

**Relationship between exercise motivations, self-esteem, eating attitudes and
body image satisfaction among undergraduate students.**

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Abstract

The present study aimed to investigate the associations between motivations for exercise, gender, self-esteem, body satisfaction and eating attitudes. Participants consisted of 100 Dublin Business School undergraduates (45 male, 55 female) ranging in age from 18 – 28 ($M=21.39$; $SD=2.069$). Data consisted of participants scores for The Eating Attitudes Test (EAT-26) (Garner et al., 1982), The Figure Rating Scale (FRS) (Stunkard et al., 1983), The Rosenberg Self-Esteem Scale (RSES) (Rosenberg, 1965) and The Exercise Motivations Inventory – 2 (EMI-2) (Markland & Ingledew, 1997). Females were found to have a higher sense of self-esteem than their male counterparts in this sample. A significant gender effect was observed regarding body satisfaction as males were found to be content with their body image while females were found to want to be thinner. Females were found to be motivated to exercise significantly more than males for appearance related reasons which was negatively correlated with body image satisfaction. Disordered eating attitudes were significantly positively correlated for being motivated to exercise for appearance related reasons. Body image satisfaction was significantly positively correlated with self-esteem. Results were discussed in relation to methodological weaknesses e.g., self-report measures, strengths, e.g., use of visual stimuli to report body image, and practical implications, e.g., raising awareness of healthy attitudes towards food and exercise behaviours in a university sample.

Introduction

1.1

Borresen & Rosenvinge (2003) tells us that the biopsychosocial model asserts that eating disorders (EDs) are the result of a wide range of vulnerability factors consisting of cultural issues e.g., the thin ideal. Winchester & Collier (2003) and Petrie, Greenleaf, Reel & Carter (2009), state that this very model maintains that eating disorders could be the result of factors which include, familial features e.g., heritable predisposition and individual causes e.g., low self-esteem. Beals, (2004), suggests that the etiology of disordered eating in both athletes and non-athletes has many factors which can interact with each other, including cultural factors, environmental, biological, psychological and behavioural factors. Ahern, Bennett, Kelly & Hetherington, (2011) emphasise sociocultural influences, that females aged from 16-26 have an idealised image of thinness and focus exhaustively on the “thin ideal”. As the understanding of eating disorders determines the kind of help that should be provided, an understanding of the way it works is of great practical importance. Duker & Slade (2003) suggest that those whose theoretical perspective takes into consideration the psychological effects of starvation and excessive exercise will see eating disorders as a gradually intensifying state of incapacity in which different processes are at work at different stages. College students confront a variety of new and old challenges on a daily basis. Finding a way to please their parents, lecturers, peers and themselves as well as keeping up with their work and social life and the pressure of living up to standards publicised by the media and social groups can, understandably, leave some students feeling distraught and pressurised and many feeling vulnerable, (Solomon, Venuti, Hodges, Iannuzzelli & Chambliss, 2001). These pressures can bring to the surface, feelings of low self-esteem and failure and this can lead to these

students becoming preoccupied with their self-image and as a result their eating attitudes and motivations for exercise, (Solomon et al., 2001). Solomon et al., (2001) found that both genders are inclined to judge their bodies and image according to the standards set by the social media and peers. It was also found that female students were more prone to judging themselves harshly than male students.

1.2 Self-Esteem

Low self-esteem can be defined as a low personal evaluation of your own overall worth (Rosenberg, 1965; Polivy & Herman, 2002; Serpell & Troop, 2003). Individuals with low self-esteem are more likely to engage in negative emotions such as depression and anxiety, which are precursors to eating pathologies (Heatherton & Baumeister, 1991). As a result, it is clear to see that low self-esteem can be identified as both a predictive (Button, Songua-Barke, Davies & Thompson, 1996) and maintaining factor of eating disorders (Hesse-Biber, Marino & Watts-Roy, 1999; Petrie et al., 2009). McDonald and Thompson (1992) found that self-esteem was significantly negatively correlated with dysregulated eating habits and positively associated with body satisfaction. This would indicate that as self-esteem decreases, eating disordered behaviours increase and body satisfaction decreases. In contrast, when self-esteem was on the increase, unhealthy eating attitudes were found to reduce and body satisfaction was found to improve. This would suggest that with individuals for whom body satisfaction is a central aspect of their overall concept of self-esteem, they are more inclined to engage in negative eating behaviours. Evidence also suggests that individuals with low self-esteem are more liable to use ineffective coping mechanisms e.g., engaging in unhealthy behaviours such as emotional eating (Polivy & Herman, 2002). It has been suggested that female undergraduates have lower levels of body satisfaction than their male peers and that these differences are mostly understood as the consequences of global self-esteem (Forbes, Adams-Curtis, Rade &

Jaberg, 2001). Hatch, Madden, Kohn, Clarke, Touyz & Williams (2010), reviewed the evidence for emotion-related disturbances in anorexia nervosa from behavioural, cognitive, biological and genetic domains of study. These domains were combined within the formation of an integrative neuroscience model that accentuates the position of emotion and feeling and their classification in brain organisation. As a result, this review exposed evidence for 'emotion', 'thinking and feeling' and 'self-regulation' disturbances in anorexia nervosa that spread from non-conscious to conscious processes. This evidence suggested that people who suffer from eating disorders do, in-fact, think differently from people who have no eating disorder.

Gardner & Brown (2010) state that low self – esteem is correlated with negative feelings and low body satisfaction in relation to the size, shape and form of one’s body. Cockerill (1995), states that it is an accepted assumption that participating in exercise has a positive effect on both one's physical and psychological well-being, and, just as importantly, one's performance in school or work, cognitive function and overall self-esteem may be amplified as a result. Although research in this area varies, it has been shown that a meta-analytic approach is anticipated to dispense reliable and valid evidence that allow for advantages that develop beyond health and fitness. Therefore, one could suggest that if exercise promotes self-esteem, it is also applicable that individual differences in perceived locus of control as an agent of self efficacy are recognised, and that if individuals partake in exercise, an increment in their self -esteem will be found. In a study conducted by Thompson & Thompson (1986), 30 male and 30 female subjects were selected from a university population to take part in the research. The intention of the study was to assess the relationship between self-esteem and body size distortion in individuals who were all of a normal weight. Using Rosenberg's Self- Esteem Questionnaire (1965) and estimating their own size, it was found that females had significantly higher body distortion scores and significantly lower self-esteem scores than

the male students. However, on average, all of the participants overestimated their body sizes. This was an important study with regard to the understanding of the increasing levels of eating disorders in females.

1.2.1 Gender and Self Esteem

Previous research has found that women's opinions of their physical appearance have a strong influence on their global evaluations of self-worth (Mellor, Fuller- Tyskiewicz, McCabe & Ricciardelli., 2010).

In a study conducted to examine gender differences in global self-esteem, it was found that males score higher on standard measures of global self-esteem than females, however, it is important to note that the difference is small (Kling, Hyde, Showers & Buswell, 1999). Research in the past has established a connection between low self-esteem and eating disorders; however, alternative research on self-esteem has suggested that self-esteem is composed of two distinct factors, being, self-liking and self-competence. Silvera, Bergersen, Bjorgum, Perry, Rosenvinge and Holte (1998), examined a total of 51 female participants who were clinically interviewed to identify the eating disorder in relation to these two components encompassing self-esteem. The result was that there was a strong relationship between self-liking and eating disorders and there was no relationship between self-competence and eating disorders. This would suggest that having low self-esteem in relation to liking yourself can be a contributing factor to the emergence of an eating disorder, whereas, feeling simply incompetent would not be a factor.

Marcic & Grum (2011), suggest that the scientific study of gender differences and similarities is diagnostic to the hope of understanding human behaviour. Though their examination of self-esteem, with 339 participants, results showed that males and females did not differ in independent self-concept or self-esteem. They did, however, find significant differences in the connection of self-concept which showed the effect of

fundamental bio-socio-psychological influences.

Avsec (2006), found while conducting research on gender differences in the relation to self-esteem and body image, that women's physical appearance was directly related to their self-esteem. In contrast, men were found to regard their physical ability or function of their body as a strong factor connected to their self-esteem. These findings suggest that women base their self-esteem on their physical attractiveness, whereas men base their self-esteem on health related reasons.

1.3 Body Image Satisfaction

Stunkard, Sorenson & Schulsinger, (1983) and Polivy & Herman (2002) state that low body satisfaction is operationally defined as the perceived gap between an individual's ideal and current body shape. Furnham, Badmin & Sneade (2002), Petrie et al. (2009), Gardner & Brown (2010) and Ahern et al. (2011) have found that this is associated with disordered eating. Therefore, low body satisfaction could be and has been described as the most relevant and direct antecedent of eating disorders (Walter & Kennerley, 2003).

It has been found that female undergraduates usually have lower levels of body satisfaction than male undergraduates (Forbes, Adams-Curtis, Rade & Jaberg, 2001; Lokken, Ferraro, Kirchner & Bowling, 2003). This may help to clarify why young women are at an increased risk for eating disorders (Hudson, Hiripi, Pope & Kessler, 2007). Young women who are at their correct weight for their body types believe they are overweight and have a wish to be thinner, whereas their young male counterparts who are dissatisfied with their bodies wish to be more muscular, (Silberstein, Striegel-Moore, Timko & Rodin, 1988; Forbes et al., 2001; Furnham et al., 2002; Pritchard, 2008; Parent & Moradi, 2010). A distinct strength of Silberstein et al.'s (1988) study is its use of within-method triangulation, as body esteem was assessed with three measures - the Body Esteem Scale (BES) (Franzoi & Shields, 1984), the Body Size Drawings (BSD) (Fallon &

Rozin, 1985) and weight dissatisfaction (Silberstein et al., 1988). This increases the internal validity of the findings (Mathison, 1988; Elliott, Fischer & Rennie, 1999). Paxton, Wertheim, Gibbons, Szmukler, Hillier and Petrovich (1991), while assessing body image and weight loss beliefs and behaviours, found that despite having similar weight distributions around the expected norm, females were significantly more dissatisfied with their bodies than males. Approximately two-thirds of females and males believed being thinner would have an impact on their lives. However the females believed this impact would be positive, whilst the males believed being thinner would have a negative impact on their body image. Durkin and Paxton (2002) conducted an experiment where following exposure to the idealised female (models etc.) in magazine images, adolescent girls were tested on their change in body satisfaction, depressed mood, anxiety and anger. This baseline study tested their body dissatisfaction, physical appearance comparison tendency, internalisation of the thin ideal, self-esteem, depression, identity confusion and body mass index (BMI). After a week, participants viewed magazine images, before and after which they answered questions on their body satisfaction, state depression, state anxiety and state anger. A significant decrease in body satisfaction was found after viewing the magazine images, along with a significant increase in depression after the participants viewed images of the idealised female.

A person's body image is assumed to be their own sense of their physical appearance, usually in relation to the cultural 'ideal' of the time. However, one's own perception or opinion of their appearance can be different to how others see them. As discussed, body image can have a wide range of psychological effects and physical effects such as a negative body image resulting in the onset of eating disorders. Also, it is important to note that the internet may possibly intensify the impact of the sociocultural thin ideal through interactive websites promoting eating disorders to young women so that they can achieve this 'thin ideal' (Song, 2005).

1.4 Eating Attitudes

It has been established that abnormal eating attitudes are associated with low body satisfaction, low self-esteem and negative reasons for exercise (Furnham et al., 2002; Edman, Yates, Aruguete & Draeger, 2008; Thomas, Khan & Abdulrahman, 2010). In accordance with this finding, the attachment theory has received increasing attention from clinicians and researchers in the field of eating disorders (Zachrisson, Skarderud, 2010). They found that there is a greater prevalence of insecure attachment in individuals suffering from eating disorders than a sample of their non-clinical counterparts. Also, it has been found that female college students usually demonstrate higher levels of disordered eating habits than male college students (Edman, Yates, Aruguete & DeBord, 2005; Pritchard, 2008). However, in other cultures mixed results have emerged. In eastern cultures, Asian male and female college students reported similarly disordered eating attitudes and behaviour (Edman & Yates, 2004), whilst, in Hawaii, early adolescent males were at a higher risk of developing eating disorders than females (Edman et al., 2008). These findings suggest that there may be cultural as well as gender differences associated with abnormal eating attitudes and, consequently, eating disorders, which are reported more frequently in industrialised, western cultures, particularly amongst females, are extremely prevalent (Keel & Klump, 2003; Nasser & Katzman, 2003).

In a study conducted by Thomas et al., (2010) it was found that (while using the Eating Attitudes Test – 26 and the Figure Rating Scale to assess the eating attitudes of female students), 24% of the sample had a score that was indicative of disordered eating attitudes. The prevalence of disordered eating attitudes among this sample was found to mirror the statistics of other nations where eating disorders have been found to be widespread.

1.4.1 Eating Attitudes and Culture

In a study conducted to assess the eating attitudes, behaviours, body image and psychological functioning of 98 female American college students, it was found that although African-American females had significantly higher body mass index than either the Asian-American or Caucasian females, it was the Caucasians that reported higher levels of disordered eating, dieting behaviours, attitudes and greater body dissatisfaction. However, a generally consistent pattern emerged within each racial group, which was that low self-esteem and high public self-consciousness were associated with higher levels of disordered eating attitudes and body dissatisfaction. It is important to note, that past experiences with being teased about weight and size was a contributing factor with the disordered eating in both the African-American and Caucasian racial groups but not the Asian-American group. The findings of this study suggest there are important racial differences on the various aspects of eating, dieting and body image in college women, (Gloria, Akan & Grilo, 1995). Furthermore, (Abrams, Allen & Gray, 1993) stated that the low frequency of eating disorders among black women has been associated fundamentally to cultural differences in how women view beauty. White women were found to associate beauty with thinness, compared with black women who affiliated beauty with curves. Additionally, the results of this study argued that disordered eating behaviours and attitudes were attributed to actual weight problems for black women, but this was not the case for white women. White women were found to develop disordered eating attitudes even when they were at the correct weight for their body types.

1.4.2. Eating Attitudes and Age

It has been established that disordered eating attitudes and behaviours are common in older teens and young women in western countries. More recent evidence (Jones, Bennett, Olmsted, Lawson & Rodin, 2001) suggests that the preponderance of these disorders is

rising and that the age of which the onset occurs has fallen. It was found that disordered eating attitudes and behaviours were present in over 27% of girls aged 12-18 years and were noticed to have gradually increased throughout adolescence. Klump, McGue & Iacono (2000), found that while examining age differences in the pursuit of understanding disordered eating attitudes, 11 year old female twins exhibited less genetic and greater shared environmental influence on eating attitudes and behaviours than 17 year old female twins. This finding suggests that eating attitudes could be a result of your genetic make-up as well as your environmental surroundings.

Shanthi and Bedford (2004) conducted a study where the participants completed a demographic questionnaire and the Eating Attitudes Test (EAT-26), which is indicative of potential eating disturbances. Significant gender differences were found in the participants' scores on the EAT-26 indicating that female participants have more disturbed eating attitudes than males and females in the age category of 18-34 showed the highest number of disturbed eating attitudes.

Brooks-Gunn, Burrow, Warren, Lavellee, Williams, Jones & Scherzer (2008), suggests that environmental factors influence weight and restricted food intake. It has been suggested that some studies see a difference in athletes and non-athletes and even between the type of sport the athlete partakes in. Therefore the question remains as to whether people who are concerned about their weight and body shape find factors such as age and gender possible reasons for being influenced to think a certain way about body satisfaction.

1.5 Exercise Motivations

Exercise has many beneficial impacts upon physical and psychological well-being (Lee, Hsieh & Paffenbarger, 1995; Scully, Kremer, Meade, Graham & Dudgeon, 1998; Stringer, 1999; Singer, Hausenblas & Janelle, 2001; Larson, Wang, Bowen, McCormick,

Teri, Crane & Kukull, 2006) which includes, increased self-esteem (Maltby & Day, 2001; Prichard & Tiggemann, 2005; Plummer & Koh, 1987), increased body satisfaction (Strelan, Mehaffey & Tiggemann, 2003; DiBartolo & Shaffer, 2002; Furnham, Titman & Sleeman, 1994; Finkenber, DiNucci, McCune & McCune, 1993), improved mood (Plante & Rodin, 1990) and decreased levels of depression (LeUnes, 2008; McAuley, Peña & Jerome, 2011). However, evidence suggests that young women are not benefiting from these positive effects (Strelan et al., 2003; Prichard & Tiggemann, 2005), and this may be due to young women's reasons for exercising (Silberstein et al., 1988; McDonald & Thompson, 1992; Tiggemann & Williamson, 2000; Strelan et al., 2003). Previous research has shown us that women are more likely than men to exercise for appearance-related motives i.e., weight control, body tone and attractiveness (Zmijewski & Howard, 2003; Strelan & Hargreaves, 2005) which are associated with reduced self-esteem (Strelan et al., 2003), increased body dissatisfaction (Silberstein et al., 1988) and eating disorders (McDonald & Thompson, 1992). On the contrary, men appear to exercise more for health and fitness reasons (McDonald & Thompson, 1992; Silberstein et al., 1988; Tiggemann & Williamson, 2000; Brown & Graham, 2008) which are in direct connection to increased body satisfaction and self-esteem (Tiggemann & Williamson, 2000; McDonald & Thompson, 1992; Strelan et al., 2003) and are negatively correlated with eating disorders (McDonald & Thompson, 1992). Tiggemann and Williamson (2000) included a large sample of 252 participants which is a considerable strength because using larger samples in research enhances the power for detecting relationships between variables (Adkins & Keel, 2005; Hinkle, Wiersma & Jurs, 2003). In a study by LePage and Crowther (2010), conducted using 61 female undergraduate students, it was found that appearance and weight motivations were related to high body satisfaction in all participants. In contrast, Davis, Fox, Cowles, Hastings & Schwass (1990) suggest that exercise has statistically significant effects on weight and diet concerns, but that weight and diet concerns do not

predict the degree of participation in exercise. This suggests that individual's motivations for exercise do not predict that they will actually participate in physical activity.

A study conducted by Furnham et al., (2002), found that specific reasons for exercise were correlated with low self-esteem and disordered eating attitudes, regardless of sex. However male self-esteem was not affected by body dissatisfaction, whereas girls did associate body dissatisfaction with the concept of self-esteem. Also, boys were found to want to be heavier rather than lighter and girls did not generally desire to be heavier.

1.6 The Present Study

Rationale for the pursuit of this research is that it may help to identify individuals who are at risk of developing eating disorders i.e., those who exercise to improve their appearance as opposed to improving their health (McDonald & Thompson, 1992). The other motivation for carrying out this study is to investigate body satisfaction in an Irish university sample using visual stimuli, i.e., the Figure Rating Scale (Stunkard et al., 1983) and to analyse the effect that body satisfaction has upon individuals' reasons for taking part in an exercise regime. Another goal is to explore the effect that body satisfaction has upon individuals' state of mind. This study also aims to discover if eating disorders are prevalent among Irish college students and if so, what are the reasons for this and who is at risk.

It is also important to note that there is a range of psychological changes that are created by consistent food restriction, weight loss and excessive exercise relating to body image satisfaction, self-esteem and eating attitudes.

Beals, K.A., (2004), suggests that the etiologic area of disordered eating in both athletes and non-athletes has many factors which can interact with each other, including cultural factors, environmental, biological, psychological and behavioural factors. The study will also examine correlations between self-esteem, body satisfaction, eating attitudes and will

investigate the impact of gender on these aspects.

Research specifically exploring these areas of self-esteem and eating attitudes in undergraduate students in an Irish population is limited. Upon reviewing the literature, there are many publications in the eating disorder arena but not in undergraduate students in Ireland. Therefore the purpose of this investigation is to examine the thus far unstudied relationship between self –esteem, body satisfaction, eating attitudes and reasons for exercise in undergraduate students in Ireland and to assess the influence of gender.

1.7 Hypothesis

Hypothesis 1 states that there will be a significant difference between male and female undergraduate students in relation to eating attitudes, suggesting that females will have more disordered eating attitudes than males.

Hypothesis 2 states that males will have different motivations for exercising than females.

Hypothesis 3 states that female undergraduate students will report higher disordered eating attitudes, lower self-esteem and lower body satisfaction than their male counterparts.

Hypothesis 4 states that having motivations for exercising for appearance-related motives and weight management motives will be associated with higher disordered eating attitudes, lower self-esteem and lower body satisfaction.

Methodology

This section provides a summary of the methodology adopted in this study. The background to the sample is discussed in terms of the types of participants utilised in the present study. The survey instrument is designed in the form of a self-completion questionnaire. Measures for the questionnaire are drawn from the literature.

Materials:

Initially, participants' demographic details were collected. Participants were first required to provide their age and gender. Subsequently, participants were asked to self report their motives for exercise, their self – esteem, their attitudes towards eating and their ideal and current figures. Standardised scales which have been well-validated in previous research with the target sample, and are thus considered to be reliable, were used. Those scales are as follows:

The Exercise Motivations Inventory – 2 (EMI – 2) (Markland & Ingledew, 1997) (see Appendix B)

This questionnaire was used to assess participant's motivations for exercising. This inventory consisted of 51 items rated on a 5 point scale (1 – not at all true for me; 5 – very true for me) which assessed a person's motives for exercising: attractiveness, health, weight, fitness, stamina, enjoyment, competitiveness and social aspects. The questionnaire takes approximately 5 minutes to complete and is in the public domain. This scale is applicable to both exercisers and non-exercisers and is broken down into 14 sub-scales. This scale was utilised in the present study as it did not discriminate between exercisers and non-exercisers which made the study more inclusive. The Cronbach's α for the sub-scales were reliable ($\alpha =$

0.997) (Markland & Ingledew, 1997).

Rosenberg Self – Esteem Scale (Rosenberg, 1965) (see Appendix C)

This scale examines a unidimensional measure of global self-esteem and was used to assess the participants' self-esteem. The RSES has also been administered as an interview. The RSES scale items were designed to represent a continuum of self-worth statements ranging from statements that are endorsed only by persons with high self-esteem. This inventory consisted of 10 statements on a 4 point scale (1 – strongly agree; 4 – strongly disagree). Half of the statements are expressions of positive self-esteem (Statements – 1, 3, 5, 7 & 10) and half are statements that denote negative self – esteem (Statements – 2, 5, 6, 8, 9). Scores ranged from 10 – 50 with high scores denoting high self – esteem and low scores indicative of lower self - esteem. The RSES is a brief scale that requires no special training to administer and can be completed in less than two minutes. This scale has demonstrated good reliability and validity across a large number of different sample groups and the internal consistency coefficient of this test is 0.88 (Holm-Denoma, Scaringi, Gordon, Van Orden & Joiner, 2009). This scale had a test-retest reliability of 0.85 (Thompson & Altabe, 1991).

The Eating Attitudes Test (Garner, Olmsted, Bohr & Garfinkel, 1982) (see Appendix D)

The EAT-26 is a self-assessment scale on the attitudes of eating to normal populations. In the present study this questionnaire was used to assess participants attitudes towards their own eating behaviour and to determine whether or not they displayed disordered attitudes towards food, weight and eating. This questionnaire takes approximately 4 minutes to complete and is the public domain. On completion of inputting the data to SPSS, all of the questions needed to be recoded before the analysis could begin.

This scale consisted of 26 items which measured the behavioural and attitudinal characteristics commonly found in bulimic and anorexic populations. Participants rated each item using a 6-point scale ranging from “Always” to “Never” with higher scores denoting disordered eating attitudes. The reliability of the EAT was high ($\alpha = 0.90$) (Garner et al., 1982)

The Figure Rating Scale (Stunkard, Sorensen & Schulsinger, 1983) (see Appendix E)

This scale was used to measure the body satisfaction of participants and, again, is in the public domain. This measure consisted of nine drawings of a female figure for female participants and nine drawings of a male figure for male participants. Each figure gradually increased in size from extremely thin to obese. Participants were required to select the figure that they thought represented their current figure (perceived figure) and the drawing of the size that they deem their ideal shape (ideal figure). The difference between the perceived figure and the ideal figure represented the participants body dissatisfaction. This Scale takes less than 1 minute to complete, is a visual stimuli and requires no special training to administer. Two-week test-retest correlation coefficients for females' current and ideal figure were 0.89 and 0.71 respectively, while two-week test-retest correlation coefficients for males' current figure and ideal figure were 0.92 and 0.82 respectively (Thompson & Altabe, 1991).

SPSS was used to manage and analyse data by conducting Independent Samples T-Test's and Pearson product moment correlations.

Participants:

The sample population of participants in this present study consisted of 100 undergraduate students recruited from a Dublin Business School university sample, ranging in age from 18-28. There were 45 male students and 55 female students. Any student over the age of 18 years attending Dublin Business School was entitled to participate. The mean age of the participants was ($M = 21.39$) and the standard deviation of the participants was ($SD = 2.069$).

Research Design:

All respondents were asked to complete a booklet of measures, including a cover page which included some of the instructions and some demographical questions including the age of the participant (See Appendix A).

A quantitative independent group design was used in this study. The independent variable investigated was the participants' gender. The dependant variables were; motives for exercise, body satisfaction, self-esteem and eating attitudes.

Procedure:

Different lecturers within DBS were contacted to seek permission to conduct research with DBS students. Module coordinators were contacted to arrange a time to collect data from students. An online survey was also deemed appropriate to contact DBS students via email to complete the survey. This reduced the burden placed upon students to participate in the study.

Lecturers were encouraged to emphasise that they had no connection with the research

and that participation had no impact upon students' grades for the module. Students were verbally and via email invited to participate in the study and were informed that they were entitled to decline the offer or withdraw their data at any point before it had been collected. They were also informed that all information was anonymous.

This information was also presented in an information sheet which all potential participants received. This information sheet outlined the nature of the study, what participation entailed, the

length of time that anonymous data shall be stored, how it will be destroyed and that it shall be submitted for examination. Contact details were provided, (see Appendix A).

Participants were encouraged to ask questions throughout the data collection process and were welcome to keep the information sheet for their own benefit, so that they could find out more about the study by emailing the researcher using the available contact information provided. Also, if any participants felt distress due to the nature of the study, counselling organisations details were provided for participants to contact. All participants were thanked for taking part once they had returned the questionnaire.

Data Analysis:

A number of areas were examined by the questionnaires; Eating attitudes, exercise motivations, self-esteem and body satisfaction.

Descriptive and frequency analysis were conducted to obtain an overall profile of the student sample. Cronbach's alpha were utilised to assess the reliability of the scales used amongst the student sample.

An inter-item correlation was also conducted as these are deemed more appropriate for scales which have less than 10 items (the Figure Rating Scale). An Independent Samples

T-Test and Pearson's product moment correlations were also employed in the analysis of the results.

Results

Data consisted of participants' scores on the measure of The Exercise Motivations Inventory (EMI-2) (Markland & Ingledew, 1997), The Rosenberg Self-Esteem Scale (RES) (Rosenberg, 1965) The Eating Attitudes Test – 26 (EAT- 26) and The Figure Rating Scale (FRS) (Stunkard et al., 1983). Data were managed and statistically analysed using Statistical Package of Social Science (SPSS) software for Windows (Version18; SPSS, Chicago, IL). The results of this study are reported below, under both quantitative and qualitative data.

Overview of the Sample

Descriptive and frequency analysis were conducted to obtain an overall profile of the student sample. Participants mean scores for the Rosenberg Self-Esteem Scale (RSES) ($\bar{x} = 18.87$, $SD = 4.263$) (see figure 1) were surprisingly lower than the theoretical midpoint ($\bar{x} = 25$) (Schmitt & Allik, 2005).

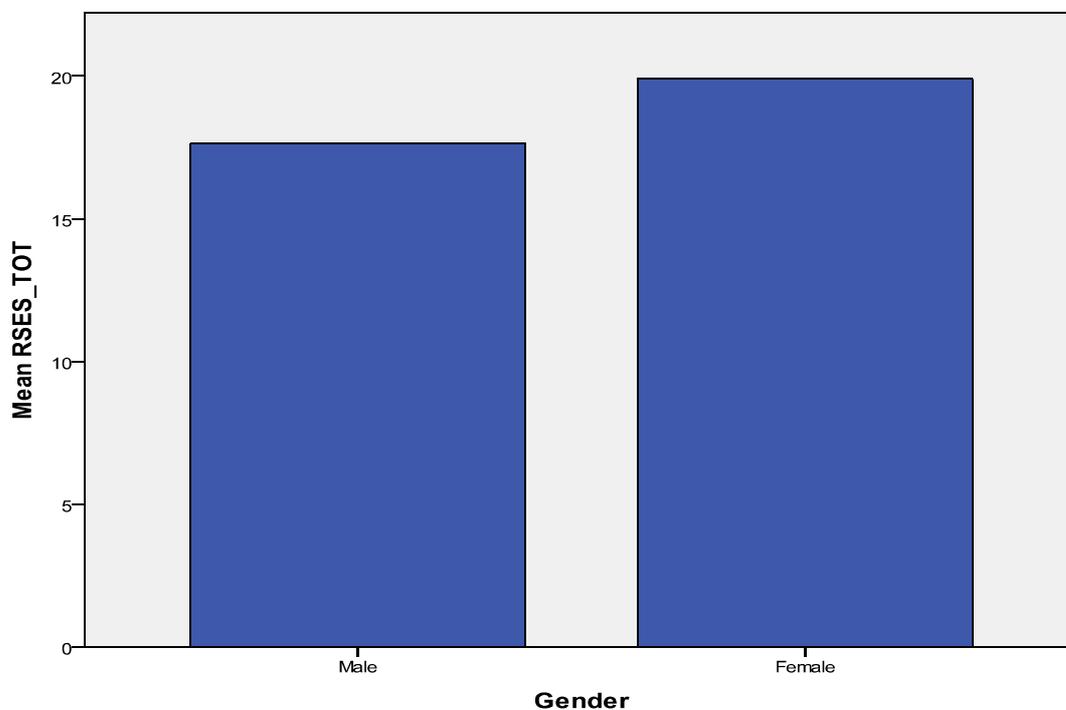


Figure 1: Participants' mean scores on the Rosenberg Self-Esteem Scale

Participants mean scores for the Eating Attitudes Test (EAT-26) are lower than those found in other samples for females ($\bar{x} = 17.4$, $SD = 14.686$) and higher for males, ($\bar{x} = 5.73$, $SD = 6.315$) (see figure 2) in comparison to previous findings (Silberstein et al., 1988). Twenty three females (23%) and two males (2%) scored above the clinical cut-off point of 20, thus 25% of the total sample displayed the symptoms of an eating disorder. These estimates of prevalence are in line but higher than with previous research (Shea & Pritchard, 2007).

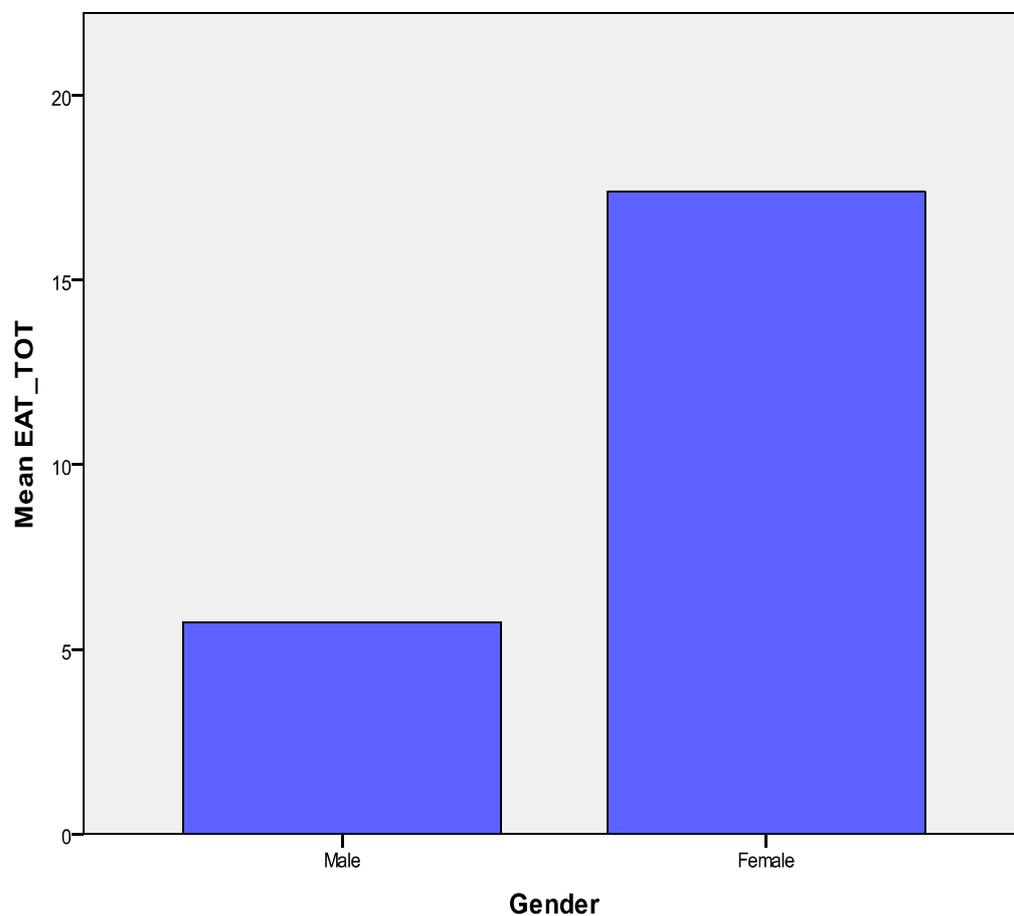


Figure 2: Participants' mean scores on the Eating Attitudes Test (EAT-26)

With regards to body image satisfaction, the Figure Rating Scale (FRS) was utilised to construct a current – ideal discrepancy for each participant by subtracting the ideal figure from the current figure, with a minus number meaning the participant wants to be thinner, a plus number meaning the participant wants to be bigger and a zero indicating the participants ideal figure corresponds with their current figure. 28% of the sample had an ideal figure that corresponded to their current figure. 24% of males had an ideal figure compared to only 4% of females. 4% of males wanted to be one size bigger and 2% of males wanted to be two sizes bigger. No females wanted to be bigger. 29% of the sample wanted to be one size smaller and of that sample 10% were males and 19% were females. 29% of the sample also wanted to be two sizes smaller and of that 3% were males and 26% were females. 7% of the sample wanted to be three sizes smaller and of that 2% were males and 5% were females. No males wanted to be 4 sizes smaller and 1% of females did (see figure 3).

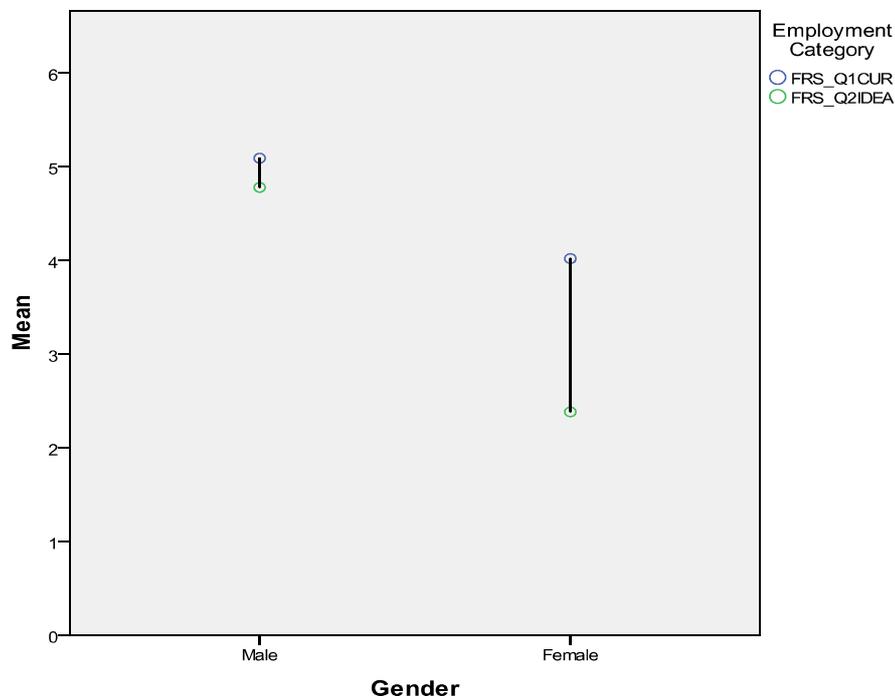


Figure 3: Participants mean scores on the Figure Rating Scale (FRS)

The Exercise Motivations Inventory (EMI-2) had 14 sub-scales. This scale was used to distinguish participants' motivations for exercising. These sub-scales were divided into sections and participants mean scores and standard deviation scores were assessed (see Table 1).

Table 1: *EMI-2 male and female participants mean scores for the sub-scales of the Exercise Motivations Inventory*

EMI-2	Male Mean	Male SD	Female Mean	Female SD
Stress Management	13.58	3.76	12.85	4.5
Revitalisation	10.31	2.98	10.27	2.59
Enjoyment	13.4	4.68	13.18	3.95
Challenge	11.8	4.12	10.04	4.02
Social Recognition	10.42	4.39	8.47	3.49
Affiliation	11.69	4.7	10.04	4.49
Competition	12.47	5.16	8.89	4.25
Health Pressures	6.58	2.98	4.95	2.75
Ill-Health Avoidance	9.98	3.1	9.67	3.06
Positive Health	11.91	2.7	12.42	2.02
Weight Management	12.04	4.88	17.15	3.82
Appearance	12.78	3.88	15.8	3.15
Strength & Endurance	15.49	4.18	12.85	3.74
Nimbleness	9.98	3.29	9.31	2.82

Reliability Data

Cronbach's alpha were utilised to assess the reliability of the scales used amongst the student sample (see Table 2). The results of these analysis revealed that the RSES and EAT-26 had high levels of internal reliability according to Oppenheim (2005) and Coolican (2004). The EMI-2 consists of 14 sub-scales which represent various motivations for exercising. The sub-scales and their respective reliabilities ranged from acceptable (Revitalisation: $\alpha = .665$) to high (Competition: $\alpha = .937$) (see Table 2).

Table 2: *Cronbach's alpha analysis for variables under investigation*

Variables	Number of Items	Cronbach's Alpha
EAT-26	26	.924
Rosenberg Self-Esteem Scale	10	.869
Figure Rating Scale	2	.712
EMI Stress Management	4	.849
EMI Revitalisation	3	.665
EMI Enjoyment	4	.862
EMI Challenge	4	.793
EMI Social Recognition	4	.847
EMI Affiliation	4	.858
EMI Competition	4	.937
EMI Health Pressures	3	.701
EMI Ill-Health Avoidance	3	.698
EMI Positive Health	3	.683
EMI Weight Management	4	.924
EMI Appearance	4	.807
EMI Strength & Endurance	4	.849
EMI Nimbleness	3	.773

The FRS, which has two items, had an acceptable Cronbach's alpha (see Table 2). An inter-item correlation was also conducted as these are deemed more appropriate for scales which have less than 10 items (Pallant, 2007). The inter-item correlation between current and ideal figures was above the optimal range of 0.2 to 0.4 as recommended by Briggs and Cheek (1986).

Table 3: *Inter-item Correlation for the Figure Rating Scale*

	Current Figure	Ideal Figure
Current Figure	-	.562
Ideal Figure	.562	-

Statistical Analyses

Hypothesis 1:

An Independent Samples T-Test was computed to investigate Hypothesis 1 which stated that there would be a significant difference between male and female undergraduate students in relation to eating attitudes. Lower scores were indicative of better attitudes towards eating. This hypothesis was supported as the mean EAT-26 scores of males ($\bar{x} = 5.69$, $SD = 6.277$) is significantly lower ($t = -5.336$, $df = 76.346$, two-tailed $p = .000$) than that of females ($\bar{x} = 17.33$, $SD = 14.610$) which proves that males had better attitudes towards eating in this sample. The difference between the male scores ($\bar{x} = 5.69$, $SD = 6.277$) and female scores ($\bar{x} = 17.33$, $SD = 14.610$) is -11.638. The 95% confidence interval for this difference is -15.882 to -7.295. Therefore there is a significant difference between males and females in their attitudes towards eating.

Hypothesis 2:

Hypothesis 2 asserted that males would have different motivations for exercising than females. The EMI-2 was broken down into 14 sub-scales (see Table 1) and this hypothesis was supported. The biggest difference in motivation for exercising was 'weight management' where males scored ($\bar{x} = 12.04$, $SD = 4.88$) and females scored ($\bar{x} = 17.15$, $SD = 3.82$). An Independent Samples T-Test was employed to investigate this hypothesis.

Hypothesis 3:

Hypothesis 3 states that female undergraduate students will report higher disordered eating attitudes, lower self-esteem and lower body satisfaction than their male counterparts. This hypothesis was partially corroborated.

With regards to disordered eating attitudes, females did report more disordered eating attitudes ($\bar{x} = 17.33$, $SD = 14.61$) than males ($\bar{x} = 5.69$, $SD = 6.277$) which supports the hypothesis.

In relation to lower self-esteem, males scored ($x\bar{=} = 17.62$, $SD = 4.554$) and females scored ($x\bar{=} = 19.89$, $SD = 3.750$), which does not support the hypothesis, as females scored higher on the RSES, showing that they have higher self-esteem.

Females did report lower body satisfaction ($x\bar{=} = -1.64$, $SD = .825$) than males ($x\bar{=} = -.31$, $SD = 1.041$) which was in accordance with the hypothesis. An independent Samples T-Test was used to investigate this hypothesis.

Hypothesis 4:

Pearson's product moment correlations were conducted to explore Hypothesis 4 which affirmed that having motivations for exercising for appearance-related reasons and weight management reasons would be associated with higher disordered eating attitudes, lower self-esteem and lower body satisfaction (see Table 4). Within the Exercise Motivations Inventory (EMI-2) males scored higher on stress management, revitalisation, enjoyment, challenge, social recognition, affiliation, competition, health pressures, ill-health avoidance, strength and endurance, and nimbleness. Females scored higher on positive health, weight management and appearance.

Self-Esteem: It was found that there was not a significant relationship between self-esteem and appearance related motives for exercise, ($r = -0.031$, $df = 98$, $p < 0.001$). There was also no significant relationship found between self-esteem and weight management motives for exercise, ($r = .085$, $df = 98$, $p < 0.001$) (see Table 4).

Body Satisfaction: Appearance related motives for exercise were negatively correlated with body satisfaction, ($r = -.402$, $df = 98$, $p < 0.001$) and weight management motives for exercise were negatively correlated with body satisfaction, ($r = -.541$, $df = 98$, $p < 0.001$) because the more participants wanted to exercise for these reasons, the thinner they preferred to be (see Table 4).

Eating Attitudes: There was found to be a significant relationship between eating attitudes and appearance related motives ($r = .480$, $df = 98$, $p < 0.001$). Disordered eating attitudes were also found to be positively correlated with exercising for weight management related motives for the entire sample ($r = .584$, $df = 98$, $p < 0.001$) (see Table 4).

Table 4: *Correlations between self-esteem, body satisfaction, eating attitudes and exercise motivations for the entire sample.*

Variables	Self-Esteem	Body Satisfaction	Eating Attitudes
Self-Esteem	-	-.374**	.320**
Body Satisfaction	-.374**	-	-.463**
Eating Attitudes	.320**	-.463**	-
Exercise Motivations Inventory			
Stress Management	-.210*	.193	-.359**
Revitalisation	-.362**	.104	-.234*
Enjoyment	-.369**	.129	-.176
Challenge	-.164	.110	-.253*
Social Recognition	-.104	.089	-.079
Affiliation	-.117	.146	-.096
Competition	-.327**	.278**	-.257**
Health Pressures	-.036	.056	-.188
Ill-Health Avoidance	-.084	.004	-.312**
Positive Health	-.212*	-.050	-.075
Weight Management	.085	-.541**	.584**
Appearance	-.031	-.402**	.480**
Strength & Endurance	-.355**	.164	-.317**
Nimbleness	-.325**	.089	-.104

* Correlation is significant at the 0.05 level

** Correlation is significant at the 0.01 level

Discussion

This study sought to investigate the relationship between motivations for exercise, gender, self-esteem, body satisfaction and eating attitudes in undergraduate students who are currently studying in Dublin Business School.

In support of Hypothesis 1 which stated that there would be a significant difference between male and female undergraduate students in relation to eating attitudes, a significant disordinal interaction effect emerged between gender and eating attitudes. Male students were found to have significantly lower mean scores than females on the EAT-26 (Garner et al., 1982) questionnaire. In accordance with this questionnaire, lower scores were indicative of better attitudes towards eating. This finding supports previous research which reports that female college students usually demonstrate higher levels of disordered eating habits than male college students (Edman et al., 2005; Pritchard, 2008). This is possibly due to females having an idealised image of thinness and focusing on the “thin ideal”, (Ahern et al., 2011).

Hypothesis 2 which stated that males would have different motivations for exercising than females was supported. Males scored higher on stress management, revitalisation, enjoyment, challenge, social recognition, affiliation, competition, health pressures, ill-health avoidance, strength and endurance, and nimbleness. Females scored higher on positive health, weight management and appearance. This finding is in accordance with previous studies where it was found that women are more likely than men to exercise for appearance related motives, (Zmijewski & Howard, 2003; Strelan & Hargraves, 2005) and men appear to be motivated to exercise more for health and fitness reasons (McDonald & Thompson, 1992; Silberstein et al., 1988; Tiggemann & Williamson, 2000; Brown & Graham, 2008). An explanation for this gender discrepancy in

motives for exercise can be found in the objectification (Frederickson & Roberts, 1997) which suggests that individuals are socialised to internalise an observer's perspective of their physical appearance and that they consider themselves as objects to be judged by other people (Parent & Moradi, 2010). Women are reported as being more vulnerable to self-objectification (Tiggemann & Williamson, 2000), which seems to be the case with the present sample.

Hypothesis 3 stated that female undergraduate students would report higher disordered eating attitudes, lower self-esteem and lower body satisfaction than male undergraduate students. This hypothesis was partially corroborated. Although a large percentage (28%) of participants indicated that their current figure matched their ideal figure, thus contesting previous findings (Silberstein et al., 1988), a strong gender effect was observed as females had significantly lower body satisfaction than males which substantiates Hypothesis 3 and is comparable to previous literature (Tiggemann & Williamson, 2000; Strelan & Hargraves, 2005; Prichard & Tiggemann, 2005; LePage & Crowther, 2010).

Regarding the direction of low body satisfaction, men were found to be happy with their current shape, without a desire to change, whereas females were found to be more likely to wish to be thinner than to be heavier or to remain the same, which supports previous results (Silberstein et al., 1988; Forbes et al., 2001; Furnham et al., 2002; Shea & Pritchard, 2007).

In contrast to previous findings in females, low body satisfaction was not found to have a significantly positive relationship with self-esteem, indicating that within this sample, women's opinions of their physical appearance do not have an influence on their overall self-esteem (Mellor, et al., 2010) as females were found to have higher self-esteem than their male counterparts. This result was unexpected due to a marked discrepancy between male and female body satisfaction. Alternatively, body dissatisfied females may have felt self-conscious about revealing their unhealthy self-esteem levels and may have wished to be considered favourably by the experimenter

(Krosnick, Judd & Wittenbrink, 2005).

In accordance with the thin ideal (Borresen & Rosenvinge, 2003) female body dissatisfaction is thought to occur to the extent to which women internalise society's standards for physical attractiveness, thinness and athleticism and the degree to which they feel unable to achieve these standards (Ahern et al., 2011). Societal pressure upon men has proved to be different as men who are dissatisfied with their body shape tend to view muscularity as the ideal shape (Parent & Moradi, 2010). However, only 6% of males in the current sample wanted to be bigger, but 24% of males viewed their current shape as their ideal shape which was shape number 5 (see Appendix E).

In support of previous findings (Silberstein et al., 1988; McDonald & Thompson, 1992; Keel & Klump, 2003; Adkins & Keel, 2005) males and females did differ significantly on a measure assessing behaviours and attitudes associated with disordered eating.

Hypothesis 4 stated that being motivated to exercise for appearance related reasons and weight management motives would be associated with higher disordered eating attitudes, lower self-esteem and lower body satisfaction. It was found that for females, exercising for weight and appearance-related motives was significantly correlated with disordered eating attitudes and low body satisfaction but not low self esteem. In males, however, this hypothesis was corroborated. These results, in part, correspond with previous research which reports that individuals who are motivated to engage in exercise for appearance-related reasons are more likely to have negative eating behaviours, lower body satisfaction and lower self-esteem than individuals who are motivated to exercise for healthier reasons (Davis et al., 1990; McDonald & Thompson, 1992; Strelan et al., 2003; Petrie et al., 2009). By engaging in physical activity with the aim of altering their body shape, individuals who perceive that they failed to achieve this goal are liable to experience reduced self-esteem, decreased body satisfaction and are likely to develop disordered eating attitudes to compensate for the lack of effect exercise is having upon their body shape

(Prichard & Tiggemann, 2008). In contrast, females who had health motivations for exercising demonstrated lower overall disordered eating attitudes which corresponds with previous findings (Tiggemann & Williamson, 2000) and partly supports this current hypothesis. Similar findings to this were found by LePage and Crowther (2010) who suggested that our society may have a health and fitness ideal as well as a thin ideal, therefore, one may argue that individuals who are displeased with their motivations for exercise would be found to have a comparably low body satisfaction to those individuals who are displeased with their appearance. Within this current study, participants' responses may have been affected by the social desirability bias (Smith, Leffingwell & Ptacek, 1999), which suggests that individuals with low body satisfaction may have considered it more socially appropriate to endorse health-related motivations for exercise rather than appearance-related motives for exercise.

Methodological Strengths

A methodological strength of the present study is that the questionnaire could be completed quickly and efficiently, thus placing less of a burden on students' time. Unlike previous studies which recruited selective samples of participants, namely women (Mellor et al., 2010; Silvera et al., 1998), the present study used a broad range of people who are representative of a general Dublin Business School student population. The inclusion of men and women also enhanced the generalisation of the results (Adkins & Keel, 2005). All data were provided anonymously by participants, and as a result of this, respondents were likely to be more honest with their answers (Petrie et al., 2009). A relatively large sample of undergraduate students participated in the present study which is a strength, as larger sample sizes improve the power for ascertaining differences and correlations between variables (LePage & Crowther, 2010; Adkins & Keel, 2005). A considerable

strength of the present study was its use of the Figure Rating Scale (Stunkard et al., 1983) to assess participants' body image satisfaction. As body image satisfaction is a visually mediated subjective concept, methods which employ visual stimuli, such as the Figure Rating Scale, have great ecological appeal (Forbes et al., 2001). Another ample strength of the present study was its use of the Exercise Motivation Inventory (EMI-2) (Markland & Ingledew, 1997) as this assessed participants' motivations for exercising. Whether or not the participants' actually exercised was not important as this questionnaire was utilised to evaluate the participants' motivations for exercising which meant that all individuals could take part whether they participated in physical activity or not.

Limitations and Future Research

Although self-report measures may be the most appropriate method of assessing internal states (LePage & Crowther, 2010) such as self-esteem and body satisfaction, they are also highly subjective and liable to misinterpretation. As depicted previously, a limitation of the present study was that participants' responses may have been influenced by the social desirability bias (Smith et al., 1999). In order to counteract this, future research could ask random participants who are not all students of the same university, to complete an online questionnaire, as this may increase the authenticity of respondents' data as they are not connected in any way to each other or the researcher (Adkins & Keel, 2005). As all of the participants were Dublin Business School undergraduate students, it is unclear whether the findings generalise to a more diverse sample of young adults or to other developmental groups (de Bruin, Woertman, Bakker & Oudejans, 2009). This sample was convenient to begin research, but a more random sample of the general population may profit future research in this area. Although the number of participants used in this study was sufficient, a larger sample would give a better overall understanding of the hypothesis.

Other measures of each of the variables under investigation may have led to different findings, for example, future research could use the Eating Disorders Inventory (Garner, Olmsted & Polivy, 1983) to investigate eating pathology instead of using the Eating Attitudes Test (EAT-26) (Garner et al., 1982). Alternatively, a number of different scales that assess the same variables could be used to facilitate within-method triangulation so as to increase the internal validity of results (Mathison, 1988; Elliot et al., 1999). In addition to this, obtaining participants' Body Mass Index (BMI) may be of use in future research to attain the validity of respondents' body satisfaction i.e., the true discrepancy between the participants current figure and ideal figure. The BMI could be used to measure objectively participants' true height and weight to ensure reliability. Due to the correlational nature of the present study, it was not possible to make assumptions about the casual direction of the relationships that were examined, therefore longitudinal experimental research designs are required to further investigate the causality of the observed relationships (McCabe & James, 2009).

With regard to the Rosenberg Self-Esteem Scale (RSES), it is important to note that although self-esteem is one of the most studied areas in psychology, it has been measured in a variety of different ways (Thomas & Oliver, 2009). The RSES is one of the most widely used methods of measuring self-esteem, however empirical evidence on the validity of this scale is somewhat contradictory (Thomas & Oliver, 2009). This again could be due to the nature of the questions and that once again the participants responses may have been influenced by the social desirability bias (Smith et al., 1999).

Practical Implications

The findings of the present study suggest that it may be advantageous for public figures as well as training and coaching staff and any influential persons to de-emphasize the tone, weight and appearance related motives for physical activity. Also, as de Bruin et al. (2009) suggested, it may be of benefit to promote the mood, enjoyment, fitness and most importantly health-related motives for exercise, as this could potentially improve the body image, eating attitudes and self-esteem of individuals. Although the majority of participants in the present study engage in healthy eating and seem to have healthy motives for exercise and a good sense of self-esteem, there is a large sample of students (25%) who displayed symptoms of an eating disorder as they scored above the clinical cut-off point of 20 on the Eating Attitudes Test (EAT-26). Therefore it is imperative that healthy eating, motives for exercise and a healthy body image be endorsed in universities and colleges to protect the mental and physical well-being of students.

Conclusion

Support is obtained for the hypothesis that there will be a significant difference between male and female undergraduate students in relation to eating attitudes, suggesting that females will have more disordered eating attitudes than males. Support is also obtained for the hypothesis that males will have different motivations for exercising than females. Support was partially corroborated for the hypothesis that stated that female undergraduate students will report higher disordered eating attitudes, lower self-esteem and lower body satisfaction than their male counterparts.. In regards to the hypothesis that stated that having motivations for exercising for appearance-related motives and weight management motives will be associated with higher

disordered eating attitudes, lower self-esteem and lower body satisfaction, the results were supported from the male student aspect and partially supported from the female student aspect. Each of the hypotheses is also supported by the available literature. Future research should attempt to replicate the current findings, controlling as much for cultural variation in the results as possible. This future research should also consider test-retest methods for the purposes of conducting research into the area of eating disorders. Once future research has established that there is a link between exercise motivations, self-esteem, eating attitudes and body image satisfaction among undergraduate students, research can begin in this area in the hope of finding a way to eliminate eating disorders in students. Also, future research in this area could aim to provide a reason for an increase of counselling services to be implemented in colleges around the country to help our students. Thus, the data from this study could further raise awareness of eating disorders in undergraduate students. The next step is to replicate this study, controlling as much as possible for confounding variables.

This information will be of much use for colleges, parents and the students themselves, during this transitional period, known as emerging adulthood, where students learn to become independent.

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Appendix A: Information Sheet

Dear Participant,

My name is Geraldine Ennis and I am a final year psychology student in Dublin Business School.

As part of my final year studies I am conducting research into the area of exercise, self-esteem, eating attitudes and body satisfaction in students. I have included four questionnaires. Please follow the instructions at the beginning of each questionnaire.

All responses will be completely confidential and you should not put your name on the questionnaires. If you have any questions please do not hesitate to contact me at the above email.

Thank you for taking the time to assist me in my research.

Please tick the relevant box:

Age: []

Gender: Male []

 Female []

Regards,

Geraldine Ennis