THE RELATION BETWEEN EATING DISORDERS AND SELF ESTEEM IN ADOLESCENTS IN TRINIDAD

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This study, conducted in Trinidad, aims to investigate if differences exist in the level of eating disorders with respect to age (younger and older adolescents), gender and ethnicity (Indian and African descent). It also aims to investigate the relationship between eating disorders and self esteem, and to examine the potential utility of self esteem enhancement as a means of reducing eating disorders. Four eating disorder subscales as well as four self esteem subscales were used in the analysis. The sample consisted of 237 adolescents between the ages of 12 and 18. The prevalence rates discovered indicate that eating disorders is an important area for concern in Trinidad. Females were much more likely than males to have higher levels of eating disorders, though self esteem was equally strongly negatively correlated with eating disorders for both males and females. Younger adolescents had a higher drive for thinness than older adolescents, while the youngest females had the highest bulimia and body dissatisfaction scores, with youngest males having the lowest. There was a noteworthy tendency for self esteem to be more strongly correlated to eating disorders for older, compared to younger adolescents, pointing to the possibility of a difference in the aetiology of eating disorders for both groups. It was found that familial acceptance was the best self esteem predictor of eating disorders. Multivariate analysis revealed that there were no ethnic differences in eating disorders in the present sample, though a lone univariate difference on one of the eating disorder subscales indicates that this area merits further research.

Keywords: eating disorders, self esteem, Trinidad, Caribbean

Introduction

Eating disorders are associated with a number of psychological and health problems. Krause et al. (2000: 329) point out that “a sense of depression, loss and helplessness is often associated with eating disorders.” Eating disordered individuals also report having more negative emotions and general anhedonia (Podar et al. 1999). Osvold et al. (1993) point out that “another distinctive psychological feature is an inability to identify one’s own feelings and a profound sense of ineffectiveness.” This is associated with decreased self esteem and anxiety (Kilpatrick et al. 1999). Quite importantly, Canals and Carbajo (1996) have shown that adolescents are especially prone to psychological problems where eating disordered behaviour is concerned. Health problems are related to the dangerous weight loss practices employed by young people. Dangerous practices include laxative abuse, vomiting, starvation, smoking and using slimming pills (O’Dea et al. 1996). The seriousness of this area is indicated by Comer (1992) who has
examined a number of studies and has shown that between 5 to 18% of anorexics die from this disorder. The American Psychiatric Association (1994) has shown that after treatment, approximately 25% of anorexics remain seriously impaired or are dead at follow up.

Due to its close link with eating disorders, self esteem enhancement may be one means of reducing the incidence of eating disorders (O’Dea and Abraham, 2000; 2001). While such an approach may be considered indirect, previous evaluation research has indicated that more direct approaches can do more harm than good. Some possible reasons for this is that programmes which focus directly on eating disorders may inadvertently introduce adolescents to ideas about dieting (Garner 1985) and weight control techniques (Abraham and O’Dea, 2001) while sensitizing them to the societal ideals of a thin body (Eccles 1990). Such programmes may also glamorize and normalize eating disorders (Mann et al. 1997). Kilpatrick et al. (1999), for example, investigated an adolescent sample (representative of the American population) and found that “the group that received education about the problems of being underweight… was actually less likely to attempt to gain weight… and more likely to attempt losing weight… than those who had received no such education. This also increased the likelihood of using dietary changes as a means of weight loss.” O’Dea et al. (2001) suggest that intervention programmes should avoid direct instruction about eating disorders and should instead employ self esteem development.

This research aims to estimate the incidence of eating disorders in Trinidad as well as examine whether differences in the incidence of eating disorders exist with respect to age (younger vs. older adolescents), gender and ethnicity (Indian vs. African descent). Interaction effects will also be considered. This paper also seeks to assess the potential utility of self esteem enhancement as a means to reduce eating disorder symptomatology. While this research does not test causal relationships (and the terms ‘independent’ and ‘dependent variables’ are used for convenience and synonymously with the terms ‘predictor’ and ‘criterion variables’ respectively), it assesses the strength of association between eating disorders and self esteem and explores possible reasons for this relationship. In this respect, four applicable self esteem subscales are employed and this paper aims to determine which of these are more closely associated with eating disorders. While it will be hypothesized that there is a negative relationship between self esteem and eating disorders, it will be argued that this relationship is conditional on other variables. That is, other variables act as moderators of the relationship between self esteem and eating disorders. A moderator variable is any discrete or continuous variable which can alter the strength and/or direction of the relationship between two other variables (Baron and Kenny 1986). In the current study, it is expected that age and gender moderate the relationship between self esteem and eating disorders. More specifically, it is expected that the negative relationship between self esteem and eating disorder is stronger for girls than for boys, and for older adolescents compared to younger adolescents. It is not expected that ethnicity will act as a moderator. Where self esteem enhancement is to be used as a means of reducing eating disorders, moderator variables will indicate which groups of persons are more likely to experience success with such interventions. Though the existing research offers some guidance, no research on this topic has been done in Trinidad. This research is therefore viewed as descriptive and exploratory.
Variables

**Dependent Variable: Eating Disorders**

Eating Disorders may be defined as “a spectrum of disorders, all of which are associated with the avoidance of fatness and the pursuit of thinness” (Button 1993). In measuring eating disorders, four subscales from two standardized instruments were employed. The Eating Disorder Inventory (Garner, Olmsted and Polivy 1984) was designed to assess psychological and behavioural traits common in anorexia nervosa and bulimia nervosa. Three measures from this instrument were employed. The Drive for Thinness subscale measures excessive preoccupation with weight and dieting and an intense pursuit of thinness. The Bulimia subscale measures the tendency toward episodes of uncontrollable eating and self induced vomiting. The Body Dissatisfaction subscale measures the level of satisfaction with the maturational areas of the body. The second instrument, the Body Image Ideals Questionnaire (Cash and Szymanski 1995), measures “self-perceived discrepancies from and importance of internalized ideals for multiple physical characteristics.” Both instruments have been used successfully in many countries (cf. Eberly and Eberly 1985; Johnson et al. 1996).

**Predictor Variable: Self Esteem**

The Self Esteem Index (Brown and Alexander 1991) measures the individual’s self esteem and contains four subscales. The Familial Acceptance subscale is a measure of the way the individual perceives and values himself as a member of the family. It focuses on the individual’s level of perceived importance as a member of the family unit, who is trusted, listened to, and cared about. The Academic Competence subscale is concerned with individuals’ perceptions of their school performance, their interests and desire to excel at academic activities, the value they attach to intellectual achievement, and the support they feel from their teachers. The Peer Popularity subscale is concerned with peer perceptions of the individual, social and interpersonal skills, the ease of interaction with peers, and leadership traits. The Personal Security subscale assesses the individual’s overall feelings of anxiety, guilt and shame concerning real or imagined transgressions. The Self Esteem Index was designed for use within the 8 to 19 age range.

**Demographic Variables**

Other predictors include age, gender and ethnicity. Two age ranges, 12 – 14 and 15 – 18 will be used. These will be referred to as ‘younger’ and ‘older’ adolescents respectively. With respect to ethnicity, the present study utilizes persons of East Indian and African descent.

**Literature Review**

**Eating Disorders and Gender**

A substantial amount of research has shown that females are more prone to eating disordered behaviour than males (Borchert and Heinberg 1996). Halmi et al. (1981) reported that 19% of female college students in their sample met the DSM-III criteria for Bulimia while Abraham et al. (1983) found that 20-25% of Australian females in their teens considered themselves to be
preoccupied with thoughts of food and to have disordered eating for which they would like help. Indeed, three recent reviews (Gandour 1984; Johnson et al. 1984; Schleser-Stropp 1984) have concluded that eating disorders is a problem which affects females more than males. In concord with this, females tend to desire a thinner figure, express more anxiety about becoming fat, and are more likely to diet than males (Cash and Brown 1989; Drewnowski and Yee 1987).

There is evidence that the epidemic increase in eating disorders since the 1960s is related to intense social and cultural pressures on women to conform to a model of feminine attractiveness which idealizes thinness (Garner et al. 1996). It has been shown that Western cultures embody societal ideals of thinness and that such values have permeated the cultures of many countries (Davis and Katzman 1999; Gowen et al. 1999). Osvold et al. (1993) have shown that women in the United States “encounter daily messages about food, body weight and the ideal image of beauty as a very slim… woman.” Further, the now existing mass-market weight-control industry supplies prescriptions for achieving this slim ideal and popularizes damaging rituals such as restrictive dieting and even purging and cosmetic surgery (Wooley and Wooley 1982).

Garner and Garfinkel (1980: 652) have asserted that “the potential impact of the media in establishing identificatory role models cannot be overemphasized.” These authors show that women in leading roles in the media have become thinner over the past 30 years. Similarly, Garner et al. (1980) have found that since 1959, there has been a steady decline in the weight of contestants in the Miss America Pageant (average annual decline is .28 lbs. for contestants and .37 lbs. for the winner). Female models in magazines have also gotten thinner with time (Agras and Kirkley 1986). In one study Silverstein et al. (1986) compared 48 women’s magazines to 48 men’s magazines and found 63 different advertisements for diet foods in the women’s magazines compared to 1 in the men’s magazines. Further, Leon and Finn (1984) have discovered that the media portrays unrealistic eating ideals for women. Striegel-Moore et al. (1990: 364) are thus correct to assert that “The media’s glamorization of thinness thus contributes to a sociocultural risk factor for women’s normative discontent with weight.”

Recent research has shown, however, that eating disorders is becoming a problem for males (Furnham et al. 2002). Striegel-Moore et al. (1986) have hypothesized that this is linked to shifting sex roles and societal pressure on males to become conscious of physical fitness and appearance. In addition, in the past, where females may have been more open about eating disordered behaviour, males are now becoming more expressive and willing to admit that they have a traditionally ‘female problem’ (Harper and Marshall 1991). In a study comparing Indian and Australian students, Sjostedt et al. (1998) found that Indian males did not differ from Australian or Indian females and had similarly high levels of eating disordered behaviour. Indeed, on one of the measures, Indian males had a higher mean (though not significantly so) than Australian females. In another study, Silberstein et al. (1988: 219) found that “males and females did not differ in degree of body dissatisfaction as assessed by measures of body esteem, body size drawings, and measures of weight dissatisfaction [though] men were as likely to want to be heavier as thinner, whereas virtually no woman wished to be heavier.” Canals and Carbajo (1996), who compared 12-13 year old adolescents on the prevalence of eating disorder symptoms found that “the difference between sexes did not reach statistical significance.” Given, however, the overwhelming evidence that points to a higher incidence of eating disordered behaviour in females, the following is hypothesized:
Hypothesis 1:
It is expected, for all eating disorder subscales, that females will exhibit significantly higher levels of eating disordered behaviour than males.

Eating Disorders and Age

Understanding if a critical age range exists for the manifestation of eating disorders is important since such knowledge adds to the understanding of the aetiology of eating disorders, and hence is useful for intervention purposes (Krause et al. 2000). Within the 12 – 18 age range that this study considers, the existing research has yielded conflicting results with respect to the prevalence of eating disorders. Some studies have indicated that levels of eating disorders are highest in younger adolescents (O’Dea and Abraham 1999b; Stice and Hayward, 2000) while others have indicated that older adolescents exhibit the highest levels (Comer 1992; Heatherton et al. 1997). Other studies have found no age effects within this group (Cash and Henry 1995; Fisher 1986).

Such findings may exist for a number of reasons. Damhorst et al. (2001: 554) suggest that “adolescents develop physically at such varying rates that net increases or decreases in satisfaction due to changes in body size and shape average out in large sample means.” Arriaza and Mann (2001) suggest that differing measures and idiosyncrasies in assessment as well as varying degrees of acculturation to American norms may result in differing findings for different samples while Mullis et al. (1992) additionally suggest that differences in methodology, definitions of variables and research designs may be related to inconsistency in findings. This paper contends however, that an Age * Gender interaction exists which effectively cancels out the main effect for age. Following is an examination of the evidence in support of this view.

It has been noted that the transition into adolescence, marked by puberty, is a time when “younger adolescents experience heightened sensitivity to their changing lives and to important events” (Mullis et al. 1992: 54). Marcotte et al. (2002) further note that “normative developmental transitions are less stressful if they are experienced sequentially rather that simultaneously” since this gives adolescents the opportunity to adjust to one change at a time. They assert that for girls, the early adolescent period is especially difficult since they experience puberty and make the transition to secondary school simultaneously. Much research has supported the view that for girls, heightened social awareness and heightened stress exist at this time period (Coleman 1989; Koenig and Gladstone 1998). Another reason for heightened body concerns among younger adolescent females has to do with their entry into secondary school where male-female relationships become important. As an important dimension by which females are evaluated, younger females may confer heightened significance to societal body ideals, hence increasing eating disorder symptomatology. Swarr and Richards (1996) further contend that an increase in body fat at this age is also a contributory factor. Stice and Hayward (2000) have shown that marked increases in levels of depression after puberty is also associated with increases in body dissatisfaction. Other research has, however, argued that later adolescence is also a stressful period, where “demands for personal recognition are intensified… adjustment problems peak, and… these are associated with the heightened struggle for independence and identity” (Harper and Marshall 1991). While these issues are important, they are not as closely linked to eating disorders compared to the issues faced by younger adolescent
females. It is not surprising therefore, that for girls, much research has discovered that high levels of eating disordered behaviour characterises the 12–14 age range compared to older age ranges (Cauffman and Steinberg 1996; Killen et al. 1992).

Contrary to the above, some studies have shown that older adolescents score higher on eating disordered behaviour. Kilpatrick et al. (1999) have shown that older adolescents are more likely to use weight management strategies compared to younger adolescents. This may however be related to the fact that they tend to be heavier and may have more access to, and knowledge about such techniques, rather than because they are more eating disordered. This is supported by Davies and Furnham (1986) who demonstrated that older adolescents tended to perceive themselves as more overweight relative to younger adolescents. Thelen et al. (1987) similarly report that the average age of diagnosis for eating disorders in females is 18. This may however be related to greater maturity in individuals and subsequent recognition that a problem exists, hence acceptance of the need for professional help. The above indicates that it should be expected that younger female adolescents should exhibit higher levels of eating disorder symptomatology than older females.

In contrast, with males, the opposite may be true. Younger males may exhibit lower levels of eating disordered behaviour than older males; this effectively cancels out main effects for age when both genders are considered simultaneously. Nolen-Hoeksema (1990) points out that on average, boys make the transition to puberty two years later than girls. Within the younger adolescent subsample therefore, there is likely to be a substantial number of pre-pubertal males. Consistent with previous reasoning for females, pre-pubertal males may tend to exhibit lower levels of stress (Marcotte et al. 2002) and lower social sensitivity compared to older males (Mullis et al. 1992). Indeed, O’Dea et al. (1999a) found that young adolescent males had a positive self-concept which was associated with lower levels of body dissatisfaction. Additionally, since male-female relationships may be less important to them than for older males, body concerns may be of less importance. This is associated with lower levels of eating disorder symptomatology for younger males (Striegel-Moore et al. 1993). Older males in contrast, tend to be more dissatisfied with height, chest circumference and muscle size (Searles et al. 1986). In concord with this, O’Dea et al. (1999a) note that postpubescent males “desired to build up their bodies, believing that appearance was important to their sexual appeal. They were also more willing to form close relationships.” They note also that: “Greater pressure to achieve an ideal body may increase the likelihood of disordered eating.” With respect to Body Dissatisfaction, Body Image and Bulimia therefore, it is expected that older males may exhibit higher scores than younger males. This, in conjunction with the expectations for the female subgroup, lead to the following hypothesis:

**Hypothesis 2:**

*It is expected, for the Body Dissatisfaction, Body Image and Bulimia subscales, that an Age * Gender interaction exists, such that younger females display the highest levels of Eating Disorders while younger males display the lowest levels.*

For Drive for Thinness, however, it is expected that younger males will exhibit higher levels since older males tend to want an increase in size (O’Dea et al. 1999a). Likewise, as stated earlier, the younger female group is also expected to have a higher Drive for Thinness, hence:
Hypothesis 3:
*It is expected that younger adolescents will exhibit a higher Drive for Thinness than older adolescents.*

Eating Disorders and Ethnicity

The present study will investigate whether or not differences in eating disorders exist between persons of East Indian and African descent in Trinidad. At present, it is not known if such differences exist. While the existing literature indicates that ethnic differences in eating disorders exist in some countries, it is questionable whether such research generalizes to Trinidad. A small amount of research with people of African and Indian descent does however exist (cf. Demarest and Allen, 2000; Henriques et al. 1996, 1999). While this research is predominantly North American in origin, it is important to consider such research since Western value systems permeate the Trinidadian society (Deosaran 1995), and Western body ideals are associated with disordered eating (Garner et al. 1996).

A number of studies have shown that people of African descent tend to have lower levels of eating disordered behaviour than many other groups (Abrams et al. 1993; Dolan 1991). Gray et al. (1987) suggest that African-American women may not identify with White Americans’ ideals of beauty, including thinness. In congruence with this, Hsu (1987) found that African-American women were more accepting of their bodies than Whites. With weight specifically, others have found that African-American women tended on average to be heavier than White women, but tended to be more accepting of their weight (Rand and Kaldau 1990; Gray et al. 1987). In a study in Zimbabwe, Hooper and Garner (1986) discovered that Blacks had the lowest drive for thinness and body dissatisfaction, with Whites having the highest levels, and those of mixed-race falling in the middle. Henriques and Calhoun (1996) even found that a manipulation of mood (based on negative or positive social feedback) greatly affected White women’s body satisfaction but had no effect on that of African-Americans. While a few authors have found high levels of eating disordered behaviour among people of African descent (Abood and Chandler 1997), there is overwhelming evidence that they exhibit lower levels of eating disordered behaviour compared to many other groups.

Smith (1982) indicates that a protective factor for African-American females is that they are expected to be successful academically and in their careers compared to African-American males. He notes that African-American females generally grow up with a more practical, no-nonsense approach to life, recognizing early that they will work and raise children, often as single parents. Since their attention is focussed on these areas, they are less preoccupied with physical appearance, dieting concerns and other related factors. In Trinidad, some of these factors may apply to persons of African descent compared to persons of East Indian descent for two reasons. Firstly, the divorce rate among persons of African descent is higher (cf. Marshall 1996 who discovered rates as high as 73%) and secondly, academic performance among adolescent males of African descent has been found to be lower than that of other groups, pointing to a greater likelihood of future unemployment for this group (Jules Report 1994; World Bank, 2000). African females in Trinidad, therefore, may have greater responsibilities at an earlier age. It is, however, unclear whether this will translate to a lower incidence of eating
disordered behaviour for persons of African descent compared to their Indian counterparts. Given that current research is unclear about ethnic differences in eating disorders within Trinidad, the current study will examine whether or not such differences exist, but will not hypothesize about the nature of this relationship.

**Research question 1:**
*Are there ethnic differences in eating disorders in Trinidad?*

**Eating disorders and self esteem**

This section will argue that a negative relationship exists between self esteem and eating disorders, such that lower levels of self esteem are related to higher levels of eating disorders. This section will also argue that this relationship may be stronger for females than for males and for older adolescents than for their younger counterparts. No ethnic differences are expected with respect to the relationship between self esteem and eating disorders. The ideas developed here will represent the foundation for exploring the role that self esteem plays in the aetiology of eating disorders.

Much research has supported the view that a negative correlation exists between eating disorders and self esteem (cf. Chaiken and Pliner 1987; Striegel-Moore et al. 1986). Such literature indicates that body image ideals may be closely linked to individuals’ self-worth in many societies. This linking, it is thought, has derived from societal acceptance and positive valuation of the thin body ideals which various media portray (Garner and Garfinkel 1980; Leon and Finn 1984). If individuals do not match up to such societal body ideals, this affects self-worth negatively (O’Dea et al. 1999a). Indeed, research has shown that thinner people are perceived to be more successful, outgoing and attractive (Flannery et al. 1991) hence individuals’ perceptions that others may assess them negatively if they are not thin, may not be too inaccurate. It follows that in order to maintain positive self esteem, people engage in excessive dieting and other behaviour which is symptomatic of eating disorders (Striegel-Moore et al. 1990). Alternatively, low self esteem may cause individuals to be dissatisfied with their bodies (Furnham et al. 2002). “Individuals with a negative sense of self, situated in a culture obsessed with the pursuit of physical perfection at almost any cost, would reflect these feelings of worthlessness in how they perceive themselves, thus providing a distorted body image” (Furnham et al. 2002: 593). As such, societal pressures which operate via self-worth and self esteem, encourage individuals to attain or maintain thin body ideals. The converse may also be true; if individuals already possess a high self esteem, there may be no need to engage in eating disordered behaviour to improve self esteem.

Many researchers have offered evidence which can be used in support of the above arguments. Henriques and Calhoun (1999) have shown that individuals prefer to be assessed positively, and physical attractiveness, with special emphasis on thinness, is an important dimension of such social assessment. In support of this, Demarest and Allan (2000) demonstrated the existence of social stereotypes of the ideal female as being thin. Using figure drawings they demonstrated that females believed that males preferred a thin female figure. This was significantly thinner than the ideal shape that males actually preferred. Additionally, bulimics tend to have a higher demand for approval than non-bulimics (Katzman et al. 1984). Indeed, a study by Johnson and
Brems (1996) found a strong positive relation between many eating disorder symptoms and the need for social desirability. Inspecting the eating disorder subscales more closely, they concluded that “those aspects of eating disorders related to social desirability are the very symptoms that are more likely to fall under public scrutiny.” Schulman et al. (1986: 634) further found that bulimics tend to have “perfectionist attitudes in relation to their own appearance and negative interpretations about how others view them.” In congruence with this, Heatherton et al. (1997) conducted a 10 year longitudinal study and found that once social factors, as they relate to body ideals, became less important to the participants, this resulted in a decline of eating disordered behaviour. Perceived societal ideals therefore create pressures to maintain unrealistic standards of thinness. Such societal pressures encourage eating disordered behaviour via its effect on self-worth and self esteem. The following is therefore hypothesized:

**Hypothesis 4:**
*It is expected that a negative correlation will exist between all eating disorder subscales and all self esteem subscales.*

**Gender as a moderator of the relationship between eating disorders and self esteem**

The societal ideals of thinness apply more for females than for males (Striegel-Moore et al. 1993), leading to the expectation that the correlation between self esteem and eating disorders will be stronger for females than for males. One study, for example, showed that boys were encouraged to eat well while girls believed that they were supposed to eat very little to be considered feminine (Mori et al. 1987). These authors note, in this respect, that body shape and size are important aspects of being female and being assessed as feminine, whereas males are not socially assessed by such criteria. Self esteem thus becomes more closely linked to body shape and size for females, hence to eating disorders. That this relationship is stronger for girls than for boys is supported in much research (cf. Canals and Carbajo 1996; Koenig and Gladstone 1998; Marcotte et al. 2002).

Harper and Marshall (1991), in an extensive review have shown that adolescent girls report more problems than boys and that the types of problems tend to be different. They note that girls are troubled by social and interpersonal relationships, courtship, sex and marriage, health and physical development, while boys are concerned about finance, education and vocational issues. They state that the data “reflect societal attitudes which orient females toward interpersonal, family and psychological concerns, and orient males to be competitive and vocational and future directed” (Harper and Marshall 1991: 800). In a similar study, Porteous (1985: 475) found that “boys were more concerned with authority, restrictions and rules, and being combative and aggressive... and girls were more self-critical, self-aware and more neurotic.” O’Dea et al. (1999b) also found that females attributed more importance than males to their ability to form close friendships and to gain social approval. Females thus tend to be more oriented toward interpersonal relationships and other matters related to social assessment. In societies where such assessment may be based on body shape/size, this may encourage a closer link between eating disorders and self esteem.

Another reason to expect a higher correlation for females has to do with the nature of the pubertal transition for females compared to males. For males, it brings them closer to the ideal
masculine body, while for girls, it is associated with a considerable increase in fat tissue, thus increasing the discrepancy between the actual and ‘ideal’ female body (Rosenbaum 1979). The pubertal transition for girls typically coincides with the social setting of secondary school where male-female relationships become important and social assessment increases in salience. Girls thus become more self-conscious and aware that their value as a person may be determined by assessment of their body shape/size, hence linking the self-concept and self esteem to body shape/size and to eating disorders.

Not all research is supportive of the idea that gender moderates the relationship between self esteem and eating disorders. Some studies have found that the relationship between eating disorders and self esteem is similar for males and females (cf. Furnham et al. 2002; Pliner et al. 1990). Some researchers have even found a non-significant trend toward a higher correlation in males (Franzoï and Shields 1984; Mahoney and Finch 1976). One study even found no relationship between body dissatisfaction and self esteem for females, but found a relationship for males (Silberstein et al. 1988). These results are in congruence with the noted rise in the level of eating disordered behaviour among males (Carlot and Carmago 1991; Seligmann et al. 1994). Given however, that the majority of literature is in support of the view that eating disorders and self esteem are more closely linked for females than for males, the following is hypothesized:

**Hypothesis 5:**

*It is expected that the predicted negative correlation between all eating disorder and self esteem subscales will be significantly stronger for females than for males.*

**Age as a moderator of the relationship between eating disorders and self esteem**

A number of studies have supported the view that the association between eating disorders and self esteem increases with age. Flannery-Schroeder et al. (1996) found that this correlation was stronger for adolescents who had passed puberty, compared to those who were pre-pubertal. Similarly, Bohan (1973) found that this correlation was stronger for grade 10 girls than for grade 4 girls. Clifford (1971) suggests that this may be due to body changes that occur in adolescence. However, the research by Flannery-Schroeder et al. (1996: 243) support a social learning model for such an association. They suggest that “children learn from their families, teachers, friends and the media that fat is bad and thin is good” and thus they become dissatisfied if they do not match this ideal. While both of these authors show an increase in this correlation with age, their oldest age group corresponds to the youngest age group in the present study. Timko et al. (1987) found a similar negative correlation in college students, but did not compare them to younger adolescents. Mendelson et al. (1996) studied two groups of children (8–10 year olds and 11–13 year olds) and found that over a two-year period, the association between self esteem and eating disorders remained stable within both groups. This time duration may, however, be too short to expect changes in this correlation.

While the evidence appears inconclusive, the ‘gender intensification hypothesis’ (Hill and Lynch 1983) suggests that that body changes related to puberty heighten teenagers’ attention to the significance of their gender and body shape/size. However, younger adolescents may be unclear about gender role identification and, thus, may rely more on gender stereotypes (Marcotte et al.
In accord with this, Alfieri et al. (1996) observed an increased adherence to feminine stereotypes in girls with increasing age, as well as increased identification with masculine stereotypes in boys. While social learning theory agrees with this basic mechanism, it does not suggest that it is merely a closer identification with stereotypes that may occur with age. Rather, it suggests that as adolescents grow older, body size/shape may become more integrally linked with the self-concept. The mechanism which affects the prevalence of eating disorders may therefore be different for younger compared to older adolescents. For younger adolescents, it may be due to increasing social awareness and adherence to stereotypes, but with increasing age, as the effects of socialization and social learning increase, the self-concept and identity may become more intimately linked with body size, and hence eating disorders. This evidence suggests that it may be expected that the correlation between eating disorders and self esteem should be stronger for the older group compared to the younger group of adolescents in the current study. Note that this is not necessarily contradictory with an earlier hypothesis which suggests that younger females may have the highest levels of eating disorders. Their levels may be the highest (due to the new social awareness and other factors that adolescence brings) without it necessarily being as closely linked to self esteem as for the older females. The following is therefore hypothesized:

**Hypothesis 6:**

*It is expected that the predicted negative correlation between all eating disorder and self esteem subscales will be significantly stronger for older adolescents compared to younger adolescents.*

**Methodology and sample**

The standardized instruments which were employed in this study were administered to participants in a class setting that was monitored by the author and an assistant. Directions indicated that the questionnaire aimed to assess individual eating habits and views about the self. It was stressed that there were no wrong or right answers and that honesty in response was important. In the instruments, some items were reversed keyed, and subscale items organized in a random manner to reduce the possibility that respondents would decode the specific purpose of the measures. The voluntary nature of participation was stressed and informed consent obtained. The author clarified problematic questions where necessary. Participants were debriefed at the end of the session.

The final sample consisted of 267 respondents from 3 non-randomly selected schools (n = 85, 90 and 92). An approximately equal distribution by age, gender and ethnicity was selected from each school. Chi square analysis revealed that the distribution by these grouping criteria did not differ from school to school (age: $\chi^2 = .057$, ns.; gender: $\chi^2 = .219$, ns.; ethnicity: $\chi^2 = .105$, ns.). In two schools, classes were randomly selected, while in one, the principal offered only classes for which teachers were unavailable. After data cleaning, a sample of 237 was left. There were 121 males and 116 females, of which 119 were of East Indian descent and 118 were of African descent. One hundred and eighteen persons were 12–14 year olds (mean age = 13.26, SD = .896) and 119 were 15–18 year olds (mean age = 16.56, SD = .951).

Moderation analysis was conducted by comparing regression slopes of the relationship between self esteem and eating disorders, where each slope was specified by a different level of the
A moderator was earlier defined as “a qualitative or quantitative variable that affects the direction and/or strength of the relation between an independent or predictor variable and a dependent or criterion variable” (Baron and Kenny 1986: 1174). The strength and direction of the relationship between self esteem and eating disorders can be determined by utilizing regression analysis, where the standardized regression coefficient (β) represents an unbiased estimate of this relationship. In the context of the present study, the sample can be partitioned according to the moderator, and regression equations computed for each partition. The standardized regression coefficients for each equation can then be compared to determine whether or not they are significantly different from each other. In the present context, if one predictor and criterion variable are used in the regression equation, then the standardized regression coefficient is exactly equal to the Pearson’s product moment correlation coefficient obtained from correlating the predictor and criterion variables, and as such, Fisher’s r to z transformation test is applicable as a means of comparing the significance of the difference between both standardized regression coefficients.

Using an example to illustrate the above, it is expected that the relationship between self esteem and eating disorders should be stronger for girls than for boys (Hypothesis 5). Figure 1 graphs the unstandardized regression equations of the relationship between the Personal Security subscale of the self esteem instrument, and the Bulimia subscale of the eating disorders instrument. In Figure 1, the x-axis represents Personal Security, while the y-axis represents Bulimia. The red line plots the regression equation for males (y = -.08x + 66, ns) while the blue line plots the regression equation for females (y = -.453x + 103, p < .001). The significance levels are reflected in the slopes of each line. For males, there is very little relationship between self esteem and eating disorders, at least with the subscales used in this example, while for females there is a significant inverse relationship. This significant relationship is reflected by the steeper gradient of the blue line. A comparison of the significance of the difference of the standardized regression coefficients for males (β = -.033, n = 120) with that of females (β = -.326, n = 116) using Fisher’s r to z transformation test indicates that there is a significant difference between both coefficients (z = 2.31, p < .01). These results indicate that there is no relationship between self esteem and eating disorders for males, but that there is an inverse relationship for females. Where females are concerned, lower levels of self esteem are related to higher levels of eating disorders.
Results

The incidence of eating disorders

Compared to a norm-referenced comparison group of Anorexics, 10.1% of the entire sample had Drive for Thinness scores which exceeded the median for this group (17.2% for females, n=20 and 3.3% for males, n=4). Compared to a bulimic group, 3.8% of the sample exceeded their median Bulimia score (6.0% for females, n=7 and 1.7% for males, n=2). Eight percent of the sample had Body Dissatisfaction scores which exceeded the median for this bulimic comparison group (13.8% for females, n=16 and 2.5% for males, n=3). Garner, Olmsted and Polivy (1984) suggest using median scores for comparison since these are better measures of central tendency given the tendency for this type of data to be skewed. Comparison norms for the Body Image Ideals Questionnaire were not available.

Eating disorders and age, gender and ethnicity

A 2x2x2 between-subjects MANOVA was performed on the four dependent variables, Drive for Thinness, Bulimia, Body Dissatisfaction and Body Image. Predictor variables were Age, Gender and Ethnicity. As expected, the combined dependent variables were significantly affected by gender with females consistently scoring higher than males; Wilk’s lambda = .605, F(4,226) = 36.94, p<.001. This reflected a strong association between gender and eating disorders (partial $\eta^2 = .395$). Inspection of the univariate ANOVA statistics which is generated as a part of the SPSS MANOVA output indicated significant main effects of gender on all dependent variables, with Body Image almost achieving significance. For Drive for Thinness F(1,229) = 60.27, p<.001; Bulimia F(1,229) = 55.53, p<.001; Body Dissatisfaction F(1,229) = 91.93, p<.001 and Body Image F(1,229) = 3.71, p = .055. The respective descriptives are shown in Figure 2.
Figure 2
Gender differences in eating disorders

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drive for Thinness</td>
<td>54.75  21.17</td>
<td>74.96  19.48</td>
<td>p &lt; .001</td>
</tr>
<tr>
<td>Bulimia</td>
<td>61.17  19.25</td>
<td>76.79  11.99</td>
<td>p &lt; .001</td>
</tr>
<tr>
<td>Body Dissatisfaction</td>
<td>27.31  22.54</td>
<td>55.94  24.07</td>
<td>p &lt; .001</td>
</tr>
<tr>
<td>Body Image</td>
<td>8.85  22.71</td>
<td>14.83  25.35</td>
<td>p &lt; .055</td>
</tr>
</tbody>
</table>

MANCOVA indicated that this significant effect for gender remained even after controlling for differences in age; Wilk’s lambda = .614, F(4,229) = 35.99, p<.001, with effect size remaining strong (partial η² = .386).

There were a number of other areas which did not reach multivariate significance. Nevertheless, a strong tendency toward significance was observed for some of these areas and the results are reported since they may point to important areas for consideration and future research. For age, there was a tendency toward significance; Wilk’s lambda = .964, F(4,226) = 2.13, p = .078. This tendency was due to a main effect for age on the Drive for Thinness subscale; F(1,229) = 4.63, p<.032 though partial η² was low (.02). Younger adolescents had a higher Drive for Thinness (mean = 67.5, SD = 21.3) than older adolescents (mean = 61.8, SD = 23.8).

There was also a tendency toward significance with Age × Gender; Wilk’s lambda = .963, F(4,226) = 2.18, p = .072. Univariate analysis revealed that this effect was significant for Bulimia; F(1,229) = 4.03, p<.046 and Body Dissatisfaction; F(1,229) = 5.32, p<.022, but not for Body Image. In both cases, youngest females had the highest means and youngest males the lowest.

Multivariate significance for ethnicity did not exist though univariate analysis revealed that there was a main effect on Body Image F(1,229) = 5.21, p<.023 with persons of African descent having lower scores (mean = 8.25, SD = 21.5) than persons of Indian descent (mean = 15.28, SD = 26.14) though the strength of association was low (partial η² = .022).

The relation between self esteem and eating disorders

With an adjusted alpha of .01, eleven out of a possible sixteen correlations between all eating disorder and self esteem subscales reached significance. Of the five which were non-significant by this criteria, two reached p = .023 and .018. Peer Popularity was least correlated with eating disorders, with three of its correlations reaching non-significance while for Academic Competence and Familial Acceptance, one each reached non-significance.

To further explore the relationship between self esteem and eating disorders, regression analysis was conducted in two stages. Firstly, with each eating disorder subscale in turn, all predictor variables (Age, Gender, Ethnicity and all Self Esteem subscales) were entered into the regression
model. In the second stage, hierarchical regression was employed to assess the contribution to R² made by those self esteem subscales which were able to contribute significantly to the explained variance of eating disorders, over and above that of age, gender and ethnicity, as discovered from the first stage. Here, for each eating disorder subscale in turn, age, gender and ethnicity were entered as the first block, followed by the self esteem subscale/s which were important predictor/s for that particular dimension of eating disorders.

Stage 1 (see Figure 3): With Drive for Thinness as the dependent variable, the model was significant, F(7,228) = 11.05, p < .001, with adjusted R²=.23. Significant predictors were Gender (β = .443, p < .001) and Familial Acceptance (β = -.166, p < .021), with age almost achieving statistical significance (β = -.114, p < .062). With Bulimia as the dependent variable, the model was significant, F(7,228) = 9.67, p < .001, with adjusted R²=.205. Significant predictors were Gender (β = .416, p < .001) and Familial Acceptance (β = -.154, p < .035). With Body Dissatisfaction as the dependent variable, the model was significant, F(7,228) = 19.3, p < .001, with adjusted R²=.353. Significant predictors were Gender (β = .516, p < .001) and Familial Acceptance (β= – .225, p < .001). With Body Image as the dependent variable, the model was significant, F(7,228) = 6.58, p < .001, with adjusted R² = .142. Significant predictors were Ethnicity (β = – .194, p < .002), Peer Popularity (β = – .180, p < .008), and Personal Security (β = – .167, p < .022) with Familial Acceptance almost reaching significance (β = – .143, p < .06).

**Figure 3**

*Standardized regression coefficients for predictors of eating disorders*

<table>
<thead>
<tr>
<th></th>
<th>Drive for Thinness</th>
<th>Bulimia</th>
<th>Body Dissatisfaction</th>
<th>Body Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>-.114*</td>
<td>-.017</td>
<td>.065</td>
<td>.048</td>
</tr>
<tr>
<td>Gender</td>
<td>.443***</td>
<td>.416***</td>
<td>.516***</td>
<td>.089</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>-.055</td>
<td>-.040</td>
<td>-.089</td>
<td>-.194**</td>
</tr>
<tr>
<td>Familial Acceptance</td>
<td>-.166*</td>
<td>-.154*</td>
<td>-.255***</td>
<td>-.143**</td>
</tr>
<tr>
<td>Academic Competence</td>
<td>.069</td>
<td>-.019</td>
<td>.104</td>
<td>-.004</td>
</tr>
<tr>
<td>Peer Popularity</td>
<td>.108</td>
<td>.082</td>
<td>-.092</td>
<td>-.180**</td>
</tr>
<tr>
<td>Personal Security</td>
<td>-.083</td>
<td>-.076</td>
<td>-.100</td>
<td>-.167*</td>
</tr>
</tbody>
</table>

* p < .05, ** p < .01, *** p < .001

Stage 2: With Drive for Thinness as a dependent variable, hierarchical regression indicated that Familial Acceptance contributed .019 to R² change; F_{change}(4,231)=5.8, p<.017, over age gender and ethnicity. Similarly, with Bulimia as the dependent measure, Familial Acceptance contributed .03 to R² change, F_{change}(4,231)=8.99, p<.003. With Body Dissatisfaction as the dependent measure, Familial Acceptance contributed .072 to R² change, F_{change}(4,231)=25.64, p<.001. With Body Image as dependent measure, Peer Popularity, Personal Security and Familial Acceptance were entered in that order after age, gender and ethnicity. Each contributed significantly to R² change. For Peer Popularity R² change =.069, F_{change}(4,231)=17.77, p<.001. For Personal Security R² change = .045, F_{change}(5,230)=12.34, p<.001. For Familial Acceptance R² change =.016, F_{change}(6,229)= 4.29, p<.039.
There is no evidence that self esteem is more closely related to eating disorders for females than for males in this sample. Fisher’s Z transformation statistic indicated that no difference in correlation met an adjusted alpha criteria of .01 while two differences out of a possible sixteen were significant at p<.05.

Additionally, the data does not offer strong enough evidence to conclude that self esteem is more closely related to eating disorders for older compared to younger adolescents since only 1 difference reached significance at an adjusted alpha of .01. However, this area merits further research since 8 differences reached significance at p<.05.

**Discussion and Conclusion**

The estimated prevalence rates of eating disorders in Trinidad are comparable to those found by other authors, since in the present sample, the proportion which crossed the median scores of eating disordered patients ranged from approximately 4% to 10%. While formal diagnosis is needed for accurate estimates, it should be noted that in the present research, much larger percentages of the sample fell within the 95% CI range of scores for these norm-referenced groups, than exceeded their median scores. Eating disorders in Trinidad therefore deserves further research attention.

Females accounted for the majority of those with higher levels of eating disordered behaviour. This main effect for gender was stable and remained strong even when age was controlled. That gender just missed significance on the Body Image subscale may be reflective of the fact that this scale was specifically designed to capture areas of dissatisfaction applicable to males, as much as females. Tentatively, this particular subscale may indicate that eating disordered behaviour in males may be an important area for concern in Trinidad. Consistent with this, and contrary to expectations, eating disorders and self esteem were equally strongly linked for males and females. It may be, that for adolescents, their high levels of self consciousness and need for social approval are so overwhelming that body ideals, as one area by which they are judged, becomes equally important for males and females and thus becomes linked to self esteem. Perhaps differences in correlation, if they exist, may be found outside of the adolescent age range in Trinidad. Alternatively, Henriques and Calhoun (1999) have pointed out that the key to understanding gender differences may lie with the tendency in males to want to be heavier and more muscular while females want to be thinner. Consistent with this, Silberstein et al. (1988) found that men’s self esteem was affected by the degree of body dissatisfaction, regardless of the direction of the dissatisfaction (i.e. under or overweight). In the present study therefore, the very strong negative association between self esteem and eating disorders was a result of the feelings of both males and females.

The above indicates that self esteem enhancement, as a way to reduce eating disorders, may be equally applicable to males and females. One consistent finding in this respect is that Familial Acceptance was consistently able to predict a significant amount of the variance in eating disorders, over and above that of age, gender and ethnicity. While the contribution to $R^2$ change ranged from .016 to .072, this was appreciably fair given the substantial contribution of gender. This is consistent with the findings of Wertheim et al. (1999) who found that familial acceptance significantly predicted eating disordered behaviour, over and above that of body mass index.
which has been shown to have a consistently strong influence on eating disordered behaviour (Abraham and O’Dea, 2001). Krause et al. (2000) note that strong family support helps to develop a positive self-concept which is not dependent on societal body ideals. There is substantial evidence to show that the family has a critical influence in the development of self esteem (Juhasz 1989; Papini et al. 1989) and that this influence may be most important in childhood (Coopersmith 1968). The present research shows that the family is important in this respect, even in adolescence, though other writers have stressed that peers and others who transmit societal ideals also become important at this age (Juhasz 1989). In this respect, while those with high feelings of familial acceptance may be more secure about their self-concept and feel accepted as they are, regardless of body size/shape, those with low familial acceptance may feel the need to gain acceptance elsewhere, for example, through peers, and may thus feel the need to conform to societal body ideals to gain such acceptance (Dunkley et al. 2001). Additionally, low familial acceptance may obtain in families with frequent conflict; this has also been shown to predict eating disorders (Kallucy et al. 1977; Minuchin et al. 1978).

Peer popularity, personal security and academic competence appear to be less important predictors since they exhibited predictive power in only one eating disorder subscale. Rather than feelings of peer popularity, it may be the need for peer and social approval which may be an important predictor of eating disorders (Anderson and Olnhausen 1999). However, the role of peer popularity and personal security should not be immediately discarded since they were able to predict appreciable amounts of the variance in Body Image. Given that Body Image captured areas of concern for males, these predictors may prove to be important for this subgroup. With respect to academic competence, while many researchers, already cited, have found a negative relationship with eating disorders, this variable could also be positively related to eating disorders (Phillips 1984). These authors have replicated the results of other researchers in finding that eating disordered adolescents may invest extra energy into academic pursuits to compensate for low feelings of self-worth. This could result in a positive association between academic competence and eating disorders. The existence of positive relationships for some individuals and negative relationships for others could serve to mask the correlation between both variables.

Main effects for age on eating disorders, with the exception of drive for thinness, appear to be precluded by the hypothesized Age * Gender interaction which was found to exist on the Bulimia and Body Dissatisfaction subscales. While strong statements cannot be made about Age or Age * Gender because of a lack of multivariate significance, these results, together with the observation that older adolescents had a noticeably stronger relationship between self esteem and eating disorders than younger adolescents, does tend to indicate that the aetiology of eating disorders may differ with age. While this statement is very cautiously suggested, it points to the possibility that entry into puberty may increase societal awareness with respect to body concerns (as indicated by a higher drive for thinness in younger adolescents and the highest Bulimia and Body Dissatisfaction scores for younger females) though it is only with increasing age that body shape/size becomes linked to the self-concept and self esteem. This area deserves further research.

Multivariate significance, which is the most reliable criteria for making a judgment, indicates that there are no differences in eating disorders between persons of Indian and African descent.
The lone univariate significant difference in the Body Image subscale nevertheless keeps open the question of whether differences may be found within more isolated ethnic groupings in Trinidad.

In conclusion, the main findings of this research are that females experience higher levels of eating disordered behaviour than males, though there is an equally strong link to self esteem for both males and females. There appears to be no ethnic differences in eating disorders though this area merits further enquiry. Also, the findings point to the possibility that the aetiology of eating disorders may differ for younger and older adolescents. Familial acceptance is the most reliable predictor of eating disorders, while the other self esteem measures employed, though more manipulable by those seeking to use self esteem for intervention purposes, appear to be of much less significance.

Limitations and suggestions for future research

The sample was non-randomly selected and limited in size therefore caution must be exercised in making generalizations. The findings are also not necessarily generalizable to adolescents who have been diagnosed with eating disorders. Future research can utilize a larger random sample as well as investigate a diagnosed sample.

The definition of eating disorders was based on DSM-III-R criteria. However, there may be culture specific factors with respect to eating behaviour which may render the diagnostic criteria outlined in DSM–III–R, not wholly applicable to Trinidad. As an example, as obtains in India (cf. Khandelwal et al. 1995), fasting or the restriction of food intake is widely believed to have many health and religious benefits. Qualitative work is required to determine if culture specific eating disordered behaviour exists in Trinidad.

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\(^i\) P < .062
\(^ii\) p < .060