgements is through social comparison. Miller et al. (2015) asserted that comparison with others impacts individuals' social life significantly as it provides meaning and knowledge that is self-relevant. Individuals arrive at self-knowledge and self-understanding by evaluating their own abilities, attitudes and traits in comparison with others. In most instances, individuals compare themselves to those in their peer groups who are similar. Teenagers who compare themselves to their peers may experience various behavioural, cognitive and affective reactions, which may be dependent on the level the teenagers are engaged in self-monitoring, which can change over time on the basis that the level of social comparison information changes (Miller et al., 2015). Corcoran et al. (2011) postulated that there are two ways to view social comparison: upward social comparison and downward social comparison. These are thus defined:

“Upward social comparison often emphasizes individuals' desire to enhance their

current status or level of ability. Individuals may compare themselves to someone who is wealthier than them and consider ways they achieve similar results. In essence, when individuals compare themselves to those they perceive are better than them, upward social comparison occurs. Downward social comparison is often centred on allowing individuals to feel better about their abilities and/or traits. Thus, although individuals may perceive that they may not be very good at something, they console themselves that they are at least better than others. They compare themselves with those they perceive are not as good as them” (pp. 124–125).

In the context of the present study, the theory of social comparison was employed to explain the data and to consider whether eating disorder symptomatology is a factor that needs to be examined from a clinical intervention/treatment perspective. Research has indicated that engaging in social comparison may lead to body dissatisfaction, which may range from no dissatisfaction to extreme dissatisfaction.

2.9 Theoretical framework of the present study: Bioecological theory of human development

As suggested by the review above, biological, social, familial, and psychological factors appear to be associated with eating disorders. Various studies have shown that familial and parental characteristics and psychosocial factors may contribute to eating disorders among teenagers (Costa et al., 2008). This reveals the bi-directional nature of factors associated with eating disorder symptomatology, which further indicates that the assessment of the vulnerability to eating disorders should be multi-layered, that is, on individual, familial and societal levels. Accordingly, Bronfenbrenner’s (1977) bioecological theory of human development, which posits that an understanding bi-directional influences between individuals’ development and their surrounding environmental contexts is imperative, was employed in this study.

2.9.1 Bioecological theory of human development

Bronfenbrenner (1977) developed the bioecological model and the Ecological Systems Theory of Development, which posits that individuals may be regarded as products of their environment. The latter includes, their family, school, church and community groups and time. It also encompasses how long they have participated in various activities as well as the sociohistorical period in which they grew up. However, Bronfenbrenner (1977) developed a more comprehensive model by including people in the bioecological model. The theory focuses on the

“interaction between factors that contribute to human development in an individual’s maturing biology, immediate family/community environment and societal landscape” (Bronfenbrenner, 1979; Williams, 2011, p. 11).

According to Bronfenbrenner, the development and socialisation are influenced by the various circles of the environment within which individuals inter-relate actively. This comprises three significant assumptions:

- “Individuals are active in that they exert an influence on their environment;
- The environment compels individuals to adapt to its conditions and restrictions; and
- The environment may be comprehended to encompass various size entities inside one another, their reciprocal relationships, and micro-, meso-, exo- and macrosystems” (Bronfenbrenner, 1979; Saarinen et al., 1994, p. 88).

Bronfenbrenner (1979) and Saarinen et al. (1994) divided the environment into four categories: the microsystem, mesosystem, exosystem and macrosystem. In Figure 1, the model is depicted as concentric rings or nested structures. Each nested structure has an influence on those it contains.

Figure 1

Dimensions and Units of Analysis for the Ecological Theory of Human Development



Note: From Bronfenbrenner (1979).

- *The microsystem* is the layer closest to children and encompasses the structures with which they have direct contact. The relationships and interactions children have with their immediate surroundings comprise the microsystem” (Berk, 2000; Härkönen, 2007, p. 7). This is the environment from which their initial learning about the world occurs. It provides a nurturing hub or haunting set of memories for children (Rogoff, 2003). At this level, relationships have a bidirectional impact: away from and towards children. The family is evidently children’s microsystem to learn about living. The caring relations children enjoy with their parents and many other caregivers can ensure a healthy personality (Swick, 2004). Parents influence their children’s attitudes towards

food at this level.

- *The mesosystem* is the layer that connects two or more systems in which children, parents and their family live (Bronfenbrenner, 1979). A mesosystem connects the structures of children's microsystem (Berk, 2000). Children's teachers and parents connections as well as that of their church and neighbourhood are examples of mesosystems. Parents have the potential to act as powerful socialisation agents around eating patterns on this level (Savage et al., 2007). More specifically, parents are responsible for shaping the development of the teenager's disordered eating through their own eating styles (Scaglioni et al., 2008).
- The exosystem encompasses the larger social system in which children do not directly function. The structures in this layer affect children's development in that they interact with a structure in their microsystem (Berk, 2000). Although they may not be directly involved in the exosystem, they experience positive or negative force that encompasses interaction with their own system. For example, the children of a mother who is having difficulty to cope with social pressure to lose weight may be affected even though they are not subjected to similar pressure because the mother may model her children's attitudes towards food (Brown & Ogden, 2004).
- The macrosystem is the cultural environment of children. It comprises the larger systems of cultural beliefs, societal values, political trends and community events that serves as powerful sources of energy in individuals' lives. The macrosystems in which individuals live have an impact on what, how, when and where they conduct their relations (Bronfenbrenner, 2005). A risk factor may be a characteristic such as a genetic predisposition, an event such as being teased and an experience, for example, if individuals grow up in a culture in which extreme thinness is valued may precede the onset of the interest's outcome such as an eating disorder. Kraemer et al. (1977, p. 377) stated that "if the characteristic, event and/or experience are present, this is associated with an increase in the probability (risk) of a particular outcome over the base rate of the outcome in the general (unexposed) population".
- At a macro-level, cultural factors influence beauty ideals, which, in turn, are conveyed

through sociocultural including the media, peer interactions and parental influences (Calogero et al., 2007; Smolak & Thompson, 2009). Cultural beliefs and collectivistic values, for examples, conforming to norms have an indirect role in fostering body image concerns of women (Chen & Jackson, 2008). Political trends and community events form a significant part of children's environment. In South Africa, the demise of apartheid was followed by increased urbanisation where urban areas were favoured more than rural areas (Goebel, 2007). Szabo and Allwood (2006) noted that a few years after apartheid ended, studies revealed eating disorders in Black South African populations, specifically in urban areas, had emerged. In the Netherlands, the occurrence of bulimia nervosa revealed a dose-response relation with a degree of urbanisation as it was five times higher in cities than in rural areas (Van Son et al., 2006). Swami and Tovee (2006) found that rapid socioeconomic development, industrialisation and urbanisation in Malaysia resulted in the adoption of western cultural values. These changes have led to thinness being idealised, which has been coupled with perceived femininity success, and happiness in urban Malaysia (Swami et al., 2006). These studies have established socioeconomic and political trends as causal risk factor for the development of eating disorders.

- The chronosystem encompasses the dimension of time as it relates to children's environments. Within this system, elements can either external such as the timing of a parent's death or internal, such as, the physiological changes associated with children's development. When children get older, they may react differently to environmental changes and determine how these changes affect them (Bronfenbrenner, 1989). Puberty is characterised by the critical formation of personality and physical changes. During puberty, girls gain weight particularly in the areas of the hips, buttocks, stomach and thighs. They may experience a high level of body dissatisfaction because they may perceive that their developmental bodily changes do not match female thinness societal ideals that are portrayed in western cultures (Presnell et al., 2007; Thompson et al., 1999).

Studies have revealed that girls who mature early or when expected, experience higher levels of body dissatisfaction than those who start puberty later than expected, possibly because of pubertal increases in their body size and weight (Graber et al., 1994; McCabe & Ricciardelli, 2004). Thus, this implies that the time girls enter puberty may pose challenges that could result

in eating disorders. Furthermore, similar to other factors, maturity cannot be examined in isolation as it interacts with other variables, including dating, participation in sociocultural activities and parental influence. Predictors of the onset and maintenance of eating disorders are important in studies that examine prevalence to assist in the identification of targets for prevention programmes (Holland et al., 2013). The literature reviewed suggests that eating disorders occur because of multidimensional facilitating factors. Single factors in isolation do not appear to be causally linked to the development of eating disorders among teenagers in isolation. Rather, distinguishing stronger and weaker contributory factors may provide a base for developing preventative strategies.

This model is compatible with the Vulnerability model of psychopathology developed by Zubin and Steinahuer (1981) to explain the onset of schizophrenia and which Rees (2015) applied to the research on eating disorders in South Africa.

2.10 Summary

The literature has revealed that eating disorders are not only suffered by White people and those from western societies. To some extent, Africans also suffer eating disorders and the negative psychological effects thereof. In this chapter, studies on eating disorders were reviewed. Psychosocial factors found to be associated with the development of eating disorders were also reviewed. Furthermore, the role of the theories that were employed in the present study was outlined. The methodology employed in the study is explained in Chapter 3 that follows.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

The relevant literature was reviewed in Chapter 2. The methodology that was employed in the present study, including the research design, sampling, data collection, data analysis and ethical considerations, is outlined in this chapter. Furthermore, the quality criteria that guided the researcher are also presented.

3.2 Aims and hypotheses

3.2.1 Aims

The aim of the study was to investigate the prevalence of eating disorder symptomatology among Black female teenagers in a rural area of KwaZulu-Natal. As highlighted in the previous chapter, several studies focused on Black female teenagers in urban areas. Additionally, the second aim of the study was to determine whether there is a statistical relationship between eating disorder pathology (independent variable) and body image (dependent variable) among Black female teenagers in a rural area of KwaZulu-Natal.

3.2.2 Hypotheses

The following hypotheses were derived from the literature review in chapter two to operationalise the aims and the question of the study:

3.2.2.1 Hypothesis 1

There is no significant relationship between BMI status and eating disorder symptomatology (underweight and overweight as main categories).

3.2.2.2 Hypothesis 2

There is no significant relationship between eating disorder symptomatology and age among younger and older teenagers.

3.2.2.3 Hypothesis 3

There is no significant relationship between the socioeconomic status of those from households where both parents are employed in comparison to households where both parents are unemployed on eating disorder sub-scales amongst Black female teenagers.

3.3 Research questions

This study aims to answer the following questions:

- What is the prevalence of eating disorder symptomatology among Black female teenagers in a rural area of KwaZulu-Natal?
- Is there a relationship between eating disorder pathology and body image among Black female teenagers in a rural area of KwaZulu-Natal?
- Is there significant difference between body mass index (BMI) and eating disorder symptomatology?
- Is there significant difference of eating disorder symptomatology between younger and older teenagers?
- Is there significant relationship between the socioeconomic status of those from households where both parents are employed in comparison to households where both parents are unemployed on eating disorder sub-scales amongst Black female teenagers?

3.4 Research design

A quantitative, descriptive, cross-sectional design that used self-report questionnaires was employed in this study. A cross-sectional design “does not provide definite causes and effects and variables are measured at a single point in time” (Welman et al., 2005, as cited in Thulo, 2017, p. 9). However, such designs are descriptive, time efficient and do not allow the researcher to exert undue influence on the variables (Tierney, 2010). Furthermore, it is employed mainly to make comparisons within and between different groups or subjects (Welman et al., 2005).

3.5 Sampling

3.5.1 Area of study

The study was conducted in a rural area situated in the south-west region of KwaZulu-Natal. The target population for this study was Black female teenagers who were enrolled in two local high schools. The schools were chosen because they were situated in a rural area relevant to the purpose of the study.

3.5.2 Population and sample

The sample comprised 200 Zulu female teenagers. The inclusion criteria were Black females between the ages of 13 and 19 years who were enrolled in public high schools in a rural area of KwaZulu-Natal. Furthermore, the participants had to be able to speak English because the measuring instrument was presented in English. Only Black female teenagers were recruited because eating disorders are perceived to be a White and western phenomenon among women. On the contrary, it is believed that Black and non-western women are protected by contrasting ideals that value plumpness as a metaphor for attractiveness, fertility and prosperity (Kumanyika et al., 1993; Nasser, 1986).

Convenience sampling was used to select one rural municipality from a list of local municipalities. Dörnyei (2007) noted that convenience sampling is form of non-random sampling in which members of the target population are able to satisfy practical criteria such as easy accessibility, geographical proximity, availability at a given time and willingness to participate. Simple random sampling was used to select two high schools by drawing local school names out of a hat.

3.6 Procedure

The Head of the Department of Education of KwaZulu-Natal granted formal permission to conduct research in selected schools (Appendix G), followed by a meeting with the circuit manager of selected schools to inform him about the intention to conduct the research. In addition, the researcher applied for ethics clearance from the UKZN Humanities and Social Sciences Research Ethics Committee, which was granted (HSS/0267/019M, Appendix F). Data for the study were collected after acquiring approvals and ethical clearance. The circuit manager arranged with the school principals to inform them about the research and to discuss

dates to administer questionnaires to learners. On days that were agreed on by the principal, guidance teachers and researcher; announcements were made at the school assembly and advertisements were placed on school notice boards to request participants to participate (Appendix E1 and E2). Announcements requesting participants were given during the school assembly of both schools on days agreed to by the principal, guidance teachers and researcher. Furthermore, advertisements were placed on the schools' noticeboards requesting participants (Appendix E1 and E2).

Teachers were requested to recruit participants in classrooms where they made it clear that participation was voluntary. Furthermore, no extra credit would be awarded for participating and learners would not be ostracised for declining to participate. Informed consent forms, assent forms and information sheets were issued to participants prior to their participation (Appendix C1). Follow-up dates were arranged for those who were younger than 18 years of age for the collection of the parent consent forms. Only those who signed a consent form could participate.

3.7 Data collection

Data were collected using a demographic questionnaire and the Eating Disorder Inventory (EDI) (Appendix B).

3.7.1 Demographic questionnaire

A self-report instrument adapted from the Eating Disorders Inventory (Garner & Olmstead, 1984) that comprised the following variables was utilised to collect the participants' demographic information: age, grade, gender, ethnicity, religious affiliation, home language and perceived parental occupation/socio-economic level of their parents (Appendix A1).

3.7.2 The Eating Disorder Inventory

The Eating Disorder Inventory (EDI), which was developed by Garner (Garner & Olmstead, 1984) is a standardised self-report instrument employed for the assessment of a broad range of behavioural and attitudinal characteristics of anorexia nervosa and bulimia nervosa (Garner et al., 1983; Garner et al., 1984). The EDI, which is a multi-scale measure, includes the following eight subscales:

Drive for Thinness (DT) suggests excessive concern with dieting, preoccupation with weight and entrenchment in the extreme pursuit of thinness. The items in this subscale are a reflection of the desire to lose weight and fear of gaining weight.

Bulimia (B) reveals the tendency of uncontrollable binge eating (overeating) episodes, which may be followed by self-induced vomiting.

Body Dissatisfaction (BD) reflects on the belief that specific parts of the body including the buttocks, thighs and hips are associated with change of shape and increased fatness during puberty. The disturbance of these effects is believed to be a basic defect in anorexia nervosa.

Ineffectiveness (I) evaluates feelings of general inadequacy, insecurity, worthlessness and not being in control of one's life. It has also been suggested that this subscale includes negative self-evaluation.

Perfectionism (P) is an indication of excessive personal expectations for superior achievement. This may result in increased pressure on the individual to achieve what could be perceived as the perfect body type, image and structure.

Interpersonal Distrust (ID) indicates a sense of alienation and general reluctance to form close relationships. It has been identified as important in the development and maintenance of anorexia nervosa. This may be related to paranoid thinking about individual's inability to form attachments and/or feel comfortable with expressing emotions towards others.

Interoceptive Awareness (IA) reflects on an individual's lack of confidence in recognising and accurately identifying emotions and sensations of hunger or satiety.

Maturity Fears (MF) measures individual's desire to retreat to the security of preadolescent years because of the overwhelming demands associated with adulthood (Astudillo & Meza, 2013; Garner & Olmsted, 1984).

The EDI comprises 64 questions, which are assessed on a six-point scale, ranging from 1 (severe symptoms) to 6 (absence of symptoms). The first three subscales assess behaviours and attitudes that are related to weight, shape and eating. The remaining five subscales examine psychological dimensions that are associated with ego, strength and interpersonal functioning

(Garner & Olmsted, 1984). Questions in the EDI were generated for behavioural and psychological constructs that are regarded as relevant to eating disorders.

3.8 Data analysis

The intended purpose of data analysis is to reduce, organise and give meaning to raw data. This was conducted by addressing the main aim and objectives in which the quantitative data are interpreted systematically (Wagner et al., 2012). Data were analysed using the Statistical Package for Social Sciences (SPSS) version 25. Descriptive tests were employed to analyse and compare the mean scores of the different subscales on the EDI. An independent t-test was performed to determine the significance of the hypothesis. Cut-off values of the EDI were also presented for each subscale.

3.9 Reliability and validity of the EDI

The EDI's Reliability and construct, and convergent and discriminant validity have been demonstrated in its use on several occasions, including with adolescent populations (Garner et al., 1981).

With regard to reliability, "internal consistency has revealed that coefficient alphas for the original EDI scales ranged from .69 to .93, except the *Maturity Fears* subscale (.65) in a group of 11 to 18-year-olds. Furthermore, the one- year test-retest correlations on a sample of 282 non-patients ranged from .41 to .75. The test-retest correlations for the *Drive for Thinness* and *Body Dissatisfaction* were above .70" (Shore & Porter, 1990, as cited in Wai, 1998, p. 7). Welch and Hall (1987) reported test-retest reliability of all subscales over one week to be above .80, with the exception of the *Interoceptive Awareness* subscale ($r = .67$). "The test-retest reliabilities after three weeks on 70 non-patients were above .81" (Silva, 2007, pp. 288–289). Validation of the EDI took place on several levels (Garner & Olmstead, 1984). "The content validity was achieved by taking a pool of 146 items designed to measure 11 constructs that were considered meaningful in eating disorders. These were generated by clinicians who were familiar with the literature and involved in patient care. Only eight of the constructs met the criteria for validity and reliability, and these are the sub-scales used in the EDI" (Garner & Olmstead, 1984, as cited in Biggs, 1999, p. 41).

Concurrent validity was initially determined by assessing the agreement between clinician

rating of subscale traits and patient self-report subscales on the EDI, and results ranged from .43 to .68. (Garner et al., 1983). “The scores on the original eight subscales of the EDI were positively correlated ($r = .26$ to $.71$) with those on the Eating Attitudes Test” (EAT; Garner et al., 1982, as cited in Wai, 1998, p. 9). The eating and weight-related subscales of the EDI were correlated ($r = .44$ to $.61$) with the Restraint scale (Herman & Polivy, 1975), which measures dieting behaviour (Allison, 1995). Similarly, Espelage et al. (2003) examined the construct validity of the EDI in 3 samples and found reliability estimates of the eight scales (.82 to .93). Furthermore, EDI personality scales showed moderate inter-scale correlations and were associated with MCMI-II scales. In relation to predictive validity, “the *Bulimia* scale of the EDI is a stable predictor of the presence of binge eating at 1- and 2-year follow-ups” (Norrington, 1990, as cited in Mitchell, 2004, p. 30).

For discriminant validity, the EDI subscales, *Drive for Thinness*, *Body Dissatisfaction*, and *Bulimia* were more highly correlated with other measures that assessed eating and dieting behaviour and less correlated with more general psychopathology (Allison, 1995). Criterion-related validity, which is “the ability of items to discriminate between eating disordered and non-patient samples, was determined by administering the EDI to a small group ($n=49$) of patients who have recovered from AN. Those who have recovered scored lower than the group with AN on each subscale of the EDI. Furthermore, the anorexic patients were similar to the non-patient group means” (Garner et al., 1983, p. 25).

Convergent validity was achieved by comparing the EDI and Eating Attitudes Test (EAT-26; Garner et al., 1982) and the Restraint Scale, a measure of dieting behaviour (Herman & Polivy, 1975). The results indicated that there appear to be strong relationships with other measures of the same construct (Garner & Olmstead, 1984). Although no South African norms are available, “the EDI has been employed in studies on non-clinical populations in South Africa and Zimbabwe. In 1986, the EDI was used for the first time in Africa on a sample of high school girls in Zimbabwe” (Hooper & Garner, 1986, as cited in Adlard, 2006, p. 19).

Several South African studies (eg., Davies, 1995; Edwards et al., 2003; Geach, 1995; Wassenaar et al., 2000) have employed the EDI on non-clinical samples of adolescent girls and university students. Even when used on a sample where the participants first language was not English even though attended English medium schools, no problems were reported. In a cross-cultural study conducted by Wassenaar et al. (2000), “the EDI subscales that were calculated

for the whole study group and Black subjects separately and the standardized Cronbach's alpha calculated for the overall data set was 0.77, which is close to the 0.8 alpha level expected of widely used tests” (p. 228). The standardised Cronbach's alpha for Blacks considered alone was 0.64. Kramer (2000) explored aspects of disordered eating (in a non-clinical sample of nursing students) across cultures in the South African context. “The EDI demonstrated acceptable internal reliability, with alpha coefficients ranging from .5 to .8” (Kramer, 2000, p. 59). Furthermore, cross-cultural validation of the EDI in South Africa demonstrated that “Cronbach's alpha of the 64 items was .9314, thus indicating that the EDI is very reliable and the items are correlated positively” (Mitchell, 2004, p. 70).

3.10 Ethical considerations

To protect the welfare and rights of the participants and to reflect the basic ethical values of respect for individuals, beneficence and justice, the following principles that were relevant to the objectives of the study and adapted for social science research by Wassenaar and Mamotte (2012) were employed:

3.10.1 Community engagement and collaboration

In research, collaboration with the community is the process of working together in partnership with the community (Tindana et al., 2007, as cited in Bengu, 2018). The idea of community engagement emphasises “partnering with stakeholders (individuals or groups) who can influence or are affected by the research’s conduct or outcome. Community engagement is used in the same context as community consultation” (Tindana et al., 2007, in Bengu, 2018, p. 7). Thorough engagement about the study was done with stakeholders (learners, educators, parents and the Department of Education of KwaZulu-Natal) involved.

3.10.2 Social value

It is imperative that research examines questions that are of value to society and the community (Wassenaar & Mamotte, 2012). Studies have shown that “the notion of thinness that is portrayed for western women is related to body image concerns and socio-cultural values. Although some research has revealed that Black African women exhibit fewer body image concerns than their western counterparts, these concerns extend to them” (Thulo, 2017, p. 25), and the issue remains under-researched. Therefore, there is a need to conduct research on eating

disorder symptomatology by focusing on Black teenagers living in rural areas so that prevention programmes can be target specific so that appropriate services can be planned if indicated.

3.10.3 Scientific validity

Bhattacharjee (2012) noted that researchers have ethical obligations to the scientific community on how data are analysed and reported in their research. To ensure the scientific validity of this study, an appropriate cross-sectional quantitative design, which was relevant to the research question, using a standardised instrument, was employed. Furthermore, as noted previously, a standardised instrument and data analytic techniques were used.

3.10.4 Fair participant selection and research with vulnerable populations

Only those to whom the research questions were relevant were recruited. Furthermore, inclusion criteria such as age, sex, race and ethnicity were used to ensure the fair selection of participants (Rahman, 2016). The participants were Zulu female learners between the ages of 14 and 18 years whose mother tongue was isiZulu and who were fluent in English.

3.10.5 Favourable risk-benefit ratio

It is of the utmost importance that researchers explain all the possible harmful aspects and costs of the study to the participants and specify means to minimise these to ensure that risk/benefit ratio is favourable (Wassenaar & Mamotte, 2012). No physical risks were foreseen and the study was classified as minimal risk by the HSSREC. However, the researcher was aware that questions regarding body image could cause some participants distress and/or discomfort. Therefore, arrangements were made with the Child and Family Centre at UKZN and the District Special Needs Education Section of the Department of Education to assist those participants the teachers and parents identified as experiencing discomfort because of their participation in the study. The informed consent form made it clear that no direct benefits would accrue to participants. Furthermore, to reduce stigma and possible harm, possible identifiers such as the municipality's name was kept anonymous throughout the dissertation.

3.10.6 Independent review

The role of the Independent Research Ethics Committee is to enhance the quality of research

and maximise the protection of participants (Wassenaar & Mamotte, 2012). To ensure that all the participants were treated with dignity, approval was obtained from the UKZN Humanities and Social Science Research Ethics Committee (approval number HSS/0267/019) before data collection commenced.

3.10.7 Informed consent

It is crucial for researchers “to obtain consent in culturally and linguistically appropriate formats” (Wassenaar & Mamotte, 2012, pp. 265–270). Furthermore, participants should be assured that they are free to refuse or withdraw their participation from the study at any point (Emanuel et al., 2008). Informed consent forms (Appendix C1, C2, D1 and D2) were made available in isiZulu for the parents and learners over 18, and assent forms for learners under 18 years. The purpose of the study and the instruments were explained to all participants. Informed consent forms and information sheets were issued to parents/legal guardians prior to participation. An information sheet in which the description, nature, including the procedure and duration, and purpose of the study were outlined for the parents of the participants and for the participants’ perusal was attached to the informed consent. Only participants whose consent and assent forms were signed could participate in the study. Through the information sheet, the participants were made aware that pressure will not be exerted on them to participate and that they were at liberty to withdraw from participating at any time without any consequences. Parents/legal guardians of the participants who were under the age of 18 signed informed consent forms for their children to participate in the study. To ensure anonymity, the participants were requested not to write their names on the questionnaire. To maintain confidentiality after the study had been conducted, questionnaires and the informed consent forms were stored in a safe place and will be destroyed after 5 years.

3.10.8 Respect for participants

To operationalise the ethical obligation of respect, it is important for researchers to provide organisation feedback on the results (Singh & Wassenaar, 2016). The researcher gave the Department of Education KZN and schools that were involved in the study feedback on the results. Respect for participants was maintained by securing the confidentiality of all personal data.

3.11 Summary

In this chapter, the research design and quantitative approach employed in the study, including sampling, data collection and data analysis, were outlined. Ethical issues, which the researcher considered, were also provided. The results are presented in Chapter 4 which follows.

CHAPTER 4

RESULTS

4.1 Introduction

In this section, the results are presented in relation to the aims, research questions and hypotheses of the study.

4.2 Responses to questionnaires

Although 200 participants completed questionnaires, only 184 questionnaires could be used because 16 questionnaires were answered incorrectly and were thus removed from the analysis. Therefore, the usable response rate for the questionnaire was 92%.

4.3 Approach to data analysis

Data were analysed by employing the Statistical Package for Social Sciences version number 25 (SPSS 25). Descriptive analysis was used. The biographical data are presented in table 4.3 below.

4.4 Reliability testing

Garner (1991) noted that the coefficient alphas for the original EDI scales ranged between 0.65 and 0.93 in a group of 11 to 18-year-olds. Cronbach's alpha of the EDI, which the participants completed, was 0.86 (Table 2), which is also reliable and suggests that the 8 subscales work effectively in relation to the other subscales

Table 2

Internal Consistency of the EDI for the Current Study

Items	Cronbach's Alpha	N
Eating Disorder Inventory	0.86	64

4.4.1 Reliability testing of each subscale in the EDI

The internal consistency of all the subscales in the EDI is presented in Table 3

Table 3*Internal Consistency of EDI Subscales*

Items	Cronbach's Alpha	<i>n</i>
Drive for Thinness	0.52	7
Bulimia	0.61	7
Body Dissatisfaction	0.49	9
Ineffectiveness	0.55	10
Perfectionism	0.53	6
Interpersonal Distrust	0.40	7
Interoceptive Awareness	0.67	10
Maturity Fears	0.56	8

Reliability refers to measure's consistency and stability of a measure (Aron et al., 2014). Reliability tests were performed to determine the EDI's subscales' internal consistency. The resulting α coefficient of reliability ranges from 0 to 1 in providing this overall assessment of a measure's reliability. Although the standards for what makes a "good α coefficient are entirely arbitrary and dependent on the scale's theoretical knowledge, many methodologists have recommended a minimum α coefficient between 0.65 and 0.8 (or higher in many cases); α coefficients that are less than 0.5 are usually unacceptable, especially those that are unidimensional" (Aron et al., 2014, p. 553).

An examination of the table reveals that the Interoceptive Awareness subscale had the highest internal consistency with a Cronbach's alpha of 0.67. The Interpersonal Distrust subscale had the lowest internal consistency with a Cronbach's alpha of 0.4, which is usually unacceptable and might affect this measure's reliability in the current study.

4.5 Biographical characteristics

The questions related to the biographical characteristics of the participants were presented in Section A of the questionnaire (Appendix 1(A)) which includes age, grade, approximate height, approximate weight and occupation of parent/guardian. The participants' ages are displayed in Table 4.

Table 4*Biographical Characteristics*

	Total sample (N=184)	Grade 8 (n = 129)	Grade 9 (n = 17)	Grade 10 (n=10)	Grade 11 (n = 28)
Age (in years)	14.71 (1.71)	13.97 (1.10)	14.88 (1.27)	15.9 (1.20)	17.61 (0.88)
Height (in m)	1.49 (0.12)	1.47 (0.12)	1.50 (0.11)	1.55 (0.08)	1.67 (1.54)
Weight (in kg)	49.73 (12.48)	47.13 (11.47)	54.71 (13.13)	52.00 (12.11)	57.89 (12.69)
BMI	22.40 (4.86)	21.86 (4.95)	24.19 (4.96)	21.53 (3.40)	24.33 (4.19)

Note. Means presented with standard deviations in parentheses. Body Mass Index is calculated by dividing weight in kg by the height in metres squared (WHO, 2000).

Sample characteristics, including participants' weight, height, and Body Mass Indices (BMI) are presented in Table 4. Characteristics for the overall sample as well as each grade are presented. All of these participants were enrolled in local high schools at the time of the study, and were in grades 8 to 11, with the majority of participants being in grade 8 (i.e., 70.11%). As can be seen, the average BMI for each grade fell within the *Normal Weight* range (i.e., 18.50 – 24.99). Additionally, correlational analyses revealed that, as is to be expected, age was significantly positively associated with height, $r = .19, p = .010$, as well as with weight, $r = .3, p < .001$, and height and weight were also significantly positively correlated, $r = .55, p < .001$. A study of Table 4 shows that while the 14-year-old participants comprised the largest group (37%) and those who were 19 years of age constituted the smallest group (2.7%) with a range of 13 to 19 years, an average age of 14.71. Further examination of Table 4 indicates that of the 184 participants, the height of 62% of the participants ranged between 1.4m and 1.5m, whereas that of 14.7% ranged between 1.2m and 1.3m with an average of 1.4. The self-reported weight of most of the participants (32%) ranged between 41kg and 50kg, only 0.5% of the participants weighed 80kg or more with an average of 49.73. Furthermore, of this sample, 45.11% of participants reported that they came from a household where one or both parents were unemployed, reflective of the high level of poverty in the area. Participants reported a wide range of occupation for those parents who were employed, including (but not limited to) administrative worker, domestic worker, doctor, teacher, and self-employed business owner.

BMI classification across the four grades is presented in table 5.

Table 5

BMI Classification for the Overall Sample and Across Grades

		Total				
BMI Category	BMI	sample (N=184)	Grade 8 (n = 129)	Grade 9 (n = 17)	Grade 10 (n =10)	Grade 11 (n = 28)
Underweight	≤ 18.50	34 (18.48)	26 (20.16)	3 (17.64)	2 (20.00)	3 (10.71)
Normal weight	18.50 – 24.99	100 (54.34)	71 (50.39)	10 (58.82)	6 (60.00)	13 (46.42)
Overweight	25.00 – 29.99	39 (21.20)	26 (20.16)	4 (23.53)	1 (10.00)	8 (28.57)
Obese ^a	≥ 30.00	11 (5.98)	6 (4.65)	0 (0.00)	1 (10.00)	4 (14.29)

Note. Frequencies presented with proportions (%) in parentheses.

^a Obese includes all 3 Obese categories.

Of the 184 young females 18.48% ($n = 34$) would be classified as *underweight* (BMI < 18.50), 54.34% ($n = 100$) would be classified as *normal weight* (BMI = 18.50 – 24.99), 21.20% ($n = 39$) would be classified as *overweight* (BMI ≥ 25.00 – 29.99), and the remaining 5.98% ($n = 11$) would be categorised as Obese (i.e., all three Obese categories; BMI ≥ 30.00). Table 2 presents a breakdown of BMI classification across the four grades. As can be seen, in each of the grades, most participants fell in the *normal weight* category, in keeping with the overall sample. While very few participants were classified as Obese, no obvious pattern is noted. This may well be because of the small subsample sizes (aside from for grade 8). The occupational status of the participants' mothers and fathers are displayed in Tables 6 and 7, respectively.

Table 6*Occupation Status of Participants' Mothers*

Occupation, the mother	Frequency	%
Unemployed	70	38.0
Employed	55	29.9
Deceased	27	14.7
Unknown	32	17.4
Total	184	100

The data in Table 6 reveal that most of the participants' mothers were unemployed (38%). Furthermore, 4.7% of the participants' mothers were deceased and 17.4% of their occupations were unknown.

Table 7*Occupation Status of Participants' Fathers*

Occupation of the father	Frequency	%
Unemployed	49	26.6
Employed	75	40.8
Deceased	28	15.2
Unknown	32	17.4
Total	184	100

Table 7 reveals that 40.8% of the participants' fathers were employed and 15.2% were deceased. It may be assumed that the 17.4% who did not know whether their fathers were employed or not came from single-parent households.

4.6 Sub-scales of the EDI and cut-off scores

The EDI subscales and the cut-off values for each sub-scale are thus displayed in a descriptive

frequency table (Table 8). The percentage of normal and clinical cases is also depicted in the table.

Table 8

Cut-off Values for Each EDI Subscale

Item	N	Mean (SD)	Cut-off value	Scores	Frequency	Percentage
Drive for thinness	184	5.29 (3.57)	≥15	Normal	183	99.5
				Clinical elevation	1	0.5
Bulimia	184	3.17 (3.46)	≥4	Normal	129	70.1
				Clinical elevation	55	29.9
Body Dissatisfaction	184	6.5 (4.29)	≥14	Normal	173	94.0
				Clinical elevation	11	6.0
Ineffectiveness	184	5.09 (4.02)	≥10	Normal	164	89.1
				Clinical elevation	20	10.9
Perfectionism	184	8.32 (3.47)	≥8	Normal	84	45.7
				Clinical elevation	100	54.3
Interpersonal Distrust	184	5.5(2.98)	≥5	Normal	92	50.0
				Clinical elevation	92	50.0
Interoceptive Awareness	184	6.7 (4.86)	≥10	Normal	146	79.3
				Clinical elevation	38	20.7
Maturity Fears	184	8.8 (4.9)	≥5	Normal	57	31.0
				Clinical elevation	127	69.0

The cut-off values represent severity levels of eating disorders (Garner & Olmsted, 1984). An examination of Table 8 indicates that the participants scored the highest and lowest clinical elevations on the Maturity Fears and Drive for Thinness subscales, respectively.

4.7 Inter-correlations amongst Eating Disorders Inventory subscales

The inter-correlations among the subscales of the EDI are presented in Table 9.

Table 9*Inter-correlations Among the EDI Subscales*

Subscales	1	2	3	4	5	6	7	8
1. DT	1	.16**	.30**	.38**	.30**	.22**	.32**	.39**
2. B	.16*	1	.26**	.38**	.17*	.24**	.39**	.28**
3. BD	.30**	.26**	1	.23**	.34**	.25**	.21**	.32**
4. I	.38**	.39**	.23**	1	.44**	.25**	.55**	.41**
5. P	.30**	.18*	.34**	.44**	1	.44**	.35**	.46**
6. ID	.22**	.23**	.25**	.24**	.43**	1	.19**	.40**
7. IA	.32**	.39**	.21**	.54**	.34**	.19**	1	.34**
8. MF	.39**	.27**	.31**	.40**	.46**	.40**	.341**	1

Note. * Correlation is significant at the $p < 0.05$ level

** Correlation is significant at the $p < 0.01$ level

The inter-correlations among EDI subscales and the Total Scale Score are presented in Table 4.8. While several inter-correlations were not significant, it is promising that each subscale significantly positively correlated with the Total Scale Score ($p < 0.01$), which is suggestive of a common underlying construct.

4.8 Testing of hypotheses

In this section, the results are presented in relation to the hypotheses. The researcher employed an independent *t*-test to make comparisons between the prevalence of eating disorders and factors including BMI, age and socioeconomic status. Each hypothesis was thus examined.

4.8.1 Hypothesis 1

H₀: There was no significant relationship between BMI status and eating disorder symptomatology (underweight and overweight as main categories). In Table 4.9 the significance of BMI in relation to eating disorder symptomatology is displayed.

Table 10*Significance of BMI and Eating Disorders*

	Means		P-Value	Df	T
	Underweight	Overweight			
Drive for Thinness	26.41	24.65	0.91	75	1.21
Bulimia	33.31	31.81	0.69	75	0.99
Body Dissatisfaction	34.15	33.04	0.00	75	0.61
Ineffectiveness	42.66	42.42	0.20	75	0.14
Perfectionism	18.35	18.57	0.19	75	-.17
Interpersonal Distrust	23.74	24.00	0.89	75	-.14
Interoceptive Awareness	43.74	43.86	0.69	75	-.07
Maturity Fears	28.12	28.86	0.35	75	-.45
Overall for EDI	250.51	247.10	0.61	75	0.39

As depicted in Table 10, there was a significant difference between BMI and the Body Dissatisfaction subscale, with a p -value of 0.00 ($p < 0.05$). However, there were no other statistically significant differences between the subscales and the overall p -value of the EDI ($p > 0.61$). Accordingly, Hypothesis 1 was accepted.

4.8.2 Hypothesis 2

H₀: There was no significant relationship between eating disorder symptomatology between younger and older teenagers. In Table 11, the means of the older and younger teenagers' scores are reflected for the EDI subscales.

Table 11*Significant Difference Between Eating Disorders and Younger and Older Teenagers*

	Means		P-Value	Df	T
	Older	Younger			
Drive for Thinness	27.23	26.62	0.92	182	-.59
Bulimia	30.35	33.96	0.15	182	3.62
Body Dissatisfaction	35.10	34.07	0.28	182	-.79
Ineffectiveness	41.25	43.32	0.04	182	1.74
Perfectionism	17.62	18.27	0.00	182	0.70
Interpersonal Distrust	22.96	23.33	0.50	182	0.38
Interoceptive Awareness	42.21	44.40	0.17	182	1.58
Maturity Fears	28.23	29.60	0.36	182	1.15
Overall for EDI	244.98	253.57	0.96	182	1.49

Except for the Perfectionism subscale, which had a low p -value of 0.00 ($p > 0.05$), the comparison of the t -test and mean scores results revealed no significant difference amongst the younger and older teenagers. Therefore, Hypothesis 2 was accepted.

4.8.3 Hypothesis 3

H0: There was no significant relationship between the socioeconomic status of those from households where both parents are employed in comparison to households where both parents are unemployed on eating disorders subscales amongst Black female teenagers. In Table 12 the relationships between socioeconomic status and eating disorders is displayed.

Table 12*Significance Between Socioeconomic Status and Eating Disorders*

	Means		P-Value	Df	T
	Unemployed	Employed			
Drive for Thinness	25.52	26.27	0.08	72	-.51
Bulimia	32.35	33.52	0.83	72	-.80
Body Dissatisfaction	33.10	34.00	0.13	72	-.46
Ineffectiveness	41.79	41.17	0.74	72	0.32
Perfectionism	17.03	16.82	0.60	72	0.16
Interpersonal Distrust	22.10	22.55	0.03	72	-.37
Interoceptive Awareness	45.30	43.52	0.82	72	0.89
Maturity Fears	29.80	26.45	0.06	72	1.98
Overall for EDI	246.94	244.22	0.34	72	0.31

The data in Table 12 reveal that there was no significant relationship between the socioeconomic status of parents (employed or unemployed) ($p>0.34$) in relation to eating disorder symptomatology. Accordingly, Hypothesis 3 was accepted.

4.9 Supplementary findings

4.9.1 Comparison of EDI scores with other samples

The EDI has been employed by other South African and international studies. In Table 4.12, mean scores of the EDI subscales of the present sample compared with the results from studies on high school girls (Davis, 1995; Biggs, 1999), university students (Wassenaar et al., 2000) and international nonclinical sample of adolescent girls (Garner & Olmstead, 1984), have employed the EDI as a measure of disordered eating, are displayed.

Table 13*Comparison of EDI Scores with Other Samples*

	Present Study	Davies, 1995	Biggs, 1999	Wassenaar et al. (2000) N=628	Garner and Olmstead, 1984			
	N=184	N=125 Female White learners (SA)	N=58 Female Black learners (SA)	N=209 Female adolescents (SA)	Black Female Students	White Female Students	Asian Female Students	N=231 Female learners (Canada)
EDI Scale	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean	Mean	Mean	Mean (SD)
Drive for Thinness	5.29 (3.57)	7.53 (5,24)	8.50 (4.47)	6.07 (6.02)	7.92	6.56	4.77	7.09 (5.94)
Bulimia	3.17 (3.46)	2.97 (3,66)	11.28 (7.36)	1.99 (3.03)	1.6	12.65	1.04	12.14 (8.65)
Body Dissatisfaction	6.5 (4.29)	14,74 (7.99)	2.89 (3.38)	14.12 (8.11)	8.41	1.98	9.17	2.17 (2.84)
Ineffectiveness	5.09 (4.02)	5.60 (6.14)	4.80 (4.26)	4.09 (5.09)	-	-	-	4.20 (4.89)
Perfectionism	8.32 (3.47)	5.06 (4.51)	7.75 (4.67)	3.79 (3.82)	-	-	-	4.97 (4.10)
Interpersonal Distrust	5.5 (2.98)	5.06 (4.41)	5.29 (4.67)	3.51 (3.84)	-	-	-	3.36 (3.56)
Interoceptive Awareness	6.7 (4.86)	5.98 (5.46)	6.76 (5.33)	4.32 (4.92)	-	-	-	5.46 (5.43)
Maturity Fears	8.8 (4.9)	4.35 (2.91)	7.42 (4.89)	4.42 (4.50)	-	-	-	3.76 (3.08)

An examination of the table reveals that the mean EDI scores of the present study are comparable with those of other South African studies. However, because Wassenaar et al. (2000) studied university women, and due to the difference in age of the participants, no comparisons are attempted on the mean scores. Based on the population used (public high black teenagers), the mean scores of Biggs's (1999) and Davies' (1995) sample of public high school black girls are compared. The means for the South African learners in the present study were significantly lower than Biggs's (1999) high school sample on two of the EDI subscales: Drive for Thinness and Body Dissatisfaction, but significantly higher on six subscales: Bulimia, Ineffectiveness, Perfectionism, Interpersonal Distrust, Interoceptive Awareness and Maturity Fears. The mean scores in the present study are slightly higher than those shown by Davies (1995) on five of the EDI subscales: Body Dissatisfaction, Ineffectiveness, Perfectionism, Interpersonal Distrust and Maturity Fears.

The overall degree of similarity between these average EDI scale profiles was determined by calculating a correlation matrix. The correlation coefficients are presented in Table 4.13 below.

Table 14

Correlations Between Comparison Samples

	Present study	Garner and Olmstead (1984)	Davies (1995)	Biggs (1999)
Present study	1			
Garner and Olmstead (1984)	-0.648863392	1		
Davies (1995)	-0.421569129	0.941952738	1	
Biggs (1999)	0.28931267	-0.557116851	-0.666	1

Note. ** 2-tailed significance: 0.01

The correlation coefficient between the present study and Biggs (1999) was significant suggesting a degree of similarity between the samples.

4.10 Summary

The EDI and its eight subscales were found to be reliable (Cronbach's alpha = .86), which is the alpha level expected of widely used tests. The descriptive statistics, frequencies and means of the participants' biographical characteristics were also presented. These biographical data included the participants' ages, grade at school, weight, height, BMI, and parents' occupation status and showed no relationship between the biographical characteristics of the patients and eating disorder symptomatology. The overall EDI score was not associated with age, which suggests that there was no specific age (or grade) that was at increased risk for obtaining high eating disorder scores and possible risk of eating disorders. In this study, there was no significant difference between the socioeconomic status of both parents (employed or unemployed) and eating disorder symptomatology. The results of the *t*-test and mean scores of the participants classified as underweight and overweight revealed a slightly significant difference for the Body Dissatisfaction subscale.

A high degree of difference was noted in the supplementary findings between the average EDI scale profile in the present study and other South African studies. The South African learners'

mean scores in the present study were significantly lower than other South African studies on two of the EDI subscales: Drive for Thinness and Body Dissatisfaction, but significantly higher on six subscales: Bulimia, Ineffectiveness, Perfectionism, Interpersonal Distrust, Interoceptive Awareness and Maturity Fears. However, based on the mean scores it appears that higher levels of disturbed eating were revealed in the present study than in Davies' (1995) study in a public school. The present study significantly correlated with Biggs's (1999) study. The results are discussed in depth in the next chapter in relation to the literature on eating disorders.

CHAPTER 5

DISCUSSION

5.1 Introduction

In Chapter 4, the data collected for the study were analysed. In this chapter, the results are discussed in relation to the literature on eating disorders.

5.2 Characteristics of the sample

The participants included 184 school-going Black female 13- to 19-year-olds. This age range is consistent with the literature that has examined the age distribution of eating disorders (Klump, 2013). As previously noted, adolescence is a critical development stage and the peak time for onset of eating disorders. In addition, South African Black female adolescents have presented with concerns about body image and eating disorders (Mchiza et al., 2015). Consequently, this study has attempted to address limitations in the literature where Black females have been underrepresented in studies on eating disorders. Although the participants were in grades 8 to 11 at two local high schools in the area, most (70.7%) were in grade 8. The mean age of the total sample was 14.7 ($SD=1.67$). As noted previously, SANHANES-1 (2013) revealed that girls between the ages of 10 and 14 years often had a negative body image; in fact, 68% perceived that they had a BMI higher than the ideal.

The results revealed that 45.11% of the participants reported that one or both of their parents were unemployed, thus reflecting the considerable level of poverty in the municipality. This is noteworthy because although eating disorder symptomatology has often been associated with middle- and high-income classes (Nevonen & Norring, 2004), studies have also shown that it is also found among low socioeconomic classes (Neumark-Sztainer et al., 2006).

Employed parents (40.8%) of participants were employed in a wide range of occupations, including administration, domestic work, education, medicine and self-employment. The results suggest that the participants' parents' occupational status, specifically employed or unemployed, was not related to eating disorder symptomatology. More specifically, no significant relationship was found between the participants' parents' socioeconomic status, as indicated by their employment status and EDI subscale scores. Accordingly, Hypothesis 3 of the study was accepted. However, it should be noted that even though some of the participants'

parents were employed, this does not imply they could be classified as high-income earners. In South Africa, rural areas are often marked by poverty (du Toit, 2017). However, teenagers from all socioeconomic strata may suffer from eating disorders.

5.3 Internal consistency reliability analysis of the EDI and its subscales

The reliability and validity of the EDI have been revealed repeatedly, including with adolescent populations (Garner et al., 1982). As noted in Chapter 4, in a group of 11- to 18-year-olds, alpha coefficients of the original EDI scale ranged from 0.65 to 0.93 (Garner, 1991). In this study, as presented in the results, Cronbach's alpha of the EDI was 0.86. The Interoceptive Awareness subscale with a Cronbach's alpha of 0.67 and the Interpersonal Distrust subscale with a Cronbach's alpha of 0.4 had the highest and lowest internal consistency. These data suggest that the EDI subscales met the psychometric adequacy of the subscales of the EDI and the results are reliable.

5.4 Body Mass Index (BMI) and the prevalence of eating disorders

Prevalence studies on eating disorders have revealed that individuals who have suffered AN throughout their life have a significantly lower BMI (approximately 18.5) in comparison to those without eating disorders. Furthermore, studies shown a BMI of 40 is more prevalent among individuals who suffer binge eating disorder than those who do not have any eating disorders (Hudson et al., 2007). In this study, while most of the participants (52.2%) were classified in the normal weight category with a BMI of 18.50 – 24.99; 1.6% were classified in the obese class III with a BMI of greater than 40 and 21.2 % as underweight with a BMI of under 18.5 and the mean BMI for the total sample was 22.24 ($SD=4.92$). In this sample of rural adolescents, fewer were overweight and obese than those reported in the 2008 National Youth Risk Behaviour Survey (overweight 29% and obese 7.5%) (Reddy et al., 2012). In contrast to the current study, Pedro et al. (2016) reported prevalence of overweight (16.4%) and obesity (2.6 %) in rural school children higher than the current study. By looking at the current results compared with other studies, one may deduce that some participants may have displayed patterns associated with eating disorders. A cautionary note on the lower BMIs found in this study was the low socio-economic standing of the sample, suggesting that a low BMI might be due to food insecurity rather than an eating disorder, possibly supported by the absence of a significant relationship between socioeconomic status and low EDI scores reported in 5.2 above.

5.5 Drive for Thinness subscale and eating disorders

The Drive for Thinness subscale “measures an extreme concern with being preoccupied with weight and dieting so as to pursue thinness” (Garner & Olmsted, 1984, p. 5). Items in this subscale evaluate an individual’s fear of gaining weight and desire to lose weight. The results revealed that in relation to this subscale, there was no difference between those participants who were underweight ($\bar{x}=26.41$) and overweight ($\bar{x}=24.65$), older ($\bar{x}=27.23$) and younger ($\bar{x}=26.62$), and those whose parents were employed ($\bar{x}=26.27$) and unemployed ($\bar{x}=25.52$). These results do not concur with Pedro et al. (2016) who found a consistent trend that while mid to post-pubertal girls who wanted to be larger had the highest BMI, those who desire to be thinner had the lowest BMI. Like the current study, research has revealed a “trend towards a larger body in Black populations and traditionally, being overweight is accepted in African culture as a sign of beauty, wealth, and the absence of illness” (Mchiza et al., 2011, p. 6; Steyn et al., 2012).

Davies (1995) indicates that Garner et al. (1984) employed the mean Drive for Thinness score of the group with AN as a cut-off to identify individuals who are preoccupied with weight. Accordingly, Davies (1995) used a score of 12 as a cut-off. Individuals with a score above 15 were noted as exhibiting problematic weight concerns and/or disordered eating. The current study further showed that 0.5% of the participants' scores for the subscale fell within the range of potential clinical significance, 21.2% of the participants had a BMI below 18.5, thus indicating they were underweight. Garner (2004) as cited in Adlard (2008, p. 66) stated that “one should be very concerned about individuals with a score in this range in that this may indicate the presence of a clinical eating disorder because it is rare among nonclinical participants, specifically, 1% of adolescents and 2% of adults, respectively”. However, the current study participants did not show eating disorder symptomatology on a level comparable to elsewhere globally and may be a consequence of the location, malnutrition and poverty in this setting.

5.6 Bulimia subscale and eating disorders

Bulimia is the tendency of uncontrollable binge eating, which is usually followed by self-induced vomiting (Astudillo & Meza, 2013; Garner & Olmsted, 1984). Garner (2004) as cited in Adlard (2006, p. 66) stated that in nonclinical samples although, “a score greater than or equal to 5 is unusual among those 18 years and younger (12%) it is more common among the

adults (30%) and may indicate the presence of clinically relevant overeating tendencies". It is noteworthy that South African Black patients with eating disorders are more likely to have bulimia than their White counterparts (Dolan, 1991; Szabo & Allwood, 2004). However, although 29.9% of the present study participants fell within the atypical group, the participants did not exhibit typically bulimic patterns. Furthermore, there were no significant differences among underweight ($\bar{x}=33.31$) and overweight participants ($\bar{x}=31.81$), older ($\bar{x}=30,35$), and younger participants ($\bar{x}=30.35$), and those with unemployed parents ($\bar{x}=32.35$) and employed parents ($\bar{x}=33.52$). These findings are inconsistent with Geach's (1995) study, which indicated an increase in eating disorders across ethnic and socioeconomic groups. The current results further concur with Wassenaar et al. (2000) and Marais et al. (2002), thus indicating that the White group scored higher on the Bulimia subscale than Black participants.

5.7 Body Dissatisfaction subscale and eating disorders

The Body Dissatisfaction subscale assesses the belief that specific parts of the body that are associated with a change in shape and/or weight gain during puberty are large. These body parts include the buttocks, thighs, and hips, which those with anorexia nervosa consider to be a fundamental defect (Astudillo & Meza, 2013; Garner & Olmsted, 1984). Rodin et al. (1984) asserted that currently body image dissatisfaction is very prevalent in society and thus, has been referred to as "normative discontent" (p. 267). Garner (2004) asserted that a score in this range is common in nonclinical samples, namely, 70% of girls and 54% of girls and women, respectively. Because one of the purposes of this study was to determine whether there was a statistical relationship between eating disorder pathology and body image among Black female teenagers, the Body Dissatisfaction subscale is of importance. However, the results revealed that only 6% of the participants were dissatisfied with their perceived body shape. These results are in line with Wassenaar et al. (2000) and Marais et al. (2003) who revealed that Black participants appeared to be more body satisfied than their White peers. This was further supported by Mitchell (2004) who revealed that Asian participants scored the highest on Body Dissatisfaction (20%), followed by the White participants (18%). The Black participants scored lowest (9%). Findings from an earlier, comparable study (Walker et al., 1991) revealed while White urban girls experienced the most dissatisfaction, Black urban girls experienced somewhat less dissatisfaction and Black rural black girls experienced the least. A similar pattern was reported by Caradas et al. (2001) who revealed that Black teenage girls exhibited lesser body image concerns and body image dissatisfaction than White race which

is comparable to the previous study (Szabo & Allwood, 2006). In addition, there was no difference between the older ($\bar{x}=35.1$) and younger participants ($\bar{x}=34.07$) and between those whose parents were unemployed ($\bar{x}=33.1$) and employed ($\bar{x}=33.4$). These findings do not concur with Wassenaar et al. (2000) who found that father's occupation was related to his child's BMI quartile. Although an association between age, employment status, and body dissatisfaction was not found, a significant difference between BMI and Body Dissatisfaction subscale was noted with a p -value of 0.00 ($p>0.05$). The data suggest that disordered eating among participants was associated with body dissatisfaction concerning BMI regardless of weight category. The results of the present study concurred with Lynch et al. (2004) in that BMI was significantly and positively associated with disturbed eating attitudes. Davies (1995), in a study on South African high school girls ($N=186$) who completed the EDI found that Black high school girls were as engaged in struggles over eating and body weight, as were their White counterparts. The current results suggest that eating disorders have crossed former social barriers and Black rural girls appear to be at the same risk as White girls.

5.8 Ineffectiveness subscale and eating disorders

The Ineffectiveness subscale evaluates individuals' feelings of general inadequacy, insecurity, worthlessness and not being in control of their life. Furthermore, it includes a negative self-evaluation (Astudillo & Meza, 2013; Garner & Olmsted, 1984). The results demonstrated that although most (89.1%) of the participants did not show dysfunctional metacognitive beliefs attributable to a drive for thinness, 10.9% of participants may have been experiencing negative cognitions, which have been associated with eating disorders. Laporta-Herrero et al. (2018) found that lower self-esteem was associated with a greater likelihood of disordered eating patterns. The results further indicated that in relation to this subscale, the mean Ineffectiveness scores of the underweight participants ($\bar{x}=42.66$) did not differ from the scores of those who were overweight ($\bar{x}=42.42$) and those whose parents were unemployed ($\bar{x}=41.17$) and employed ($\bar{x}=41.79$). These findings are not in line with Wassenaar et al. (2000) who found, with the exception of DT, BD and ID, a significant association between six EDI subscale quartiles and BMI quartiles. Although no difference between the mean scores of the older ($\bar{x}=41.25$) and younger ($\bar{x}=43.32$) participants was found, the p -value of 0.04 suggests there may have been a slight difference in how the participants responded to the items on this subscale.

5.9 Perfectionism subscale and eating disorders

The Perfectionism subscale indicates excessive personal expectations for superior achievement. This may lead to increased pressure on individuals to have what they perceive as the perfect body type, image and structure (Astudillo & Meza, 2013; Garner & Olmsted, 1984). Sutandar-Pinnock et al. (2003) found that perfectionism was linked to eating disorder symptomatology. Self-oriented perfectionism is related to expectations of oneself and the motivation to realise that perfection. Castro et al. (2007) demonstrated that higher self-oriented and socially prescribed perfectionism scores were linked to higher EAT scores. This study revealed that while 45.7% of the participants scored within what is regarded as the normal range, 54.3% fell within the range of potential clinical significance. This may indicate that most of the participants need to undergo a clinical evaluation. These high scores on perfectionism for the black participants in the present study are consistent with the literature by Wassenaar et al. (2000) and Marais et al. (2003) who found high perfectionism scores for black participants. Furthermore, the literature showed that individuals who suffer eating disorders often exhibited high levels of maladaptive perfectionism such as, idealistic personal expectations (Bardone-Cone et al., 2007; Brown et al., 2012) which may lead to the development and persistence of the disorder.

The results further revealed no difference between the mean scores of underweight ($\bar{x}=18.35$) and overweight ($\bar{x}=18.57$) participants. However, a significant difference between the older ($\bar{x}=17.62$) and younger ($\bar{x}=18.27$) participants with a low p -value of 0.00 ($p>0.05$) was found. This suggests that older and younger participants may have differed on what they perceived as the perfect body type. There was a significant difference between the means of participants whose parents were unemployed ($\bar{x}=7.03$) and employed ($\bar{x}=16.82$) with a p -value of 0.00 ($p>0.05$).

5.10 Interpersonal Distrust subscale and eating disorders

The Interpersonal Distrust subscale evaluates a general reluctance to form close relationships as well as a sense of alienation. Both have been identified as exacerbating factors in the development and maintenance of AN anorexia nervosa. Paranoid thinking may be related to the inability to form attachments and feel comfortable when expressing emotions to other individuals (Astudillo & Meza, 2013; Garner & Olmsted, 1984). As depicted in Table 4.10, half of the participants' scores for the Interpersonal Distrust subscales fell within the typical

clinical range. These results are consistent with results from Wassenaar et al. (2000), Marais et al. (2003) and Mitchell (2004) where black participants also scored higher on Interpersonal Distrust. The results also revealed no significant difference between the underweight ($\bar{x}=23.74$) and overweight participants ($\bar{x}=24.00$). This further supports the notion that there was no relationship between BMI and eating disorders in this sample. There was also no significant difference between the older ($\bar{x}=22.96$) and younger participants ($\bar{x}=23.33$) and those whose parents were unemployed ($\bar{x}=22.10$) and employed ($\bar{x}=22.55$).

5.11 Interoceptive Awareness subscale and eating disorders

The Interoceptive Awareness subscale reflects an individuals' lack of experience in accurately recognising and identifying emotions and hunger or satiety sensations (Astudillo & Meza, 2013; Garner & Olmsted, 1984). Although less comprehensively incorporated into current models of AN and BN, this is also related to disordered eating (Merwin et al., 2010). The results revealed that 20.7% of the participants were classified in the atypical clinical range. This is consistent with Wassenaar et al. (2000) and Mitchell (2004), which also showed low score black participants on the Interoceptive Awareness. Furthermore, there was not a significant difference between the underweight ($\bar{x}=43.74$) and overweight ($\bar{x}=43.86$) participants, older ($\bar{x}=42.21$) and younger ($\bar{x}=44.40$) participants, and those whose parents were unemployed ($\bar{x}=45.30$) and employed ($\bar{x}=43.52$).

5.12 Maturity Fears subscale and eating disorders

The Maturity Fears subscale assesses the desire to retreat to preadolescent security because of perceived overwhelming demands of adulthood (Astudillo & Meza, 2013; Garner & Olmsted, 1984). A review of puberty in both human and animal studies revealed that the onset of puberty plays a crucial role as a risk factor for the development of eating disorders, including AN, which is associated with hormonal and psychological changes during this period (Klein & Walsh, 2004; Klump, 2013). The results showed no significant difference between those who were underweight ($\bar{x}=28.12$) and overweight ($\bar{x}=28.68$) and older ($\bar{x}=28.23$) and younger ($\bar{x}=29.60$) participants. Furthermore, there was no significant difference between those whose parents were unemployed ($\bar{x}=29.80$) and employed ($\bar{x}=26.45$). The participants' mean score on the Maturity Fears subscale was 8.8 ($SD=4.9$). The relationship between employment status, BMI, age and maturity fears was not found as hypothesised. Interestingly, 67% of participants' scores were clinically elevated on the Maturity Fears subscale. Studies of

the prevalence of disordered eating Crisp (1980), as cited in Garner et al. (1984, p. 3) observed that “a clinically elevated score on this scale reveals psychopathology, which has its origins in the biological and psychological experiences associated with an adult weight that adolescents experience during adolescence, which is a similar mechanism to those precipitating anorexia nervosa and bulimia nervosa”. According to the literature, eating disorders are marked with psychosocial impairment and comorbid psychopathology (Batista et al., 2018). This suggests that participants in the current study might be presenting with psychosocial impairment and comorbid psychopathology which might predispose them to the development of an eating disorder (Batista et al., 2018). The self-esteem of a female before puberty and in adolescence is an essential factor in their predisposition for the development of an eating disorder, and it is also associated with eating disorders and eating attitudes in nonclinical student groups (Mayhew & Edelman, 1989). It is noteworthy that whether socioeconomic status, BMI and pubertal timing (age) effects reflect processes independent of eating disorders development and maintenance, that is, since a significant number of participants achieved clinically elevated scores on the Maturity Fears subscale, remains an open question.

5.13 Comparison with other South African samples

The mean scores on each of the EDI subscales were compared with other South African studies. A significant degree of correlation between the average EDI scale profiles indicated that the data in this study concurred with the data from previous studies (Biggs, 1999). This enhances the validity of the results of this study and facilitates the generalisability of the results to a demographically comparable population. Other South African studies have investigated disordered eating among Black, Indian and White university students (Wassenaar et al., 2000) and school learners (Adlard, 2006; Biggs, 1999; Davis, 1995). Most notably, however, these studies found a high degree of body dissatisfaction amongst black learners (Adlard, 2006; Biggs, 1999; Davies, 1995). Wassenaar et al. (2000) found White female students to be significantly more dissatisfied with their body shape than Indian or Black students. The mean score on the Body Dissatisfaction subscale in this study was higher than the mean scores reported in Davies (1995) study but significantly lower than the score reported in the studies of (Adlard, 2006; Biggs, 1999). This study thus supports the finding that a high degree of body dissatisfaction is experienced among young Black female teenagers in South Africa. The means for Bulimia, Ineffectiveness, Perfectionism, Interpersonal Distrust,

Interoceptive Awareness and Maturity Fears were significantly higher than Biggs's (1999) study. These data suggest that teenagers in the current study have more problems with control around food and difficulty recognising inner sensations. Furthermore, high perfectionism suggests that young people from rural schools are as much under pressure to do well as those from urban schools (Davies, 1995).

5.14 Summary

The findings of the study were discussed and presented in the context of the literature review in this chapter. The prevalence of eating disorder symptomatology was approximately 36 % in the sample. The participants' scores were in the clinical range on the EDI, which suggests that teenagers in rural areas are no longer protected from eating disorders. The investigations of the differences between BMI and eating disorder symptomatology revealed that few participants had BMI scores in low and high categories, and the overweight and obesity prevalence rate was low compared to findings reported by Pedro et al. (2016); Reddy et al. (2012). Furthermore, there was a significant positive relationship between body dissatisfaction and BMI.

Drive for Thinness provides a more accurate measure of disordered eating than Body Dissatisfaction, which focuses on body image (Winship, 1996). The results revealed there was relationship between BMI and eating disorder symptomatology as well as between eating disorder pathology and body image in the sample.

There was no specific age group or grade at an increased risk for suffering an eating disorder, which implies that eating disorders can affect teenagers of any age.

No relationship between those from employed parents' households compared to unemployed parents' households on eating disorder sub-scales. This finding contrasts with the Australian study that revealed disordered eating symptoms are equally distributed across socioeconomic status levels (Mulders-Jones et al., 2017).

In the current study, there is a support for the findings related to the observation of eating disorder symptomatology in comparison to the mean scores on the EDI subscales and eating disorder symptomatology for the total sample ($N = 184$) and the Biggs (1999) ($N = 209$) and

Canadian ($N = 231$) samples. The means in this study were higher than the Canadian sample on all EDI subscales. Hence disordered eating is more prevalent on average in South African teenagers than in the Canadian comparison sample.

CHAPTER 6

CONCLUSION AND RECOMMENDATION

6.1 Conclusion

The purpose of the study was to explore eating disorders amongst Black female teenagers in a rural area of KwaZulu-Natal. The Eating Disorder Inventory was administered and demographic information, specifically, age, school grade, approximate height and weight, and parents' occupation status was obtained from 184 Black adolescent females.

A summary of the most important findings is as follows:

- 1) In this study, with a Cronbach's alpha of 0.86, the EDI was revealed to be reliable. With the exception of the Interoceptive Awareness subscale with a Cronbach's alpha of 0.67 and the Interpersonal Distrust subscale with a Cronbach's alpha of 0.4 (lowest internal consistency), the subscales were reliable.
- 2) In the Black female teenagers in a rural area of KwaZulu-Natal, 36% scored in the clinical range on the EDI, thus revealing the prevalence of eating disorder symptomatology.
- 3) The first three subscales of the EDI measure disordered eating. The hypothesis that there was no significant difference between BMI status and eating disorder symptomatology (underweight and overweight as main categories) was supported. This result should be interpreted with caution because 48% of participants' BMI scores fell in the categories of underweight and obese, which, in this community, could suggest malnutrition rather than disordered eating. A comparison of the results of the *t*-test and mean scores of the participants classified as underweight and overweight revealed a significant difference for the Body Dissatisfaction subscale, with a *p*-value of 0.00 ($p < 0.05$). However, there were no other significant statistically differences between the subscales and overall *p*-value of the EDI ($p > 0.61$).
- 4) The hypothesis that was no significant difference in eating disorder symptomatology between younger and older teenagers was accepted except for the Perfectionism subscale, which had a low *p*-value of 0.00 ($p < 0.05$), the *t*-test and mean scores results revealed no

significant difference amongst the younger and older teenagers. Perfectionism has long been linked to eating disorders (anorexia nervosa) (Garner & Olmsted, 1984). Therefore, these results suggest that current participants were vulnerable to eating disorders.

5) No relationship was found between the socioeconomic status of those from employed parents' households compared to unemployed parents' households on eating disorder subscales.

6) Although participants had low scores on five subscales, including those regarded as measures of disordered eating, the participants' scores on three subscales of perfectionism, interpersonal distrust and maturity fears were within the range of potential clinical significance. Even though it was not the study's aim, these results suggest other comorbidities (depression, low self-esteem and anxiety) related to mechanisms that could lead to potential vulnerabilities and maintenance of eating disorders (Astudillo & Meza, 2013; Laporta-Herrero et al., 2018).

7) Furthermore, a possible link was found between dysfunctional metacognitive beliefs (such as excessive worry and rumination about body and weight) and eating disorders. This finding supports the contention that disordered eating is possibly driven in part by dysfunctional metacognitive beliefs (Davenport et al., 2015). However, this was not the purpose of the study and further investigations are required to examine this link.

8) The EDI means in this study were higher than local studies and the Canadian sample on all EDI subscales, which suggests higher average prevalence rates in the current sample than in the local and Canadian comparison samples.

6.2 Limitations of the study

Although some significant findings were suggested by this study, it has several limitations: Although the study explored the prevalence of eating disorders amongst Black female teenagers in a rural area of KwaZulu-Natal, it may be regarded as a one-stage study in that clinical interviews were not conducted to diagnose formal eating disorders amongst those participants who exhibited signs that they may be predisposed to such. Therefore, the prevalence of eating disorder symptomatology may have been overestimated in this study.

Employing the EDI as a screening instrument and a questionnaire are insufficient to diagnose an eating disorder (Garfinkel & Newman, 2001). The study sample was relatively small and only female learners from two schools were included, thus reducing the generalisability of the results. The validity of the EDI has been established for a South African population. However, norms for these subscales are based on North American samples. Other African EDI data on black females were referenced wherever possible.

The EDI was the only tool employed in this study, which may have hindered responses. Other tests such as Graphic Self-Rating Scale for degrees of westernisation (Winship, 1996) and Body Shape Questionnaire (Cooper et al., 1987) could have also been employed to diagnose disordered eating pathology. Pilot studies allow researchers to test protocols and instruments before the definitive studies, and this is precisely the advantage of pilot studies that some methodologists underscore (Hertzog, 2008). However, due to time and financial constraints, a pilot study could not be conducted, possibly undermining the reliability and validity of the main findings.

The study lacked a qualitative dimension and a clinical interview, in which feelings and perceptions could have been explored and diagnostic impressions explored further. This was not possible within the limitations of a coursework research project.

6.3 Recommendations

The following recommendations can be made:

- More studies should be conducted in South Africa. These studies could make use of a mixed methods approach to gather rich data.
- Interviews should be conducted in future studies with those with high EDI scores to explore their true level of eating disorder pathology.
- It is recommended that the EDI scale be adapted with South African norms for different racial/cultural groups, and piloted and tested for reliability and validity before implementation.

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Appendix A:
Biographical Questionnaire (English Version)

Thank you for completing this questionnaire. You are promised that all the details will be regarded as confidential. Before turning please complete the following details.

Age (in numbers):

School grade (in numbers):

Gender

Home language

Approximate heightm

Approximate weightkg

Place of residence

Parents/legal guardians' occupation

Fathers' occupation

Mothers' occupation

**Appendix A1:
Biographical Questionnaire (isiZulu Version)**

Imibuzo eqondene neminingwane yozibandakanya kulolucwaningo
Siyabonga ukuthi uzophendula lemibuzo ezolandela. Siyathembisa ukuthi yonke
imininingwane izothathwa njengeyimfihlo. Ngaphambi kokuphenqa ikhasi sicela ugwalise
lokhu okulandelayo.

Imanyaka yakho:

Ibanga lesikole:

Ubulili

Ulimi lwebele

Hlawumbisela ubude bakho m

Hlawumbisela isisindo sakho kg

Indawo ohlala kuyo

Iminingwane yabazali noma ababheki

Umsebenzi owenziwa ubaba

Umsebenzi owenziwa umama

**Appendix B:
Eating Disorder Inventory (isiZulu Version)**

David M. Garner, Marion P. Olmsted Janet Pollvy, Ph.D.

Lesi yisikali esibheka imicabango enhlobonhlobo esingaba nayo, nemizwa ehlukenene kanye nezindlela ezehlukenene esenza ngazo izinto.

AZIKHO IZIMPENDULO EZILUNGILE NOMA EZINGALUNGILE NGAKHO KE ZAMA NGAKHO KONKE OKUSEMANDLENI UKUTHI UPHENDULE IMIBUZO

NGOKWEQINISO. Imiphumela izogcinwa iyimfihlo. Funda umbuzo bese ufaka u-(x) maqondana nekholumu elihambisana nawe kangcono. Siyacela ukuba uphendule umubuzo nomubuzo ngokucophelela. Siyabonga.

NJALO NJE	KUVAMILE	KUJWAYELE	KUYENZEKA NJE	AKUVAMILE	AKUKAZE	
						1. Ngiyawadla amaswidi nokudla okukhuluphalisayo ngaphandle kovalo.
						2. Ngicabanga ukuthi isisu sami sikhulu kakhulu.
						3. Ngifisa sengathi ngingabuyela empilweni enokuzethemba yasebuntwaneni.
						4. Ngiyadla uma ngiphatheke kabi.
						5. Ngiyazigxisha ngokudla.
						6. Ngifisa sengathi ngingabuyela ebuntwaneni.
						7. Ngiyacabanga ngokudla ngokuzikalela.
						8. Ngiyathuka uma imizwa yami ngiyizwa inamandla kakhulu.
						9. Ngicabanga amathanga ami makhulu kakhulu.

						10. Ngizwa sengathi ngiwumuntu onqindekile.
						11. Ngizizwa nginecala emva kokudla ngokweqile.
						12. Ngicabanga umumo wesisu sami ukahle.
						13. Umndeni wami wamukela imiphumela emihle kuphela.
						14. Isikhathi esimnandi kakhulu empilweni yilesa usengumntwana.
						15. Ngivulelekile ngemizwa yami.
						16. Ngiyakwesaba ukukhuluphala.
						17. Ngiyabathemba abanye.
						18. Ngizizwa ngingedwa emhlabeni.
						19. Nganelisekile ngokuma komzimba wami.
						20. Ngizizwa sengathi ngiyakwazi ukulawula impilo yami.
						21. Ngiyadideka ngemizwa engiyizwayo.
						22. Ngincamela ukuba umntwana kunokuba mdala.
						23. Ngiyakwazi ukukhuluma nabanye kalula.
						24. Ngifisa sengathi ngabe ngingomunye umuntu.
						25. Ngiba nehaba ngokubaluleka kwesisindo.
						26. Ngiyakwazi ukuqonda ukuthi umuzwa muni engiwuzwayo.
						27. Ngizizwa sengathi anganele.
						28. Sengike ngidle kakhulu bese ngizizwa ngihluleka ukuyeka.
						29. Njengomntwana, ngizama ngakho konke okusemandleni ukuthi ngingabaphoxi abazali bami.
						30. Nginabo abangani nezihlobo abaseduze.
						31. Ngiyakuthanda ukuma kwezinqe zami.
						32. Ngihlale ngicabanga ngokuba mncane ngomzimba.
						33. Angazi kwenzakalani kimi ngaphakathi.
						34. Nginenking yokuzwakalisa imizwa yami.

						35. Izidingo zokuba mdala zinkulu kakhulu.
						36. Ngiyakuzonda ukwenza ngaphansi kwezinga eliphezulu.
						37. Ngizizwa nginokuzethemba.
						38. Ngicabanga ngokudla ngokweqile.
						39. Kuyangijabulisa ukuthi angiseyena umntwana.
						40. Ngiyadideka ukuthi ngilambile noma cha.
						41. Ngizibukela phansi.
						42. Ngizizwa ngikwazi ukufeza amazinga engizibekele wona.
						43. Abazali bami balindele ukuthi ngenze kahle kakhulu.
						44. Ngiyasaba ukuthi imizwa yami izongabambeki.
						45. Ngicabanga ukuthi amahips ami makhulu kakhulu.
						46. Ngidla kahle phambi kwabantu bese ngidla ngizinyinya uma ngingedwa.
						47. Ngियाqunjelwa uma ngidle kancane.
						48. Ngizizwa sengathi abantu bajabula kakhulu uma besengabantwana.
						49. Uma ngike ngathi ukukhuluphala ngibanovalo lokuthi ngizoqhubeka ngikhuluphale.
						50. Ngizizwa sengathi anginamsebenzi walutho.
						51. Uma ngithukuthele angizazi noma ngiphatheke kabi noma ngithukile noma nginolaka.
						52. Ngifisa sengathi ngingeza izinto ngokupheleleyo noma ngingazenzi nhlobo.
						53. Ngike ngicabange ngokuphalaza ukuze nginciphise isisindo.
						54. Kumele abantu ngibabeke buqamama (angikhululeki uma umuntu esondela kakhulu)
						55 Ngicabanga ukuthi amathanga ami awumumo okahle.
						56. Ngizizwa ngingenalutho ngaphakathi (emphefumulweni).
						57. Ngiyakwazi ukukhuluma ngemizwa nemicabango yami.
						58. Iminyaka emunandi empilweni yilapho usumdala.

						59. Ngicabanga ukuthi izinqe zami zinkulu kakhulu.
						60. Nginemizwa engingayiqondi kahle.
						61. Ngiyadla noma ngiphuze esithe.
						62. Ngicabanga ukuthi amahips ami akahle.
						63. Nginomgomo emkhulu kakhulu.
						64. Uma ngiphatheke kabi ngiba novalo lokuth ngizoqala ngidle.

**Appendix B1:
Eating Disorder Inventory (English Version)**

David M. Garner, Marion P. Olmsted Janet Polivy, Ph.D.

This is a scale which measures a variety of attitudes, feelings and behaviours. Some of the items relate to food and eating. Others ask you about yourself.

THERE ARE NO RIGHT OR WRONG ANSWERS SO TRY VERY HARD TO BE COMPLETELY HONEST IN YOUR ANSWERS. RESULTS ARE COMPLETELY CONFIDENTIAL. Read each question and place an (x) under the column which applies best for you. Please answer each question very carefully. Thank you.

A L W A Y S	U S U A L L Y	O F T E N	S O M E T I M E S	R A R E L Y	N E V E R	
						1. I eat sweets and carbohydrates without feeling nervous.
						2. I think my stomach is too big.
						3. I wish that I could return to the security of childhood.
						4. I eat when I am upset.
						5. I stuff myself with food.
						6. I wish I could be younger.
						7. I think about dieting.
						8. I get frightened when my feelings are too strong.
						9. I think my thighs are too large.
						10. I feel ineffective as a person
						11. I feel extremely guilty after over-eating.
						12. I think that my stomach is just the right size.

						13. Only outstanding performance is good enough in my family.
						14. The happiest time in life is when you are a child.
						15. I am open about my feelings.
						16. I am terrified of gaining weight.
						17. I trust others.
						18. I feel alone in the world.
						19. I feel satisfied with the shape of my body.
						20. I feel generally in control of things in my life.
						21. I get confused about what emotion I am feeling.
						22. I would rather be an adult than a child.
						23. I can communicate with others easily.
						24. I wish I were someone else.
						25. I exaggerate or magnify the importance of weight.
						26. I can clearly identify what emotion I am feeling.
						27. I feel inadequate.
						28. I have gone on eating binges where I have felt that I could not stop.
						29. As a child, I tried very hard to avoid disappointing my parents and teachers.
						30. I have close relationships.
						31. I like the shape of my buttocks.
						32. I am preoccupied with the desire to be thinner.
						33. I don't know what's going on inside me.
						34. I have trouble expressing my emotions to others.
						35. The demands of adulthood are too great.
						36. I hate being less than best at things.
						37. I feel secure about myself.
						38. I think about bingeing (overeating).

						39. I feel happy that I am not a child anymore.
						40. I get confused as to whether or not I am hungry.
						41. I have a low opinion of myself.
						42. I feel that I achieve my standards.
						43. My parents have expected excellence of me.
						44. I worry that my feelings will get out of control.
						45. I think my hips are too big.
						46. I eat moderately in front of others and stuff myself when they're gone.
						47. I feel bloated after eating a small meal.
						48. I feel people are happiest when they are children.
						49. If I gain a pound, I worry that I will keep gaining.
						50. I feel that I am a worthwhile person.
						51. When I am upset, I don't know if I am sad, frightened or angry.
						52. I feel that I must do things perfectly or not do them at all.
						53. I have thoughts of trying to vomit in order to lose weight.
						54. I need to keep people at a certain distance (feel uncomfortable if someone tries to get too close).
						55. I think that my thighs are just the right size.
						56. I feel empty inside (emotionally).
						57. I can talk about personal thoughts or feelings.
						58. The best years of your life are when you become an adult.
						59. I think my buttocks are too large.
						60. I have feelings that I can't quite identify.
						61. I eat or drink in secrecy.
						62. I think my hips are just the right size.
						63. I have extremely high goal.
						64. When I am upset, I worry that I will start eating.

**Appendix C:
Consent forms for learners (English Version)**

I..... have been informed about the study entitled Eating disorder symptomatology among black teenagers in a rural area of KwaZulu-Natal: A cross-sectional study by (Patrick Munyai).

I have been given an opportunity to answer questions about the study and have had answers to my satisfaction.

I declare that my participation in this study is entirely voluntary and that I may withdraw at any time without any consequences.

If I have any questions or concerns about my rights as a study participant, or if I am concerned about an aspect of the study or the researchers then I may contact the researcher at 0734806709 or email: npmunyai@gmail.com or the research supervisor Prof D Wassenaar at 033 2605373 or Wassenaar@ukzn.ac.za.

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**Appendix C1:
Consent forms for learners (isiZulu Version)**

Mina ngichazeliwe ngokwanele ngocwaningo lwe-Zimpawu zesifo sokuzincisha ukudla noma sokudla ngokweqile entsheni yasemakhaya KwaZulu Natal: Ucwaningo lohlobo lwe cross-sectional olwenziwa uPatrick Munyai.

Nginikiwe ithuba lokubuza imibuzo ngalolu cwaningo, nginelisekile ngezimpendulo engizitholile.

Ngiyavuma ukuthi ukuzibandakanya kwami kulolucwaningo kungokokuzikhethela nokuthi ngingayeka noma nini nokuthi ngeke kwenziwe lutho kimi uma ngiyeka.

Uma ngineminye imibuzo noma kukhona engikusolayo ngokuthinteka kwamalungelo ami ngokuba yingxenye yalolucwaningo noma nginezinsolo ngezinxenye zalolucwaningo noma umcwaningi ngingathinta umcwaningi ku 073 480 6709 noma ku e-mail: npmunyai@gmail.com noma umphathi wakhe uSolwazi D Wassenaar ku- 033 260 5373 noma Wassenaar@ukzn.ac.za.

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**Appendix D:
Parents/Guardians consent (English Version)**

I have been informed about the study entitled “Eating disorder symptomatology among black teenagers in a rural area of KwaZulu-Natal: A cross-sectional study” by Patrick Munyai.

I agree that my child/person... (Full name of child)

for who I am a guardian may take part in the above University of KwaZulu research project.

The project has been explained to my child and to me, and I have read the Participant Information Sheet, which I may keep for my records.

I understand that agreeing to take part means that I am willing to allow my child to:

- be interviewed by the researcher.
- complete questionnaires and make her/himself available for a further interview should that be required.

I understand that any information (full name of child/person) provides is confidential, and that no information that could lead to the identification of any individual will be disclosed in any reports on the project, or to any other party. No identifiable personal data will be published. The identifiable data will not be shared with any other organisation. I understand that confidentiality cannot be guaranteed for information which might be disclosed in the focus group(s)/group interviews(s).

Signature..... Date.....

Participant’s Name

Participant’s Age.....

Parent’s/Guardian’s Name

Your relationship to participant:.....

**Appendix D1:
Parents/Guardians consent (isiZulu Version)**

Isicelo Semvume Yokuthi Umntwana Wakho abe Ingxenye Yocwaningo Lwethu

Mina.....ngazisiwe ngocwaningo elibizwa ngokuthi: “Eating disorder symptomatology among black teenagers in a rural area of KwaZulu Natal: A cross-sectional study.”Esenziwa uPatrick Munyai. Ngiyavuma ingane yami u... (amagama phelele engane)

engiwumzali noma umgadi wayo ukuthi ibe ingxenye yocwaningo olwenziwa iNyuvesi YaKwaZulu-Natal. Mina Kanye nengane yami sichazeliwe ngalolucwaningo sanikwa nenimininingwane esingayigcina njengobufakazi.

Ngiyaqonda ukuthi ukuvuma kwami ukuba ingxenye yalolucwaningo kusho ukuthi ingane yami kumele ukuthi yenziwe lokhu okulandelayo:

- Izobuzwa imibuzo ilunga locwaningo.
- Izophendula imibuzo ethile mayelana nocwaningo, kungenzeka idingakale nangesinye isikhathi.

Ngiyaqonda ukuthi imibuzo ezobuzwa ingane yami izogcinwa iyimfihlo kanye nayo yonke iminininingwane yalolucwaningo engenza ukuthi kwazeke ukuthi ingane yayiyingxenye yalolucwaningo. Imininingwane ezothalaka kulolucwaningo angeke ivezelwe abanye abantu noma izinhlangotho.

Isignature..... Usuku.....

Amagama omtwana.....

Iminyaka yomntwana.....

Amagama omzali noma umgadi.....

Ubuhlobo bakho nomntwana.....

**Appendix E:
Advertisement (English Version)**

Research Participants needed for a study on Eating Disorder Who can participate?

You are eligible to participate if;

You are a Black female learner between the ages 13 and 19 years

IF yes,

We are looking for you to participate in a study.

If you are interested or would like more information, please collect an information sheet and consent form in the corridors of the staff building or [email:npmunvai@gmail.com](mailto:npmunvai@gmail.com). or WhatsApp: 0734806709

NB: LEARNERS BELOW 18 YEARS OF AGE CAN ONLY PARTICIPATE IF THEIR CONSENT FORM IS SIGNED BY PARENTS OR CAREGIVERS.

**Appendix E1:
Advertisement (isiZulu Version)**

Kudingakala abangazibandakanya ocwaningweni lwesifo sokudla ngokweqile noma sokuzincisha ukudla.

Ubani ongazibandakanya?

Ungazibandakanya uma; Ungumfundi webala elinsundu
Uneminyaka ephakathi kuka 13 no 19.

Uma impendulo kungu Yebo, Sifisa ube yingxenye yalolucwaningo.
Uma ungathanda noma ufisa ulwazi oluthe xaxa,

sicela uthathe ipheshana elinemingwane kanye nefomu lokuvuma ukuzibandakanya
emhubheni webhilidi labasebenzi noma
usithumell' e-mail: npmunyai@gmail.com. noma WhatsApp: 0734806709

**QAPHELA: ABAFUNDI ABANEMINYAKA ENGAPHANSI KUKA-18
BANGAZIBANDAKANYA KUPHELA UMA IPHEPHA LEMVUME LISAYINWE
NGUMZALI NOMA UMBHEKI.**

Appendix F: Letter of approval from Ethics Committee



09 September 2019

Mr Neani Patrick Munyai (219037425)
School of Applied Human Sciences
Pietermaritzburg Campus

Dear Mr Munyai,

Protocol reference number : HSS/0267/019M

Project title: Eating Disorder symptomatology among black teenagers in a rural area of KwaZulu-Natal, [REDACTED] Local Municipality : A cross-sectional study

Approval Notification – Full Committee Reviewed Protocol

With regards to your response received on 02 August 2019 to our letter of 20 May 2019, the Humanities & Social Sciences Research Ethics Committee has considered the abovementioned application and the protocol has been granted **FULL APPROVAL**.

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number. PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

The ethical clearance certificate is only valid for a period of 1 year from the date of issue. Thereafter Recertification must be applied for on an annual basis.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully

[REDACTED]
.....
Professor Urmilla Bob
University Dean of Research

/ms

cc Supervisor: Professor Doug Wassenaar
cc Academic Leader Research: Professor Ruth Teer-Tomaselli
cc School Administrator: Ms Priya Konan

Humanities & Social Sciences Research Ethics Committee

Dr Rosemary Sibanda (Chair)

Westville Campus, Govan Mbeki Building

Postal Address: Private Bag X54001, Durban 4000

Telephone: +27 (0) 31 260 3587/8350/4557 Facsimile: +27 (0) 31 260 4609 Email: ximban@ukzn.ac.za / snymann@ukzn.ac.za / mohunp@ukzn.ac.za

Website: www.ukzn.ac.za



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Appendix G: Letter of approval from the Department of Education



education

Department:
Education
PROVINCE OF KWAZULU-NATAL

Enquiries: Phindile Duma

Tel: 033 392 1063

Ref.:2/4/8/1739

Mr NP Munyani
University of KwaZulu-Natal
Pietermaritzburg
3200

Dear Mr Munyani

PERMISSION TO CONDUCT RESEARCH IN THE KZN DoE INSTITUTIONS

Your application to conduct research entitled: **“EATING DISORDER SYMPTOMATOLOGY AMONG BLACK TEENAGERS IN A RURAL AREA OF KWAZULU-NATAL, [REDACTED] LOCAL MUNICIPALITY: A CROSS-SECTIONAL STUDY”**, in the KwaZulu-Natal Department of Education Institutions has been approved. The conditions of the approval are as follows:

1. The researcher will make all the arrangements concerning the research and interviews.
2. The researcher must ensure that Educator and learning programmes are not interrupted.
3. Interviews are not conducted during the time of writing examinations in schools.
4. Learners, Educators, Schools and Institutions are not identifiable in any way from the results of the research.
5. A copy of this letter is submitted to District Managers, Principals and Heads of Institutions where the Intended research and interviews are to be conducted.
6. The period of investigation is limited to the period from 25 February 2019 to 20 July 2021.
7. Your research and interviews will be limited to the schools you have proposed and approved by the Head of Department. Please note that Principals, Educators, Departmental Officials and Learners are under no obligation to participate or assist you in your investigation.
8. Should you wish to extend the period of your survey at the school(s), please contact Miss Phindile Duma at the contact numbers below.
9. Upon completion of the research, a brief summary of the findings, recommendations or a full report/dissertation/thesis must be submitted to the research office of the Department. Please address it to The Office of the HOD, Private Bag X9137, Pietermaritzburg, 3200.
10. Please note that your research and interviews will be limited to schools and institutions in KwaZulu-Natal Department of Education.


Dr. EV Nzama
Head of Department: Education
Date: 26 February 2019

KWAZULU-NATAL DEPARTMENT OF EDUCATION

Postal Address: Private Bag X9137 • Pietermaritzburg • 3200 • Republic of South Africa

Physical Address: 247 Burger Street • Anton Lembede Building • Pietermaritzburg • 3201

Tel.: +27 33 392 1063 • Fax.: +27 033 392 1203 • Email: Phindile.Duma@kzndoe.gov.za • Web: www.kzneducation.gov.za

Facebook: KZNDOE... Twitter: @DBE_KZN... Instagram: kzn_education... Youtube: kzndoe

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Appendix H: Approval Notification: Amendment Application



25 June 2021

Mr Neani Patrick Munyai (219037425)
School of Applied Human Sciences
Pietermaritzburg Campus

Dear Mr Munyai,

Protocol reference number : HSS/0267/019M

Project title: Eating Disorder symptomatology among black teenagers in a rural area of KwaZulu-Natal,
[REDACTED] Local Municipality : A cross-sectional study

Amended title: Eating disorder symptomatology among Black female teenagers in a rural area of KwaZulu-Natal: A cross-sectional study.

Approval Notification – Amendment Application

This letter serves to notify you that your application and request for an amendment received on 23 June 2020 has now been approved as follows:

- Change in title

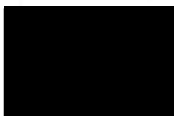
Any alterations to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form; Title of the Project, Location of the Study must be reviewed and approved through an amendment /modification prior to its implementation. In case you have further queries, please quote the above reference number.

PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

All research conducted during the COVID-19 period must adhere to the national and UKZN guidelines.

Best wishes for the successful completion of your research protocol.

Yours faithfully



.....
Professor Dipane Hlalele (Chair)

/dd

cc Supervisor: Professor Doug Wassenaar
cc Academic Leader Research: Professor Ruth Teer-Tomaselli
cc School Administrator: Ms Priya Konan

Humanities & Social Sciences Research Ethics Committee
UKZN Research Ethics Office Westville Campus, Govan Mbeki Building
Postal Address: Private Bag X54001, Durban 4000
Tel: +27 31 260 8350 / 4557 / 3587

Website: <http://research.ukzn.ac.za/Research-Ethics/>

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