

**INVESTIGATION INTO THE RELATIONSHIP BETWEEN
DISTURBED EATING PATTERNS AND PRESSURE TO
ACHIEVE IN FEMALE STUDENTS**

BY

ANN COLBORN

UNIVERSITY OF CAPE TOWN

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ABSTRACT

The aetiology of eating disorders has been described by experts as being multidetermined. Of particular interest has been the apparent increase in incidence of these disorders over the past decade. It has been hypothesised that the sociocultural pressure on women living in Western cultural environments to maintain a low body weight had contributed to this increase. This study explored the hypothesis that young females under pressure to be thin because of professional expectations would display a high prevalence of abnormal eating attitudes. Further, that young women, who are under pressure to achieve and be successful would possibly also constitute a vulnerable population.

In order to examine these aetiological variables, three independent groups of students were studied. Social Science Students (n=42); Medical Students (n=40) and Dance Students (n=34) were chosen as they represented respectively: a group who were not under specific pressure to be thin or maintain a high standard of achievement; a group who are under constant stress to excel; and finally a group who are under pressure to be very thin because of professional requirements.

Statistical analysis revealed little difference in terms of the results of the three groups, except that the Medical Students and the Dance Students had similar results in respect of abnormal attitudes to eating, and they both indicated raised levels of achievement expectations. The Dance Students displayed a greater degree of negative feelings about their bodies than the other two groups. All three groups reported a similar prevalence of

dissatisfaction about their weight, and were dieting despite having a body mass index within the normal range.

The data suggested that although most of the subjects in this study were influenced by the Western sociocultural pressure to have a thin body, the Dance Students and the Medical Students appeared to be more vulnerable than the Social Science Students to the possible development of eating disorders.

CHAPTER 1

SUMMARY OF CONTENTS

In this study, an attempt was made to show that young females who are exposed to professional demands to be thin are vulnerable to developing eating disorders. It was hypothesised that exceptional achievement expectation might also have an important influence on the development of an eating disorder.

Chapter 2 discusses the literature, with specific emphasis on those studies that explore Western sociocultural values of women's body weight and shape. Studies that examine non-clinical samples of high school and university students indicate a high incidence of negative body perceptions and excessive dieting practices. Studies which focus on ballet dancers, as a particularly susceptible group to abnormal dieting behaviour are considered. Several authors have shown that the professional demands for an aesthetically thin body results in ballet dancers forming a subgroup of low-weight young females who are at high risk for developing eating disorder. Studies that examine the stress of medical school in the training of female doctors have also shown a high prevalence of eating disorders. It has been suggested that eating problems arise as a coping mechanism; also, that certain young females experience a sense of loneliness and loss of identity whilst studying medicine. It is suggested that focusing on dieting may be a way of gaining control and developing a feeling of being worthwhile.

In Chapter 3, the methods employed in this study are discussed. This chapter includes the aims of the study; the subjects; and the instruments used to gather the data. Statistics to be used are briefly outlined.

Chapter 4 presents the results of this study. Demographic data and descriptive statistics describe the characteristics and results of the three groups. Multiple correlation, one-way analysis of variance and Chi-squared tests are then applied to the data and the results reported.

Chapter 5 discusses each group in respect of their results and comparisons made with previous studies. The three groups are compared, similarities and differences highlighted, and finally, a subgroup who attained scores indicative of abnormal eating attitudes and behaviour are examined. Conclusions are drawn from the study, limitations described and suggestions for further research made.

CHAPTER 2

LITERATURE BACKGROUND

2.1 INTRODUCTION

Anorexia Nervosa (AN) and Bulimia Nervosa (BN) are potentially life threatening eating disorders that have aroused the interest of clinicians, researchers, feminists, historians and anthropologists. Aspects of the modern syndrome of AN are recorded as early as the 1600's by European physicians. This disorder was first established as a clinical entity in the late nineteenth century by Charles Lasegue, a French psychiatrist, who described a new disorder, *'anorexie hysterique*, in a paper published in Paris in 1873 (Brumberg, 1988). Shortly after this publication, London physician, Sir William Gull described to the London Clinical Society "a peculiar form of disease - aepsia hysterica". He subsequently changed its name to *anorexia nervosa*. By the turn of the century, AN had been well established as a mental illness (Brumberg, 1988). Since the earliest descriptions of AN by Lasegue and Gull, it has been consistently noted that AN appears to mostly afflict adolescent females from Western middle-class families. AN is characterised by rigid discipline of eating and a preoccupation with food and cooking, a relentless pursuit of thinness, the fear of being fat even when emaciated, and the absence of menstrual cycles. Although considered a rare disorder at one time, over the past thirty years, and particularly since the late 1970's, this disorder appears to have become more common (Bruch, 1978).

Also since the late 1970's, there has been an increasing awareness of what has been called the "binge-eating syndrome" or BN (Russell, 1979: Halmi,

1981). This eating disorder is characterised by recurrent episodes of binge eating accompanied by feelings of lack of control over eating. A binge is often followed by self induced vomiting, excessive use of laxatives or diuretics, strict dieting, fasting or vigorous exercise to prevent weight gain; and over concern with body shape and weight. Bruch (1985) stated that the patients she treated with BN bore little resemblance to patients with clinically diagnosed AN in that they appeared to lack the discipline and control of the anorectic. They also appeared to see themselves as helpless victims in the grip of an irresistible compulsion to binge. Halmi et al. (1981) reported that binge-eating and vomiting behaviour occurred in normal and overweight people and has become a recognised problem with teenage and young adult populations. Halmi et al. (1981) found that 19% of the female university population that they studied were experiencing clinically identifiable symptoms of BN. Both AN and BN can lead to serious physical problems related to both starvation and the side-effects of purging. Follow-up studies have reported mortality rates of 6-15% (Nash and Colborn, 1994; Ratnasuriya, 1991; and Theander, 1985).

The rising incidence of eating disorders and their potential fatal outcome are cause for alarm. Many theories have been developed in an effort to understand the aetiology of eating disorders. Hsu (1983) explored six main theories: social-cultural, family pathology, individual psychodynamic, developmental psychobiological, primary hypothalamic dysfunction and the relationship between eating disorders and affective disorders. Hsu concluded that, although it might be possible that there was a single cause, it was equally possible that "complex chains of events interact to precipitate

the illness" (p.235). It is now commonly accepted that eating disorders appear to be aetiologically multidetermined (Garfinkel and Garner, 1982).

2.2 SOCIOCULTURAL PRESSURE FOR THINNESS

As has already been stated, eating disorders have been shown to affect mainly middle-class adolescent females living in Western cultures (Bruch, 1978). Modern Western standards of female attractiveness seem to revolve around what has become a relentless pressure on women to be slim. Many authors (Banks, 1992, Bruch, 1978, DiNicola, 1990, Garner and Garfinkel, 1980, Hsu 1983, Orbach, 1993, Palazzoli, 1974) have postulated that this sociocultural pressure, and the insecurity it instils in many young women as to their acceptability, was one of the major factors in the aetiology of eating disorders such as AN and BN. Sours (1980) further indicated that in more affluent countries, hunger was no longer feared: "now abundance and overeating are the dangers" (p281).

Over the centuries food has acquired social and religious meanings for different cultures. In her book *Fasting Girls* (1988), Joan Brumberg related how earliest records indicated that in the Middle Ages, self-starvation, i.e. fasting was as act of religious piety. Women who indulged in self-starvation during this era were often elevated to sainthood. A young woman would undertake lengthy fasts in her striving for perfection in the eyes of her God. This theme of the striving for perfection is mirrored in the modern young woman's eating behaviour. The perfection she sought today, according to Brumberg, was that of a social rather than a spiritual ideal. This was confirmed by studies of high school and university students where

approximately one-half to two thirds of those studied reported being dissatisfied with their weight, and one-quarter to one-third were fasting or dieting, many exhibiting abnormal eating attitudes and behaviour (Crisp et al., 1976; Fisher et al. 1991). Garner and Garfinkel, (1979) found a prevalence of 4-8% of adolescent schoolgirls who could possibly be diagnosed as having a clinically identifiable eating disorder and a further 5-10% having subclinical eating difficulties. Grant and Fodor (1986) found that self-esteem in adolescent females was related to their attitudes about physical attractiveness, which in turn, was often equated with thinness; this was a major factor in the prediction of anorexic behaviours. In a recent study, Fisher et al. (1991) confirmed these earlier findings and also found that in their sample of young females, abnormal eating attitudes correlated with low self-esteem and high anxiety.

The literature appeared to indicate that the apparent recent increase in eating disorders may, to a certain extent, have been due to modern socially and culturally dictated ideals of the so-called "perfect" female body shape. In all societies body weight and size have acquired different meanings (Garner et al., 1980). Furnham and Alibhai (1983) discussed the finding that in less affluent countries, there existed a positive correlation between body weight and socio-economic status. This correlation demonstrated that with an increase in living standards, there was an increase in mean body weight. Their study showed that their Kenyan Asian female subjects who lived in Kenya, viewed a heavier body shape more positively than a thin body shape. However Kenyan Asian women living in Britain were more comparable to a British group in their body size preferences, i.e. a thinner body shape, suggesting that there was an impact on original cultural norms.

Another study by Dolan et al. (1990), examined British women from three different ethnic groups, Caucasian, Asian and Afro-Caribbean, in terms of attitudes to weight and shape. They found that all three groups, regardless of ethnic background, showed abnormal eating attitudes and body shape concerns. This study supported the theory that women from other cultures, when exposed to Western sociocultural influences, adopted that culture's ideals of body shape and attractiveness.

It would appear that the Western female has found herself situated within a cultural and social milieu which has constructed, through the process of socialisation, via family, peer and media pressure, an image of how she should look. Garner et al. (1980) found that there had been a significant fall in weight of the "ideal" woman, especially in the size of hips and thighs. The so-called perfect body shape was more androgynous than the curvaceous figure of the 1950's. Garner et al.'s study focused upon the changing image of Playboy centrefolds and Miss America Pageants between the years of 1959-1978, and reflected an essentially male perspective of the ideal female shape. However, these values have been carried over into the world of women's magazines as well as the mass exposure on film and television that women encounter daily. Women are confronted constantly by slender, pubescent-looking models and actresses promoting everything from clothes to successful careers and love relationships. Morris et al.'s (1989) study of the statistics of London-based fashion models over the last two decades confirmed this trend towards extreme slenderness. In a recent study Wiseman et al. (1992) re-examined the body measurements of Playboy centrefold models and contestants of the Miss America Pageant between 1979-1988, and their results suggested that the cultural ideal for women's

body size had remained thin, with there being some indication that ideal body weight had stabilised at 13-19% below expected weight for age and height. It was hypothesised that the current levelling off may have been due to the fact that it would be almost impossible to decrease body weight further without it falling into ranges that were clinically dangerous.

The above studies seemed to confirm that Westernised culture values thinness in women as a feature of attractiveness, and concern over this particular aspect of self-esteem was one that spanned the lifetime of most women. In their recent study, Pliner, Chaiken and Flett (1990) demonstrated that self-esteem linked to perceived physical attractiveness was far more prevalent in females. As discussed by Davies and Furnam (1986), adolescent females had a greater dissatisfaction with their body image than did adolescent males. A recent paper by Ussery and Prentice-Dunn (1992) found that the proportion of females and males that wanted to lose weight was similar. However, males seemed to be more successful with diet plans, set more realistic weight goals and appeared to have a less distorted self-image. Pliner, Chaiken and Flett (1990) reported that the "thinness is attractive" equation was more true for women than men, and stated further that attractiveness in itself was more important for women. It appeared that the actual standards set for female attractiveness, often by the media, were much higher than those for males. Therefore, there seemed to be a stronger relationship between self-esteem and physical attractiveness amongst young women, than young men.

2.3 SOCIOCULTURAL PRESSURE TO ACHIEVE

A further cultural pressure on young women in recent years was that of academic and vocational achievement. For some, this may represent added demands on the young woman in terms of maintaining traditional standards of attractiveness as well as taking up heightened pressures for professional performance and success. Bruch (1978) and Palazzoli (1974) both identified that in certain young women, striving for excellence of performance may have been a method of hiding a fear of failure and a basic sense of incompetence. Palazzoli (1974) suggested that the struggle that such young women often face was in response to the fact that women now competed with men in business and the professions; somehow, women must have a successful career and yet still retain their female tenderness.

These social and cultural pressures and conflicts potentially aggravate inner conflicts concerning female identity and self-esteem. As has been shown in the above studies, success and beauty in the female are frequently equated with a cultural stereotype of slimness, and women have to conform to a relatively narrow range of body size and shape if they are to appear "ideal". This pursuit of thinness can result in an obsession with dieting, which can, in certain vulnerable individuals, result in the manifestation of an eating disorder. Perhaps, as suggested by Orbach (1993), that for the young woman, struggling with her "psychic insecurity", dieting and weight control offered an antidote to her named and unnamed problems. Garfinkel and Garner (1982) also made reference to the "pressure for thinness" and "performance expectations" as being important cultural components influencing disordered eating in young women. However, this suggestion

that social expectations of achievement may be an important factor in the aetiology of eating disorders needs further clarification.

Studies that have examined groups representative of the general population of young females in terms of sociocultural pressure to be thin, have been discussed. The literature has identified other subgroups of females who appeared to display a high prevalence of eating disorders. Two separate groups of young females, who are representative of these above-mentioned subgroups, will therefore be examined.

2.4 GROUP AT RISK - DANCERS

DiNicola (1990) proposed that young women who relied on their appearance, or physical performance, or whose professional activity revolved around issues of food, were at risk for having eating problems. A group that have been extensively studied in terms of vulnerability to eating disorders, were ballet dancers (Braisted, et al., 1985; Garner and Garfinkel, 1980; Hamilton et al., 1985; le Grange et al., 1994; Maloney, 1983; Szmukler et al., 1985; and Weeda-Mannak and Drop, 1985).

Ballet dancing is both an athletic as well as an aesthetic art form where the physical demands are said to be equal to or greater than those in the major sports (Calabrese et al. 1983). Apart from the athletic demands of ballet, teachers and art directors demand that dancers maintain a very low body weight. This demand is often enforced, sometimes by public humiliation of a young dancer who is perceived to be overweight. Calabrese et. al. (1983) suggested that the ballet dancer's desire for thinness was an appropriate

response to the demands of her profession. It was only when this desire for ultraleaness did not fluctuate during off-seasons and holidays, that a dancer may be considered at risk for a pathological eating disorder. This study illustrated how ballet dancers' dieting behaviour was often based on stringent dietary restriction which often involved self-destructive forms of weight control, ie. self-induced vomiting and abuse of diuretics and laxatives. Maloney (1973) pointed out that it was quite difficult to recognise the difference between the normal dieting of a thin perfectionistic ballet dancer and a dancer with a potentially serious eating disorder. Maloney advocated close scrutiny of such factors as a distorted perception of body image, fear of gaining weight, and the desire to loose further weight even though emaciated, as being indicative of possible pathological dietary practices.

Menstrual dysfunction, although common in ballet dancers need not necessarily indicate an eating disorder but may be an early warning sign. Menstrual abnormalities, according to Rippon et.al. (1988) seemed to be influenced by nutritional factors and subclinical anorexia rather than body mass and physical activity. They link their high incidence of menstrual dysfunction, in a sample of lean females (which included ballet dancers) to poor nutritional habits and pathogenic weight-control behaviour.

The dancer suffering from BN is often more difficult to detect. Often there is no history of excessive weight loss or amenorrhea, and because of the shame associated with this disorder, information about the symptoms is frequently withheld. It would appear crucial that early detection and treatment of a dancer with an eating disorder can save her career, although Maloney (1973) did point out that many professional dancers did not receive

professional help despite the potential physiological and physical health risks.

Szmukler et al. (1985) studied a group of young ballet students at a ballet school that combined both academic and intensive dance tuition. They reported a prevalence of 8% of their subjects as having AN. However, they were cautious about claiming true "caseness" as the identified symptoms were common in their population who were also functioning well socially and physically. Therefore this study, in agreement with Calabrese et al. (1983), cautioned against diagnosing a full-blown eating disorder in a population where thinness was a professional requirement. From their study, Szmukler et al. (1985) found that it was very unusual for a young dancer to need referral to a specialist in eating disorders. Girls who displayed a marked drop in weight were pressurised to regain it promptly by staff and peers. Consequently there was little secondary gain for continuing weight loss.

This ethic of discouraging excessive weight loss was not found in other studies of certain professional ballet companies. In a study by Hamilton et al. (1985) which examined dancers in regional and national companies, it was found that the incidence of eating disorders was higher in the more competitive national companies where there are higher expectations of performance standards. These findings were similar to those of Garner and Garfinkel (1980) who reported a higher incidence of eating disorders (7.6%) in dancers at a highly competitive professional dance school, than those at a dance school that had a more general curriculum (4%). Comparable results of a prevalence of 4.3% were found by le Grange et al. (1994) at a ballet school that combined academic and dance training. Garner and Garfinkel

(1980) suggested that although eating disorders were multidetermined, the notably higher prevalence of eating disorders at the more competitive school may, in part, have been due to intense performance expectations and overwhelming achievement demands.

The above studies appeared to indicate that the prevalence of eating disorders in dance students and professional dancers was consistently high when compared to high school and university student populations. This evidence did, to a certain extent, support the hypothesis that young women in occupations where there was an emphasis on the attainment and maintenance of slimness were at risk for developing an eating disorder.

2.5 GROUP AT RISK - MEDICAL STUDENTS

A group that is not apparently under excessive pressure to the slim, but who have a high prevalence of clinical eating disorders are, according to the literature, medical students (Herzog, 1985). They are representative of young women who are involved in a formerly male-dominated profession and encounter directly the previously discussed role and identity problems - that of being an achiever as well as retaining her important socially defined feminine attractiveness. Certain studies have focused on the specific difficulties experienced by women at medical school, including the impact of a competitive career, upon their identities as women (Bowers, 1968; Firth-Cozens, 1989; Gaensbauer and Mizner, 1980; Goldstein, 1975; Edwards and Zimet, 1976; Hoferek and Sarnowski, 1981). Some of the reported difficulties were: the conflict between having to be assertive and feminine; a struggle between nurturing and being professionally detached; feeling

isolated, lonely and out of place and unable to reach expected goals. From these studies, it was evident that women studying for a career in medicine did experience mental pressures, role conflicts and psychological problems.

Goldstein (1975) stated that the incidence of suicide was twice as high among female doctors than in the general population, and that there was also a higher incidence of divorce. It was stated that women suffer a "developmental lag" of acquiring a comfortable professional identity in a male-dominated profession. In their study of eating disorders and social maladjustment in female medical students, Herzog et al. (1985) indicated that there was some relationship between social maladjustment and eating disorders, but it was not clear whether the social maladjustment was secondary to the eating disorder. What was cause for concern was the high prevalence (15%) of eating disorders in their sample. Four (26.6%) previously or currently bulimic students stated that academic pressure was the major precipitant of their disorder, and nine (50%) stated that they binged in response to this and depression. Other difficulties expressed were feeling unable to keep up with the academic work and feeling upset and uncomfortable in the lectures, feeling unable to talk about problems, and being lonely.

Hamburg and Herzog (1985) reported a prevalence of 16% of their sample who met diagnostic criteria for AN or BN. Ten students had an eating disorder in remission and four had past histories of AN. Certain explanations of the origin of their eating disorder were offered by the students. Some examples were, a traumatic event or sudden change in life circumstances; sharing or living with weight conscious people; and

participation in sports and aesthetic subcultures, such as dancing. Other students expressed long-standing difficulties with food and weight. However, the most frequently expressed cause for difficulties with eating was work pressure, with eating problems worsening as work pressures increased. Other explanations included always having unpleasant feelings about self, boredom and loneliness and also feeling distressed about personal appearance, feeling unattractive, unhappiness and low self-esteem. Hamburg and Herzog (1985) stated that for these medical students, food or the rejection of food became a remedy for loneliness and academic pressure.

In further study by Herzog and his colleagues (1987), it was confirmed that medical students quite commonly had eating problems. Their study examined substance abuse and eating disorders as forms of maladaptive coping. In their sample 28.5% of their female subjects were found to be at risk for an eating disorder and a number of them reported using their eating behaviour as a way to lessen feelings of depression and loneliness, relieve tension and promote sleep. Futch et al. (1988), in their study which compared the prevalence of disturbed eating patterns among women medical and graduate students, found that there was no significant difference between the two groups in terms of the occurrence of AN or BN. They reported that the prevalence of eating disorders was similar to that reported in undergraduate women. However, there was a significantly higher concern about dieting amongst the medical students, possibly reflecting a more intense desire to be perceived as attractive and successful by society.

These results in some way supported the theory that women in professional occupations were possibly experiencing heightened identity problems and were utilising strategies to enhance their physical attractiveness as a means of improving their self-image. Herzog et al. (1987) concluded that although the women examined in their study were exposed to stressful and demanding training, this factor did not seem to predispose their students to experiencing a high occurrence of eating disorders, with only a 0.5% prevalence for AN (similar to schoolgirls and students in other studies). They estimated a prevalence of 3.3% for BN which was comparable to other studies of students. These results yielded a much lower occurrences of eating disturbances than in the previously discussed studies. However, none of these authors used the same methods or measuring instruments and therefore, to some extent, comparison between them was difficult. Nevertheless, it appeared that female medical students did experience specific academic and social pressures, and that for a significant number, disturbed eating behaviour became their method of coping. What was not clear was whether it was the pressure to achieve that was the prime source of the difficulties over control of food, or whether there was an underlying identity problem and role conflict that emerged under circumstances where there was the added demand for high achievement.

In conclusion, it appeared from the literature reviewed here that there were extensive sociocultural pressures on young women in general to be thin in order to feel they are attractive and acceptable. It would also seem apparent that the demand by Western culture to have a thin body may have engendered in young women a chronic dissatisfaction with their bodies. This dissatisfaction has clearly been demonstrated in the literature, where

results of studies have identified that large numbers of high school and university female students are dieting despite having a normal body mass. This cultural "pressure for thinness" may, in certain vulnerable young women, play a part in the development of an eating disorder. However, it was apparent that it was not just this one predisposing factor that was responsible for the onset of an eating disorder; nor for the evident increase in prevalence over the last decade. Experts in the field of eating disorders agree that there are many factors involved in the aetiology of AN and BN.

What the literature did seem to suggest was that where there were added pressures on young females to have a lean body, in order to comply with the demands of a profession, the prevalence of eating disorders was greater. However, in this vulnerable subculture, not all young females under pressure to be bone thin, developed an eating disorder. One way of attempting to understand what it was that predisposed certain females to fall victim to these disorders was to look at other subcultures of young women who were not under pressure to be thin, but nevertheless, were reported as having a high prevalence of eating disorders. One such subculture, identified as being at high risk, were medical students. Studies indicated that pressure to maintain a high standard of achievement appeared to be largely responsible for the high prevalence in this group. Identity and role confusion also occurred in the male-dominated environment of medical school. It was suggested that control strategies around food and weight were adopted as a means of feeling more acceptable as a female. One then needs to ask the question why would such apparently different groups of young females, ie. dancers and medical students, have similar problems with food; are there perhaps similarities between them that are not

immediately obvious? Perhaps in attempting to answer this question, some clarification as to these particular sociocultural influences on the aetiology of eating disorders may emerge.

CHAPTER 3 METHODOLOGY

The literature discussed in Chapter 2 has demonstrated that sociocultural pressures on young females to have a thin body shape has resulted in a large percentage of high school and university students being dissatisfied with their bodies. Consequently, many of these young females are dieting despite being of normal weight. This chronic preoccupation with dieting could, in some instances, result in the development of an eating disorder. Particularly at risk were young females who were exposed to added pressures to be thin because of occupational demands. There has also been speculation that the pressure to achieve could result in the development of disturbed eating patterns. Two vulnerable subgroups of young females who have been identified in the literature, were discussed: dancers and medical students. A high prevalence of eating disorders in dancers, was, to a certain degree, understandable, given that a thin body was a professional requirement. Less well understood, was the high prevalence of eating problems and disorders in medical students. There seemed to be some suggestion that it was the stress of the workload, and the constantly high standard of achievement required to cope with it, that may have influenced the development of eating problems as a form of negative coping strategy.

The aim of this study, is to try to determine to what extent, if at all, the pressure to achieve and maintain a high standard of performance signifies a possible danger to young, ambitious females in terms of representing a potential precursor of pathological eating habits.

3.1 SUBJECTS:

To investigate the possible relationship between high achievement and performance expectations, preoccupation with slimness and dieting and their possible interrelationship with the aetiology of eating disorders, three different groups of female students were approached to take part in this study. A total of 116 subjects participated, of which well over 90% were from middle class Caucasian backgrounds. Consequently no ethnic comparisons were made, as was suggested by Davies and Furnham (1986). As non-Caucasian females formed a small minority, they were not excluded from study. Rosen et al. (1988), who developed norms for the EAT and the EDI for adolescent boys and girls, found no significant differences occurred in their results between different races from three American high schools.

Female dance students (DSs)(n=35) from a performing arts school formed one group. This school offers full-time practical training in order to prepare its students for auditions in ballet companies, modern dance and musical productions, film work and television commercials. Hence, there is pressure on these students to achieve professional standards of performance, as well as to make the most of their physical appearance. They need to control their weight to comply with the ultra-thinness required by producers and dance directors, and be able to present themselves as confident and attractive performers. Their course involves ballet, modern, tap and character dance, singing and drama.

Permission was granted by the principal of the school for students to be approached by the researcher during a lunch-time assembly, which all

students were expected to attend. The students were informed that a study looking at attitudes to eating and body image was being carried out by the researcher. Students were invited to fill in the questionnaires after the assembly.

Thirty-five full-time students (83% of the female full-time student population) completed the battery of questionnaires. One subject failed to adequately complete her questionnaire and this had to be discarded as she had left the school and moved away from the area by the time this error was detected. Only three students did not wish to participate in the study, and four were absent on the day the questionnaires were distributed. Students were assured of confidentiality, but were requested to give their names and a contact address and telephone number. The reason given was that the researcher may need to contact students in the future for follow-up purposes. Only one student refused to give a name, but did supply a telephone number. The age range for the DSs was 16-28 years ($X = 19.4$, $SD \pm 2.33$).

Female Medical students (MSs)(n=40) from the University of Cape Town's Medical School formed another group. The researcher was granted permission to approach medical students by the Ethics and Research Committee of the Faculty of Medicine. A student committee member of the Students' Advisory Service was then approached by the researcher to help arrange for students to complete the questionnaires. Immediately following a lecture period, a group of third year female medical students were invited to take part in the study. Third year is recognised by the faculty as being one of the most academically demanding years for the students. It is their

final pre-clinical year and there is an extensive amount of work covered and examined before students can commence their clinical studies in fourth year. Forty female students completed the questionnaires. There were 78 female students in the third year class and it was estimated by the lecturers that 70% of them were present on the day the questionnaires were distributed. Therefore, 73% of the female students present participated. Time and opportunity restraints made it difficult to approach students in other years of study. All the students taking part supplied names, addresses and telephone numbers. The age range was 20-25 years ($X = 20.8$, $SD \pm 1.2$).

Undergraduate Social Science students (SSs)(n=42) who were taking courses in the University of Cape Town's Department of Psychology formed the third group. The researcher was given permission to administer questionnaires by the head of department. A tutor was approached by the researcher with the request to invite students attending her tutorials to take part in the study. A few minutes at the end of the tutorial sessions was put aside for introductions and explanations by the researcher. Three tutorial groups were approached and all the females in each group agreed to participate. Forty-four questionnaires were completed, but two were excluded because the respondents were over the age of forty. All the students participating supplied identifying data. The age range was 17-26 years ($X = 20.4$, $SD \pm 1.96$).

It was possible that the request to give personal identifying details may have caused some respondents to be less than accurate in their responses. However, because eating disorders are potentially life-threatening, it was felt

important that a record existed to facilitate possible follow-up of those who displayed scores that were indicative of a serious condition.

3.2 INSTRUMENTS:

1. Eating Attitude Test (EAT) (Garner and Garfinkel, 1979): This is a 40-item, objective, self-report instrument designed to measure a broad range of symptoms relating to dieting, bulimia, food preoccupation, self control of eating and perceived pressure from others to gain weight. Questions are presented in Likert form. The EAT has a range of scores from 0-120, with scores of 30 and above generally being indicative of a possible eating disorder. Garner et al. (1982) have presented evidence suggesting that the EAT is a reliable and valid measure of abnormal concerns around eating behaviour in both clinical and non-clinical groups. The EAT has been extensively used by clinicians and researchers (eg. Eisler and Szmulker, 1985; Garner and Garfinkel, 1980, Mann et al. 1983). However, it has been emphasised that high scores on this test are not necessarily diagnostic of an eating disorder in non-clinical groups, but that the EAT can be regarded as a useful and reliable screening instrument.

2. Eating Disorder Inventory (EDI) (Garner, Olmstead, and Polivy, 1983; Garner and Olmstead, 1984): This is a 64-item self-report scale that measures a broad range of behavioural and psychological features that relate to both AN and BN. The scale consists of the following eight subscales:

- i) Drive for Thinness (**DT**) indicates excessive concern with dieting and preoccupation with weight loss and a fear of weight gain and an intense pursuit of thinness;
- ii) Bulimia (**BU**) reflects a tendency towards episodes of uncontrollable overeating followed by self-induced vomiting;
- iii) Body Dissatisfaction (**BD**) expresses dissatisfaction with areas of the body associated with maturational change of shape e.g. hips, thighs, buttocks;
- iv) Ineffectiveness (**IF**) indicates feelings of insecurity, a prevailing sense of inadequacy and not being in control of one's life and a negative self-concept component;
- v) Perfectionism (**PR**) reflects excessive and unrealistic standards for achievement and behaviour;
- vi) Interpersonal Distrust (**ID**) indicates problems with intimacy, relationships and communication with others;
- vii) Interoceptive Awareness (**IA**) expresses confusion with identifying emotional and bodily sensations, especially hunger and satiety;
- viii) Maturity Fears (**MF**) shows a reluctance to assume adult responsibilities and a longing for childhood.

The EDI subscales Drive for Thinness, Bulimia, Body Dissatisfaction and Perfectionism were considered the most relevant measures in terms of the aims of this study as it was expected that scores on these subscales would give the strongest indications of a subject's preoccupation with being thin, dieting and high achievement. Scoring is based on a 6 point Likert scale in which responses range from 0 ("always") to 6 ("never"). The most extreme response earns a score of 3 and the immediately adjacent response 2, and

the next 1. The EDI does not provide a unitary score by which to identify eating disordered individuals, or to differentiate between BN and AN. The manual provides normative data as a guide for evaluation. This study has adopted Futch et al.'s (1988) subscale cut-off scores which were determined by subtracting 1 standard deviation from the means of published scores of AN patients (Garner et al. 1983). This technique for establishing cut-off scores allows for a 'false positive' rate (Garner and Garfinkel, 1979). This means that a certain number of normal subjects with concerns about eating similar to clinical patients, are identified. Such a group are potentially at risk, and it is important that they are not excluded from examination. The bulimic subgroup of anorexics in the Garner et al. (1983) study scored higher than the restrictive subgroup in the categories of Bulimia and Body Dissatisfaction. These higher scores were used to establish cut-off points in these categories.

3. The Body Shape Questionnaire (BSQ) (Cooper et al. 1987): This is a self-report measure of concerns about appearance and body shape. It has been shown that the BSQ correlates significantly with the total EAT score and the Body Dissatisfaction subscale of the EDI. The BSQ has been discriminantly validated on a clinical population of BN patients and non-clinical community population. Significant correlations between the BSQ and the total score on the EAT and the Body Dissatisfaction subscale of the EDI indicated concurrent validity (Cooper et al. 1987). Questions are presented on a six-point Likert scale, giving a possible range of 34-204, with a score of 120 and over indicating significant concerns about feeling fat, and body shape. Cooper et al. (1987) found that a mean score of >136 was achieved by patients with BN, and a mean score of 129 by "probable cases".

4. Demographic Data: All subjects completed demographic details including information about present weight, highest and lowest past weight, height, age, dieting and eating disorder history, present dieting behaviour, and menstrual history.

3.3 STATISTICS:

The mean values and standard deviations were calculated for the results of the questionnaires as well as the demographic information of the three groups. A multiple correlation analysis was performed on the data for each of the three groups to ascertain if strong correlations existed between the different variables being examined. The data was then analysed by means of a one-way analysis of variance (ANOVA) in order to determine if there were any significant differences between the groups in terms of their questionnaire scores and demographic information. Post-ANOVA tests were used to compare means between groups where the overall F value for an ANOVA was found to be significant. Bar charts were drawn to represent the three groups in relations to the cut-off scores. The results of the subjects with significantly high EAT scores were analysed.

CHAPTER 4

RESULTS

The results are first presented in descriptive detail. This establishes the characteristics of the subjects in each group. Groups are then individually statistically analysed to ascertain if there are any specific group characteristics in terms of their eating attitudes and behaviour. Intergroup statistical analysis then commences to test the hypothesis that pressure to achieve may in some way be related to pressure to be thin in respect of forming a predisposing factor in the aetiology of eating disorders. It was expected that young females who were exposed to pressure to be thin because of occupational choice (Dance Students (DSs)), would display a higher prevalence of eating related problems, than females not exposed to such pressures. Secondly, that young women undergoing training or studies in fields that demand a continuously high performance standard (Medical Students (MSs)) would be potentially at greater risk of developing an eating disorder, than those whose tertiary studies were possibly less stressful (Social Science students (SSs)). It was also expected that there might be certain common characteristics between the group that is under pressure to be thin (DSs), and the group who have to maintain a high standard of achievement (MSs) when compared to the group under less sociocultural pressure to be thin and achieve (SSs).

The scores obtained for each question in the EDI, EAT and BSQ questionnaires for each subject were entered onto a spreadsheet. From this data the total scores for the EAT and the BSQ and the scores for the EDI subscales were computed for each subject. The age, height (H), weight (Wt), and age at menarche was entered and the Body Mass Index (BMI =

Wt/H²) computed for each individual. The mean and standard deviation of each of these variables for each group was determined. The percentages of subjects who were currently dieting, and those who had a history of an eating disorder were also calculated. For each group a multiple correlation analysis was performed to determine factors which correlated with each other. A one-way analysis of variance (ANOVA) (Howell, 1989; Goodman, 1988) was performed between the groups, and, where appropriate, post-ANOVA tests were carried out to determine between which groups significant differences occurred. Where results could be assigned to discrete categories because subjects could be grouped according to their scores, the Chi-squared test was performed to determine whether significant differences existed between groups.

4.1 DEMOGRAPHIC INFORMATION FOR THE THREE GROUPS:

The demographic data obtained is summarised in Table 1. An ANOVA performed on the demographic information showed that the only significant difference ($F=4.82$; $df=2.114$; $p<0.01$) was the age of the DSs relative to the MSs. The SSs had the highest mean weight and height, and MSs the highest mean BMI. However, these differences were not statistically significant. The MSs, at 13%, reported the highest prevalence of a history of an eating disorder. Twenty-eight (67%) of the SSs, twenty-two (55%) of the MSs, and twenty-two (65%) of the DSs stated that they were dissatisfied with their weight and wanted to be thinner.

Two of the DSs, who reported having been previously diagnosed and treated for an eating disorder, were currently both well, although one still had

irregular menstrual periods and took laxative tables daily. One other DS had not been formally diagnosed as having had an eating disorder, but reported that she had regularly starved, binged and vomited for the pervious ten years. One had a low BMI<20.0 and the other two had BMIs within the accepted normal range $20.0 \geq \text{BMI} \leq 25.0$. These three subjects had scores above the clinical cut-off points on the EAT and the BSQ. All reported that their disorder began in their high school years (Stds.6-8). Two other DSs had a history of being overweight, one of whom had a BMI of >25.0 and twelve (35%) of the DSs had a BMI of <20.0.

TABLE 1
DESCRIPTIVE CHARACTERISTICS OF THE THREE GROUPS

	SS (n=42)		MS (n=40)		DS (n=34)	
	MEAN	STD	MEAN	STD	MEAN	STD
AGE(yrs)	20.40	1.98	20.80	1.19	19.40	2.33
HEIGHT(m)	1.67	0.08	1.65	0.07	1.64	0.07
WEIGHT(Kg)	58.40	7.23	57.70	8.79	54.70	6.97
BMI(Kg/m ²)	20.90	2.04	21.40	3.75	20.30	1.97
OM(yrs) ¹	12.80	1.08	12.90	1.74	13.00	1.52
	PERCENTAGE		PERCENTAGE		PERCENTAGE	
DIETING ²	17%	(n=7)	33%	(n=13)	29%	(n=10)
HIST of ED ³	7%	(n=3)	13%	(n=5)	9%	(n=3)

NOTES: 1. Age at onset of menses

2. Currently dieting

3. History of an eating disorder

Of the five MSs who reported having had an eating disorder, two were presently menstruating regularly. The three other MSs currently presented with irregular menstrual periods and had BMIs of <19.0 . Four of the five subjects stated that their eating disorder started in high school (Stds 7-8) and one subject's disorder began when she was 19 years old. Four of the subjects had scores above the clinical cut-off point on the EAT and one also had a BSQ score that was above the clinical norm given for patients with an

eating disorder (Cooper et al., 1987). In addition, three MSs reported problems with being overweight and all had BMIs of >25.0 Eighteen (45%) of the MSs had a BMI <20.0

TABLE 2
Means and Standard Deviations for the Variables for each group
and the percentage of subjects above cut-off values

	Mean (Standard Deviation)			Percentage above cut-off (number)			
	SS	MS	DS	cut-off	SS	MS	DS
EAT	12.7 (10.6)	15.9 (13.0)	19.7 (14.1)	30.0	10% (n=4)	18% (n=7)	21% (n=7)
BSQ	88.8 (33.5)	87.5 (23.9)	107.3 (43.9)	120.0	19% (n=8)	13% (n=5)	32% (n=11)
DT	4.2 (5.7)	4.2 (5.6)	7.2 (6.8)	10.0	19% (n=8)	18% (n=7)	35% (n=12)
BU	1.9 (2.9)	1.1 (2.3)	2.4 (3.7)	4.0	12% (n=5)	3% (n=1)	29% (n=10)
BD	11.9 (7.6)	11.5 (7.6)	12.9 (8.3)	7.0	74% (n=31)	65% (n=22)	70% (n=28)
IF	2.8 (4.1)	2.5 (4.4)	4.9 (5.2)	6.0	19% (n=8)	18% (n=7)	29% (n=18)
PR	4.0 (3.5)	5.3 (3.8)	5.3 (4.0)	5.0	29% (n=12)	53% (n=21)	47% (n=16)
ID	2.6 (2.6)	1.7 (2.7)	3.8 (3.5)	3.0	43% (n=18)	25% (n=10)	56% (n=19)
IA	2.9 (3.7)	2.3 (3.6)	5.4 (5.5)	6.0	21% (n=9)	15% (n=6)	35% (n=12)
MF	3.2 (3.0)	1.4 (2.1)	4.2 (3.9)	1.0	79% (n=33)	48% (n=19)	91% (n=31)

NOTES: EAT = Eating Attitudes Test BSQ = Body Shape Questionnaire
 DT = Drive for Thinness BU = Bulimia BD = Body Dissatisfaction
 IF = Ineffectiveness PR = Perfectionism ID = Interpersonal Distrust
 IA = Introceptive Awareness MF = Maturity Fears

There was one SS who had a history of an eating disorder. This began when she was 16 years of age, but she was presently well. Her weight and BMI were in the normal range, she menstruated regularly and had no elevated scores on the questionnaires. Seventeen of the SSs had BMIs <20.0 and none >25.0.

The means and standard deviations (SD) of each groups' scores on the EAT, BSQ the subscales of the EDI, as well as the percentages and numbers in each group who had high scores can be seen in Table 2. Also tabulated are the percentages and number in each group who had scores above cut-off values and clinical norms reported in the literature (see Chapter 3)

On inspection of Table 2 the DSs had the highest mean scores for the EAT and the BSQ. The DSs and the MSs had a similar number of subjects who achieved high EAT scores. For the Body Dissatisfaction subscale, all three groups showed similar concern with their body shape, and both the DSs and the MSs showed similar concerns about achievement and success as measured by the Perfectionism subscale of the EDI. In general, there appeared to be very little difference in terms of each group's responses to the questionnaire items. Significance was tested by means of an ANOVA, and is discussed below. Firstly, a multiple correlation analysis for each group was carried out to identify possible separate group characteristics in terms of intercorrelations between variables.

4.2 MULTIPLE CORRELATION ANALYSIS OF SCORES FOR EACH GROUP

For the SSs (Appendix 2, Table A), a strong correlation ($r > 0.7$) was found between the EAT and the BSQ, the EAT and the EDI, and the EAT and the Drive for Thinness subscale of the EDI. The BSQ and the EDI were also strongly correlated, as were the BSQ and the Drive for Thinness and Body

Dissatisfaction subscales of the EDI. Similar correlations were found for the MSs (Appendix 2, Table B) except that a moderate correlation was found between the EAT and the EDI. There were also strong correlations between the Drive for Thinness, Bulimia and Body Dissatisfaction with the overall EDI score for the DSs (Appendix 2, Table C). Similar correlations were found with the overall EDI score for the MS and DS groups, except that a moderate correlation existed for Bulimia for the MSs. A strong relationship was found for Interoceptive Awareness and the EDI for the MSs, and a moderate correlation was found between the EAT and the BSQ for the DSs. A strong correlation existed for the DSs between the EDI and the subscales Drive for Thinness, Body Dissatisfaction and Ineffectiveness. There was also a strong correlation between Drive for Thinness and Body Dissatisfaction for the DSs. Other moderate correlations were found to be generally similar in each of the three groups.

In each group the predictor variables, BSQ, EAT, EDI, Drive for Thinness, Bulimia, Body Dissatisfaction and Interoceptive Awareness were either strongly or moderately intercorrelated. The three groups were very similar in terms of the strengths of the intercorrelations of the different variables. There appeared to be no specific indications that the groups varied from each other in terms of identifying intragroup characteristics as a means of predicting eating disturbances.

4.3 INTERGROUP ANALYSIS OF THE THREE GROUPS

An analysis of variance (ANOVA) and Post-ANOVA test (Goodman, 1988; Howell, 1989), the results of which appear in Table 3, was performed to

identify if there existed significant differences between the means and variances of the scores between the three groups. The only significant differences ($F=4.82$; $df=2,114$; $p<0.01$) detected were for Interpersonal Distrust, Interoceptive Awareness and Maturity Fears subscales of the EDI, where DSs scored higher compared to MSs.

TABLE 3
ANOVA F Values for the Variables, and
Post-ANOVA F Values for paired groups

	EAT	BSQ	DT	BU	BD	IF	PR	ID	IA	MF
ANOVA	2.95	3.55	3.06	1.96	0.29	2.86	1.68	4.86	5.28	7.92
MSvSS	0.64	0.01	0.00	0.79	0.02	0.03	1.32	0.96	1.22	3.62
DSvSS	2.95	2.62	2.40	0.29	0.15	1.99	1.15	1.16	3.12	0.89
DSvMS	0.88	2.86	2.34	1.90	0.28	2.41	0.00	4.85	4.82	7.48

NOTES: Figures in **BOLD** are significant ($F=4.82$; $df=2, 114$; $p<0.01$)

Consequently, there were no statistically significant differences between groups in terms of the questions under consideration in this study i.e. were there significant differences between groups on the issues of abnormal attitudes to eating and body dissatisfaction, as well as a drive to achieve. There was some suggestion that the DSs and MSs were more similar to each other than to the SSs in respect of the EAT and the Perfectionism subscale of the EDI, although this finding was not statistically significant.

Results were then analysed in respect of how individuals within groups could be understood in terms of the clinical cut-off points of scores. The scores were examined in terms of the fact that the results could be assigned to discrete categories and subjects allocated to these categories based on their attained scores. Chi-squared tests (Table 4) were performed to determine whether statistically significant differences existed between each group in

terms of scores within categories. In order to perform the tests, each instrument was manipulated in the following manner. The scores attainable for the instrument were assigned to one of five discrete categories. The problem with representing the results in this manner was that, when divided up into discrete categories, the actual number of subjects in each category for each group was small. Consequently even minor differences between groups within a category could be statistically significant. Nevertheless, owing to the important role in the screening of eating disorders cut-off scores play, the representation of the results in this manner was considered necessary.

Figures 1, 2 and 3 below show the most significant results in terms of the present study: The EAT graph (Fig 1) shows a significant difference between both the MSs and the DSs compared to the SSs; the BSQ graph (Fig 2) illustrates that the DSs had the highest concern with body shape; and the Perfectionism graph (Fig 3) indicates a significant difference between both the DSs and the MSs when compared to the SSs. Other statistically significant results appear in Appendix 2.

TABLE 4
Chi-squared test values for the Variables, for paired groups

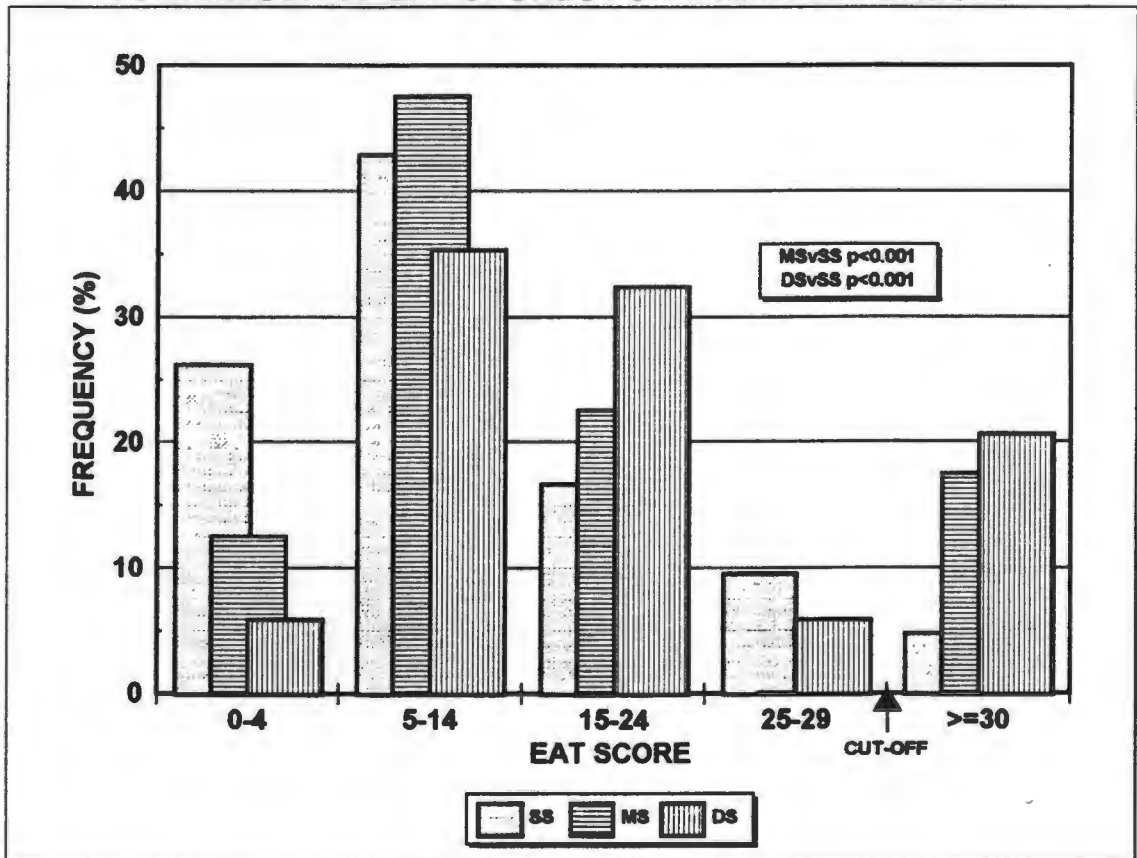
	EAT	BSQ	DT	BU	BD	IF	PR	ID	IA	MF
MSvSS	53.30	11.29	2.80	14.06	1.44	5.44	29.96	24.82	25.28	61.96
DSvSS	85.84	32.98	36.07	60.04	11.34	47.33	37.58	75.00	70.39	19.30
DSvMS	21.01	59.90	38.80	36.82	15.96	85.02	10.19	145.51	237.75	241.10

NOTES: Figures in **BOLD** are significant ($\chi^2=29.7$; $df=8$; $p<0.001$)

In Figure 1 the distribution of scores of the three groups for the EAT is represented in a histogram. The first category (0-4) represented the lowest scores indicating no problems with attitudes to eating; the second category

(5-14) represented scores showing very few eating abnormalities; the third category (15-24) indicated an increasing number of eating problems. The fourth category (25-29) indicated many abnormalities of attitudes to eating, and the fifth, category (≥ 30), was suggestive of serious eating disturbances.

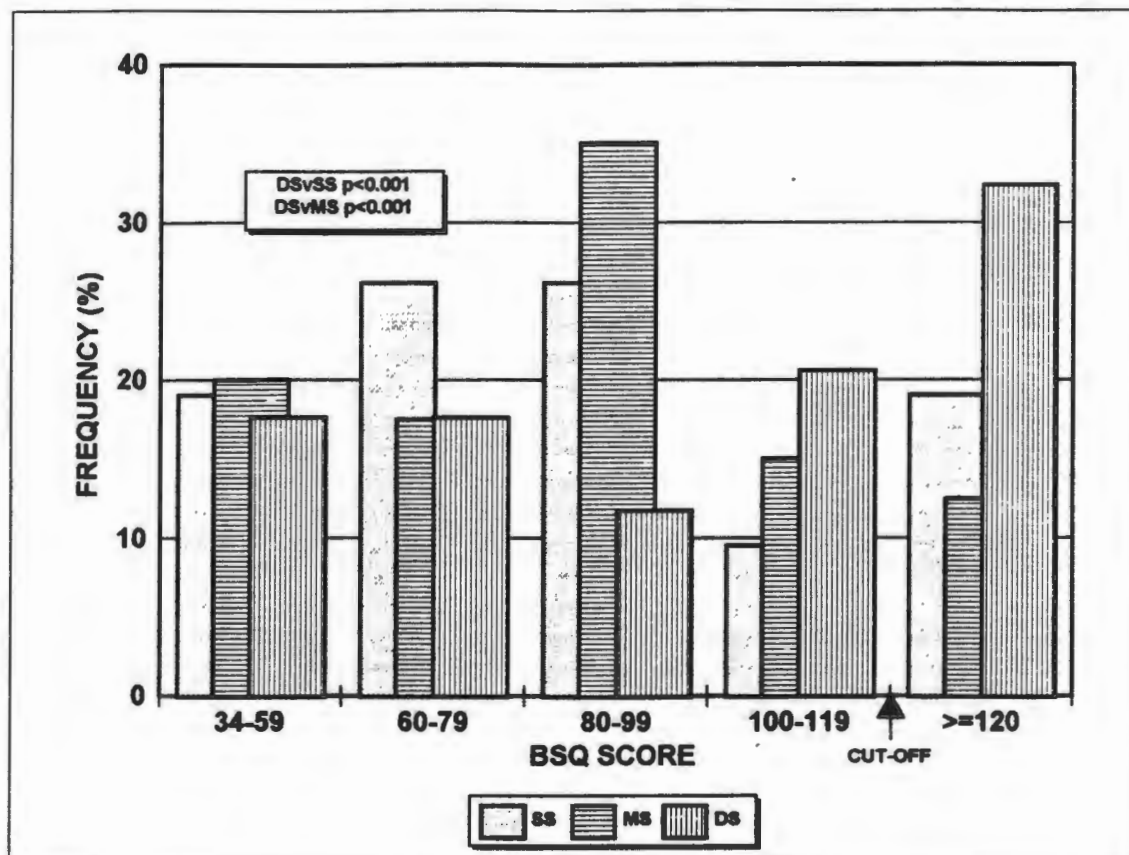
FIGURE 1
COMPARISON OF EAT SCORES FOR THE THREE GROUPS



The different group means and standard deviations for the EAT were 12.7 (SD ± 10.6) for the SSs, 15.9 (SD ± 13.0) for the MSs and 19.7 (SD ± 14.1) for the DSs. The highest frequency of scores for all the groups fell in the second category (5-14), thus indicating few problems for the majority of subjects. As calculated in the Chi-square test, there were significantly fewer

SSs in the higher categories than both the MSs and the DSs between whom no significant difference was found.

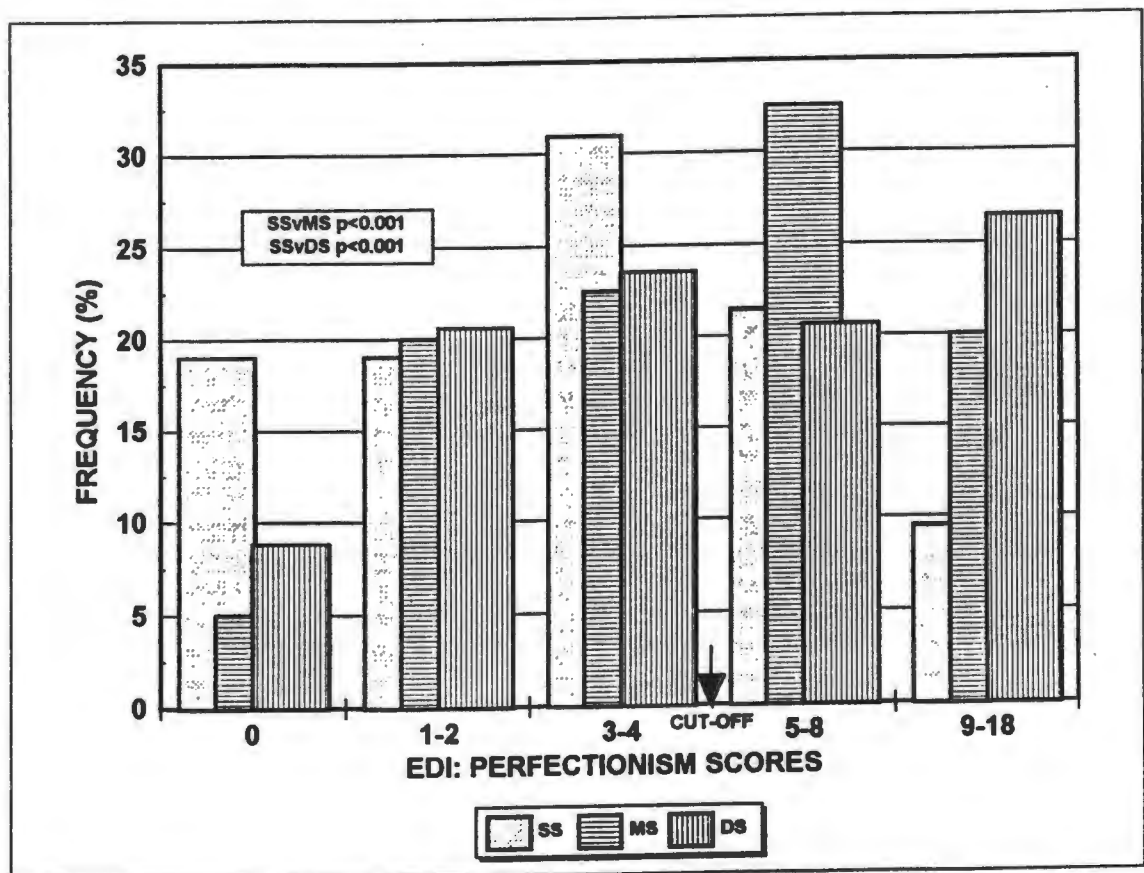
FIGURE 2
COMPARISON OF BSQ SCORES FOR THE THREE GROUPS



In Figure 2 the distribution of scores for the BSQ, are represented. The different group means and standard deviations were 88.6 (SD \pm 33.5) for the SSs: 87.5 (SD \pm 23.9) for the MSs and 107.3 (SD \pm 43.9) for the DSs. The highest frequency for the DSs was for scores in the fifth category (≥ 120) and the Chi-squared test showed that the DSs had a significantly higher number of subjects in this category than both the MSs and the SSs. The majority of MSs scores were in the third category (80-89), indicating few problems with body shape, and the SSs scores were fairly evenly represented in the first three categories (34-59), (60-79) and (80-99).

Figure 3 represents the distribution of scores on the Perfectionism subscale of the EDI. The first category (0) indicated no difficulties with expectations of high achievement. The second category (1-2) was also indicative of few problems. The third category (3-4) showed some problems with high achievement; the fourth and fifth categories were both above the cut-off score, and represented increasing and extreme problems with achievement.

FIGURE 3
COMPARISON BETWEEN THE THREE GROUPS
FOR THE PERFECTIONISM SUBSCALE OF THE EDI.



The different group means and standard deviations were 4.0 (SD \pm 3.5) for the SSs; 5.3 (SD \pm 3.8) for the MSs and 5.3 (SD \pm 4.0) for the DSs. The Chi-squared test indicated that the SSs differed significantly from the MSs and the DSs, who were similar. The highest frequency of MSs occurred in the

fourth category (5-8), which was on and above the cut-off point, and the highest frequency of DSs fell in the fifth category (9-18). The highest frequency of SSs occurred in the third category (3-4).

For each of the EDI subscales Bulimia, Drive for Thinness, Ineffectiveness, Interoceptive Awareness and Interpersonal Distrust the DSs differed significantly from the MSs and SSs, who were similar (Appendix 2, Figures B, C, D, E, F). For the EDI subscale Body Dissatisfaction (Appendix 2, Figure G) no significant differences were found between the groups, and for the EDI subscale Maturity Fears (Appendix 2, Figure A) the DSs and the SSs scored significantly higher than the MS.

It would appear, therefore, that when viewed in discrete categories of scores the Chi-squared test showed that there are significant differences ($\chi^2=29.7$; $df=8$; $p<0.001$) between the SSs on the one hand and the MSs and DSs on the other, in respect of their EAT and Perfectionism scores. This technique also showed significant differences ($\chi^2=29.7$; $df=8$; $p<0.001$) between the DSs on the one hand and the SSs and the MSs on the other in respect of the BSQ and the remaining subscales of the EDI with the exception of Body Dissatisfaction. This trend was not supported by the ANOVA, which only indicated significant differences ($F=4.82$; $df=2,114$; $p<0.01$) in respect of the Interpersonal Distrust, Interoceptive Awareness and Maturity Fears subscales of the EDI. Due to the emphasis on cut-off points to determine possible psychological and behavioural problems with eating and body image, the results from the Chi-square analysis are considered to have yielded a more relevant analysis of the data.

4.4 STUDENTS WITH HIGH EAT SCORES

As there is extensive evidence that the EAT is a good screening test in terms of identifying possible cases of eating disorders, details of the scores of all the subjects who had high EAT scores appears in Appendix 2, Table D.

Sixteen (14%) subjects, regardless of group membership, had an EAT score of ≥ 30 . A further five subjects were included in this group because their scores on the EAT were within the subclinical range of 25-29, and they also had high BSQ scores (≥ 120). Therefore 18% of the subjects displayed characteristics that may have been indicative of an eating disorder. A t-test was carried out between the high EAT scorers and the total sample in this study. Apart from the EAT and BSQ results, significant differences ($t=3.85$; $df=20$; $p<0.001$) between the two groups were found on the Drive for Thinness and Body Dissatisfaction subscales of the EDI. Seventeen (81%) of these subjects had scores above the cut-off point on the Drive for Thinness subscale of the EDI, and twenty (95%) on the Body Dissatisfaction subscale of the EDI. There were also ten subjects (48%) who had high Bulimia scores. These results further indicated that this group were manifesting a considerable number of pathological eating attitudes and problems with their body image.

Of these twenty-one subjects, one from the DS group and one from the MS group had a BMI of >25 . One of these subjects, the dance student, also scored above the cut-off point on all the subscales of the EDI except for Ineffectiveness and Interpersonal Distrust. Her high Drive for Thinness, Bulimia and Body Dissatisfaction scores as well as an EAT score of 52 and a

a BSQ score of 198 are suggestive of an eating disorder. Six other subjects (29%) had low BMIs (<20.0). This group comprised of two DSs, three MSs and one SSs. Two of the MSs in this group had a history of an eating disorder and it appeared from their scores that they were still struggling with some of their symptoms. All of the low weight group had scores above the cut-off point on the Drive for Thinness subscale and five on the Body Dissatisfaction subscale of the EDI. The rest of this group, (62%), had normal BMIs and seven of this group had raised scores on most of the EDI subscales. However, in order to diagnose true cases of eating disorders, clinical interviews are required.

CHAPTER 5

DISCUSSION

In an effort to understand the impact of the social and cultural influences on the aetiology of eating disorders in young women, this study focused on the social demands on females to attain a thin body shape and achieve academically and vocationally. It was hypothesised that these fundamental elements could constitute important predisposing influences in the development of a clinical eating disorder in certain vulnerable groups of young women. Three independent groups of students were studied, each exposed to different levels of the above factors. This discussion will initially focus on each group separately in terms of their results on the questionnaires completed. Groups will then be compared in those areas of significance to this study, and conclusions will be drawn.

5.1 Social Science Students (SSs)

It was proposed that the SS group could be considered as being representative of the normal population of female students, in that they were not under specific pressure to have a thin body shape because of vocational demands, nor were they necessarily under constant strain to sustain an excellent standard of performance, at least not to the same extent as medical students. The mean EAT score for this group was 12.7(SD \pm 10.6). This result is similar to other studies of non-clinical adolescent females (Bunnell et al., 1992; Dolan et al., 1990; Garner and Garfinkel, 1979; Krejci et al., 1992; Raciti and Norcross, 1987; Rosen et al., 1988; Strauman et al., 1991). A total of 4 (10%) subjects had EAT scores of \geq 30, similar to the results reported by Garner and Garfinkel (1979), and Dolan et al., (1990);

but somewhat lower than was reported by Fisher et al., (1991). Seven (17%) of SSs were dieting at present; this is less than was found in studies of high school females where a prevalence of up to 32% was reported, indicating a high occurrence of dieting among adolescent girls. (Fisher et al., 1991; Wadden et al., 1991). There was evidence, however, that the SS group were dissatisfied with their weight as 67% (n=28) reported that they wanted to be thinner despite the fact that the majority of subjects had a normal BMI. This trend may be understood as a reflection of the internalisation of Western culture's stereotype of ideal physical attractiveness, including the expectation that women's bodies should be very thin (Wiseman et al., 1992). Davies and Furman (1986) report that from about the age of seven years, concern and distress over body shape effects the young female's self-perception and consequently has important implications for her personal, social and sexual development.

This concern about body shape, which may vary from mild dissatisfaction to intense dislike, has been suggested as playing a central role in the aetiology and maintenance of eating disorders (Garner and Garfinkel, 1981; Nylander, 1971; Shisslak et al., 1987). The BSQ was designed to assess the psychological dimensions of body image disturbance, and provides a measure of the extent of psychopathology (Cooper et al., 1987). The SSs mean score for the BSQ was 88.6 (SD+33.5) with 19% (n=8) having scores high enough to be regarded as indicating disturbances of body image. These findings are similar to those of Strauman et al. (1991) in their study of American female university undergraduates, and Cooper et al.'s (1991) British community sample. Dolan et al.'s (1990) study of British women from three ethnic groups, and Bunnell et al.'s (1992) comparison group of high

school students also yielded similar results. This confirms that the SS students in this study can be regarded as having similar levels of body shape dissatisfaction as young women in other Westernised parts of the world.

In the present study, six of those students who had high BSQ scores also had high EAT scores, four of whom scored above the cut-off point on the EAT. A high correlation between these two tests was also found by Bunnell et al. (1992) and Dolan et al. (1990). These results suggest that this particular group of SSs, although not necessarily satisfying the diagnostic criteria for an eating disorder, may be experiencing abnormal eating patterns and symptoms of distress about their body shape. These symptoms may have a negative impact on their developing sense of self and may interfere with normal psychosocial functioning. The risk for developing an eating disorder should also not be ignored.

On the mean scores of the subscales of the EDI, the SSs scored below all of the cut-off points, except for Body Dissatisfaction and Maturity Fears. The Body Dissatisfaction subscale was designed to tap dissatisfaction with "pubertal fatness" (Garner et al., 1983) with emphasis on specific parts of the body e.g. hips, thighs, buttocks. According to Norring and Sohlberg (1988) the Body Dissatisfaction subscale measures frustration with weight and body shape at a general level not necessarily related to an eating disorder. The SSs mean score on this subscale was 11.9 ($SD \pm 7.6$), which is slightly higher than the score achieved by Garner et al.'s (1983) female comparison group, and similar to the scores of the three groups of American students studied by Klemchuk et al. (1990), where, compared to

the other seven subscales of the EDI, university women reported the greatest degree of negative perception of themselves.

The Maturity Fears subscale of the EDI measures the subject's need to retreat to preadolescence because of the overwhelming demands of adulthood (Garner et al., 1983). A high percentage (79%) of SSs had scores above the cut-off point on the Maturity Fears subscale. The mean score was 3.2 (SD 3.0). Such a high percentage may suggest that the cut-off point of 1 is, in fact, too low. The SSs scores were similar to those of recovered eating disorder patients in Norring and Sohlberg's (1988) Swedish study. The control group in this study were nursing students and their mean score was 2.3. Similar scores were achieved by Klemchuk et al.'s (1990) three groups of university students. Scores comparable to the proposed cut-off point of 1 were found in a sample of recovered AN patients in a study by Garner et al. (1983) and a group of Weight Watchers in Norring and Sohlberg's (1988) study, the control group of adult women in a study by Gross et al.'s (1986). This group's mean age was 24.3yrs, somewhat older than the SSs in the present study. It is therefore proposed that the results on the MF subscale do not necessarily reflect that this group are reluctant to assume adult responsibilities. In a study by Welch et al. (1988) it was reported that the Maturity Fears subscale did not form any clear pattern of factor loading and excluded all eight items of this subscale from a proposed 44-item three-factor revised EDI.

This group of SSs seem to display the general characteristics of dissatisfaction with their body shape as suggested in the literature, and can be understood as being similar to other student groups studied in terms of

eating disturbances. Therefore, it can be stated tentatively that the SS group are representative of the population of normal young women under culture-bound pressure to attain a thin body shape.

5.2. Medical Students (MSs)

The group of female MSs in the present study were considered to be representative of young women who are studying a profession that demands a constantly high level of achievement, perhaps higher than in many other tertiary educational courses. This factor would possibly predispose certain vulnerable students to displaying abnormal eating behaviour as a mechanism for coping with the stress of medical school (Herzog et al., 1987). The mean EAT score for this group was 15.9 (SD±13.0) with 18% (n=7) scoring above the cut-off point. This mean score is similar that those in other studies of adolescent women (Bunnell, et al., 1992; Garner and Garfinkel, 1979; Raciti and Norcross, 1987). The present results agree with those reported by Fisher et al, (1991) whose study found a strong correlation between abnormal eating attitudes and both low self-esteem and high anxiety; healthy eating attitudes being associated with good self-esteem and low levels of anxiety. This finding substantiates Herzog et al.'s (1987) study where a notable number of medical students (28.5%) used abnormal eating behaviour as a means of relieving academic stress and low self-esteem. Although no comparable studies were found using the EAT instrument with medical students, in the present study, it was found that these medical students attained a significantly higher EAT score than did the SSs. It is possible that similar coping strategies as described in Herzog et al.'s above study may account for the higher EAT score in the MS group.

Herzog et al. (1985) report a 4% prevalence of BN in their study of eating disorder in female medical students. There appears to be very little evidence of bulimic symptoms in any of the MSs as measured by the EAT, which differs from Herzog et al.'s (1985) study. Of the MSs in the present study who had high EAT scores (18%, n=7), three subjects had a history of an eating disorder, one of whom admitted to sometimes vomiting. The remaining two subjects in this group (5%) had been diagnosed as having had AN, one of whom still menstruates irregularly and has a low BMI. One other MS who has not had a diagnosed eating disorders, may be considered to be at risk because of a high EAT score, a six year history of "eating very little" and irregular menstrual periods.

Over half (55%) of the MSs reported being dissatisfied with their weight and 33% were dieting at the time of the study. Two of the MS on diet had slightly raised BMIs, the rest were within normal range. This incidence of dieting is similar to other studies of dieting in female high school populations (Fisher et al., 1991; Wadden et al., 1991). This present finding confirms that MSs are similar to other groups of young women in terms of being susceptible to the cultural pressures to be thin. However, added to this factor, there would appear to be evidence in the literature, as already discussed, that academic stress may increase the incidence of abnormal eating patterns and preoccupation with weight. This reflects Bruch's (1985) contention that the changing status of women in terms of having to prove themselves by high achievement, creates a sense of insecurity and self-doubt. By choosing to follow fashion dictates for slimness, Bruch (1985) proposed that women then feel they are earning respect. Therefore for MSs, control of weight may

strengthen feelings of self-efficacy that may have been eroded by academic pressure.

The mean BSQ score for the MSs was 87,5 (SD \pm 23.9), with 13% (n=5) having scores indicative of a disturbed body image. Studies by Strauman et al. (1991), Cooper et al. (1991), and Dolan et al. (1990) all had similar mean scores for their female samples. This result further confirms that MSs are similar to the general population of female students in terms of dissatisfaction about their body shape. Of the five MSs who had high BSQ scores, three had high BMIs. It would therefore appear that for this group, the BSQ is identifying realistic problems with overweight rather than purely pathological body image dissatisfaction. Despite the high scores and much higher incidence of students with EAT scores \geq 30, the results do not seem to add anything significant to an understanding of MSs as a separate group. These results also do not directly address the contention that MSs may constitute a vulnerable subgroup in terms of manifesting clinical and subclinical eating disorders.

The mean scores on the subscales of the EDI showed that MSs scored above the cut-off point for Body Dissatisfaction and slightly above the cut-off for Perfectionism and Maturity Fears. In terms of the hypothesis of this study, i.e. that high achievement demands might predispose a young female to developing eating difficulties, the Perfectionism subscale was the most crucial subscale to examine. The MSs mean score on the Perfectionism subscale was similar to that of other studies of undergraduate students (Klemchuk et al., 1990; Rosen et al., 1988). Although MSs scored slightly higher than the published Perfectionism cut-off score, and were significantly

higher than those attained by the SSs, their scores were somewhat lower than those found by Futch et al.'s (1988) study of medical students. Their study did not reveal a significant difference between female medical and postgraduate students. They concluded that there might be a tendency for those selected for medical and postgraduate programmes to represent individuals who tend to be more perfectionistic. In the present study, 53% (n=21) of the MSs scored on or above the cut-off point, so although the overall mean was lower than in the Futch et. al. (1988) study, there were still a notable number of individuals who may be considered as having high achievement standards. Four (57%) of the MSs who had high EAT scores, also had high Perfectionism scores, and four (80%) of those students who had a history of an eating disorder also had high scores on this subscale. This suggests some relationship between these factors, although this was not found to be statistically significant. On the Body Dissatisfaction subscale, MSs were found to have achieved similar scores to the SSs, with slightly fewer (n=22) students scoring above the cut-off point. The Maturity Fears subscale indicated only a slight concern with adult roles and responsibilities in this group with little desire to return to prepubertal dependency. Forty-eight percent of the MSs scored above the cut-off point and again this brings into question the validity of such a low cut-off score as discussed with the SSs.

This group of MS may be considered comparable to other groups of female students in terms of concerns about weight and dieting. However, there seems to be some evidence to support the hypothesis that the added factor of the demand for high achievement does lead to there being a greater prevalence of eating problems in MSs. However, it cannot be stated that

these students are at greater risk for developing a clinical eating disorder than other student groups. There might be some support for the hypothesis that high achieving perfectionistic young females choose a more demanding field to study and work in. Most (80%) of those reporting diagnosed eating disorders had an onset in their early to mid-teens, with only one student reporting an eating disorder beginning after commencing her medical studies. Further, it is possible that the ongoing academic strain may serve as a maintaining factor to those with an eating disorder and precipitate eating disturbances in certain vulnerable individuals who are not coping with the stress and workload.

5.3 DANCE STUDENTS (DSs)

The DSs in the present study represent a group who are potentially at special risk for developing an eating disorder as they are exposed to constant pressure to achieve and maintain a low body weight, as well as sustaining a continuously high performance standard. It was predicted that the DSs would display a higher prevalence of disturbed eating behaviour and negative body image perception than the other two groups of students in the study.

The mean score on the EAT for the DSs was 19.7 (SD14.1). This result was similar to studies of classical ballet students (Garner and Garfinkel, 1980; le Grange et al. 1994; and Szmukler et al., 1985). Twenty-one percent (n=7) of the DSs scored on or above the cut-off point on the EAT. This result was considerably lower than that found by Garner and Garfinkel (1980) but higher than le Grange et al. (1994) and Szmukler et al. (1985). Four (57%)

of the students scoring high on the EAT had a history of an eating disorder, three of whom had a normal BMI and one student who presented as underweight. All students with high EAT scores reported having regular menstrual cycles. The BMI of the DSs was slightly higher than in the le Grange et al. (1994) study with twelve (34%) having a BMI <20.0 which is considered to indicate underweight. There was one student with a high EAT and low BMI (17.0) but who failed to report a history of an eating disorder. It is possible that this student may be at risk for developing an eating disorder in the future. Although the majority of the DSs had a normal BMI, 65% (n=22) reported being dissatisfied with their present weight and wanted to be thinner, and ten DSs (29%) were currently dieting. There was also no reported amenorrhoea at the time of this study. Two (6%) DSs who had a history of an eating disorder, reported relatively late onset of menstruation (15 and 16 years respectively) but have had regular menstrual periods. This finding differs from other studies of dancers where prevalence of amenorrhoea and menstrual abnormalities ranged from 32% to 47% (Braisted et al., 1985; le Grange et al. 1994; and Szmukler et al., 1985). This difference in findings may be due to the different dance populations studied. The present study focused on dancers who receive an extensive all-round training in the performing arts. Although they need to maintain a thin body shape, perhaps they were not under quite the same extent of pressure to attain an abnormally low body mass as is required by the classical ballet dancer.

The DSs mean score on the BSQ was 107.3 (SD 43.9). This is a higher mean score than that reported in other studies (Bunnell et al. 1992; Cooper et al. 1987; Dolan et al. 1990; Strauman et al. 1991). The DSs mean score

approximated that of Bunnell et al.'s (1992) anorexic and subclinical bulimia nervosa subjects which suggests that this group of dancers in general displays a high level of body shape dissatisfaction. Their scores on the BSQ were found to be statistically higher than the other groups in the present study. However, it would be erroneous to assume that they are therefore at a much greater risk for developing a clinical eating disorder. The results should rather be understood as illustrating an appropriate concern with body shape in a population where thinness is a professional requirement, as was suggested by Calabrese et al. (1983) and le Grange et al. (1994).

On the mean scores of the subscales of the EDI, DSs scored below the cut-off points except in the cases of Body Dissatisfaction, Perfectionism, Interpersonal Distrust and Maturity Fears. They attained statistically higher scores than the SSs on the Perfectionism subscale, and in relation to the MSs and the SSs, had statistically higher scores on the Drive for Thinness, Bulimia, Ineffectiveness, Interpersonal Distrust and Maturity Fears subscales.

Mean scores for the DS on the subscale Body Dissatisfaction were similar to those found in other studies whose subjects were university students (Klemchuk et al. 1990; Raciti and Norcross, 1987; and Rosen, 1988). There was also no significant difference between the DSs and the other two groups in the present study. It would therefore appear that Body Dissatisfaction, as measured on the EDI, focuses on very specific aspects of body dissatisfaction, and from this perspective, the DSs do not differ significantly from other groups of young women in the general population. This is contrary to the findings on the BSQ for the DSs which suggested a high level

of body dissatisfaction in this group. This discrepancy might be understood in terms of the content of the items for the two questionnaires; the BSQ has a far more detailed focus on the experience of "feeling fat" at an emotional level, and therefore reflects body dissatisfaction from this perspective. It is therefore proposed that the BSQ results give a clearer indication of the level of body dissatisfaction in the DSs.

On the Perfectionism subscale of the EDI, the dancers' mean score was slightly above the cut-off point with 47% (n=16) having raised individual scores on this subscale. This is a similar result to that scored by the MSs, and both the DSs and MSs were found to have significantly higher scores on this subscale than the SSs. However, the scores for the DSs and the MSs were not high when compared to other studies (Bers and Quinlan, 1992; Rosen et al., 1986; Klemchuk et al 1990; Raciti and Norcross, 1987; Rosen et al., 1988). It would appear that when compared to other studies the DSs in the present study do not display excessive expectations of superior achievement. However, in terms of the present study there is an indication that both DSs and MSs have higher levels of performance than the SSs. This would then partly support the hypothesis that students who are exposed to demands for exceptional achievement may be more vulnerable to developing eating disturbances than students under less pressure. In terms of DSs one would go further and state that when exposed to both pressure to be thin and excellence of performance, there would be a greater prevalence of eating problems.

On the Interpersonal Distrust subscale of the EDI, there were nineteen (56%) DSs above the clinical cut-off point, and the overall mean score was

also higher than the clinical cut-off point. DSs scored significantly higher than both the MSs and the SSs on this subscale. When comparing the DSs with other studies on this subscale, their mean score was higher than was found by other authors (Klemchuk et al., 1990; Raciti and Norcross, 1987; Gross et al., 1986), and similar to that found by Rosen et al. (1988) whose subjects were younger (high school pupils) than in the previously quoted studies. In terms of the characteristics that this subscale taps, these results suggest that the DSs in this study feel generally alienated and have difficulty forming close relationships.

For the subscale Maturity Fears, the DSs mean score was above the cut-off point, and 91% (n=31) had scores above this point. Mean scores were higher than in other studies (Gross et al., 1986; and Klemchuk et al., 1990), but were similar to those in Norcross and Raciti (1987) and Rosen et al.'s (1988) studies. As with the other groups in the present study, the usefulness of this subscale is questionable due to the extremely high incidence of students with elevated scores.

Although the group of dancers in this study do not appear to have an excessive prevalence of dieting problems and eating disorders, the overall tendency for them to have significantly higher scores on most items of the questionnaires than the other two groups in this study, suggests they do represent a population at risk for developing eating disorders.

An overview of the results indicates that the DSs are similar to the MSs on the EAT questionnaire and their scores on the Perfectionism subscale of the EDI and these results lend some support to the hypothesis that these two

groups differ from the SSs students in terms of being more vulnerable to having eating problems and body image dissatisfaction. However, it was also found that the DSs had significantly higher scores than the MSs and SSs on most of the EDI subscales and the BSQ. Consequently it would seem that in terms of the instruments used in this study, the MSs were generally considered to be more like the SSs in terms of psychological and behavioural attitudes to body shape and weight. The fact that DSs scored highest on all the items that measured pursuit of thinness and preoccupation with body shape and size is in keeping with the literature on the eating behaviour and attitudes of dance students.

5.4 STUDENTS WITH HIGH EAT SCORES - "possible cases" of eating disorders.

As the EAT has been used extensively as a screening instrument for possible cases of eating disorders, those students who had high scores on this instrument were examined as a group. When compared to the total sample, this group had statistically significantly higher mean scores on the BSQ and the Drive for Thinness and Body Dissatisfaction subscales of the EDI. The mean scores on these two subscales were similar to a sample of symptomatic bulimics in a study by Krejci et al. (1992) and a group of AN sufferers in Klemchuk et al.'s (1990) study. Body dissatisfaction and severe dieting behaviour has been identified by Shisslak et al. (1987) as risk factors for the development of clinical eating disorders.

A total of 21 subjects (18%) had EAT scores ≥ 30 . This result compares well with a study by Strauman et al. (1991) of female undergraduates, who found

a similar prevalence of high EAT scores, and the findings of Fisher et al. (1991) in their study of female high school students. The mean EAT score was 38.0 (SD±10.2) which was higher than the AN sufferers in a study by Bunnell et al. (1992) and similar their sample of patients with BN. All of the SSs subjects in this subgroup had BMIs in the normal range. Two of the high EAT scorers, a DSs and a MSs, were overweight (BMI >25.0). Garner and Garfinkel (1979) found that overweight females had significantly different scores from patients with AN. This was not the case with these two subjects. However, Garner and Garfinkel (1979) do state that the EAT may also identify a group with serious eating concerns described as "a sub-group of chronic dieters.....people whose psychological orientation is not clearly distinguishable from that of patients with AN, except they do not manifest the classical weight loss" (p277). This may particularly be the case for the overweight DSs whose high scores on most of the subscales of the EDI compared with those of an eating disordered group in Klemchuk et al.'s (1990) study. It is therefore possible that this subject may be at risk for developing an eating disorder. Two other subjects had high EATs and low BMIs (<20.0), one of whom, a DS was dieting at the time of the study, and the other, a MS, had a history of an eating disorder. It is possible that these two subjects may have formal eating disorders, but clinical interviews would have to be undertaken to identify actual cases (le Grange, et al. 1994; Szmukler, 1983). There was some suggestion that the both the DSs and MSs in this subgroup of high EAT scorers had subjects who were possibly at risk or who had an eating disorder. This finding does, to some extent, further illustrate that these are two populations who seem particularly vulnerable to developing eating problems. For both the DSs and the MSs, there was a prevalence of 57% of high scores on the Perfectionism subscale, as

opposed to 50% in the SSs. However the overall mean score on this subscale was below the cut-off point, and well below results on this subscale reported for eating disordered populations. Therefore, it was not clearly shown that the drive to achieve and be successful was a possible predisposing factor in the development of an eating disorder.

5.5 CONCLUSION

This study examined the sociocultural influences that may have aetiological significance in the development of eating disorders in certain groups of vulnerable females. Particular emphasis was placed upon social pressures to have a thin body shape, and the demands made on young women to attain high levels of achievement in pursuit of a successful career. These specific factors were first identified by Garner and Garfinkel (1980) in their study which identified ballet students who were studying in more competitive programmes yielded higher EAT scores than the samples of dancers in less competitive settings. They did, however, state that the competitive setting alone could not solely account for their findings. This study sought to take this finding further in terms of investigating ongoing demands for excellent performance and achievement as being a possible aetiological influence. To a certain degree, there was some evidence that young women, medical students and dance students in particular, who are exposed to an environment that demands a constantly high level of achievement, do display greater concern with weight control and body image age measured on the EAT. There was a higher incidence of both DSs and MS who had a history of an eating disorder. The majority of these students had an onset of their illness several years before starting their full-time tertiary studies.

These results may reflect the fact that medicine and dance possibly attract young women who are high achievers and who have the self-control and discipline to pursue such careers. Such young women may be intrinsically more vulnerable to developing eating disorders.

One cannot say with any certainty that individuals who are exposed to cultural pressures to perform, to be slim and to be perfect are more susceptible to developing an eating disorder than those not living with such demands. Although it is believed from the results of this study that high performance expectations do have an impact on the possible development of eating problems, especially if there is also a professional requirement for thinness, these factors can only be understood in terms of the multidetermined nature of eating disorders. A clearer picture may have emerged had the subjects in this study been assessed as to their perceived performance expectations and levels of drive to achieve. A future study which includes these measures would be valuable as it might be helpful to identify those students who have significant results, and to evaluate if there is a relationship with disturbed attitudes to eating and body size. A further study that follows up those subjects that had high EAT scores, in order to identify possible cases of eating disorders, is also recommended.

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APPENDIX 1

INSTRUMENTS

DIETARY HISTORY QUESTIONNAIRE

Please complete this form as honestly and as accurately as possible.
All information provided will remain strictly confidential.

Date.....

Name.....

Age..... Year of study.....

Present Address.....

..... Tel No.....

Have you always lived in Cape Town?

If not, where did you live?

Are you living in a residence?.....

1. Are either of your parents overweight?.....
Who?.....
Have they always been overweight?.....
2. Are you a vegetarian?.....
Do you eat eggs and cheese?.....
How many eggs per week?.....
How much cheese per week?.....
3. Do you have a history of an eating disorder?.....
If yes, was it diagnosed or not?.....
Nature of disorder.....
Duration of disorder.....
At what age did disorder begin?.....
4. Do you menstruate?.....
When was your last period?.....
How often do you menstruate?.....
When did you first start menstruating?.....
5. Height:.....
6. Weight:.....
7. Do you ever feel faint, dizzy, lack energy?.....
State which and how often.....
8. Do you ever take diuretics ('water pills')?.....
How often?..... How many?.....
Do you ever vomit?..... How often?.....
Do you ever take laxatives?.....
How often?..... How many?.....

- 9. Do you take supplements or vitamins?.....
If so, name them and quantity/amount taken per day.....
.....
- 10. Do you consume alcohol?.....
If so, what type.....
How much on weekdays:.....
 weekends:.....
- 11. Highest Previous Adult Weight.....
Age at that time.....
- 12. Lowest Previous Adult Weight.....
Age at that time.....
- 13. Are you satisfied with your present weight (yes/no)?.....
- 14. If no, what weight would you like to be?.....
- 15. Were you ever overweight as a child or adolescent?.....
- 16. If yes, did you diet at that time?.....
Please give brief details.....
.....
.....
- 17. Are you currently on a weight-reducing diet?.....
If yes, please describe the diet briefly.....
.....
.....
.....

NAME: Date:

Eating Attitudes Test.

Please place an (X) under the column which applies best to each of the numbered statements. All of the results will be strictly confidential. Most of the questions directly relate to food or eating, although other types of questions have been included. Please answer each question carefully. Thank you.

ALWAYS	VERY OFTEN	OFTEN	SOMETIMES	RARELY	NEVER	
()	()	()	()	()	()	1. Like eating with other people.
()	()	()	()	()	()	2. Prepare foods for others but do not eat what I cook.
()	()	()	()	()	()	3. Become anxious prior to eating.
()	()	()	()	()	()	4. Am terrified about being overweight.
()	()	()	()	()	()	5. Avoid eating when I am hungry.
()	()	()	()	()	()	6. Find myself preoccupied with food.
()	()	()	()	()	()	7. Have gone on eating binges where I feel that I may not be able to stop.
()	()	()	()	()	()	8. Cut my food into small pieces.
()	()	()	()	()	()	9. Aware of the calorie content of foods that I eat.
()	()	()	()	()	()	10. Particularly avoid foods with a high carbohydrate content (e.g. bread, potatoes, rice, etc.)
()	()	()	()	()	()	11. Feel bloated after meals.
()	()	()	()	()	()	12. Feel that others would prefer if I ate more.
()	()	()	()	()	()	13. Vomit after I have eaten.
()	()	()	()	()	()	14. Feel extremely guilty after eating.
()	()	()	()	()	()	15. Am preoccupied with a desire to be thinner.
()	()	()	()	()	()	16. Exercise strenuously to burn off calories.
()	()	()	()	()	()	17. Weigh myself several times a day.
()	()	()	()	()	()	18. Like my clothes to fit tightly.
()	()	()	()	()	()	19. Enjoy eating meat.
()	()	()	()	()	()	20. Wake up early in the morning.
()	()	()	()	()	()	21. Eat the same foods day after day.
()	()	()	()	()	()	22. Think about burning up calories when I exercise.
()	()	()	()	()	()	23. Have regular menstrual periods.
()	()	()	()	()	()	24. Other people think that I am too thin.
()	()	()	()	()	()	25. Am preoccupied with the thought of having fat on my body.

ALWAYS	VERY OFTEN	OFTEN	SOMETIMES	RARELY	NEVER	
()	()	()	()	()	()	26. Take longer than others to eat my meals.
()	()	()	()	()	()	27. Enjoy eating at restaurants.
()	()	()	()	()	()	28. Take laxatives.
()	()	()	()	()	()	29. Avoid foods with sugar in them.
()	()	()	()	()	()	30. Eat diet foods.
()	()	()	()	()	()	31. Feel that food controls my life.
()	()	()	()	()	()	32. Display self control around food.
()	()	()	()	()	()	33. Feel that others pressure me to eat.
()	()	()	()	()	()	34. Give too much time and thought to food.
()	()	()	()	()	()	35. Suffer from constipation.
()	()	()	()	()	()	36. Feel uncomfortable after eating sweets.
()	()	()	()	()	()	37. Engage in dieting behaviour.
()	()	()	()	()	()	38. Like my stomach to be empty.
()	()	()	()	()	()	39. Enjoy trying new rich foods.
()	()	()	()	()	()	40. Have the impulse to vomit after meals.

BSQ

We should like to know how you have been feeling about your appearance over the PAST FOUR WEEKS. Please read each question and circle the appropriate number to the right. Please answer all the questions.

OVER THE PAST FOUR WEEKS:

	Never	Rarely	Sometimes	Often	Very Often	Always
1. Has feeling bored made you brood about your shape?	1	2	3	4	5	6
2. Have you been so worried about your shape that you have been feeling that you ought to diet?	1	2	3	4	5	6
3. Have you thought that your thighs, hips or bottom are too large for the rest of you?	1	2	3	4	5	6
4. Have you been afraid that you might become fat (or fatter)?	1	2	3	4	5	6
5. Have you worried about your flesh being not firm enough?	1	2	3	4	5	6
6. Has feeling full (e.g. after eating a large meal) made you feel fat?	1	2	3	4	5	6
7. Have you felt so bad about your shape that you have cried?	1	2	3	4	5	6
8. Have you avoided running because your flesh might wobble?	1	2	3	4	5	6
9. Has being with thin women made you feel self-conscious about your shape?	1	2	3	4	5	6
10. Have you worried about your thighs spreading out when sitting down?	1	2	3	4	5	6
11. Has eating even a small amount of food made you feel fat?	1	2	3	4	5	6
12. Have you noticed the shape of other women and felt that your own shape compared unfavourably?	1	2	3	4	5	6
13. Has thinking about your shape interfered with your ability to concentrate (e.g. while watching television, reading, listening to conversations)?	1	2	3	4	5	6
14. Has being naked, such as when taking a bath, made you feel fat?	1	2	3	4	5	6

	Never	Rarely	Sometime:	Often	Very Oft.	Always
15. Have you avoided wearing clothes which make you particularly aware of the shape of your body?	1	2	3	4	5	6
16. Have you imagined cutting off fleshy areas of your body?	1	2	3	4	5	6
17. Has eating sweets, cakes or other high calorie food made you feel fat?	1	2	3	4	5	6
18. Have you not gone out to social occasions (e.g. parties) because you have felt bad about your shape?	1	2	3	4	5	6
19. Have you felt excessively large and rounded?	1	2	3	4	5	6
20. Have you felt ashamed of your body?	1	2	3	4	5	6
21. Has worry about your shape made you diet?	1	2	3	4	5	6
22. Have you felt happiest about your shape when your stomach has been empty (e.g. in the morning)?	1	2	3	4	5	6
23. Have you thought that you are the shape you are because you lack self-control?	1	2	3	4	5	6
24. Have you worried about other people seeing rolls of flesh around your waist or stomach?	1	2	3	4	5	6
25. Have you felt that it is not fair that other women are thinner than you?	1	2	3	4	5	6
26. Have you vomited in order to feel thinner?	1	2	3	4	5	6
27. When in company have you worried about taking up too much room (e.g. sitting on the sofa, or a bus seat)?	1	2	3	4	5	6
28. Have you worried about your flesh being dimply?	1	2	3	4	5	6
29. Has seeing your reflection (e.g. in a mirror or shop window) made you feel bad about your shape?	1	2	3	4	5	6
30. Have you pinched areas of your body to see how much fat there is?	1	2	3	4	5	6
31. Have you avoided situations where people could see your body (e.g. communal changing rooms or swimming baths)?	1	2	3	4	5	6
32. Have you taken laxatives in order to feel thinner?	1	2	3	4	5	6
33. Have you been particularly self-conscious about your shape when in the company of other people?	1	2	3	4	5	6
34. Has worry about your shape made you feel you ought to exercise?	1	2	3	4	5	6

Name.....Date.....
 Age.....Sex.....
 Present Weight.....Height.....

Instructions

This is a scale which measures a variety of attitudes, feelings and behaviours. Some of the items relate to food and eating. Others ask you about your feelings about yourself. THERE ARE NO RIGHT OR WRONG ANSWERS SO TRY VERY HARD TO BE COMPLETELY HONEST IN YOUR ANSWERS. RESULTS ARE COMPLETELY CONFIDENTIAL. Read each question and place an (X) under the column which applies best for you. Please answer each question very carefully. Thank you.

	ALWAYS	USUALLY	OFTEN	SOMETIMES	RARELY	NEVER
1. I eat sweets and carbohydrates without feeling nervous.	()	()	()	()	()	()
2. I think that my stomach is too big.	()	()	()	()	()	()
3. I wish I could return to the security of childhood.	()	()	()	()	()	()
4. I eat when I am upset	()	()	()	()	()	()
5. I stuff myself with food	()	()	()	()	()	()
6. I wish I could be younger	()	()	()	()	()	()
7. I think about dieting	()	()	()	()	()	()
8. I get frightened when my feelings are strong.	()	()	()	()	()	()
9. I think my thighs are too large	()	()	()	()	()	()
10. I feel ineffective as a person	()	()	()	()	()	()
11. I feel extremely guilty after over-eating.	()	()	()	()	()	()
12. I think my stomach is just the right size.	()	()	()	()	()	()
13. Only outstanding performance is good enough in my family.	()	()	()	()	()	()
14. The happiest time in life is when you are a child.	()	()	()	()	()	()
15. I am open about my feelings	()	()	()	()	()	()
16. I am terrified about gaining weight	()	()	()	()	()	()
17. I trust others	()	()	()	()	()	()
18. I feel alone in the world	()	()	()	()	()	()

	ALWAYS	USUALLY	OFTEN	SOMETIMES	RARELY	NEVER
19. I feel satisfied with the shape of my body	()	()	()	()	()	()
20. I feel generally in control of things in my life.	()	()	()	()	()	()
21. I get confused about what emotion I am feeling	()	()	()	()	()	()
22. I would rather be an adult than a child	()	()	()	()	()	()
23. I can communicate with others easily	()	()	()	()	()	()
24. I wish I were someone else	()	()	()	()	()	()
25. I exaggerate or magnify the importance of weight	()	()	()	()	()	()
26. I can clearly identify what emotion I am feeling	()	()	()	()	()	()
27. I feel inadequate	()	()	()	()	()	()
28. I have gone on eating binges where I have felt that I could not stop	()	()	()	()	()	()
29. As a child, I tried very hard to avoid disappointing my parents and teachers	()	()	()	()	()	()
30. I have close relationships	()	()	()	()	()	()
31. I like the shape of my buttocks	()	()	()	()	()	()
32. I am preoccupied with the desire to be thinner	()	()	()	()	()	()
33. I don't know what's going on inside me	()	()	()	()	()	()
34. I have trouble expressing my emotions to others	()	()	()	()	()	()
35. The demands of adulthood are too great	()	()	()	()	()	()
36. I hate being less than best at things	()	()	()	()	()	()
37. I feel secure about myself	()	()	()	()	()	()
38. I think about bingeing (overeating)	()	()	()	()	()	()
39. I feel happy that I am not a child anymore	()	()	()	()	()	()
40. I get confused as to whether or not I am hungry	()	()	()	()	()	()
41. I have a low opinion of myself	()	()	()	()	()	()
42. I feel that I can achieve my standards	()	()	()	()	()	()
43. My parents have expected excellence of me.	()	()	()	()	()	()
44. I worry that my feelings will get out of control	()	()	()	()	()	()
45. I think my hips are too big	()	()	()	()	()	()
46. I eat moderately in front of others and stuff myself when they're gone	()	()	()	()	()	()

	ALWAYS	USUALLY	OFTEN	SOMETIMES	RARELY	NEVER
47. I feel bloated after eating a small meal	()	()	()	()	()	()
48. I feel that people are happiest when they are children.	()	()	()	()	()	()
49. If I gain a pound, I worry that I will keep gaining.	()	()	()	()	()	()
50. I feel I am a worthwhile person	()	()	()	()	()	()
51. When I'm upset, I don't know if I am sad, frightened or angry.	()	()	()	()	()	()
52. I feel that I must do things perfectly or not at all.	()	()	()	()	()	()
53. I have the thought of trying to vomit in order to lose weight.	()	()	()	()	()	()
54. I need to keep people at a certain distance (I feel uncomfortable if someone tries to get too close)	()	()	()	()	()	()
55. I think my thighs are just the right size.	()	()	()	()	()	()
56. I feel empty inside (emotionally)	()	()	()	()	()	()
57. I can talk about personal thoughts or feelings	()	()	()	()	()	()
58. The best years of your life are when you become an adult	()	()	()	()	()	()
59. I think my buttocks are too large	()	()	()	()	()	()
60. I have feelings I can't quite identify	()	()	()	()	()	()
61. I eat or drink in secrecy	()	()	()	()	()	()
62. I think my hips are just the right size	()	()	()	()	()	()
63. I have extremely high goals	()	()	()	()	()	()
64. When I am upset, I worry that I will start eating.	()	()	()	()	()	()

APPENDIX 2

TABLE A
CORRELATIONS BETWEEN VARIABLE FOR
THE SOCIAL SCIENCE STUDENTS

	EAT	BSQ	EDI	DT	BU	BD	IF	PR	ID	IA	MF
BSQ	0.74										
EDI	0.81	0.84									
DT	0.77	0.77	0.84								
BU	0.65	0.60	0.70	0.63							
BD	0.59	0.82	0.77	0.66	0.38						
IF	0.49	0.35	0.58	0.29	0.43	0.21					
PR	0.03	0.01	0.18	0.01	0.02	0.13	0.02				
ID	0.27	0.07	0.39	0.12	0.21	0.04	0.48	0.29			
IA	0.56	0.53	0.67	0.43	0.68	0.33	0.65	0.18	0.37		
MF	0.36	0.29	0.40	0.40	0.39	0.28	0.36	0.10	0.01	0.39	
AGE	0.39	0.43	0.42	0.31	0.34	0.51	0.30	0.24	0.01	0.23	0.23
HT	0.14	0.28	0.19	0.13	0.02	0.18	0.13	0.09	0.05	0.15	0.12
WT	0.17	0.48	0.41	0.32	0.18	0.53	0.06	0.05	0.05	0.16	0.01
BMI	0.09	0.34	0.34	0.27	0.19	0.50	0.04	0.02	0.02	0.06	0.11
OM	0.00	0.02	0.03	0.06	0.13	0.02	0.09	0.20	0.02	0.00	0.11

Note: Figures in **BOLD** are significant ($r=0.49$; $df=40$; $p<0.001$)

TABLE B
CORRELATIONS BETWEEN VARIABLES FOR
THE MEDICAL STUDENTS

	EAT	BSQ	EDI	DT	BU	BD	IF	PR	ID	IA	MF
BSQ	0.74										
EDI	0.69	0.82									
DT	0.88	0.81	0.77								
BU	0.60	0.65	0.68	0.61							
BD	0.45	0.79	0.74	0.50	0.45						
IF	0.39	0.36	0.66	0.37	0.42	0.16					
PR	0.05	0.04	0.36	0.10	0.04	0.00	0.26				
ID	0.11	0.26	0.56	0.20	0.20	0.22	0.65	0.24			
IA	0.52	0.53	0.70	0.65	0.58	0.33	0.54	0.28	0.43		
MF	0.17	0.11	0.38	0.21	0.19	0.01	0.68	0.22	0.42	0.35	
AGE	0.14	0.20	0.04	0.14	0.19	0.16	0.21	0.12	0.16	0.03	0.28
HT	0.27	0.36	0.23	0.28	0.22	0.31	0.12	0.21	0.04	0.10	0.06
WT	0.06	0.36	0.21	0.11	0.05	0.49	0.03	0.06	0.18	0.04	0.00
BMI	0.09	0.40	0.31	0.05	0.16	0.61	0.10	0.18	0.13	0.01	0.03
OM	0.24	0.07	0.05	0.16	0.07	0.23	0.00	0.02	0.07	0.07	0.05

Note: Figures in **BOLD** are significant ($r=0.50$; $df=38$; $p<0.001$)

TABLE C
CORRELATIONS BETWEEN VARIABLES FOR
THE DANCE STUDENTS

	EAT	BSQ	EDI	DT	BU	BD	IF	PR	ID	IA	MF
BSQ	0.67										
EDI	0.79	0.87									
DT	0.78	0.90	0.94								
BU	0.62	0.64	0.68	0.68							
BD	0.67	0.86	0.84	0.80	0.48						
IF	0.50	0.57	0.79	0.66	0.39	0.54					
PR	0.14	0.02	0.14	0.15	0.11	0.15	0.08				
ID	0.35	0.10	0.35	0.12	0.01	0.17	0.52	0.23			
IA	0.68	0.64	0.76	0.66	0.57	0.50	0.72	0.11	0.43		
MF	0.34	0.34	0.57	0.49	0.58	0.28	0.64	0.15	0.19	0.49	
AGE	0.09	0.28	0.15	0.20	0.04	0.23	0.12	0.27	0.07	0.21	0.07
HT	0.08	0.22	0.13	0.13	0.06	0.31	0.15	0.51	0.09	0.03	0.16
WT	0.30	0.53	0.41	0.45	0.55	0.50	0.22	0.32	0.03	0.16	0.29
BMI	0.33	0.49	0.43	0.46	0.68	0.38	0.15	0.04	0.13	0.19	0.24
OM	0.20	0.06	0.00	0.04	0.03	0.10	0.11	0.19	0.17	0.05	0.14

Note: Figures in BOLD are significant ($r=0.54$; $df=32$; $p<0.001$)

FIGURE A
COMPARISON BETWEEN THE GROUPS

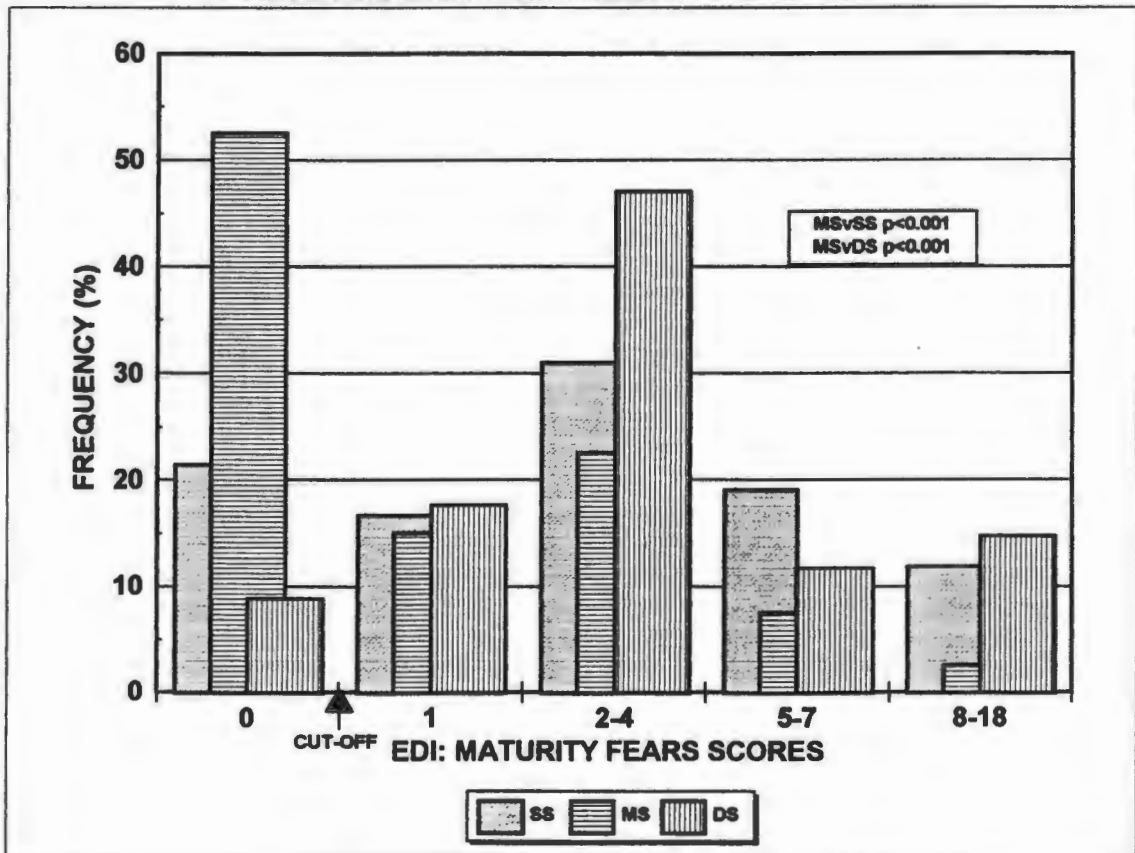


FIGURE B

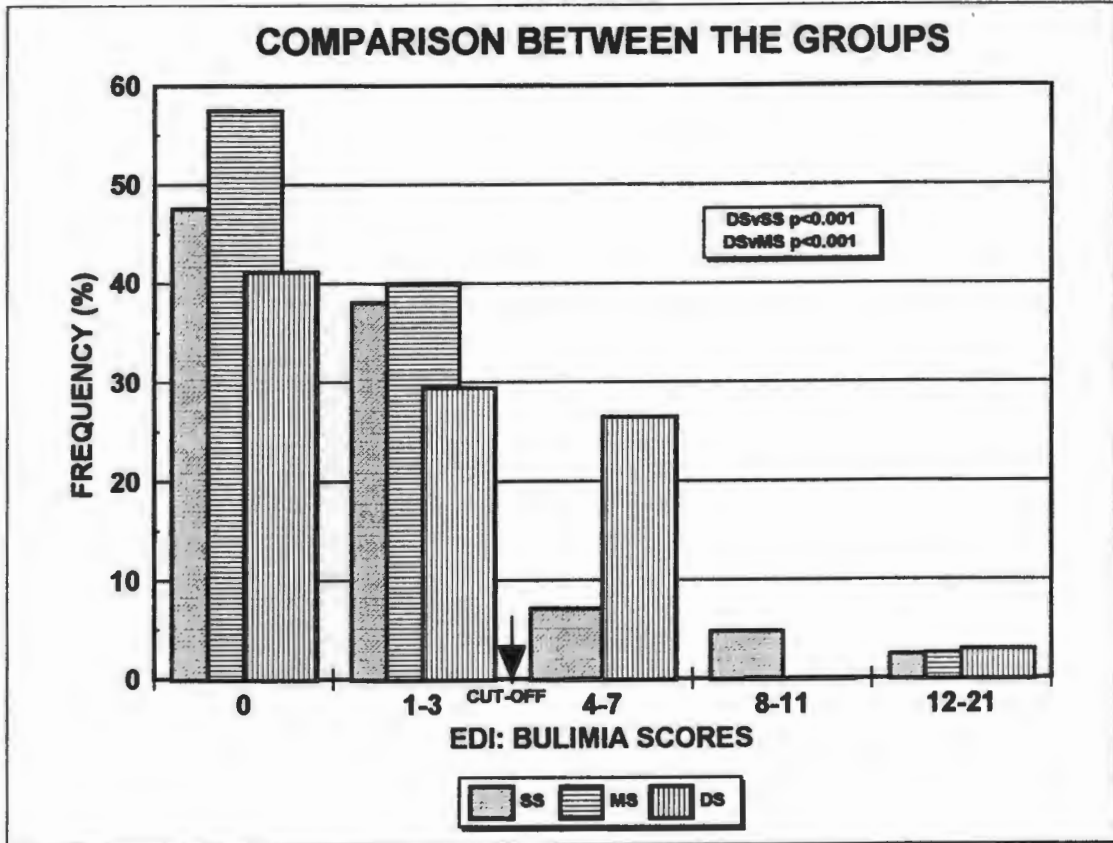


FIGURE C

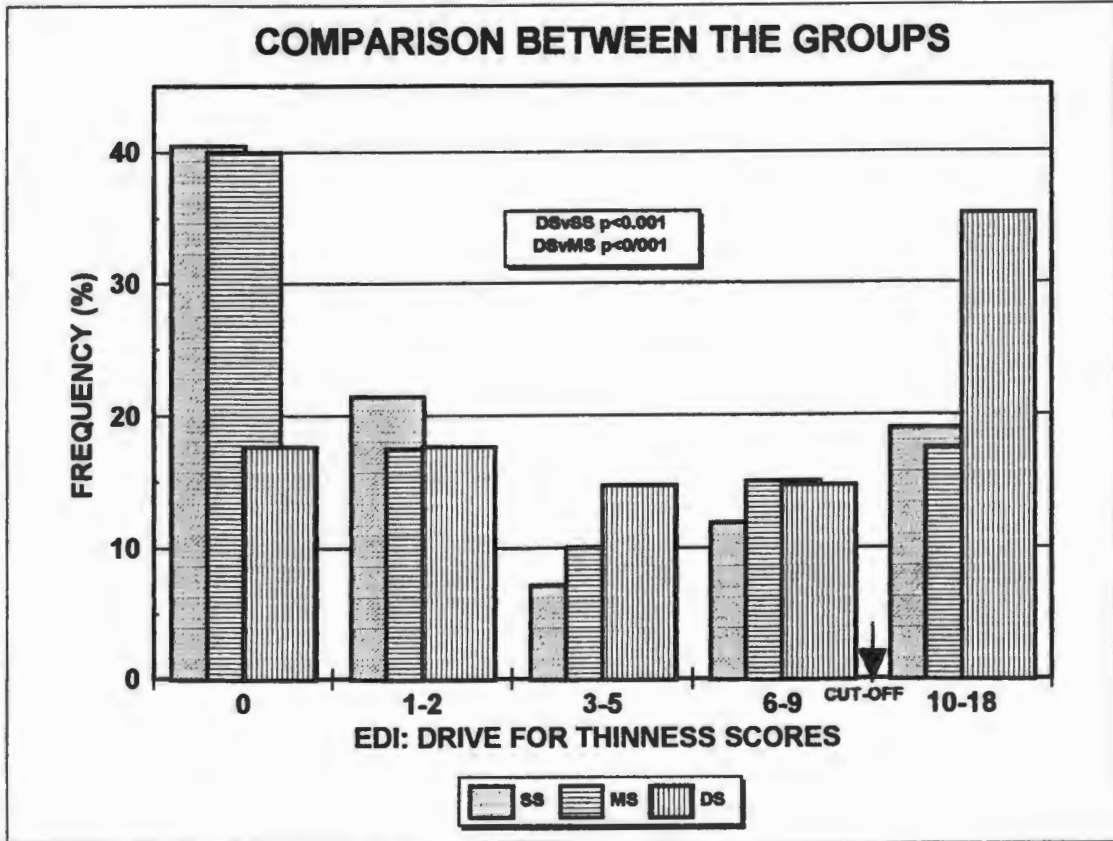


FIGURE D

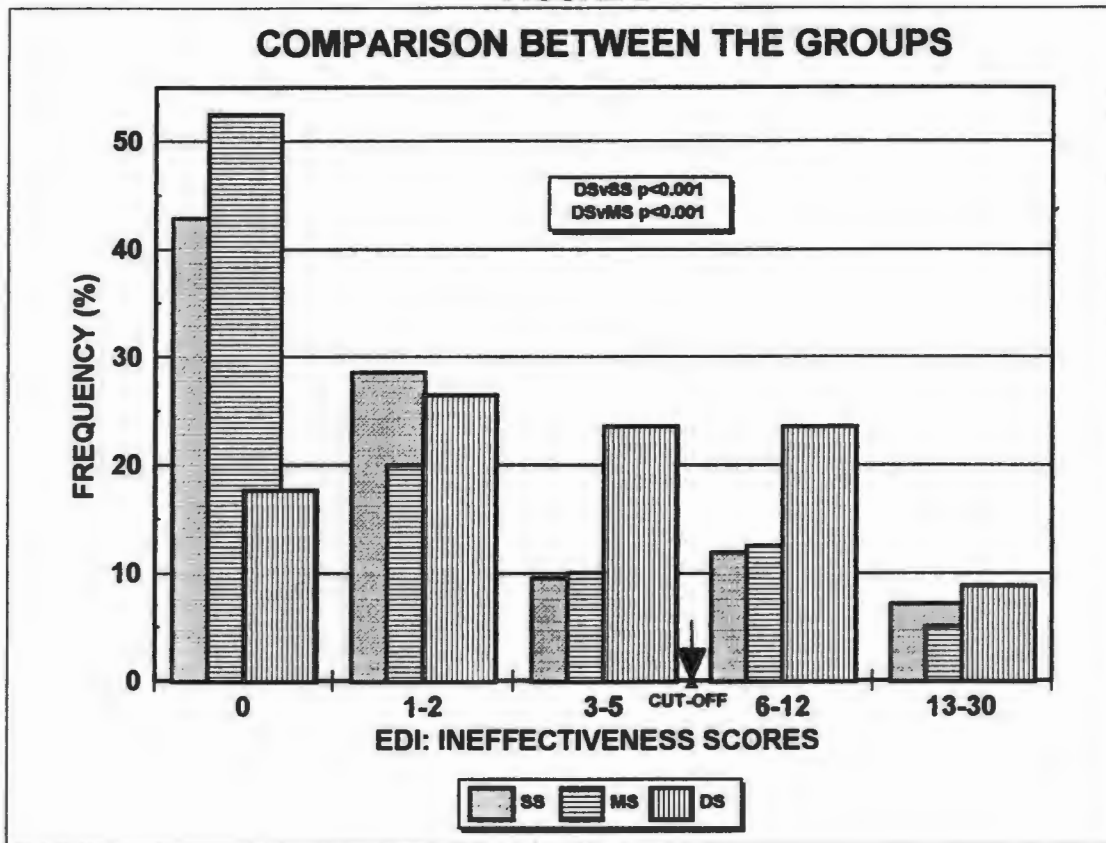


FIGURE E

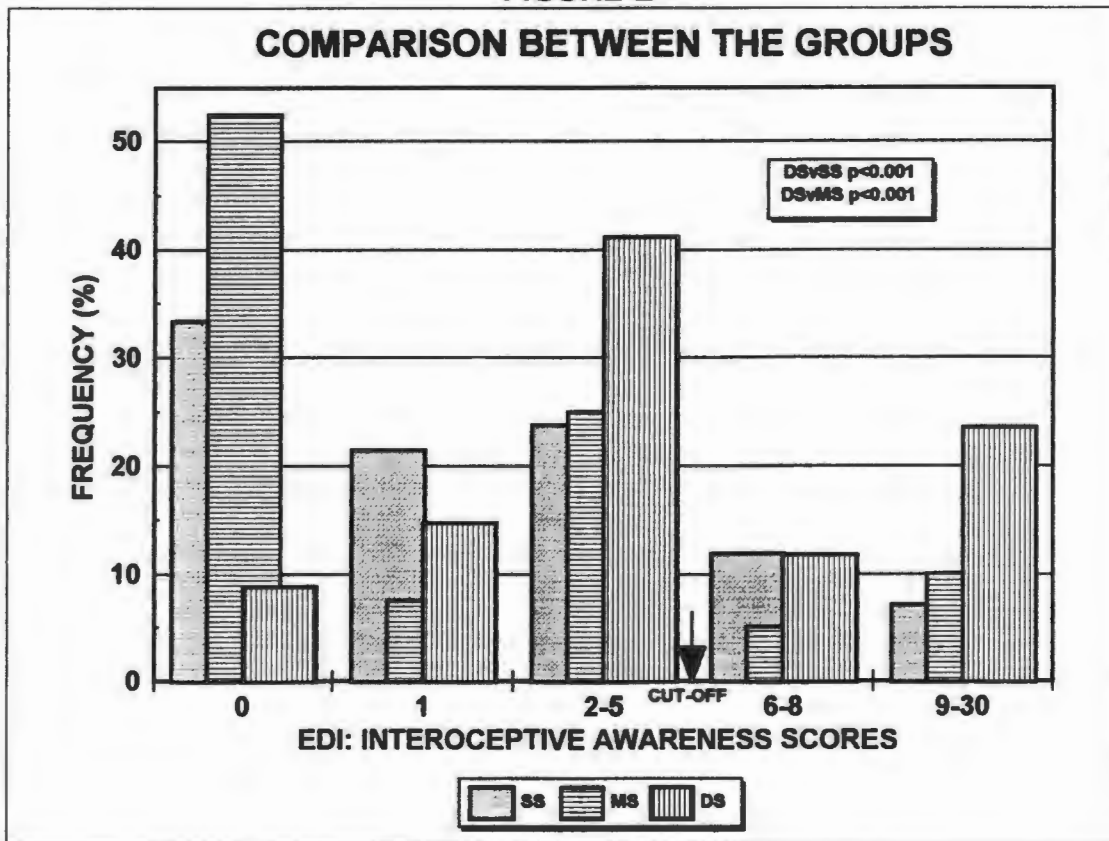


FIGURE F

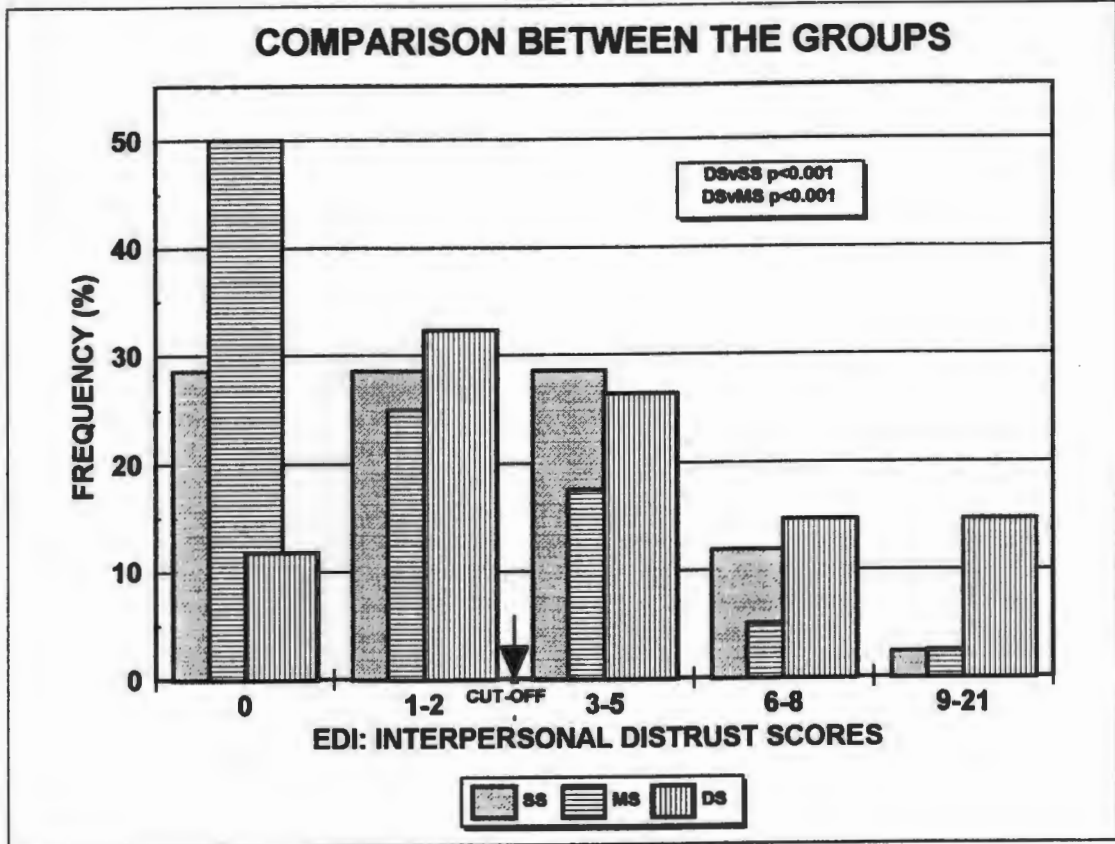


FIGURE G

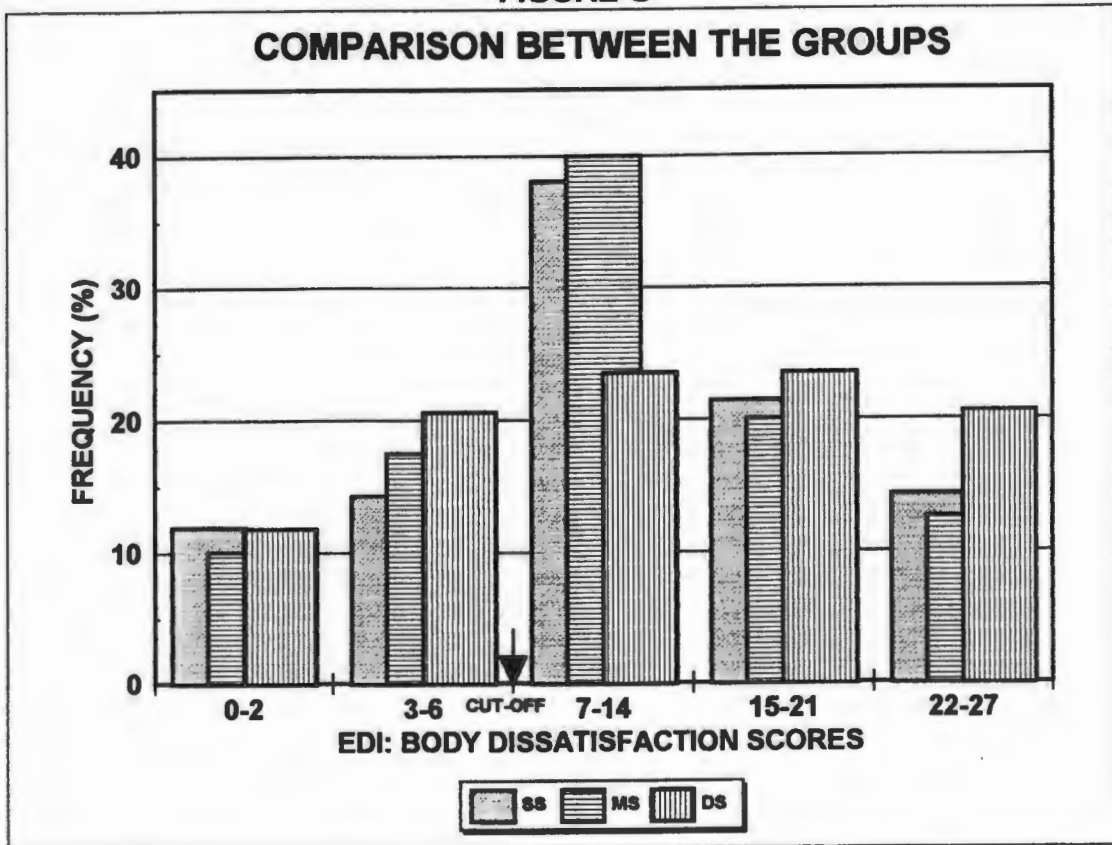


TABLE D
DATA OF SUBJECTS WITH RAISED SCORES ON THE EAT

REF	DT	BU	BD	IF	PR	ID	IA	MF	EAT	BSQ	BMI
NORMAL BODY MASS INDEX											
SS24	18	1	27	12	1	2	6	11	27	149	21.3
SS21	17	3	17	3	2	7	4	0	28	126	23.3
SS14	8	11	16	14	3	5	12	5	29	148	23.0
SS26	17	12	22	2	6	3	15	10	33	145	21.1
MS34	7	1	7	3	6	2	2	6	31	101	20.8
MS38	11	0	13	3	7	0	0	0	37	117	21.1
MS25	19	14	27	11	6	4	11	3	51	168	23.3
DS07	13	3	25	7	6	6	13	1	28	156	22.7
DS21	14	5	21	9	3	10	7	0	28	178	21.7
DS25	19	6	27	17	3	3	6	11	30	185	22.0
DS30	16	7	22	5	4	1	7	3	34	134	22.0
DS33	6	0	17	2	1	0	0	0	39	95	20.0
DS29	16	4	23	8	6	9	9	3	48	150	20.3
LOW BODY MASS INDEX											
SS31	12	8	15	11	6	6	8	6	51	137	19.0
MS26	11	0	4	1	4	2	0	0	35	88	19.3
MS27	14	2	15	12	4	6	4	2	42	130	19.5
MS35	18	3	15	4	5	0	15	2	52	118	18.2
DS24	10	0	10	2	13	1	10	1	30	131	17.0
DS12	21	6	27	22	3	13	26	12	60	178	19.7
HIGH BODY MASS INDEX											
MS07	7	3	25	5	0	2	4	1	32	131	31.6
DS04	20	19	22	5	9	0	15	11	52	198	26.8

Note: Figures in **BOLD** are at or above the respective cut-off values