EATING ATTITUDES AND BEHAVIOURS IN A DIVERSE GROUP OF HIGH SCHOOL STUDENTS IN THE WESTERN CAPE

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Abstract

A total of 813 male and female high school students in the Western Cape between grades 10 and 12 completed a questionnaire survey on their eating attitudes and behaviours. The mean age for the sample was 16.77 years. The survey included a Demographic Questionnaire, the Eating Attitudes Test (EAT-26), the Bulimic Investigatory Test, Edinburgh (BITE), the Questionnaire of Eating and Weight Patterns Revised (QEWP-R) and the Rosenberg Self-Esteem Scale.

The mean scores for the EAT-26 and the BITE were 10.67 and 11.51 respectively. Females scored significantly higher than males on the EAT-26 and the BITE. African students scored significantly higher than Coloured and White students on both eating disorder indices.

Approximately 57% of the sample scored below 10 on the Eating Attitude Test, 25% scored between 10-19 and 17.3% scored at or above the cut off score of 20. A large majority of high scorers on this measure were females. Mostly African and White students scored at or above 20 on the EAT-26. No significant differences were found between the mean scores of high scoring females and males. No significant differences were found between the mean scores for high scorers in each of the three ethnic groups.

On the Bulimic Investigatory Test, Edinburgh, 71 students (8.7%) in the sample scored at or above the cut off score of 25. Mostly females (73.2%) scored at or above 25 on this measure. More than half (56.3%) of the high scorers on the BITE were African, 33.8% were White and 9.9% were Coloured. No significant differences were found between the mean scores of high scoring females and males. No significant differences were found between the mean scores for high scorers in each of the three ethnic groups.

Scores on the EAT-26 and the Rosenberg Self-Esteem Scale suggest a significant inverse relationship between self-esteem and eating attitudes in this sample. Similarly an inverse

CHAPTER 1

LITERATURE REVIEW

1.1 Introduction

Adolescence is characterised as a particularly difficult developmental period in the lifespan of an individual. It is a period marked by numerous developmental changes, such as puberty, a changing body shape, and personality development, all of which is believed to play a role in eating behaviours (Attie & Brooks-Gunn, 1989). The general consensus amongst health professionals is that a distorted body image plays a major role in the development of disordered eating. Numerous empirical studies have shown a strong link between body image concerns and dieting behaviours (Story, French, Resnick & Blum, 1995). Although societal attitudes about dieting and fasting practices are generally considered to be positive (Furnham & Alibhai, 1983), it is argued that extreme forms of dieting could lead to eating pathology (Killen, Taylor, Hayward, Haydel, Wilson, Hammer, Kreamer, Blair-Greiner & Strachowski, 1996). In turn, such drastic weight reducing behaviours could have serious physical and psychological implications for the individual (Burckle & Ryckman, 1999) and may in some cases be potentially fatal (see Steinhausen, Boyadjieva, Grigoroiu Serbanescu, Seide & Winckler, 2000). Examples of unhealthy weight control measures amongst adolescents (Killen, Taylor, Hayward, Wilson, Haydel, Hammer, Simmonds, Robinson, Litt, Varaday & Kraemer, 1994; Killen et al., 1996) and also pre-adolescents (Maloney, McGuire, Daniels & Specker, 1989) have been extensively cited in the literature. According to findings by Maloney et al. (1989) children as young as 8-13 years reported engaging in some form of weight reducing practices.

relationship was found between scores on the BITE and the Rosenberg Self-Esteem Scale. Overall, the findings suggest significant abnormal eating patterns amongst young South Africans, particularly amongst adolescent females. Contrary to expectations, the findings suggest a high degree of abnormal eating patterns amongst African students. Possible methodological explanations for this anomalous finding are provided. In addition, the findings suggest that more African and White females engage in unhealthy eating habits compared to any other group.

The last two decades have seen a steady increase of screening for [1]*abnormal eating attitudes* amongst youth in non-clinical samples (Buchan & Gregory, 1984; Fisher, Pastore, Schneider, Pegler & Napolitano, 1994). It is argued that screening large groups for abnormal eating patterns is a useful way for the early detection of eating disorders, which in turn could assist in the development of preventative treatment programs (Jones, Bennett, Olmsted, Lawson & Rodin, 2001). According to Buchan and Gregory (1984), the increase in interest in epidemiological studies could be paralleled with an increase in prevalence and incidence of abnormal eating attitudes and behaviours in the general population. In a comprehensive survey of the literature on incidence and prevalence studies, Dolan (1991) reported on the staggering rate at which abnormal eating patterns is thought to have increased "...to the extent that it is reaching epidemic proportions" (p.67). In addition to the empirical evidence which suggests an increase in incidence, it is reported that the actual number of patients who present at eating disorder clinics have markedly increased over the years (Dolan, 1991; Jones et al., 2001).

The aetiology of eating disorders is generally described as "complex" and "multi-factorial" in nature (Garfinkel & Garner, 1982; Caradas, Lambert & Charlton, 2001). According to Garfinkel and Garner (1982) several aetiological models have been proposed that have substantially contributed to our understanding of the development of eating disorders. According to Reiss (1996) the most notable contributions are from biological perspectives, psychological perspectives and socio-cultural perspectives. However, there is wide agreement that there is no known cause or specific aetiology for eating disorder pathology. Garfinkel and Garner (1982) argue that the complexities around aetiology should and cannot be addressed through a singular causal model. According to their model, a single factor (for e.g. biological factors or socio-cultural factors) may individually contribute to the development of an eating disorder, or there may be a host of factors working together.

[1] The terms abnormal eating attitudes/behaviours, pathological eating habits, etc. is distinguished from the clinical term eating disorder as outlined in the Diagnostic and Statistical Manual (DSM IV, APA, 1994). The former terms are described by the scores obtained on a measure of symptoms characteristic of eating disorders (Garner & Garfinkel, 1982).

Traditionally, it is accepted that eating disorder pathology are confined to western industrialised countries (Buchan & Gregory, 1984; Whitaker & Davis, 1989; Lewis & Blair, 1991; Alexander-Mott & Lumsden, 1994), with lower rates of prevalence and incidence reported in non-western societies (Button, Reveley & Palmer, 1998; Haworth-Hoeppner, 2000). In addition, the distribution of eating disorders is thought to be unevenly spread across social groups (Lewis & Blair, 1991). One of the claims is that the eating disorders are primarily, though not exclusively, confined to upper-middle class females of Caucasian origin (Lewis & Blair, 1991; le Grange, Telch & Tibbs, 1998). Conversely, it has been argued that non-western groups are not as likely as their Caucasian counterparts to develop an eating disorder (Jacob, 2001). To this end, eating disorders are generally referred to as culture bound syndromes (Abrams, Allen & Gray, 1993; Swartz, 1998), a description which has received much attention in recent eating disorder literature (Button et al., 1998; le Grange et al., 1998; Wildes & Emery, 2001). The term culture bound syndrome is defined as a constellation of symptoms that are restricted to a particular group or culture (Swartz, 1998). However, Button et al. (1998) and Katzman and Lee (1997) have criticised the conceptualisation of eating disorders as culture bound. Firstly, they argue, that mainstream eating disorder research has previously primarily focused on western populations. Secondly, the cross-cultural differences that were found in those studies may be related to different perceptions, varying health seeking behaviours and the behaviours of health professionals.

In recent years, survey related findings have suggested a change in the demographic profile of eating disorders. Within the last decade or so, increased disordered eating patterns have been observed in non-western societies (Tsai, 2000), non-western cultures in western societies (Reiss, 1996), non-Caucasians in developing countries (Sheward, 1994; le Grange et al., 1998a) and younger boys and girls (Hodes, 1995; Ricciardelli, Williams & Kiernan, 1999). Furthermore, increasing rates have been reported amongst males (Kinzl, Mangweth, Traweger & Biebl, 1997) amongst lower socio-economic groups (Story et al., 1995) and higher prevalence rates are increasingly observed among suburban than in urban samples (Fisher et al., 1994). Although these findings appear to

support the hypothesis that the demographics for disordered eating are changing, very little according to Wildes and Emery (2001) is still known about the true prevalence in non-western and non-white populations. The uncertainties around the prevalence of eating disorders amongst non-indigenous groups in western societies according to Dolan (1991), severely impacts on the service provision for those individuals in need.

In South Africa, very few studies on incidence and prevalence have been conducted (Swartz & Sheward, 1995). According to the authors, the majority of survey related eating disorder studies have in the main focused on university student populations. A few recent studies however, have been conducted amongst school going adolescents (e.g. Davies; 1995; Selmer, 1997). Findings from South African research are suggesting that abnormal eating attitudes and behaviours may be on the increase amongst adolescents and older adults. In addition, there is reason to believe that disordered eating patterns amongst different ethnic and cultural groups are on the increase in South Africa (Sheward, 1994; Szabo & Hollands, 1997; le Grange et al., 1998) particularly amongst Black South Africans who were previously thought to be "immune" to the development of eating disorders (le Grange, et al., 1998).

This study aims to add to the existing information on the prevalence of abnormal eating attitudes and behaviours particularly amongst adolescent high school students from diverse ethnic and social-cultural backgrounds in the Western Cape. To this end, empirical survey data was collected in 2001 from a diverse group of high school students in the Western Cape on their eating attitudes and behaviours. This data will be analysed and discussed in relation to previous South African and international findings on abnormal eating attitudes. In the rest of Chapter 1 some of the existing literature on eating attitudes and behaviours are reviewed in order to contextualise the current study.

1.2 Historical development of eating disorders

As stated before, this study is concerned with examining eating attitudes and behaviours in a diverse group of high school going adolescents and according to Lewis and Blair

(1991), it is important to discuss findings around unhealthy eating patterns, within the cultural-historical context in which abnormal eating habits have emerged. A similar sentiment is shared by Jacob (2001) who argues that it is incumbent on all health professionals to understand the role of culture in the development and maintenance of an epidemic such as eating disorders. I will therefore centre the discussion which follows on abnormal eating attitudes and behaviours within different historical/cultural periods.

Eating disorder pathology is often considered by many to be a relatively new phenomenon (Gordon, 1990). However, a number of authors have suggested that abnormal eating behaviours date back from as early as the 13th century (Brumberg, 1988; Gordon, 1990; Van der Eycken & van Deth, 1994). It is argued that during medieval times, the collective culture promoted a certain form of appetite control, particularly amongst females. The act of self-starvation amongst females was viewed as an expression of their religious beliefs – this in turn was symbolic of "radical holiness" (Brumberg, 1988, p.48). Those who engaged in acts of self-starvation were rewarded for their behaviours – they were for example canonised into "saints" or even referred to as "miraculous maidens" (Brumberg, 1988; Van der Eycken & Van Deth, 1994) for their ability to sustain their bodies without food for long periods of times (Brumberg, 1988). Interestingly, Brumberg, (1988) notes that as early as medieval times, "there were no fasting boys" (p.99).

The modern anorexic and the pre-modern dieter are believed to share several similarities and differences. It is believed that both groups of dieters are trapped by highly valued social goals (Alexander-Mott & Lumsden, 1994). For example, social ideals such as thinness, self-control and self-denial were highly regarded in pre-modern society (Alexander-Mott & Lumsden, 1994), but are also characteristic of the social ideals of contemporary society (Murray, 1999). According to Gordon (1990) however, it is equally important to recognise the vast differences between pre-modern societies and the modern world. It is therefore according to him, reasonable to expect differences in the meanings and interpretations attributed to self-starvation between pre-modern and modern dieters.

One of the major differences that have been noted between the pre-modern dieter and the modern anorexic, is that their motivations behind self-starvation are different (Brumberg, 1988; Gordon, 1990). As mentioned earlier, the pre-modern dieter's main motivation for self-starvation is thought to have been primarily based on religion, which according to Gordon (1990) was evident by their use of an elaborate spiritual vocabulary to describe their eating behaviours. On the other hand, self-starvation amongst the modern anorexic is thought to be motivated by an intense fear for gaining weight (Brumberg, 1988). The meaning attached to self-starvation amongst the modern anorexic according to Gordon is reportedly based on a particular external body shape, with little reference to moral and spiritual ideals.

Similarly, early behavioural patterns of bulimia nervosa can be traced back as far as the second century Greek physician Galen, who named the pattern of induced vomiting "bulimus" (Alexander-Mott & Lumsden, 1994). Practices similar to modern day descriptions of bulimia nervosa were for example widespread amongst ancient Egyptians. However, according to Alexander-Mott and Lumsden (1994) the meanings that ancient Egyptians attached to their eating behaviours were different in that they believed purging cleansed and healed their bodies from physical ailments. Similar rituals were also commonly practiced amongst ancient Romans who engaged in fasting, overeating and vomiting in "vomitariums" (Gordon, 1990).

In her review, Dolan (1991) commented on how the frequencies of self-starvation practices seem to vary within different historical periods. According to her these variations suggest that a combination of social factors may either facilitate or inhibit the expression of such anorexic like behaviours. One such notable shift in fasting practices was evident amongst religious females in the late 1600's (Van der Eycken & Van Deth, 1994). According to these authors, during that period, less emphasis was placed on self-starvation as couched in the supernatural; fasting as a religious practice became condemned and thought to be "...related to the devil's influences" (p. 35). It was also

noted that during the same time, the practice of fasting became increasingly documented as a medical problem (Gordon, 1990; Van der Eycken & Van Deth, 1994).

The first two isolated medical cases of eating disorder pathology were reported in 1689 by the physician Sir Richard Morton who described two patients displaying anorexic-like symptoms (Gordon, 1990). Interestingly, the first medical cases on abnormal eating behaviours were from females of upper to middle class backgrounds. Some of the symptoms that accompanied the illness included a lack of appetite and excessive weight loss. Although the syndrome was not formally isolated as a distinct clinical entity at this stage, anorexia nervosa was labelled by Morton as a disease with a "nervous consumption" that has an emotional or psychic basis. A major diagnostic complexity during the 17th century was distinguishing anorexia nervosa from other organic illnesses, because similar symptoms were reported in illnesses such as stomach diseases and cancer (Brumberg, 1988). It was only in the late 19th century that the first clinical description of anorexia nervosa appeared. These descriptions appeared almost simultaneously by Sir William Withy Gull and Charles Lesegue (Gordon, 1990). The term anorexia nervosa, however, was first introduced by Gull to describe a "new syndrome" with a range of symptoms separate from other organic diseases. During this time, he postulated that anorexia nervosa resulted from a "morbid mental state" (Gordon, 1990).

Practices of binge eating and vomiting gained some attention in the medical literature during the 18th and 19th century (Alexander-Mott & Lumsden, 1994). However, it was only toward the end of the 1970's that bulimia nervosa emerged as a syndrome distinct from anorexia nervosa (Gordon, 1990; Alexander-Mott & Lumsden, 1994). The term bulimia nervosa was introduced in 1979 by Sir Gerald Russell to describe an "ominous variant" of anorexia nervosa (Gordon, 1990). According to Russell, patients typically presented with a history of overeating, followed by self-induced vomiting, but were of normal weight and in some cases significantly overweight. Other earlier descriptions of bulimia nervosa included "a pursuit of thinness" (Alexander-Mott & Lumsden, 1994). It

was however only in the late 1980's that bulimia nervosa was officially recognised and incorporated in the DSM III-R (Gordon, 1990).

Although the overt behaviours associated with the ancient practices relating to eating mentioned above, appear to be similar and typical of contemporary understanding of anorexia nervosa and bulimia nervosa, Gordon (1990) cautions against the dangers of equating these ancient cultural practices with eating disorder pathology. He argues that there is little historical evidence to suggest a pre-occupation with thinness in the earlier descriptions of the disorder. With regards to incidence, he also argues that despite the lack of solid data, it may be more than likely that an increase have been observed.

1.3 Definitions

Anorexia nervosa and bulimia nervosa are the two most recognised forms of eating disorders (Whitaker & Davis, 1989), but they are also described as the most perplexing phenomena (Hodes, 1995). Part of the diagnostic complexities according to Hodes is that some of the key features associated with anorexia and bulimia overlap. For example, patients could be classified into pure dieters (restrictive anorexics) and those who incorporate bingeing and purging (bulimic anorexics) (Brumberg, 1988). However, anorexia and bulimia are treated as two distinct clinical eating disorders (Story et al., 1995).

1.3.1 Anorexia Nervosa

The term anorexia nervosa directly translated from Greek literally means a "lack of appetite" (Alexander-Mott & Lumsden, 1994). However, as pointed out by Garfinkel and Garner (1982), anorexia, like most eating disorders, is not a disorder of eating. According to them, the disorder centers on an intense fear of gaining weight. In most cases, individuals with this disorder display exaggerated feelings of being too fat even though they are acutely underweight (Killen et al., 1996). The disorder is consequently accompanied by a severe body image disturbance. The anorexic patient is described as someone who engages in excessive weight control measures (such as dieting and

voluntary self-starvation) and often feels a "loss of control" over eating large amounts of food (Story et al., 1995; Killen et al., 1996). Despite being aware of being thin, the anorexic denies an emaciated appearance, and denies being hungry and tired (Van der Eycken & Van Deth, 1994).

Formal diagnostic criteria for anorexia nervosa are given in the Fourth Edition of the Diagnostic and Statistical Manual of Mental Disorders (APA, DSM IV, 1994) and are defined as follows:

1. Refusal to maintain body weight at or above a minimally normal weight for age and height (e.g., weight loss leading to maintenance of body less than 85% of that expected; or failure to make expected weight gain during period of growth, leading to body weight less than 85% of that expected).
2. Intense fear of gaining weight or becoming fat, even though underweight.
3. Disturbance in the way in which one's body weight or shape is experienced, undue influence of body weight or shape on self-evaluation, or denial of the seriousness of the current low body weight.
4. In post menarcheal females, amenorrhea, i.e., the absence of at least three consecutive menstrual cycles (a woman is considered to have amenorrhea if her periods occur only following hormone, e.g., oestrogen, administration).

1.3.2 Bulimia Nervosa

The term bulimia nervosa is derived from Greek which means "ravenous hunger" (Alexander-Mott & Lumsden, 1994). Behavioural characteristics associated with bulimia include cycles of binge eating and purging, either by self-induced vomiting or by taking laxatives or water tablets. Like anorexics, bulimics have a pre-occupation with weight and shape although unlike anorexics, they often have a normal body weight (Crowther, Wolf & Sherwood, 1992). Bulimia nervosa (or binge-purge syndrome) however has been more difficult to define (Alexander-Mott & Lumsden, 1994). One of the main difficulties in defining bulimia is that the disorder describes both a symptom (i.e. binge eating) and a syndrome. Furthermore, as pointed out earlier, another difficulty in describing bulimia is

as a result of some overlapping features with anorexia nervosa (Brumberg, 1988; Hodes, 1995).

The diagnostic criteria for bulimia nervosa are defined in the DSM IV (1994) as follows:

1. Recurrent episodes of binge eating. An episode of binge eating is characterised by both of the following
    a. eating, in a discrete period of time (e.g., within any 2-hour period), an amount of food that is definitely larger than most people would eat during a similar period of time under similar conditions
    b. a sense of lack of control over eating during the episode (e.g., a feeling that one cannot stop eating or control what or how much one is eating)
2. Recurrent inappropriate compensatory behaviour in order to prevent weight gain, such as self-induced vomiting; misuse of laxatives, diuretics, enemas, or other medications; fasting; or excessive exercise.
3. The binge eating and inappropriate compensatory behaviours both occur, on average, at least twice a week for 3 months.
4. Self-starvation is unduly influenced by both shape and weight.
5. The disturbance does not occur exclusively during episodes of anorexia nervosa

Two subtypes of bulimia nervosa distinguish between absence or presence of regular use of purging methods, the purging type and non-purging type.

1.3.3 Culture and eating disorders

It is argued that culture is an important psychological construct through which individuals make sense of their world, other people and themselves (Barry & Garner, 2001). The complexities around the term "culture" however have been debated about by many health professionals (Billington, Strawbridge, Greensides & Fitzsimons, 1991; Swartz, 1998). A major drawback according to Lonner and Malpass (1994) that exists within cross-cultural research is the lack of consensus amongst cross-cultural researchers on the usage of the appropriate terminology. For example, they argue that most researchers often use culture, race and ethnicity interchangeably and assume that it means the same thing. At other

times the concept of culture is used almost synonymously with society (Billington, et al., 1991).

It is therefore crucial from the outset to provide a working definition of culture in the current thesis as it is understood to mean. Culture is defined as:

> "...a set of guidelines (both explicit and implicit) which individuals inherit as members of a particular society, and which tells them how to view the world, how to experience it emotionally, and how to behave in it in relation to other people; to supernatural forces or gods, and to the natural environment. It also provides them with a way of transmitting these guidelines to the next generation – by the use of symbols, language, art and ritual" (Helman, 1994, in Swartz, 1998).

Adding to the above definition of culture, American anthropologist, Clyde Kluckhohn stated that culture "...consists of different components, it is dynamic, structured and the means by which individuals adjust to social life and learn creative expression" (Billington et al., 1991, p.4). Therefore, when reference is made in this thesis to "Western culture or African culture" for example, it refers to those individuals who subscribe to Western/African ideals of living as understood by the definitions given above. Billington et al. (1991) in addition caution against describing a culture as if it pertains to a homogenous group. Instead, according to them, British and American literature on culture allows for the idea that a variety of cultures and subcultures exist. They provide a prime example in their work on "class culture". According to them, a working class-culture "...could be fragmented not only by geographical location, but also by social, sexual and racial divisions of labour" (p.115).

A further necessary distinction is important to make here between culture and ethnicity. According to Lonner and Malpass (1994) although these two terms are sometimes used synonymously, they should not be treated as such. In this thesis, the term ethnicity is

understood to mean a single social and spatial unit in the construction of culture as conceptualized by King (1998).

For the purpose of analysis of the data (see Chapter 3), three main ethnicities namely [2]Black (African), Coloured and White have been identified.

Several recent investigations have emphasized culture to be an important aetiological factor in the development of eating disorders (Brownell, 1991; Lee, 1996). Western culture, it is argued, impose certain ideals of physical perfection amongst females. It is widely believed that western ideals of thinness amongst females play a major influential role in the development of eating disorder pathology (Nasser, 1986; Toro, Salamero & Martinez, 1994). Ideals of thinness have been reputed to be less common amongst Asian cultures, American ethnic minority groups and amongst Africans on the African continent (Buchan & Gregory, 1984; Famuyiwa, 1988; Tsai, 2000). Numerous studies on body image preference, for example, have found that compared to females in non-western communities, females of western origin tend towards preferring a leaner body. In their examination of differences in body weight preferences amongst Black participants and those of Caucasian descent, Greenberg and LaPorte (1996) and Wilfley et al. (1996) found that Black participants reported being more satisfied with their bodies compared to White participants. Similar findings were found in South Africa where less weight-related problems amongst Black university students were recorded compared to White university students (Senekal, Steyn, Mashego & Nel, 2001).

Despite the widely held belief that abnormal eating attitudes and behaviours are rare amongst non-Caucasian groups and more prevalent amongst groups of Caucasian origin (Buhrich, 1985; Buchan & Gregory, 1984; Reiss, 1996), there have been reports to suggest that this belief might be wrong. More recently increases in problem eating behaviours have been documented amongst a variety of groups in Europe, America,

[2] The categories (Black) African, Coloured and White are frequently used on various institutional forms to distinguish between "ethnic/race" groups in South Africa – often for equity purposes. Usage of these categories in this thesis does not necessarily reflect the author's acceptance of such categories.

Africa and the East (Nasser, 1986; Pate, Pumariega, Hester & Garner, 1992; Reiss, 1996; Button et al., 1998).

1.3.4 Acculturation, assimilation, separation and segregation

Abnormal eating behaviours are thought to be associated with the process of acculturation (Furukuwa, 1994; Davis & Katzman, 1999; Chamorro & Floris-Ortiz, 2000). The process of acculturation according to Lonner and Malpass (1994) in the main applies to immigrants living in a foreign country. Acculturation in this sense can be defined as "...the process by which [they] learn a new language, a new way of doing things and a new approach to life" (Lonner & Malpass, p. 25). The authors argue that there are four strategies available to individuals in response to acculturation, namely assimilation, integration, separation and marginalization. Minority groups that adopt the values and beliefs of the hegemonic culture they enter (Billington et al., 1991) engages in a process referred to as cultural assimilation (Lonner & Malpass, 1994) - a process by which one is "...relinquishing one's cultural identity and moving into the larger society" (p.212). Integration on the other hand, according to Lonner and Malpass (1994) implies two things:

(1) there is maintenance of cultural integrity of the minority group

(2) there is movement at the same time to become an integral part of larger society

The remaining two strategies, separation and segregation, according to Lonner and Malpass (1994) that immigrants adopt, come about when there are no relations with the larger society although a distinct ethnic identity is maintained.

The influence of western norms on body image, eating concerns etc. amongst several minority groups have been extensively demonstrated (Haudek, Rorty & Henker, 1999; Chomorro & Florez-Ortiz, 2000; Barry & Garner, 2001). As stated previously, the incidence of eating disorder amongst non-western females entering western society has been shown to increase (Dolan, 1991). A study conducted by Chamorro & Florez-Ortiz (2000) for example attempted to demonstrate the influence of western norms on the eating attitudes of immigrant minorities. They asked first and second generation Mexican

American families to complete several measures including the Eating Attitude Test (EAT-26) and The Acculturation Rating Scale for Mexican Americans. Their findings revealed that second generation Mexican American families scored higher on both the acculturation measure and the EAT-26 than first generation Mexican American families. In a similar investigation, Haudek et al. (1999) reported slightly different results in their study with Asian American and Caucasian college female students. According to them, although Asian American females showed greater body image and eating disturbances than Caucasian females, there was no indication that the level of eating disturbance and acculturation were associated. However, they speculate that the differences in their findings may be attributed to the use of the Eating Disorder Inventory (EDI) instead of the EAT-26.

According to Lake, Staiger and Glowinski (2000) there are two schools of thought on the increased incidence of disordered eating patterns amongst acculturated groups. Firstly, it is argued that immigrants with a strong ethnic identity may be at risk for eating pathology because of the difficulties they experience when confronted with two sets of cultural values. The second argument is based on assimilation (Lake et al., 2000), whereby minority groups may assimilate the host culture's norms and values on ideals of beauty, thereby increasing their risk for disordered eating behaviours. This sentiment is shared by Akan and Grilo (1995), who argue that if, and when people from non-Caucasian descent internalize the Caucasian norms of thinness as the ideal, one may observe a greater degree of disordered eating and body dissatisfaction amongst them. Findings from Senekal et al. (2001) showed that 11% of Black South African university students displayed significant concerns about their weight. According to the authors, this finding suggests a process of assimilation of western norms of thinness. Furthermore, they suggest that the process of assimilation is linked to the rapid urbanization currently experienced in South Africa.

1.3.5 Culture bound syndromes and eating disorders

The concept "culture bound syndrome" (CBS) has been extensively written about (e.g. Swartz, 1998; Gordon, 1990) and is described in the DSM IV (1994) as "...recurrent, locality-specific patterns of aberrant behaviour..." (p.844). Swartz (1985) defines culture bound syndromes as a constellation of symptoms, which has been categorised as dysfunction by those within the culture. According to Lee (1996), although the term culture bound has its merits, its definition and validity have been questioned by some researchers. It has been argued that the very definition of culture bound syndrome may place a limit on cross-cultural comparisons, which in turn could make diagnostic matters more complex (Lee, 1996; Lonner & Malpass, 1994).

Brumberg (1988) and Gordon (1990) have both pointed out historical evidence in support of the claim that anorexia nervosa is more prevalent amongst affluent societies. According to Brumberg (1988), Samuel Fenwick noted more than a century ago how anorexia was "...much more common in the wealthier classes than amongst those who have to procure their bread by daily labour" (p.13). It is argued that Fenwick's observation has formed the basis of contemporary views on the incidence and prevalence of eating disorders (Gard & Freeman, 1996). In addition, the earlier descriptions of eating disorders provided by Lesegue and Morton have according to Famuyiwa (1988) also played a crucial role in the conceptualization of eating disorders as culture bound.

The eating disorders anorexia nervosa and bulimia nervosa are considered to be culture bound syndromes (Swartz, 1985; Swartz, 1998; Gordon, 1990), primarily because of their association with upper to middle class, educated and achievement orientated individuals in western countries (Famuyiwa, 1988, Gordon, 1990; Yanowski, 2000). Prevalence rates amongst Black females in western societies have been estimated to be much lower than amongst White females (Reiss, 1996). The locality specific nature of eating disorders is also based on the belief that the "thin beauty ideal" is unique to western culture (Toro et al., 1994; Mumford & Choudry, 2000). Several reports have suggested that thinness is not highly prized amongst ethnic minorities in first world countries, Eastern populations

and developing countries (Hsu, 1983; Famuyiwa, 1988; Story et al., 1995; Tsai, 2000). In a study that examined eating attitudes and body image perception amongst a group of Black, White and Hispanic Americans (Story et al., 1995), it was found that Black females displayed greater body satisfaction, lower perceptions of being overweight and engaged in fewer dieting behaviours compared to White females. In another study, on men's body type preference for women, it was reported that Euro-American men generally prefer thinner figures than African-American men (Greenberg & LaPorte, 1996). It has been purported that individuals in developing nations (Famuyiwa, 1988) as well as ethnic minorities (Nielsen, 2000), hold differing cultural definitions of beauty. According to Famuyiwa, a desirable characteristic amongst indigenous Nigerians for example is a plump female body. In addition, Buchan and Gregory (1984) have noted that there are a limited number of reports that suggests abnormal eating behaviours amongst individuals of African descent. Similarly, reports in Asian countries have suggested that Asian females are rarely inclined to engage in weight control behaviours (Lee, 1996; Tsai, 2000). Several authors have argued (Wassenaar, le Grange, Winship & Lachenicht, 2000; Caradas et al., 2001) that the lack of research within contexts which links fatness to prosperity, may be the reason why some believe non-western populations to be "protected" from developing pathological eating habits.

The classification of the eating disorders as a CBS or a syndrome restricted to western populations, has recently been challenged (Lee, 1996; Geller & Thomas, 1999; Tsai, 2000). Firstly most of the earlier research on eating disorders has mainly concentrated on Caucasian females from North America and Western European origin (le Grange et al., 1998). Secondly, in a recent review Lee (1996) reported that during 1979 and 1988 in Beijing, a total of 17 patients with anorexia were admitted for treatment. Similarly reports in America (Haudek et al., 1999) have shown that Asian American women reported more weight and shape concern than Caucasian American women. Thirdly, most eating disorder research has focused on university student populations (Swartz & Sheward, 1995) and according to Yanovski (2000) university samples may not adequately represent the non-Caucasian population.

It has been suggested that the eating disorders instead be viewed as a 'culture change' syndrome, which occurs along a continuum (Tsai, 2000). She argues that in rapidly developing countries, members may be exposed to rapid economic and socio-cultural change, which could influence the development of anorexia nervosa ranging from complete unawareness to disordered eating attitudes in the west.

1.4 Aetiology

The aetiology of eating disorders has in recent years received increasing attention (Garner & Garfinkel, 1980; Altabe, 1998; Haworth-Hoeppner, 2000), and has been addressed through a variety of theoretical perspectives along different conceptual frameworks (Hsu, 1983; Reiss, 1996;). Some of the perspectives are identified by Hsu (1983) as The Social-Cultural Theory, Family Pathology Theory, Individual Psychodynamic Theory, Developmental Psychobiological Theory, Primary Hypothalamic Dysfunction Theory and Affective Disorder. Significant strides have been made on the causal factors of eating pathology (Garner & Garfinkel, 1980), but according to Reiss (1996), mainstream literature have until recently largely ignored the role of socio-cultural factors in the development of eating disorders. As mentioned in the introductory paragraph, no known cause for the eating disorders has been established; in fact, very little consensus amongst researchers and clinicians exist on the exact causes of eating disorders (Hsu, 1983). Also, as previously mentioned, the aetiology of eating disorders are complex and considered multi-factorial; i.e. various factors working together which may contribute to the development of an eating disorder (Garfinkel & Garner, 1982; Hodes, 1995). Socio-cultural variables, such as age, sex, class and race are increasingly recognised as major aetiological factors (Buchan & Gregory, 1984). In the next section, three causal models of eating disorders are presented; biological, psychological and socio-cultural perspectives.

1.4.1 Biological Perspective

From the biological perspective on the aetiology of eating disorders, it is argued that some individuals have a biological predisposition to develop an eating disorder (Gordon,

1990). Evidence for a genetic component have mainly been obtained from twin pair studies of which one twin has anorexia (Gordon, 1990) and family risk studies (Holland, Hall, Murray, Russell & Crisp, 1984; Alexander-Mott & Lumsden, 1994). It is argued that anorexia for example is eight times more likely to affect someone who has a history of an eating disorder (Alexander-Mott & Lumsden, 1994), although it is not certain which hereditary characteristic(s) may be responsible (Holland et al., 1984). Although much of the evidence so far has been inconclusive, certain genetic factors are however reported as being over-represented in anorexic families (Holland et al., 1984). Genetic factors that have been linked to eating disturbances include obesity, depressive illness and alcoholism. Additional biological factors that have been identified as pre-disposing risk factors, ranges from hormonal imbalances, particularly in the hypothalamus (Brumberg, 1988), to the malfunctioning of serotonin levels in the brain (Garfinkel & Garner, 1982). Amongst other things, anorexics have also shown evidence of lower oestrogen levels (testosterone in males), elevated growth hormone levels, and anomalous carbohydrate metabolism as well as delayed gastric emptying (Gordon, 1990).

Most authors agree that there is a genetic component to anorexia nervosa (Holland et al., 1984; Brumberg, 1988). Despite the general consensus that biological factors may have its part to play, medical models have often been criticised for being limited in its explanation of eating disorders (Gordon, 1990; Brumberg, 1988). One of the criticisms levelled against medical models is that they do not account why an overwhelming majority of people who develop eating disorders are female. Secondly, it is argued that medical models do not account for the dramatic increase in incidence and the more recent global spread of eating disordered behaviours. Thirdly, medical models tend to ignore the wider socio-cultural context in which eating disorders occur (Brumberg, 1988).

1.4.2 Psychodynamic perspective

During the 1930's and 1940's, psychoanalytic theory postulated that eating disordered behaviours had something to do with the psychosexual development of the individual (Brumberg, 1988); that anorexics are afraid of their sexual maturation and growth (Van

der Eycken & van Deth, 1994). Within the psychodynamic formulation, anorexia nervosa is conceptualised as the "anorexics defence against fantasies of oral impregnation or against promiscuous impulses" (Gordon, 1990). Binge eating in this framework for example have been described as a "pure oral symptom-complex" (Wulff, 1933 in Alexander-Mott & Lumsden, 1994). The psychoanalytic view has however been severely criticised in its explanation of eating disorder pathology (Gordon, 1990). One of the main criticisms against the psychodynamic model is its sole emphasis on sexual factors in explaining abnormal eating habits. According to Gordon, Hilde Bruch, a psychoanalyst by training, pioneered a new understanding of anorexia nervosa, by steering away from understanding the syndrome through a narrow interpretation of psychosexual development. What Bruch suggested was rather to try and understand anorexia nervosa in terms of the development of the whole personality within the context of the family (Gordon, 1990).

1.4.3 Socio-cultural Perspective

Western socio-cultural models on the aetiology of eating disorder pathology emphasise that the thin beauty ideal are influential in the development of abnormal eating attitudes and behaviours (Lewis & Blair, 1991; Brownell, 1991). In contemporary western society, fatness is often associated with stereotypes such as ugliness, shame and sin (Lee, 1996). Dieting in the pursuit of slimness has been recognized as influential in disordered eating patterns (Brownell, 1991). A range of other important socio-cultural factors have also been recently been identified as possible risk factors for eating pathology. They include ethnicity (Caradas et al., 2001), social class (Gard & Freeman, 1996), urbanization/westernization (Lee, 1996; Tsai, 2000) and media influences (Stice, Schupak-Neuberg, Shaw & Stein, 1994). Proponents of cultural influences have noted higher prevalence rates of the eating disorders within western culture (Lee, 1996) and amongst females from upper social classes (Hsu, 1983).

1.4.3.1 Dieting

Many authors consider drive for thinness to be one of the main motivational variables underlying dieting (Striegel-Moore, Schreiber, Pike, Wilfley & Rodin, 1995). Weight loss in pursuit of fitness and a healthy lifestyle has been well documented (Brownell, 1991). Although most mainstream weight control programs encourage self-restraint and a high level of dietary control (Walsh & Devlin, 1998), dieting is considered by many professionals to be an unhealthy alternative to lose weight (Brownell, 1991). Previous research has shown excessive dieting to be one of the leading predictors of an eating disorder (Devlin & Zhu, 2001). Brownell (1991) reported statistics that was released in 1985 by the National Center for Health Statistics that has shown that 46% of women and 24% of men engaged in some form of dieting at the time of the survey. Recently studies have shown that approximately 35% of dieters in the United States of America engage in pathological dieting .(Devlin & Zhu, 2001). Some of the most common forms of unhealthy weight control measures reported include compulsive exercising, self-induced vomiting and the use of laxatives (Cooper, Waterman & Fairburn, 1984; Devlin & Zhu, 2001). Jones et al. (2001) reported that 4.9% in their study indicated engaging in binge eating, purging or both at a frequency of twice a week or more. This frequency reported is consistent with a diagnosis of bulimia nervosa as described in the Diagnostic and Statistical Manual for Mental Disorders (DSM IV, 1994). The most frequent weight loss behaviour found in their study was dieting. According to them, 8.2% reported engaging in self-induced vomiting, 2.4% using diet pills, 1.1% the misuse of laxatives and 0.6% using diuretics as alternative weight control measures.

According to Nagel and Jones (1992), there is a strong relationship between the impact of western standards of beauty and dieting as a normative practice. Weight reducing behaviours are often perceived to be exclusive to White females (Story et al., 1995), but a number of authors have refuted this claim (le Grange et al., 1998). One of the arguments posited is that Caucasian females experience more social pressures to engage in dietary behaviours in order to maintain thinner bodies (Brownell, 1991). It is speculated that this perception is due to a lack of knowledge about the prevalence of weight concerns and

dieting amongst individuals of non-Caucasian groups (Story et al., 1995). Recent research has shown an increase of dieting behaviours in non-western societies (Tsai, 2000) and amongst ethnic minorities (Story et al., 1995). In East Asia researchers are reporting an increase in dietary and purgative behaviours amongst Japanese and Chinese females. Similarly, data collected amongst ethnic minorities in developed countries point to a significant amount of unhealthy weight reducing behaviours across ethnicities (Crago, Shisslak & Estes, 1996). In America for example, French, Story, Neumark-Sztainer, Downes, Resnick and Blum (1997) collected data from 17159 adolescent females on their health behaviours related to dieting, purging and binge eating. Their findings revealed that dieting and binge eating were associated with similar variables across the 5 ethnic groups in their study. One of the strongest correlates of dieting that they found was poor body image perception across the groups.

1.4.3.2 Socio-economic factors

As stated earlier, the eating disorders are traditionally associated with middle to upper class groups (Gard & Freeman, 1996) despite claims that the 19th century "miraculous maids" were generally from poor, rural, uneducated families (Brumberg, 1988). It is argued by Gard and Freeman (1996) that Samuel Fenwick's earlier association of abnormal eating with the affluent has formed the basis for contemporary views of eating disorders. A relationship of the variation between affluence and anorexia nervosa was observed more recently during and post World War II (Selvinni-Palozolli, 1985). According to Selvinni-Palozolli, when food was scarce during the war, there were no reported cases of anorexia nervosa. She stated how post-war saw an "...explosion of the Italian economic miracle and the advent of the affluent society" (p.199) accompanied by an increase in the presentation of anorexia nervosa. She argues that within an affluent society, there is a contradictory, yet necessary inverse relationship between abundance of food and an obligation to be thin.

A limited number of studies have examined the relationship between eating disorders and socio-economic status (Story et al., 1995; Gard & Freeman, 1996). One study examined

the incidence of eating disorders and its variation with social class (Kendell, Hall, Hailey & Babigan, 1973), by extracting data from three psychiatric case registers – North East Scotland, Camberwell and Monroe County. Compared to other registered patients it was found that a significant excess of anorexic patients were from upper class families in Camberwell. In both North East Scotland and Monroe County, the authors found a modest social class bias. Although speculative, these findings support the view that eating disorders is not necessarily confined to the upper class (Kendell et al., 1973).

1.4.3.3 Media influences

Of all the socio-cultural influences thought to contribute to eating disorders, the media (print media, visual media, etc) are thought to be a particularly important social vehicle for cultural ideals of thinness (Lewis & Blair, 1991; Stice et al., 1994; Toro et al., 1994). According to Gordon (1990) this is especially true for consumer-oriented, post- industrial societies. The images portrayed by the media according to Lewis and Blair portray thinness as fashionable, whilst Gordon describes them as images characteristic of anorexia and bulimia. Most investigations on the link between eating disorders and media exposure have mainly focused on university students (e.g. Stice et al., 1994), but Harrison (2000) argues that this link may occur as early as age 11. Stice et al. (1994) examined direct and indirect relationships between media exposure and eating disorders amongst 238 undergraduate females. Their findings have suggested a strong correlation between media exposure and body image dissatisfaction. In addition, they obtained a significant direct effect of media exposure and eating disorder symptomatology and gender role endorsement. Gender role endorsement in their study was related to ideal body stereotype internalization. They postulated that repeated exposure to the thin body ideal may cause females internalizing such images.

Harrison (2000) investigated the impact of selective television viewing on fat stereotyping amongst elementary school children. She found that television viewing positively predicted fat girl stereotyping amongst males, but not females. She also found a positive relationship between television viewing and eating disorder symptomatology

for both genders. In a cross sectional study (Field, 2000) attempted to demonstrate a relationship between media exposure and the risk of beginning to purge. The assessment was done amongst 6982 girls (aged 9-14 years) who completed questionnaires in 1996 and 1997. Findings from her study revealed that 6% of the girls made concerted efforts to look like females in movies. In addition, between 1996 and 1997, one percent of the sample began using weight control measures such as vomiting.

Recently, researchers have extended research on the link between media exposure and body image perception to non-western communities (e.g. Tiggeman & Ruutel, 2001; Dulce, Hunter & Lozzi, 2002). According to Becker (2000), in Fiji for example, although Fijians traditionally prefer round figures for both males and females, recent evidence point to disordered eating patterns amongst adolescent Fijian females. Becker argues that there is little evidence amongst non-western communities to suggest a definite link between television and eating pathology, but postulate that the global values and media images portrayed on television could be influential in eating pathology. In their study Tiggeman and Ruutel (2001) found a correlation between eating disordered symptomatology and media exposure amongst both Estonian and Australian females. They argue that such findings suggest a societal hunger for western media and progress. The study by Dulce et al. (2000) however showed no relationship between media exposure and EAT-26 scores amongst Cuban American females. Instead they argue that language and food of culture of origin appears to be a salient protective factor. Similar evidence is provided by Abdollahi and Mann (2001). According to them Iranians have little exposure to images of western origin. However, their investigation on weight concerns amongst Iranian females and Iranians living in America revealed that the Iranian females were more concerned about their weight than the American group.

1.4.3.4 Gender

The relationship of gender to abnormal eating behaviours is generally not in dispute (Hsu, 1983). Most health professionals agree that abnormal eating habits are much more common amongst females than males usually in their late teens and early twenties

(Buchan & Gregory, 1984; Oswalt & Welle-Graf, 1999; Patton, Selzer, Coffey, Carlin & Wolfe, 1999; Yanovski, 2000). Differences in body image perceptions between the genders have been central in eating disorder research (Miller, Gleaves, Hirsch, Green, Snow & Corbett, 2000). Body image perception has been shown to play an important role in the development of eating disorders amongst females (Killen et al., 1996). Studies have shown a growing concern amongst females about their weight and shape. Demarest and Allen (2000) for example reported a significantly greater body image dissatisfaction amongst females than males in their study, which is consistent with findings of similar studies elsewhere (Smith, Thompson, Raczynski & Hilner, 1999). In her study Nowak (1998) however, reported a large proportion of boys indicating dissatisfaction with their bodies. Nowak speculates that the origins of body dissatisfaction may be different for boys than for girls. She argues that boys' dissatisfaction may stem from a desire for an adult male muscular body, whereas for girls the dissatisfaction may reflect current fashion trends amongst females. Drewnowksi, Kurth and Krahn (1994) showed that males typically prefer to gain as opposed to lose weight.

1.5 Prevalence and incidence of eating disorders

The last few decades have seen a number of epidemiological studies generating information on the increased prevalence rates of eating disorders in different populations (Dolan, 1991; Crowther et al., 1992). Recent epidemiological studies have been suggesting a global increase in incidence and prevalence of eating disorders (Dolan, 1991; Hoek, 1995). Prevalence is defined by Hoek (1995) as "the actual number of cases in a population at a certain point in time" and incidence as "the number of new cases in the population per year" (p.502). Both of these according to Hoek are frequently expressed as the rate per 100 000 population.

A large body of the literature on eating disorders has shown higher prevalence rates amongst females, with only 5% to 15% of cases of anorexia nervosa and bulimia nervosa and 40% of cases of binge-eating disorder occurring amongst boys and men (Becker, Grinspoon, Klibanski & Herzog, 1999). According to some estimates, females are four

times more likely to develop an eating disorder than males (Patton et al., 1999), with an approximate female to male ratio of 9:1 (Gordon, 1990). Cross sectional data have shown that approximately 0.5% of females have anorexia nervosa, 1% has bulimia nervosa and approximately 3% to 5% has the sub clinical syndromes (Patton et al., 1999; Fairburn & Beglin, 1990). Hoek (1995) reports an average point prevalence rate of 0.3% for anorexia nervosa and 1% for bulimia nervosa amongst young females. Recently it has been speculated that the incidence of eating disorders may be on the increase amongst males (Gordon, 1990). Ricciardelli et al. (1999) cite prevalence rates of bulimia nervosa amongst adolescent boys to be between 0.1% and 0.7%.

The age of onset for anorexia nervosa is speculated to have rapidly decreased in recent years (Hodes, 1995, Szabo, 1998, Ricciardelli et al., 1999). A rough estimate of the age of onset for eating disorders in adolescents or young adults is thought to be between 16-18 years (Szabo & Hollands, 1997; Mann, Wakeling, Wood, Monck, Dobbs & Szmukler, 1983). A less conservative estimate for the age of onset is given by Ricciardelli et al. (1998) who have suggested that adolescents as young as 12 years may be at risk for developing eating disorders.

Prevalence rates of anorexia nervosa in Europe and the USA has been estimated to be between 2 and 3% (Hodes, 1995), while 30-50% of the population is thought to have body weight concerns and 10-12% engages in stringent dieting. According to Becker et al. (1999) eating disorders affect an estimated 5 million Americans every year. They cite a mortality rate associated with anorexia nervosa to be approximately 0.56%.

Generally, higher prevalence rates of anorexia nervosa and bulimia nervosa have been documented in western societies compared to non-western countries (Garfinkel & Garner, 1982; Akan & Grilo, 1995). Increasingly evidence is provided to suggest that abnormal eating habits are on the increase amongst non-Caucasians. For example in reviewing studies on abnormal eating behaviours in the East, Tsai (2000) presents evidence which suggest that abnormal eating patterns are on the increase amongst Asian

samples. Between 1981 and 1993, prevalence rates of anorexia nervosa in Japan according to Tsai is estimated at 30 to 80 per 100 000 amongst junior high and 50 to 120 per 100 000 among senior high school girls. Similarly an increase of abnormal eating behaviours has been observed amongst non-western groups living in western countries (Furukuwa, 1994). In assessing eating concerns amongst East Asian immigrants, Barry and Garner (2001) found that eating concerns strongly correlated with the level of acculturation.

Recently, Bhugra, Bhui and Gupta (2000) set out to investigate the prevalence of bulimia nervosa amongst 504 female college students in India. They found that two females scored above the cut off point on the Bulimic Investigatory Test, Edinburgh, giving a point prevalence of 0.4%.

Numerous researchers have commented on the lack of prevalence data amongst both Caucasian and non-Caucasian South Africans (le Grange et al., 1998; Wassenaar et al, 2000; Caradas et al., 2001). Reports on cases of eating disorders amongst non-Whites on the African continent have been rare. For example to date only two cases of (Black) Africans in Nigeria (Famuyiwa, 1988) and one in Zimbabwe (Buchan & Gregory, 1984) have been reported. As has been pointed out earlier, one of the main challenges facing cross-cultural eating disorder research is the uncertainty about the true prevalence of anorexia nervosa and bulimia nervosa amongst non-western groups (Dolan, 1991). She argues that the uncertainty around the true prevalence of eating disorders may be the result of a lack of service utilisation by various ethnic groups.

CHAPTER 2

METHOD

2.1 Introduction

The following chapter is divided into three sections. In section 2.1, the sample for the study is described. Section 2.2 gives a description of the instruments that were used in the survey. Since the instruments that were used in this study are established measures, literature is used to briefly mention the relevance of the eating disorder indices in non-clinical samples. In particular, reference is made to their use in cross-cultural studies. In the final section of this chapter, the procedure that was followed in carrying out this study is outlined.

2.2 Sample

A total of 997 male and female high school students in the Western Cape completed and returned a questionnaire survey on eating attitudes and behaviours. Of these, 184 of the questionnaires (18.5%) were discarded based on the following reasons: Firstly, questionnaires that were either incomplete or poorly answered were discarded. Secondly, those questionnaires without the demographic details of the participants such as gender, and/or ethnicity were also discarded as these variables were central to the study. Finally, seven respondents indicated their ethnicity as 'other' and 24 respondents indicated their ethnicity as 'Asian'. The numbers in these two categories were comparably smaller than the numbers in the other ethnic categories and were not included. The available demographic information for the total number of questionnaires that were discarded is as follows: 81 respondents were female and 68 were male. Of these respondents, 104 indicated their ethnicity as (Black) African, 16 Coloured and 8 White.

The final sample of 813 consisted of 339 (42%) male and 474 (58%) female high school students. The mean age for the sample was 16.77 years (See Table 1).

The participating high school students were from five schools in and around Cape Town. Before deciding on which schools to approach for the survey, two factors were taken into consideration. Firstly, an aim was to survey an approximate target sample of 1000 high school students. The second criterion was for the sample to be fairly representative in terms of gender, ethnicity, geographical location and socio-economic background.

Two schools can be described as historically Black (African) schools, two historically White schools, and one historically Coloured school. Two of the schools are located close to the city centre, with the other three schools situated approximately 50-120 km outside the city of Cape Town. Two of the schools that were surveyed are situated in (Black) African townships, which one can describe as relatively poor areas with predominantly working class residents.

Table 1 below contains the demographic profile of the sample. The majority of respondents were in Grades 10 and 11. The most common home languages spoken were indicated to be Afrikaans, English and Xhosa. The medium of instruction at four of the schools are English and at the fifth the medium of instruction is Afrikaans.

Table 1 Demographic characteristics of the high school students (N=813)

	Frequency count	Percentage (%)
Gender		
Male	339	42
Female	474	58
Ethnicity		
(Black) African	230	28
Coloured	221	27
White	362	45
Education		
Grade 10	331	41
Grade 11	389	48
Grade 12	88	11
Missing	5	1
Home language		
Afrikaans	299	37
English	265	33
Xhosa	186	23
Other	61	8
Urban/Rural[3]		
Peri-urban	399	49
Urban	364	45
Missing	50	6
Mean age	16.77 years	

[3] Respondents were asked to indicate the number of years they have lived in a city.

2.3 Instruments

This survey comprised five sections: a Demographic Questionnaire; the Eating Attitude Test (EAT-26); the Bulimic Investigatory Test, Edinburgh (BITE), the Questionnaire on Eating and Weight Patterns, Revised (QEWP-R) and the Rosenberg Self-Esteem Scale (See Appendix A for a copy of each questionnaire).

2.3.1 Demographic Questionnaire

The purpose of the Demographic Questionnaire (Appendix A) was to gather background information of each participant. The students were asked to report their age, grade, gender, ethnicity, religious affiliation, home language and the language they speak to their friends. Additional information that was collected from the students included parental occupation, whether they have a telephone at home, have electricity in their house, have a car, and how many people sleep in the same room as them. This data was gathered to assess the socio-economic status of the cohort. They were also asked to indicate:

a. whether they have a television or not
b. their favourite magazine or newspaper
c. the name of their favourite celebrity who has their ideal body type
d. their favourite kind of food
e. two leisure activities
f. whether they thought older women should be heavy

The above questions (a-f) were used to construct two composite measures namely "extent of media exposure" and "extent of participation in a modern/western lifestyle". Details on how the total scores for each of the composite measures were calculated are discussed in Chapter 3.

In addition to the above measures, participants completed self reports on their height and weight. They were also asked to rate their own weight on a 5 point Likert type scale from 1 = very underweight to 5 = very overweight.

2.3.2 Eating Attitude Test (EAT-26)

In the current study, one of the instruments used in measuring abnormal eating attitudes and behaviours was the Eating Attitudes Test (EAT-26) (Garner, Olmsted, Bohr & Garfinkel, 1982), an abridged version of EAT-40 (Garner & Garfinkel, 1979). The instrument consists of 26 items which are measured on a 6 point Likert-type scale, with responses ranging from 1 = always to 6 = never (Appendix A). The EAT is one of the most widely used self-report measures on the symptoms of anorexia nervosa and bulimia nervosa (Garner et al., 1982; Garner & Garfinkel, 1980) and has been found an adequate measure of eating disturbances in non-clinical samples (Mann et al., 1983). The EAT is considered to be most suitable as a screening instrument in non-clinical samples (Garner et al., 1982). The authors nevertheless warn that high EAT scores in non-clinical samples should be interpreted with caution, as high scores does not automatically imply the presence of anorexia nervosa.

Generally, a score of 20 or more on the EAT-26 reflects high risk for developing an eating disorder with a score of 10 or less indicating a low risk for developing an eating disorder (Garner et al., 1982). It has been found that at a cut off point of 20, the EAT-26 displays a satisfactory sensitivity (88.1%) and a specificity of 96.7% (Mann et al., 1983). Total scores on the EAT-26 can range between 0 and 78, with higher scores reflecting more disordered eating patterns. Although the instrument has been found to be extremely valuable as a screening tool (Mann et al., 1983), the authors found that the EAT produced a low positive predictive value of 53%. This finding is contrary to that obtained by Mintz and O'Halloran (2000), who in their study found that the EAT demonstrated an accuracy rate of 90% in discriminating between those with anorexia and those without. It has been recommended that follow up interviews be conducted for scores of 20 or more on the

EAT-26 (Garner et al., 1982; Mann et al., 1983) as high scorers who are "non-cases" may in this way be identified.

2.3.2.1 Cross-cultural validation of EAT-26

The English version of the EAT-26 has been extensively used as a screening tool in non-clinical samples in a variety of settings (Tsai, 2000; Jones et al., 2001; Caradas et al., 2001; Dulce et al., 2002). Cross-cultural psychiatric literature however, cautions against the use of western designed and validated instruments in non-western populations (Mumford & Choudry, 2000). One of the major challenges that face health screens according to Louw (1995), particularly in a developing country like South Africa, is to ensure that health screens are applicable and relevant to the population.

The reliability of the EAT-26 in the current study was established by calculating Cronbach's alpha, which is a measure of an instrument's internal consistency (Oswalt & Welle-Graf, 1999). Reliability of an instrument, refers to "... the extent that in a given situation, it produces the same results repeatedly" (Rossi, Freeman & Lipsey, 1999, p.247). A review of the literature has demonstrated that Chronbach's alpha values for the EAT-26 typically range between 0.54 and 0.87 (Senekal et al., 2001). Cronbach's alpha values in cross-cultural studies as high as 0.93 have been reported (Mujtaba & Furnham, 2001). In their study amongst university students in South Africa, Senekal et al. (2001) obtained a reliability coefficient of 0.62 for the EAT-26, which is comparable to the alpha value that was obtained for the EAT-26 in the current study (0.66).

2.3.3 Bulimic Investigatory Test, Edinburgh (BITE)

The second instrument that was used to assess eating attitudes and behaviours in this study was the Bulimic Investigatory Test, Edinburgh (BITE) (Henderson & Freeman, 1987). The BITE is a screening instrument that assesses individuals who may be at risk for bulimia nervosa. It is a 33 item self report measure and consists of two subscales; a

symptom scale and a severity scale (See Appendix A). The symptom subscale consists of 30 "yes-no" questions which relates to symptoms, behaviour and dieting. The severity subscale on the other hand, measures the severity of bingeing and purging behaviours (Reiss, 1996). A score of 25 (20 or more on the symptom scale; 5 or more on the severity scale) or more on the BITE indicates that the individual may be at high risk for the development of bulimia nervosa. Scores of 25 or more are usually followed up with diagnostic interviews (Henderson & Freeman, 1987; Reiss, 1996), but it has been suggested to also follow up scores between 15-19 with diagnostic interviews (Henderson & Freeman, 1987). According to them, scores in the range 15-19 may reflect a sub-clinical form of an eating disorder.

The BITE has been found to discriminate well in populations with a low incidence rate between those with bulimia nervosa and those without (Reiss, 1996; Henderson & Freeman, 1987). The latter authors, cross-validated the instrument by surveying two groups of binge eaters and a non-clinical control group. In their study, they found that the BITE was able to adequately discriminate between the clinical binge eating groups and the non-clinical sample. In addition, they obtained a high degree of internal consistency for the symptom subscale and severity subscale of the BITE (α = 0.96 and α = 0.62 respectively) in both groups.

According to Henderson and Freeman (1987), there are several key advantages in using the BITE as a screening instrument. The questionnaire is self-explanatory, can be easily administered to large groups, takes on average less than 10 minutes to complete and can easily be scored.

2.3.3.1 Cross-cultural validation of BITE

The BITE has been used as a screening tool for bulimia nervosa in a variety of settings (Reiss, 1996; Ricciardelli et al., 1999; Bhugra et al., 2000). Although it is argued that the BITE has not previously been validated in other ethnic groups (Reiss, 1996), a recent report state that the English version of the BITE has been validated in a school population

in India (Bhugra et al., 2000). In his study amongst an African Caribbean group and a White British group, Reiss (1996) calculated Cronbach's alpha for the symptom scale of the BITE. He found alpha values of $\alpha = 0.83$ and $\alpha = 0.82$ for the two groups respectively. These alpha values were substantially higher than the alpha values found for the BITE symptom scale in the current study amongst Black (African) ($\alpha = -0.03$), Coloured ($\alpha = -0.05$) and White ($\alpha = -0.04$) learners. The low alpha values obtained for the BITE symptom scale in the current study suggest that the scale may not have been a reliable instrument for use in the three groups in the current study. An overall Chronbach's alpha of -0.05 was obtained for the BITE in the current study, but unlike for the EAT-26, the author found no previous studies to compare this finding to.

2.3.4 Questionnaire on Eating and Weight Patterns-Revised (QEWP-R)

In this study the Questionnaire on Eating and Weight Pattern-Revised (Spitzer, Yanovski, Wadden, Wing, Marcus, Stunkard, Devlin, Mitchell, Hasin & Horne, 1993) was administered to screen for Binge Eating Disorder (BED). Unlike the EAT-26 and the BITE where screening is done through calculating cut off scores, a diagnosis for BED requires that respondents meet ALL the criteria (1-4) below, when they answered the questionnaire. This measure consists of questions relating to the frequency and duration of binge eating, behaviours in order to avoid weight gain, distress related to binge episodes and feelings of loss of control. (See Appendix A for the questions that respondents were asked).

1. For questions 6 and 7 they had to answer "Yes" to both
2. For question 8 they had to circle either option (c), (d) or (e)
3. For question 9, they had to circle at least three "Yes"
4. For question 11 or 12, they had to circle either option (d) or (e).

No previous studies that have validated this questionnaire were found.

2.3.5 Rosenberg Self-Esteem Scale

The Rosenberg Self-Esteem Scale has been included in this study as a general psychological measure of self-concept. The scale consists of 10 items on a 4 point Likert scale, ranging from 1 = strongly agree to 4 = strongly disagree (Appendix A). For the current study, scores on this measure ranges between 10 and 40, although some authors do use other scoring methods (www.bsos.umd.edu/socy/rosenberg.html, 2001). The total score for each person is calculated by reversing the scores for items 2, 5, 6, 8 and 9, and adding these to the scores for the remainder of the items. A high score on this questionnaire tends towards a high self-concept and a low score tends toward a low self-concept (www.bsos.umd.edu/socy/rosenberg.html, 2001). The Rosenberg Self-Esteem Scale has been validated in various samples and typically displays Cronbach's alpha values between 0.77 and 0.88 (www.bsos.umd.edu/socy/rosenberg.html, 2001). In the current study, an alpha value of 0.81 was obtained, suggesting that the instrument could be used in this sample.

2.4 Procedure

A project proposal to carry out the study was submitted to a Research Ethics Committee in the Department of Psychology at the University of Cape Town. The study protocol was subsequently approved by this Committee.

The Director of Curriculum Services of the Western Cape Education Department (WCED) was approached to establish the procedures that needed to be followed to conduct this study in high schools. A project proposal, together with the questionnaires and a list of 16 possible schools was forwarded to the Western Cape Education Department. Subsequently, written permission was granted by the WCED for the survey to proceed in 15 high schools, as other research was already conducted at one of the other high schools. The proposal was approved by the WCED on condition that additional permission was granted by the respective school principals to conduct the survey at their high schools. Seven principals were contacted to ask their permission for the survey to

proceed at their school. One principal denied the request because research was already conducted at the school. The second school could not allow the survey because of ongoing building construction at their school. The other five agreed for the survey to proceed at their schools.

A meeting was subsequently arranged with each of the five principals (and teachers) to discuss the nature of the study, the demands the study would make on the school and the participating learners, concerns the principals/teachers may have had and to gain permission to conduct the study. Before each meeting, an outline of the study was faxed to each school and principals/teachers were given draft copies of the questionnaires to be administered.

The teachers volunteered to organise and coordinate the survey from their end. This included informing learners about the aims of the study. Parental consent was obtained using a similar procedure outlined in Mann et al. (1983). Learners were asked to take home letters of information to their parents, which informed them of the study and their children's possible participation in it (See Appendix B for particulars of the letter). The letter contained the author's contact details for parents to contact should they have objections to their children participating in the survey. Suitable times to conduct the survey were set up between the research students and each of the five participating schools. Generally, one 45-minute period was set aside for the survey, but some schools allowed more time for the survey to be completed. Approximately 200 students were surveyed simultaneously at each school, in either one hall or separate classrooms.

On the day of the survey, the participants were informed again that the survey is about eating attitudes and behaviours amongst high school students. Further, they were told that their participation in the study is voluntary and that their answers would be treated confidentially. They were given verbal and written instruction on how to complete the questionnaires. The entire survey was conducted in English at all the schools for two

CHAPTER 3

RESULTS

3.1. Introduction

This chapter provides a summary of the data that was collected amongst a group of male and female high school students in the Western Cape between grades 10 to 12 during 2001. Each student was asked to complete a Demographic Questionnaire, the Eating Attitude Test (EAT-26), the Bulimic Investigatory Test, Edinburgh (BITE), the Questionnaire of Eating and Weight Patterns Revised (QEWP-R) and the Rosenberg Self-Esteem Scale. For the purpose of this thesis, only the Demographic Questionnaire, the EAT-26, the BITE and the Rosenberg Self-Esteem Scale is used in the analysis of the scores.

Several measures were obtained from the Demographic Questionnaire. These measures were collected in order to examine the extent of their variation with the scores obtained on the EAT-26 and the BITE respectively. The demographic measures included:

- Gender
- Ethnicity – students were asked to indicate to which ethnic group they belong to
- Socio-economic status (SES) - students were asked to indicate their father's occupation. This information was used to create a measure of SES. Paternal occupations were divided into seven categories of SES which are upper class, semi-professional class, intermediate class, core working class, petty traders, marginal working class and other. The decision to use the above categories was based on categories as outlined in Natrass and Seekings (2001).

Two composite measures were calculated:

- *"Media exposure"* - The extent of media exposure was measured by asking the participants to answer the four questions below, which were thought, may relate to media exposure. The questions and ratings were:

(a) "Do you have a television at home?" If yes, participants scored 2 points, if no they scored zero.

(b) "Do you have a favourite magazine?" If yes, participants scored 1, if no they scored zero.

(c) "Do you have a favourite movie star (or body type you consider ideal)?" If yes, participants scored 1, if no they scored zero.

(d) "Please mention 2 things you do most often when you have free time; for example going to the movies, reading, etc." Participants scored zero if they mentioned no media related activities, and 1 point per activity mentioned.

A rough measure for the extent of "media exposure" was obtained by summing the separate scores for each of the above four questions. The minimum score that is possible on this measure is zero which represents a low media exposure, and the maximum score possible is 6, which represents a high media exposure.

- *"Participation in a modern/western lifestyle"* – It is understood that a "traditional lifestyle" refers to African traditional attitudes and beliefs around food and the body, as opposed to western/modern attitudes and beliefs. This was measured by asking respondents six questions relating to language, food, and attitudes towards the female body.

(a) If participants indicated their home language is English or Afrikaans, they scored 1, otherwise they scored 0.

(b) If participants indicated that the language they speak to friends is English or Afrikaans, they scored 1, otherwise they scored 0

(c) If they mentioned a more "western" favourite dish (e.g. pie), they scored 1; if they mentioned a more "traditional" dish (e.g. pap), they scored 0.

(d) If participants answered no to whether they think older women should be heavy, they scored 1, otherwise they scored 0.

(e) Participants were asked to name their favourite celebrity, which was categorised into sporting, entertainment, models and other celebrities. Scores for each category was 1, 2, 3 and 0 respectively.

(f) Participants were asked to name their favourite magazine. Scores were 2 and 0 on this measure, according to the magazine mentioned.

A rough approximation of "participating in a modern/western lifestyle" was obtained by summing the scores for the separate six questions above. Total scores on this index ranged between 0 and 9. A score of 0 reflects participation in a more traditional lifestyle and a score of 9 reflects participation in a more modern, western lifestyle.

As mentioned in a previous chapter, the EAT-26 and the BITE are established measures for screening abnormal eating attitudes and behaviours in large samples (Garfinkel & Garner, 1982; Henderson & Freeman, 1987). A total score was calculated for each participant on each of the eating disorder indices to this end. These scores were taken as the dependent variables in this study.

3.2 Analysis of the EAT-26 scores

As discussed in the previous chapter, EAT-26 scores can be divided into three categories: normal, medium and high risk categories. Table 2 below presents a frequency distribution of the scores that fell in the normal, medium and high risk range respectively on the EAT-26. Overall, most students (57.3%) scored within the normal range, 25% of the students scored in the medium range and 17.3% of the sample scored in the high-risk range.

Table 2 Frequency distribution of scores within the normal, medium and high-risk range on the EAT-26

EAT-26 Score	African		Coloured		White		Total
	Male	Female	Male	Female	Male	Female	
Normal (0-9)	38	38	91	80	125	94	466
Medium (10-19)	40	53	7	25	11	70	206
High (20 or more)	17	44	4	14	6	56	141
TOTAL	95	135	102	119	142	220	813

Table 2 above shows that more than half of the scores (54.5%) belong to males and (45.5%) of the scores belong to females in the normal range on the EAT-26. Scores in the normal range is indicative of low risk for developing and eating disorder. In addition it is reflected that substantially more females (71.8%) than males (28.2%) scored in the medium risk range on the Eating Attitude Test, with a larger percentage of females (81%) scoring in the high risk range than males.

The distribution of the scores for each of the ethnic categories can be summarised as follows: Amongst African learners, 40% of the scores fell in the medium range, with 33% and 27% of the scores falling in the normal and high risk categories respectively. A large majority of the scores amongst Coloured learners (77.4%) were distributed in the normal range compared to the medium and high risk categories. Similarly, most of the scores amongst White learners were distributed in the in normal range (61%), with 22% and 17% falling in the medium and high risk ranges respectively.

One hundred and forty one (17.3%) students in the sample scored in the high risk range on the EAT-26 (mean = 7.06; SD = 7.77). A score at or above 20 on this measure suggests that an individual is at high risk for developing the clinical syndrome anorexia nervosa. Table 2 above and figure 1 below demonstrate an approximate male to female ratio of 1:4 for scores in the high risk group. This finding suggests more unhealthy eating

attitudes and behaviours amongst females for this study group. In addition the results show that mostly African and White students scored in the high risk group (See Table 2 above and Figure 2 below). This finding suggests that African and White students tend more toward unhealthy eating attitudes and behaviours than Coloured students. Out of all the subgroups, most of the scores in the high risk group (39.7%) belong to White females.

The mean score for the entire sample was 10.67, with a SD of 9.46 (Table 3 below), which falls within the medium range (10-19) on the EAT-26. Females on average scored well above the sample mean with males scoring on average below the sample mean. Similarly African students obtained a mean score higher than the sample mean, compared to the mean scores obtained by Coloured (mean =7.44; SD = 7.15) and White students (mean = 10.35; SD = 10.14) which fell below the sample mean.

FIG 1 Frequency distribution of male and female high scorers on the EAT-26

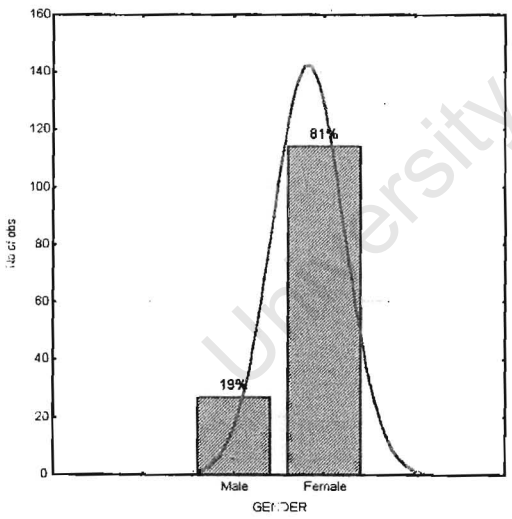
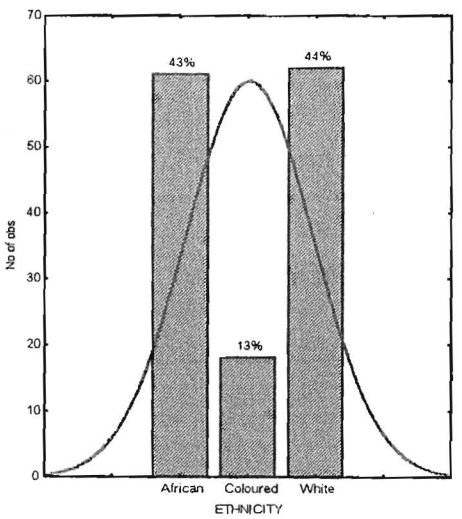


FIG 2 Frequency distribution of high scorers on the EAT in each ethnic group



Means and standard deviations for the scores on the Eating Attitude Test are reflected in Table 3 below.

Table 3 Mean scores and standard deviations on the EAT-26.

		N	Mean	standard deviation
Ethnicity				
	African	230	14.29	9.10
	Coloured	221	7.44	7.15
	White	362	10.35	10.14
Male		339	7.19	7.36
	African	95	12.19	8.35
	Coloured	102	5.40	5.48
	White	142	5.12	6.19
Female		474	13.16	10.01
	African	135	15.76	9.35
	Coloured	119	9.18	7.94
	White	220	13.72	10.76
	All groups	813	10.67	9.46

Two-way ANOVA's were conducted (on both the EAT-26 and the BITE) to establish interaction effects for gender and ethnicity. Table 4 below shows the results for a two-way ANOVA on the total EAT-26 score.

Table 4 ANOVA summary table for EAT-26 scores

	SS	Degrees of freedom	MS	F	p
Gender	5336.47	1	5336.47	72.402*	0.000000
Ethnicity	5240.55	2	2620.27	35.550*	0.000000
Gender X Ethnicity	1177.68	2	588.84	7.989**	0.000367
Error	59480.51	807	73.71		

P* = 0.0000; P** = 0.0003

The results show main effects for both *gender* [F(1,807) = 72.402, p = 0.0000] and *ethnicity* [F(2,807) = 35.5, p = 0.0000]. The significant finding for gender suggests that females tend more toward unhealthy eating attitudes and behaviours than males. In addition, the findings show that African students scored significantly higher on the EAT-26 than the other two ethnic groups. This finding suggests that compared to Coloured and White students, African students in this sample tend more towards unhealthy eating attitudes and behaviours. Furthermore, significant interaction effects for gender and ethnicity was found [F(2,807) = 7.989, p = 0.0003]. Interaction effects are also graphically presented in Figure 3 below.

FIG 3 Interaction effects for ethnicity and gender

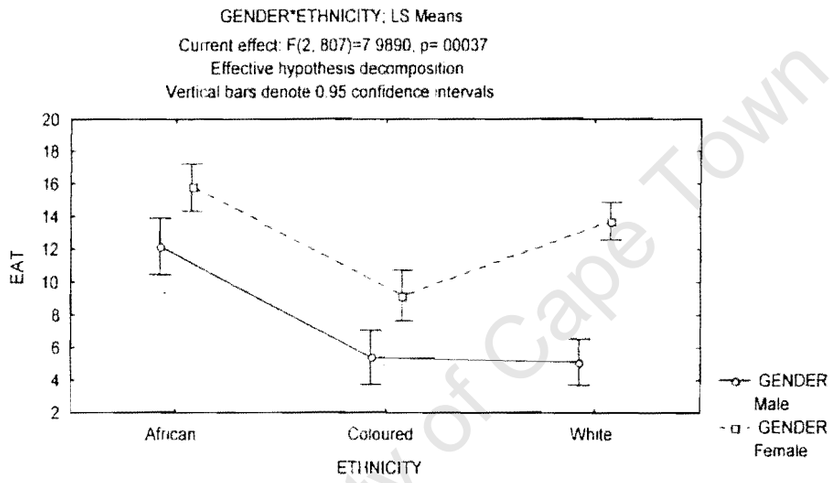


Figure 3 above demonstrates that the mean score on the EAT-26 for females is significantly higher than for males. There were no significant differences in the mean scores between African and White females, but both groups scored significantly higher than Coloured females. African males scored significantly higher on the EAT-26 than males from the other two ethnic groupings. Between all the subgroups, the mean score for African females was the highest on the EAT-26.

3.2.1 High EAT-26 scores

Table 4 below shows that for scores in the high risk category, the majority of high scorers (80.9%) were female. In addition, most of the high scores were amongst African (43%) or White (44%) students. Amongst the females, most of the scores belonged to African and White females, and amongst the males, most of the scores belonged to African males. Females in the high scoring category obtained a slightly higher mean score than males although subsequent analyses revealed no significant differences between the genders. Similarly, the mean score amongst high scoring White students was slightly higher than for high scoring students in the other ethnic categories. On further analyses there were no significant differences between the means for high scorers in the three ethnic groups [F (2,138) = 1.2951; p = 0.27719].

Table 4 Frequency distribution and means of high EAT-26 scores

		N	Mean	standard deviation
Ethnicity				
	African	61	26.16	6.39
	Coloured	18	26.00	5.18
	White	62	28.24	9.41
Male		27	25.70	6.76
	African	17	25.59	5.65
	Coloured	4	24.50	3.79
	White	6	26.83	11.14
Female		114	27.38	7.99
	African	44	26.39	6.70
	Coloured	14	26.43	5.56
	White	56	28.39	9.31
	All groups	141	27.06	7.77

3.3 Analysis of the BITE scores

A score of 25 or more on the BITE is considered to be indicative of a possible eating disorder. In the present sample, most students (91.3%) scored in the normal range, with (8.7%) of the students scoring 25 or more on the BITE (Table 5).

Table 5 Frequency distribution of scores on the BITE

BITE scores	African		Coloured		White		Total
	Male	Female	Male	Female	Male	Female	
Less than 25	78	112	102	112	140	198	742
25 or more	17	23	0	7	2	22	71
TOTAL	95	135	102	119	142	220	813

The scores below 25 can be described as follows: 57% of the scores belong to females and 43% of the scores belong to males. Amongst African learners, 83% of the scores were below 25, whereas 97% and 93% of the scores in this distribution belong to Coloured and White learners. Scores below 25 on this measure suggest a low risk for developing bulimia nervosa. Compared to any other subgroup, most of the scores below 25 belong to White females (26.7%).

The above Table 5 further demonstrates that 73.2% of the scores at or above 25 on the BITE belong to females and 26.8% of the scores belong to males. 17% of the scores in the African sub-sample fell in this distribution, with 3% and 6% of the scores belonging to Coloured and White learners. In addition, mostly African males (23.9%), African females (32.4%) and White females (31%) scored at or above 25 on this measure.

Means and standard deviations for the scores on the BITE are provided in Table 6 below. The mean score for this sample on the BITE was 11.51 (SD =8.32). Females in general scored slightly above the sample mean, with males scoring slightly below the sample mean. Amongst the three ethnic groups, African students obtained the highest mean score

on this measure. Out of all the subgroups, African females obtained the highest mean score on the BITE. The lowest mean score on this measure was obtained amongst White males.

Table 6 Mean scores and standard deviations on the BITE

		N	Mean	standard deviation
Ethnicity				
	African	230	17.05	7.82
	Coloured	221	8.70	6.30
	White	362	9.70	8.07
Male		339	9.14	7.52
	African	95	16.79	7.90
	Coloured	102	6.70	3.98
	White	142	5.77	5.24
Female		474	13.20	8.46
	African	135	17.24	7.78
	Coloured	119	10.41	7.34
	White	220	12.23	8.56
	All groups	813	11.51	8.32

An ANOVA summary of BITE scores is provided in Table 7 below. Two-way analysis of variance reveals main effects for gender and ethnicity.

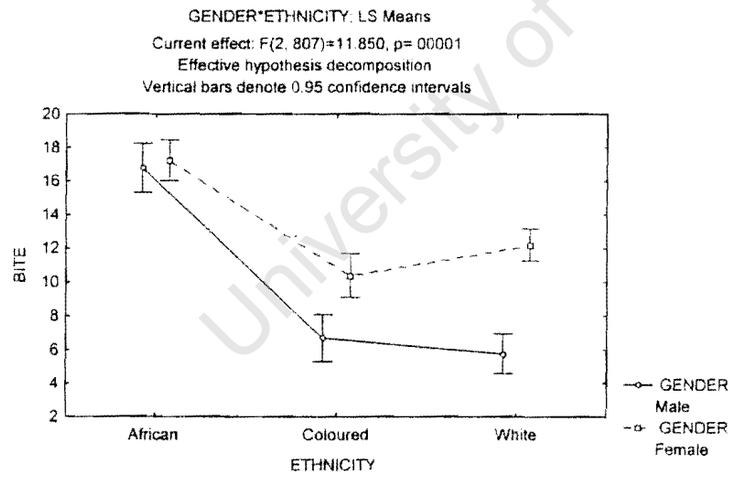
Table 7 ANOVA summary table for BITE scores

	SS	Degrees of freedom	MS	F	p
Gender	2363.2	1	2363.2	45.565*	0.000000
Ethnicity	10739.2	2	5369.6	103.532*	0.000000
Gender*Ethnicity	1229.2	2	614.6	11.850**	0.000008
Error	41854.6	807	51.9		

p* = 0.00000; p** = 0.000008

The results of the ANOVA indicates significant differences between the scores of male and female students on the BITE [F(1,807) = 45.565, p = 0.000000]. In general, females scored significantly higher on the BITE than males, suggesting a higher risk for developing bulimia nervosa amongst females. In addition, the above findings demonstrate that the mean scores for African students were significantly higher than the mean scores for the other two ethnic groups on this measure [F(2, 807) = 103.53, p = 0.000000]. A significant interaction between gender and ethnicity [F(2,807) = 11.85, p = 0.000008] was obtained. Interaction effects for gender and ethnicity is graphically presented in Figure 5 below.

FIG 5 Interaction effects: ethnicity x gender



3.3.1 High BITE scores

Table 8 below reflects that the majority of the scores at or above 25 belonged to females (73%) and (26%) of the scores belonged to males. Fifty six percent of the high scorers were African and 34% were White students. Most of the high scores amongst males belonged to African students, and most of the high scores amongst females belonged to African and White students. Subsequent analysis of variance revealed no significant differences in the mean scores between high scoring males and females. Similarly, no significant differences are reported for high scorers in each of the 3 ethnic categories [$F(2,68) = 1.8890$; $p = 0.15908$].

Table 8 Frequency distribution of high BITE scores

		N	Mean	standard deviation
Ethnicity				
	African	40	29.27	4.11
	Coloured	7	28.29	2.93
	White	24	31.42	6.23
Male		19	29.16	3.06
	African	17	29.06	3.15
	Coloured	--	--	--
	White	2	30.00	2.83
Female		52	30.17	5.44
	African	23	29.43	4.77
	Coloured	7	28.29	2.93
	White	22	31.55	6.47
	All groups	71	29.90	4.92

3.3.2 Overlap of high EAT-26 scores and high BITE scores

In the current study 48 (5.9%) learners scored high on both EAT-26 and the BITE. Pearson's r was calculated for high EAT-26 scores and high scores obtained on the BITE. The findings show a strong positive correlation (r = 0.66) between high EAT-26 scores and high BITE scores.

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3.4 Further analyses

In the following section additional calculations were performed on the scores of the EAT-26 and the BITE in order to examine to what extent these scores varied with a range of other variables.

3.4.1 Body Mass Index (BMI)

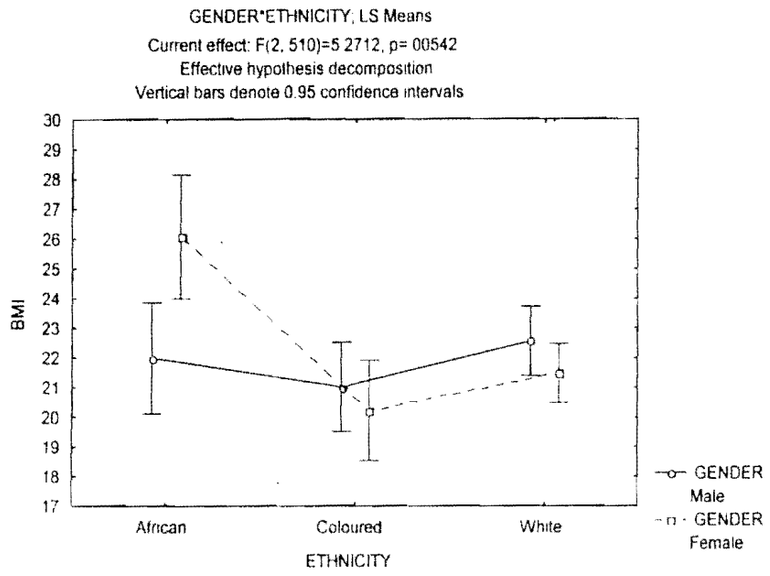
Table 9 below demonstrate mean scores for Body Mass Index (BMI) which are calculated by the formula (weight/height^2). Learners were asked to estimate and record their weight in kilogram (kg) and height in meters (m). The mean BMI for the entire sample was 21.92 (SD = 6.72). A two way ANOVA reveals main effects for ethnicity [F(2,512) = 5.8969; p = 0.00294], but no main effects for gender [F(1,512) = 0.05017; p = 0.82285) were obtained. The significant effect for ethnicity suggest that the mean BMI for African learners were significantly higher (23.81) than the mean BMI for either White or Coloured learners (See Table 9 below). A significant interaction between gender and ethnicity was obtained [F(2,510) = 5.2712; p = 0.00542].

Table 9 Mean BMI scores

		N	Mean	standard deviation
Ethnicity				
	African	87	23.81	11.64
	Coloured	134	20.67	3.65
	White	295	21.93	5.62
Male		247	21.98	5.75
	African	48	21.99	8.72
	Coloured	75	21.02	3.42
	White	124	22.56	5.39
Female		269	21.86	7.51
	African	39	26.06	14.25
	Coloured	59	20.22	3.90
	White	171	21.47	5.75
	All groups	516	21.92	6.72

Figure 7 below shows that the mean BMI for African females is significantly higher than those of any other group [$F(2,513) = 5.9027$; $p = 0.00292$]. The mean BMI for African females (26.06) was significantly higher than the mean BMI for females in the other two ethnic categories [$F(2,266) = 8.1518$; $p = 0.00037$].

Figure 7 Interaction effects between gender and ethnicity for BMI



3.4.2 Self-reported weights

Learners were asked to evaluate their own weight on a 5 point Likert-type scale ranging from 1 = very overweight to 5 = very underweight. The results are displayed in Table 10 below. More than half of the sample (55%) reported their weight to be of normal weight. Two hundred and ten learners indicated they were a little overweight and thirty six learners indicated they were very overweight. The majority of those in the "very overweight" category (89%) were females. An ethnic breakdown shows that 34 African, 65 Coloured and 147 White learners reported being overweight or very overweight. Twenty five African, 40 Coloured and 49 White learners reported being underweight or very underweight.

Table 10 Mean EAT-26 and BITE scores for each of the self-reported weight categories

	N	EAT		BITE	
		Mean	Std dev	Mean	Std dev
very underweight	11	11.82	8.91	15.36	10.32
little underweight	103	6.94	8.06	7.96	6.4
normal weight	444	9.55	8.23	10.64	7.7
little overweight	210	12.42	9.11	12.85	8.24
very overweight	36	25.58	13.91	23.39	9.12

Analysis shows a significant difference at p = 0.05 in the mean EAT-26 scores for each of the self-reported weight categories. The mean EAT-26 score in the "very overweight" category was significantly higher than the mean EAT-26 scores in the other 4 categories [F(4,799) = 34.582 at p = 0.05]. The majority of high scorers on the EAT-26 classified themselves as "normal weight" (41%) and (33%) classified themselves as a "little overweight".

Similarly, the mean BITE score of 23.39 (SD =9.12) for the group classified as "very overweight" was significantly higher than the mean BITE score in the other 4 categories [F(4,799) = 29.82 at p = 0.0000]. Only 71 (50.4%) of the high scorers on the BITE completed the self-reported weight measure. Most of these scores fell in the "normal weight" (42%) and "little overweight" (28%) categories respectively.

3.4.3 Family history of being overweight

Learners were asked to report on whether they have a family history of being overweight. A large majority (75%) indicated that they have no family history of being overweight. An ethnic breakdown shows that 66 African, 48 Coloured and 65 White learners reported not having a family history of being overweight. The majority of those who indicated having a family history of overweight were White learners (47%).

The mean scores on the EAT-26 and BITE for the two groups respectively are reflected in Table 11 below.

Table 11 Mean EAT-26 and BITE scores in relation to family history of being overweight

		EAT-26		BITE	
Family history of being overweight	N	Mean	Std dev	Mean	Std dev
Yes	179	14.4	11.09	14.79	8.87
No	612	9.61	8.75	10.45	7.82
All groups	791	10.7	9.54	11.43	8.27

A single group independent t-test (two-tailed) showed that the mean score on the EAT-26 was significantly higher for the group that reported a family history of being overweight, than for the group without a family history of being overweight ($t = -6.09$; $df = 789$; $p = 0.0000$).

Sixty three percent of high scorers on the EAT-26 indicated that they do not have a family history of being overweight. An independent t-test showed no significant differences on the EAT-26 scores between high scorers with a family history of being overweight and high scorers without a family history of being overweight ($t = -1.59$; $df = 136$; $p = 0.113626$).

An independent t-test ($t = -6.33$; $df = 789$; $p = 0.0000$) reveal significant differences between the mean scores on the BITE for those with a family history of being overweight and those who indicated no family history of being overweight. The mean score for those with a family history of being overweight (14.79) was significantly higher than the mean for the group without a family history of being overweight.

Fifty five percent of high BITE scorers indicated not having a family history of being overweight. No significant differences were found between high BITE scorers who

reported a family history of being overweight and those who reported no family history of being overweight ($t = 0.47$; $df = 65$; $p = 0.640454$).

3.4.4 Relationship between socio-economic status and ethnicity

In this part of the analysis, the relationship between socio-economic status (SES) and ethnicity is examined in the sample. As mentioned earlier, the father's occupation for each respondent was used as an indicator of SES. A frequency distribution of ethnicity and SES is diagrammatically represented in Figure 8 below.

From Figure 8 below and frequency data in Table 12 below, the following general patterns were found in the sample. Based on their father's occupation, 34.4% of the students fell in the intermediate class and 24% of the students fell in the upper class. A large majority in the upper class (73%) indicated their ethnicity as White, 18.97% indicated their ethnicity as Coloured and 7.69% indicated their ethnicity as African. Similarly, most students in the semi-professional and intermediate classes indicated their ethnicity as Coloured or White. In the core working class category, 60% indicated their ethnicity as African compared to 25% and 14.8% of students who indicated their ethnicity as Coloured and White respectively. In the marginal working class category, over 90% of the students indicated their ethnicity as African.

Fig 8 Histogram of SES X Ethnicity

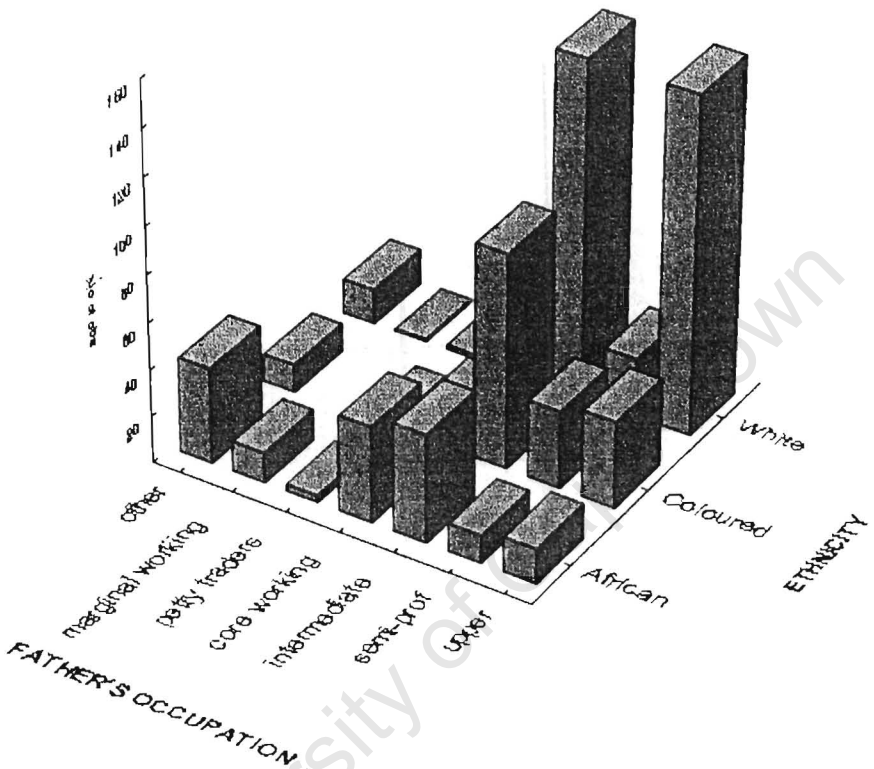


Table 12 Frequency distribution for occupational classifications by ethnic group

Occupational classifications	African	Coloured	White	Total
Upper class	15	37	143	195
Semi-professional class	12	33	25	70
Intermediate class	46	91	143	280
Core working class	41	17	10	68
Petty traders	3	5	2	10
Marginal working class	13	0	1	14
other	41	12	15	68
Total	171	195	339	705

3.4.6 Comparison of EAT-26 and BITE scores within each socio-economic category

Mean scores on the EAT-26 and the BITE for each socio-economic category was calculated. Results are reflected in Table 18 below.

Table 13 Means and standard deviation on the EAT-26 and the BITE for each socio-economic category

		EAT-26		BITE	
SES	N	Mean	Std dev	Mean	Std dev
upper class	195	9.96	8.94	9.01	7.7
semi-professional class	70	8.84	8.21	9.06	6.67
intermediate class	280	10.11	10.24	10.88	7.95
core working class	68	12.43	8.31	14.69	8.07
petty traders	10	12	11.44	10	6.13
marginal working class	14	14.64	7.73	17.86	5.4
other	68	13.44	9.81	14.74	9.53
All Groups	705	10.61	9.52	11.05	8.17

An analysis of variance reveals that the mean scores obtained on the EAT-26 were significantly different between the various socio-economic groups [$F(6,698) = 2.58$; $p = 0.0175$]. Post hoc analysis reveals that the mean EAT-26 scores for the marginal working class (14.64) and core working class (12.43) are significantly higher than the mean EAT-26 score for the semi-professional class (8.84) (See Table13 above) [$F(2,149) = 4.8166$, $p = 0.0940$].

Similarly, on the BITE, analyses showed significant differences in the mean scores obtained within the socio-economic groups [$F(6,698) = 9.61$; $p = 0.0000$]. Further analyses revealed that the mean BITE score in the marginal working class (17.86) is significantly higher than mean BITE scores obtained in the upper class, semi-professional

class, intermediate class and petty traders [F(4,564) = 5.65, p = 0.00018] (See Table 13 above).

In Table 14 below the mean scores for high EAT-26 scorers in each socio-economic category are reflected. Most high EAT-26 scorers fell in the upper class category (27.7%) and intermediate class category (36.1%). Further analyses revealed no significant differences for high EAT-26 scorers in each socio-economic category [F(6,112) = 1.30, p = 0.26271].

Table 14 Means and standard deviations for high EAT-26 scorers for each socio-economic group

SES	N	Mean	standard deviation
upper class	33	25.94	5.62
semi-professional class	8	26.75	4.27
intermediate class	43	29.40	10.38
core working class	14	24.93	5.50
petty traders	2	30.00	11.31
marginal working class	5	22.80	2.49
other	14	28.71	6.78
All Groups	119	27.39	7.85

Fifty eight percent of the high scores on the BITE fell in the upper class and intermediate categories. Mean scores are reflected in Table 15 below. One-way analysis of variance reveals no significant differences amongst high BITE scorers within each socio-economic category [F (5, 51) = 0.704, p = 0.62313].

Table 15 Means and standard deviations for high BITE scorers within each socio-economic category

SES	N	Mean	standard deviation
upper class	16	28.69	2.63
semi-professional class	3	29.33	5.86
intermediate class	17	31.76	7.01
core working class	6	29.50	4.59
marginal working class	1	27.00	0.00
other	14	29.64	4.77
All Groups	57	29.93	5.10

3.4.7 Rosenberg Self-Esteem scores, EAT-26 scores and BITE scores

The overall mean obtained on the Rosenberg Self-Esteem Scale (RSE) was 29.39 with a standard deviation of 5.32. Main effects for both gender [F(1,809) = 86.549; p = 0.0000] and ethnicity [F(2,809) = 8.2576; p = 0.00028] were obtained. Males obtained a significantly higher mean (31.34) than females on the RSE. In addition, no significant differences were found between the mean RSE scores for Coloured and White learners, but they scored significantly higher than African learners on this measure. Significant interaction effects for gender and ethnicity was found [F(2,807) = 20.263, p = 0.00000]. No significant differences were found between the mean RSE scores for females in each of the ethnic categories [F(2,471) = 1.6904; p = 1.8556]. Table 16 below reflects the means and standard deviations on the Rosenberg Self-Esteem Scale.

Table 16 Means and standard deviations on the Rosenberg Self-Esteem Scale

		Means	standard deviation
Ethnicity			
	African	28.25	4.66
	Coloured	30.12	5.18
	White	29.67	5.68
Male		31.34	5.26
	African	28.25	4.76
	Coloured	32.00	4.65
	White	32.92	5.14
Female		28.00	4.91
	African	28.24	4.60
	Coloured	28.51	5.09
	White	27.56	4.98

Findings revealed a significant difference in the mean scores obtained on the Rosenberg Self-Esteem Scale between low, medium and high EAT-26 scorers [$F(2,810) = 86.264$; $p = 0.0000$]. The mean scores on the Rosenberg Self-Esteem Scale for the low risk group (31.20) and the medium risk group (27.87) were significantly higher than the mean RSE scores for the high risk group (25.60).

Similarly, significant differences were observed between the mean RSE scores for high scorers on the BITE and mean RSE scores for scores below the cut off point on the BITE. A t-test revealed that the mean RSE scores for scores below the cut off point on the BITE (29.85) were significantly higher than the mean RSE scores for scores at or above 25 on the BITE (24.55) ($t = 8.36$; $df = 811$; $p = 0.00000$).

3.4.8 Media exposure

As mentioned previously, scores on the composite measure, media exposure, ranges from zero, representing a low media exposure to six, representing a high media exposure. 78% in the sample scored between 4 and 6 on this measure, suggesting a fairly high level of media exposure for the sample. An ethnic breakdown of this group shows that 26.5% indicated their ethnicity as African, 28.2% indicated their ethnicity as Coloured and 45.4% indicated their ethnicity as White. Mean EAT-26 and BITE scores are provided in Table 17 below for each of the levels of media exposure.

Table 17 Media exposure and means for EAT-26 and the BITE scores

Media exposure		EAT-26		BITE	
total	N	Mean	Std dev	Mean	Std dev
0	1	7.00	---	24.00	---
1	10	19.60	8.50	23.40	9.97
2	34	10.03	8.87	9.29	8.49
3	133	10.09	9.23	10.98	8.03
4	427	10.84	9.97	11.47	8.35
5	193	10.49	8.42	11.78	8.00
6	15	9.20	9.83	9.93	6.87

Analysis of variance reveals no significant differences in the mean EAT-26 scores between the 6 categories of media exposure [$F(6,806) = 1.7223$; $p = 0.11281$]. However, significant differences were found in the mean BITE score between the 6 media exposure categories [$F(6,806) = 4.5084$; $p = 0.00017$].

3.4.9 Participation in a modern/western lifestyle

Scores on this measure range between zero and nine. Table 18 below reflects that 67% in the sample scored between 6 and 9, suggesting a fairly high level of participation in a modern lifestyle. An ethnic breakdown of this group shows that only 6.6% of African

learners, 34.4% of Coloured learners and 60% of White learners scored between 6 and 9 as expected.

Table 18 Frequency distribution of participation in a western/modern lifestyle scores

Score	Count	Percent
0	3	0.37
1	14	1.72
2	36	4.43
3	62	7.63
4	83	10:21
5	69	8.49
6	147	18.08
7	110	13.53
8	268	32.96
9	21	2.58
Missing	0	0.00

3.4.10 Predictor variables for EAT-26 and BITE scores

A Pearson's r was calculated for each of the predictor variables in Table 19 below in order to examine their relationship with each of the two eating disorder indices. A significant inverse relationship was found between RSE scores and scores obtained on the EAT-26 (r =-0.42) and the BITE (r =-0.47). In addition, multiple regression analysis were conducted to establish which of the variables would best predict the scores obtained on the EAT-26 and the BITE. Table 19 below presents b values for each of the predictor variables.

Table 19 Beta values for predictor variables of EAT-26 and BITE scores

	Gender	Ethnicity	SES	Rosenberg Self-Esteem Scale	Media exposure	Western lifestyle
EAT -26	*0.222	-0.06	0.05	*-0.34	-0.01	-0.05
BITE	*0.136	*-0.23	*0.09	*-0.4	0.036	-0.01

The above Table 19 shows that scores on the Rosenberg Self-Esteem Scale is the strongest predictor (b = -0.34 and b = -40) for the scores obtained on both the EAT-26 and the BITE respectively.

3.4.11 Variation of EAT-26 scores and BITE scores by school location

Mean scores and standard deviations on the EAT-26 and the BITE were calculated for each of the 5 participating schools. The results are reflected in Table 21 below.

Table 21 Means and standard deviations on the EAT-26 and the BITE for each school

School	N	EAT-26		BITE	
		Mean	Std dev	Mean	Std dev
S1	106	7.92	6.97	9.99	6.51
S2	370	10.00	9.89	9.48	7.79
S3	82	18.61	8.51	20.83	8.17
S4	144	8.80	9.12	9.38	7.65
S5	111	12.12	7.90	15.59	6.21
All Groups	813	10.67	9.46	11.51	8.32

One-way analysis of variance indicated significant differences between the mean scores obtained on the EAT-26 for the various schools [F(4,808) = 21.101; p = 0.00000]. Post-hoc analysis shows that the mean score for School 3 (a historically African school) on the EAT-26 was significantly higher than the mean score for the other 4 schools. Similarly, analysis of the BITE scores reveal that School 3 scored significantly higher than the other

4 schools [F(4,808) = 51.384; p = 0.0000]. The results are graphically presented in Figures 10 and 11 below.

FIG 10 ANOVA of EAT-26 scores for each school
Current effect: F(4, 808)=21.101, p=.00000
Effective hypothesis decomposition
Vertical bars denote 0.95 confidence intervals

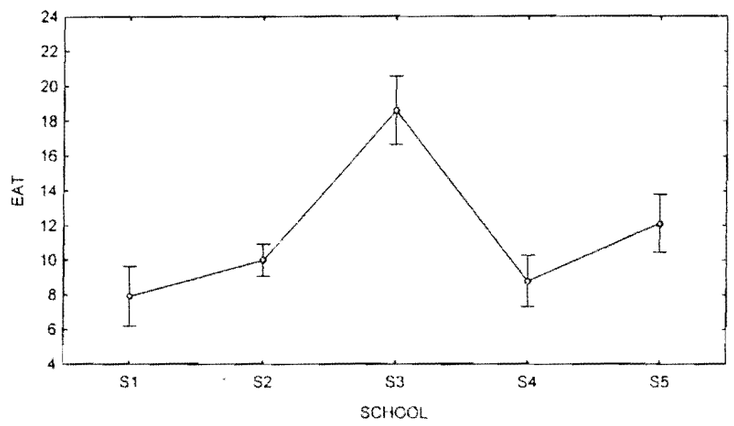
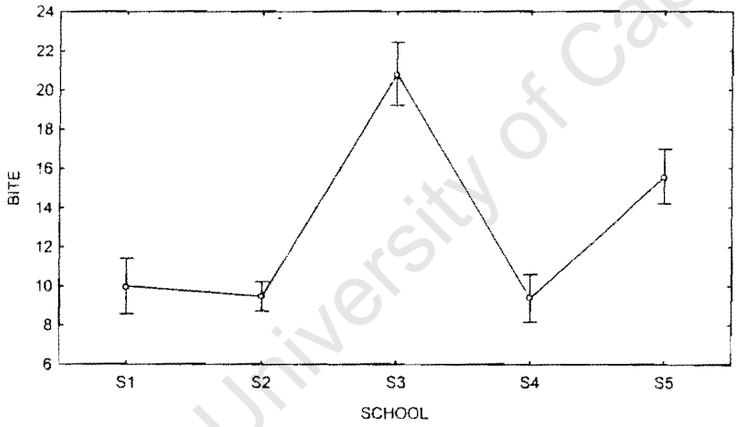


FIG 11 ANOVA of means for BITE scores of each school
Current effect: F(4, 808)=51.384, p=0.0000
Effective hypothesis decomposition
Vertical bars denote 0.95 confidence intervals



3.4.12 Language

As mentioned previously in Chapter 2, the three most common languages spoken in this sample was Afrikaans, English and Xhosa. Analysis shows an overall strong positive correlation between the respondents' home language and the language they speak to friends (r=0.74). For each of the three ethnic groups, the correlation between home language and the language spoken to friends is as follows: African (r= 0.23); Coloured (r=0.48) and White (r= 0.63). Learners were asked to indicate how easy or difficult the questionnaires was to complete on a 4-point Likert type scale ranging from 1 = very difficult to 4 = very easy. Results are reflected in Table 22.

Table 22 Frequency distribution for language ratings

	Count	Cumulative count	Percent	Cumulative percent
very difficult	20	20	2.46	2.46
difficult	128	148	15.74	18.20
easy	439	587	54.00	72.20
very easy	177	764	21.77	93.97
Missing	49	813	6.03	100.00

Approximately 75% in the sample thought the questionnaires were easy or very easy to complete. Findings show that 52.7% of the African sub-sample, 18.2% of the Coloured sub-sample and 29.1% of the White sub-sample, rated the questionnaires as difficult or very difficult to complete.

CHAPTER 4

SUMMARY

4.1 Introduction

This study primarily examined unhealthy eating behaviours amongst a diverse group of high school students. Eating behaviours were examined in relation to factors such as gender, ethnicity and socio-economic status, all of which is thought to play a facilitating role in the development of eating disorders. This section provides a summary of the findings that were presented in Chapter 3. Findings of the current study are compared with, and discussed in relation to findings from previous empirical studies. The final section discusses some of the strengths and methodological limitations of the current study, as well as recommendations for future research.

4.2 Summary of findings

As mentioned previously, there is a distinction between the clinical eating disorders as described in the DSM IV (APA, 1994) and abnormal eating behaviours as measured by scores obtained on the Eating Attitudes Test (EAT-26) and the Bulimic Investigatory Test, Edinburgh (BITE) (See Chapter 1). Both the EAT-26 and the BITE have previously been validated in cross-cultural samples and are widely used instruments in the screening for abnormal eating behaviours in non-clinical samples. Both indices were used in the current study to assess to what extent unhealthy eating practices exists amongst high school students in the Western Cape.

4.2.1 Prevalence of abnormal eating attitudes and behaviours

Recently there has been an increasing interest in the prevalence and incidence of abnormal eating behaviours amongst adolescents. According to several reports the age of onset of eating disorders are decreasing (Hodes, 1995). In a recent South African study with anorexic patients for example, it was found that 34.6% in the sample was less than 15 years old (Gabriel, 1999). Previous studies have already reported unhealthy eating

behaviours amongst children as young as 8 years of age (Maloney et al., 1989). The youngest learner in the current study to score in the high risk group on both the EAT-26 and the BITE was 15 years old. This finding is a cause for concern in as much that it suggests a decrease in the age for unhealthy eating behaviours amongst South African youth.

Findings of the current study revealed a significant amount of disordered eating, with approximately 17% and 8.5% in the sample scoring in the clinical range on the EAT-26 and the BITE respectively. Previous studies amongst adolescents have reported rates on the EAT-26 to range between 19% (Caradas et al., 2001) and 27% (Jones, et al., 2000). Prevalence rates on the BITE for the current study was slightly higher compared to 5% reported in the le Grange et al. (1998) study and 0.4% reported by Bhugra et al (2000) amongst Indian college students. High scores on the BITE may include possible sub-clinical cases of bulimia nervosa (le Grange et al., 1998). Amongst university samples, Sheward (1994) and Senekal et al. (2001) found comparably lower prevalence rates.

An expected finding, consistent with literature, was the skewed gender distribution of the scores on the eating disorder indices. More than 80% of the high scorers on the EAT-26 and 73% of the high scorers on the BITE were female. Prevalence rates of bulimia nervosa in the current study were higher amongst females (3.9%) than for males (1.5%). Comparative findings were obtained amongst boys (0.6%) and girls (2.9%) in Australia (Ricciardelli et al., 1996). Whilst findings in the current study support the notion that eating pathology is more likely to occur amongst females, the findings should be interpreted with caution as previous reports have indicated changes in prevalence rates for males (Kinzl et al., 1997).

A higher rate of unhealthy eating behaviours was obtained amongst African learners, particularly African females, than was initially anticipated. According to several authors, lower rates of incidence and prevalence are usually reported amongst non-western groups (Famuyiwa, 1988; Dolan, 1991; Abrahams et al., 1993). However, findings of the current

study revealed that 19% of African females and 15.5% of White females scored in the high risk range for disordered eating on the EAT-26. Equally disturbing was the fact that 7.4% of African males scored in this range compared to males in the other two ethnic categories. These findings were similar to that obtained by Sheward (1994) which she suggests might be linked to increased exposure to western images of thinness. Several authors have argued that findings such as the above may represent a rejection of traditional cultural norms of plumpness amongst Africans, in favour of the thinner, western ideal (Sheward, 1994; Senekal, 2001), a similar process that acculturating ethnic minorities in developed countries experience (Tsai, 2000). South Africa can be described as a country that is undergoing rapid social, political and economic changes, with its citizens increasingly competing in the global market. Senekal et al. (2001) for example demonstrated a substantial amount of eating pathology amongst urban Black South Africans. According to them, urbanisation may play a role in the development of eating disorders.

The findings of the current study suggest that the scores obtained on the eating disorder indices amongst African learners should be treated with extreme caution. In fact, it could be argued that interpretations of the findings along the lines suggested above should be rejected. It has been argued by Swartz (2001) that thinness amongst Africans could be seen as evidence of a lack of food/security rather than eating pathology. Whilst eating disorders have been traditionally associated with individuals of middle to upper class origin (Gard & Freeman, 1996), higher prevalence rates were obtained for the two historically African schools (42.7% and 18.9% respectively) in township areas, compared to the other three schools in more urban areas. Most of the learners in the upper and semi-professional classes (85.5%) were Coloured and White and a similar pattern in prevalence rates emerged from this data. A higher prevalence rate (20.5%) was found for learners in the core working class category, compared to 16.9% for those in the upper class category.

4.2.2 Mean scores on the EAT-26 and the BITE

In the current study, a mean EAT-26 score of 10.67 was obtained which was well below the cut off point of 20 but fell in the medium risk range for disordered eating. Compared to previous studies amongst high school students, the overall mean in the current study was relatively lower. Caradas et al. (2000) and Nobakhi and Dezhkam (2001) for example reported mean EAT-26 scores of 12.2 and 14.4 respectively for their studies amongst high school students.

The mean score for females on the EAT-26 and the BITE was significantly higher than the mean score obtained by males, suggesting a greater risk of disordered eating amongst females. In the current study, mean EAT-26 scores of 13.16 and 7.19 were obtained for females and males respectively, which is comparably lower than that obtained by Sheward (1994) amongst university students in the Western Cape. However, mean scores on the BITE for males and females compares with findings by Ricciardelli et al (1999) who in their sample of 12-17 year olds obtained scores of 9.86 for females and 7.66 for males. Higher mean scores on both eating disorder indices amongst females for the current study, however is in line with the higher prevalence rates obtained for these measures. It has been argued that females may still to a greater extent internalise norms of thinness than males (Szabo, 1998), which may account for this gender disparity.

Unlike findings by Caradas et al. (2000) who found no ethnic differences amongst school going adolescents in EAT-26 scores, the current study revealed significantly higher EAT-26 scores for African learners compared to Coloured and White learners. The mean score for African, Coloured and White learners on the EAT-26 was 14.29, 7.44 and 10.35 respectively; again a finding that is consistent with the higher prevalence rate obtained for African learners on this measure. African females scored the highest out of all the subgroups, which is a similar finding from recent studies amongst university students (Sheward, 1994; le Grange et al., 1998). However, no ethnic differences were found amongst high scorers in the current study on the EAT-26. As mentioned earlier, these findings too should be interpreted with caution.

A similar pattern was obtained for the scores on the BITE. African learners scored significantly higher (mean = 17.05) compared to Coloured and White learners on this measure. A similar finding was reported by Sheward (1994) who found that African students scored higher on this BITE than students in the other ethnic categories. Although prevalence rates on the BITE for high scoring African learners were substantially higher than for learners in the other ethnic categories, no significant differences were found in the mean scores between these groups.

A comparison between EAT-26 scores for learners in the respective socio-economic categories revealed that those in the upper class and semi-professional class categories scored significantly lower on the EAT-26 than those in the intermediate class, core working class, petty traders and marginal working class. Furthermore, a significant positive correlation ($r = 0.23$) was found between socio-economic status and the school the learners attended. Out of the 5 schools that were surveyed, one school (a historically African school) scored consistently higher on both eating disorder indices. The findings revealed that School 3 and School 5 (both situated in an African townships) obtained the highest mean EAT-26 scores of 18.61 and 12.12 respectively, compared to the mean EAT -26 scores for the schools situated in more urbanised areas. Similarly on the BITE, School 3 and School 5 obtained the highest mean scores compared to the other three schools. These findings are contrary to the findings by Senekal et al. (2001) who have demonstrated higher rates of disordered eating amongst more urbanised Black South Africans in their sample. Again, as argued earlier, this finding may be an artefact of poverty rather than of eating disorders.

Much of the literature on abnormal eating behaviours argues that individuals with a low self-esteem are more likely to develop an eating disorder (Abrahams et al., 1993). In the current sample, a multiple regression analysis revealed that scores on the Rosenberg Self-Esteem Scale was the best predictor for the scores obtained on the eating disorder measures. Beta values of -0.34 and -0.40 were obtained for the EAT-26 and the BITE respectively, demonstrating a significant inverse relationship between self-esteem and

scores on these measures. Similar to findings by Button et al. (1998) who found no significant differences in the mean RSE scores between Caucasian, Asian and Black British females, the current study found no significant differences between females in each ethnic group. However, Coloured and White students scored significantly higher on the RSE than African students.

4.3 Strengths and limitations of the study

The five schools that were selected were conveniently chosen to ensure a fair representation of learners in terms of gender, ethnicity, geographical location and socio-economic groups. This is described in Shipman (1992) as purposive samples in which quotas are filled. According to the author, this type of sampling provides a reliable basis for generalisation and secondly, a large amount of data is collected which provides a basis for more rigorous statistical calculations.

Secondly, a large number of participants were surveyed in a short period of time, making data collection less time consuming and relatively inexpensive. Thirdly, findings from a study such as this one may hold important implications for diagnosis, prevention and treatment strategies (Lonner & Malpass, 1994). A study such as this one allows one to empirically explore a range of variables, which may hold important theoretical implications.

This study however also has several key limitations. The EAT-26 has been previously validated amongst a group of Black South African students (Senekal et al., 2001) as well as in the current study. Careful inspection of the questionnaires revealed that the findings should be interpreted with caution because of the following. The survey was conducted in English because it was assumed that all the learners would be sufficiently versed in the English language. However, it was found that some learners (particularly those whose mother tongue is not English), did not answer basic demographic questions correctly. If learners did not understand what they were asked on the questionnaires, it would have had an impact on the data. In a follow up study by Breen (2001) who interviewed 5

African Xhosa speaking learners who scored high on the EAT-26 in the current study, it was found that some of the respondents' answers varied from their answers given during the questionnaire phase. For example, excessive vomiting behaviours are characteristic of individuals with bulimia nervosa. However, such extreme behaviours according to Breen (2001) held differing meanings for the learners that participated in the follow up interviews. These behaviours which are traditionally associated with weight loss in bulimics were associated with a cultural cleansing practice according to Breen (2001). A greater number of follow up interviews, followed by a more in-depth qualitative analysis of the interviews could possibly add to the existing knowledge. In addition, future studies could examine whether there would be differences in the way urban African learners and African learners in township areas respond to the eating disorder indices.

The validity of this study may also have been compromised in the way some of the demographic variables were operationalised and measured. For example socio-economic status was assessed using only the father's (or male figure's) occupation as a measure of SES and not the mother's (female figure's). Considering that contemporary females are increasingly occupying active roles in the workplace, this measure might be biased and not be a true reflection of the SES in the sample.

The current study relied heavily on a number of self-reported information. For example, in the calculation of BMI, learners were asked to report on their heights and weights, which may have been an inaccurate reflection of their 'true' heights and weights at the time of the survey.

Swartz (2001) has questioned whether the EAT-26 has the same predictive value in South Africa as in other countries. While it is recognised that research should be culturally informed, Swartz calls for context specific methods and instruments which may assist in the detection of disorders such as eating disorders, which are thought to be on the increase in non-Caucasian communities (le Grange et al., 1998).

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