

**Physical activity and the associations with self-efficacy, self-esteem
and body image**

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Abstract

This study provided a quantitative correlational review of the relationships between physical activity and self-esteem, body image and self-efficacy. A total of (n=195) participants took part in this study ranging between 16 and 65 years old. Measurements included where the International Physical Activity Questionnaire short form, the Rosenberg Self Esteem scale, the Body Esteem scale and the General Self-Efficacy scale. The results of correlational coefficients found significant relationships between physical activity and self-efficacy ($r=.158$), physical activity and upper body strength ($r=.220$), physical activity and physical condition for males ($r=.294$), physical activity and physical condition for females ($r=.391$), physical activity and sexual attractiveness ($r=.135$). No significant relationships was found between physical activity and self-esteem, physical activity and physical attractiveness and physical activity and weight concern.

Introduction to the literature (1)

The relationship between physical activity (PA) and good health is not something that has just been realised over the past century. In approximately 2500bc Hua t'o a famous Chinese surgery, encouraged exercises modelled on the movement of animals, principally the Tiger (MacAuley, 1994). In ancient Greece physical activity was a central part of education and most education took part in a gymnasium. The best well known Greek physician Hippocrates once said "eating alone will not keep a man well; he must also take exercise, for food and exercise, work together to produce health" (Hippocrates, as cited in Berryman, 2010, pg.1).

The purpose of this research project is to examine the relationship between PA and body image. It is hard to escape the ever increasing pressure on people today to look a certain way. With size "O" models being held as beautiful and the ideal female body this puts enormous pressure on females to attain a certain body type most will never be able to achieve. Although most of the early research on body image focused on females and how a negative body image affected them (Cash & Huffine 1990; Dwyer, Feldman & Maher, 1967; Grodner, 1991; Loosemoore, Mable & Galgan, 1989; Striegel-Moore & Silberstein, 1985, as cited in Parks & McKay, 1997), it seems they are not alone in this regard. For males this ideal body type is a characterised by tallness, broad shoulders, and muscular physique (Parks & McKay, 1997). These pressures to attain the perfect body type can lead to a negative body image which can cause psychological issues which could be detrimental to a person.

Therefore it is important to investigate this topic further to see if there is a relationship between the amount of PA an individual does and the body image that individual has as shown by previous research (Vocks, Heckler, Rohrig & Legenbauer, 2008; Hausenblas & Fallon, 2005).

This research project will also examine the relationship between PA and self-esteem. Low levels of self-esteem are related to teenage pregnancy and suicide (Crockenberg & Soby, 1994; Bhattacharjee & Deb, 2007, as cited in Sharma & Agarwala, 2013). A study by Pyszczynski, Greenberg, Solomon, Arndt & Schimel (2004) has also described a negative relationship between self-esteem and anxiety. As outlined above low levels of self-esteem is related to a number of psychological problems. Treatments for these problems can be expensive, may not be affective and can also negative have side effects.

Therefore it is important to investigate PA further to see if there is an association between an individual's PA levels and their self-esteem levels to see if high levels of PA are related to high levels of self-esteem as shown by previous research (Armstrong & Omen-Early, 2009; Garcia, Castillo & Quearalt, 2011).

Finally this research project will investigate the relationship between PA and self-efficacy. Self-Efficacy can affect human functioning by influencing how people perceive their abilities to cope in certain situations. Therefore self-efficacy can affect how people cope with obstacles which cause them stress like anxiety or depression (McCabe, 2013). Consequences of low self-efficacy can be feelings of anxiety, helplessness, sadness and severe depression (Kololo, Guskowska, Mazur & Dzielska, 2012). Furthermore research has shown that levels of self-

efficacy have been seen to predict the adoption and the preservation of a physical activity programme (McAuley, 1992). As stated above treatments for psychological disorders can be expensive, can have negative side effects and sometimes can be ineffective. Therefore it is important to investigate the relationship between PA and self-efficacy further to see if the amount of PA an individual gets is related to the level of self-efficacy a that individual has as seen in previous research (Mo, Blake & Batt, 2011; Rutkowski & Connelly 2010; Kololo, Guszowska, Mazur & Dzielska, 2012).

Before discussing the finding of the research it is important to discuss these concepts in detail as previous research has led to this research being carried out in this project. A review of the literature is also important as it will give the individual an awareness of the previous literature and how it compares and contrasts with the views of this research project.

Defining Physical Activity (1.1)

PA has been defined by the World Health Organisation as “any bodily movement produced by skeletal muscles that require energy expenditure” (WHO, 2014). To understand how important PA is one must look at the impact of its opposite. The World Health Organisation has rates physical inactivity as the fourth most dangerous factor for global mortality which has caused an estimated 3.2 million deaths worldwide (WHO, 2014). Furthermore the Irish heart foundation rates physical inactivity as a major contributor to heart disease (The Irish heart foundation, 2014). In addition other heart risk factors such as high blood pressure, low levels of the good High Density Lipoprotein, cholesterol and being overweight are aggravated by being

physically inactive (The Irish heart foundation, 2014). Research has also shown that PA is related to calorie intake in women between the ages of 15-35 (Graff, Alves, Toscani & Spritzer, 2012). Some of the motives for engaging in PA can be intrinsic motives such as enjoyment, interest, fun and stimulation (Ferrand, Perrin & Nasarre, 2008). Furthermore research by Kilpatrick, Hebert & Bartholomew (2005) has shown that overtly health related motives are more highly related to exercise behaviour, while extrinsic motives like competition, affiliation, enjoyment and challenge are linked to sports participation. There are many different ways in which an individual can become physically active. Although when most people think of PA they probably think of playing a sport like football, GAA, running, boxing or rugby, less strenuous activities like walking, gardening or household chores can also be considered as PA.

General Health Benefits (1.2)

Get Active Ireland recommends adults should accumulate at least 30 minutes of moderate to intense PA each day which could be accumulated in short 10 minute bursts (Get active Ireland, 2014). Furthermore research by Pate et al (1995) also recommend that adults should accumulate at least 30mins moderate to intense PA most days of the week. In addition research has shown that PA after breast cancer can boost survival rates, even walking as little as 1 hour per week was related to more positive outcomes (Holmes, Chen, Feskanich, Kroenke & Colditz, 2005). Furthermore 15 minutes of low to moderate daily exercise has been recommended as a treatment or a prevention strategy in the treatment of type 2 diabetes (Leung, Kamla, Lee & Mak, 2007). According to research by Agostini, Netto, Miranda & Figueiredo (2011) PA could

also play an important role in erectile dysfunction, in their study of 180 Brazilian men between the ages of 40-75 they observed an inverse relationship between PA and erectile dysfunction.

The WHO (2002) have stated that 450 million people world-wide suffer from mental and behavioural disorders. According to a study by Tyson, Wilson, Crone, Brailsford and Laws (2010) students who engaged in high levels of PA showed significantly lower levels of anxiety and depression than the medium and low physical activity groups. In addition research has shown that individuals who engage in regular PA are less likely to meet the criteria in the previous year for diagnosis of major depression and a range of anxiety disorders (Goodwin, 2003; as cited in Saxena, Ommeren, Tang & Armstrong, 2005). Furthermore research in an ethnically diverse sample of college students has shown that PA levels had a negative relationship with hassles (Nguyen-Michel, Unger, Hamilton & Spruijt-Metz, 2006). Although PA can be beneficial to an individual's health in many different ways, a lot more can be done to promote the significant benefits that can be achieved through PA and this could in turn help create a more active society (Kumar Veluswamy et al, 2014).

Body Image (1.3.1)

The term body image was first established as a psychological construct by Austrian psychiatrist Paul Schider in 1935. A person's body image is said to be affected by physiological, psychological and sociological components (Parks & McKay, 1997). Body image refers to how people "think, feel, and behave with regard to their own physical attributes" (Muth & Cash, 1997, p.1438, as cited in Galli & Reel, 2009). A positive body image has been related with a

positive effect on sexual functioning (Erbil, 2013). A growing body of research suggests that adolescents who report a more positive body image are more likely to feel intelligent, have a father figure in their main home, find it easier to communicate with a father figure and believe that their teachers are interested in them (Fenton, Brooks, Spencer & Morgan, 2010). Research into the predictors and relapse of eating disorders in women has shown that the development, maintenance and relapse of disorders such as bulimia nervosa and anorexia are related to a negative body image (Keel, Dorer, Franko, Jackson, & Herzog, 2005). According to a study by Gross & Rosen (1988) of adolescents in 3 schools in the northeast of America there was significant differences observed between bulimic girls and non-bulimic girls in how happy they were with their bodies. In addition a longitudinal study examining adolescent boys found that distortions in body image are risk factors for depressive symptoms (Blashill & Wilhelm, 2013). Furthermore research has revealed that gender, being overweight, consumption of meat and depression were all significant correlates of body image dissatisfaction (Forrest & Stuhldreher, 2007).

The Relationship between Body Image & Physical Activity (1.3.2)

In the previous paragraph we evaluated some of the previous research on body image and discussed the impact a negative body image can have on an individual. The following research looks at the relationship between body image and PA and shows the positive affect PA can have on how an individual perceives their body. According to research on Israeli students by Korn, Gonen, Shaked & Golen (2013) PA is even more important for perceptions of body and self-image than maintaining a healthy diet. Moreover a study of Polish adolescents has shown that a

negative body image is related to insufficient amounts of physical activity (Kololo, Guskowska, Mazur & Dzielska, 2012). Research by Vocks, Heckler, Rohrig & Legenbauer (2008) demonstrated that the state of female body image is positively affected directly after a 1 hour endurance training session on a stationary bicycle. Furthermore research using meta-analytic procedures revealed a small affect showing that exercisers had a better body image than non-exercisers, exercise interventions showed increased body image scores for those in the exercise group (exercise intervention) compared to the control (no intervention) post intervention (Hausenblas & Fallon, 2005). Further research in area of PA interventions have also revealed that British adolescents (13-14 years old) body image dissatisfaction was significantly reduced after a six week intervention of twice weekly aerobic dance classes (Burgess, Grogan, Burwitz, 2005). According to Seguin, Eldridge, Lynch & Paul (2013) a weight training program with women with a mean age of 62 over a ten week period produced significant improvements on some on body image scores. Furthermore after a one hour session of posture correction exercises women (50-70 years old) who were who had one or more posture alterations achieved immediate increases in state body image scores (Scrapa, Nart, Gobbi & Carraro, 2011).

Research examining associations between the extent of participation in endurance sport and how adolescents perceived their self-image, physical and psychological health and overall lifestyle in a sample of German high school students (n=1000) found a statistically significant association between sports participation and self-image (Kirkcaldy, Shephard & Siefen, 2002). Although the previous research shows a relationship between PA and body image some sports seem to promote a more positive body image than others as can be seen in research comparing male American football players and athletes that has shown that the Football players to have a

more desirable body image than the athletes (Parks & McKay, 1997). The previous studies have shown PA and body image to have a positive relationship, however research of post graduate college seniors by Zabinski, Calfas, Gehrman, Wilfley & Sallis (2001) revealed that PA interventions that intended to boost PA levels could also have a negative impact as females showed an increased drive for thinness post intervention. In the current study the researcher while use the body esteem scale to examine the relationship between PA and body image. The body esteem scale looks at 3 different sub scales of body image for males and females and is made up of items concerning parts and functions of the body (Franzoi, & Shields, 1984).

Self Esteem (1.4.1)

Self-esteem is formed around how an individual perceives their self-worth (Wagner, Gerstorf, Hoppmann, Luszcz, 2013). Self-esteem can be defined as how an individual feels about themselves, it can be made up of feelings about our appearance, intelligence, and knowledge and it can influence behaviour (Kololo, Guskowska, Mazur & Dzielska, 2012). In simple terms self-esteem can be described as negative or positive evaluations about ourselves. Research by Steiger, Allemand, Robins & Fend (2014) has found gender differences in self-esteem with males reporting higher self-esteem than females. In later life cognitive functioning and perceived control are have been shown to be correlates of self-esteem (Wagner, Gerstorf, Hoppmann, Luszcz, 2013). Self-esteem has also been shown to have a negative relationship with depression (Sharma & Agarwala, 2013). In addition research has shown that low self-esteem has been seen to be related to depression, fearfulness, shyness and loneliness (Brown, 1986; Baumeister, Campbell, Krueger & Vohs, 2003, as sited in, Yang, Dedovic, & Zhang, 2010). Furthermore it

has been shown that low and declining levels of self-esteem can predict depressive symptoms in later life (Steiger, Allemand, Robins & Fend, 2014). Interestingly a curvilinear analyses of self-esteem has shown that both low and high self-esteem have also been related to self-reported aggression (Perez, Vohs & Joiner, 2005). High self-esteem is said to be associated with optimism, successful coping, positive emotions and improved health (Yang, Dedovic, Zhang, 2010).

The Relationship between Self Esteem & Physical Activity (1.4.2)

According to research by Armstrong & Omen-Early (2009) collegiate athletes have significantly higher self-esteem than non-athletes. This finding was replicated in a Spanish university where it was found that students who had higher amounts of physical activity had significantly higher self-esteem scores (Garcia, Castillo & Quearalt, 2011). In addition research using a Meta-analytic methodology showed that exercise environment is important in boosting self-esteem (Barton, 2010). However these findings were not replicated in a study of 11 to 12 year old children who showed no significant difference in self-esteem after they completed a 1.5 mile run in both rural and urban environments (Reed et al, 2013). Interestingly research has shown that greater increases in self-esteem are seen in obese women who have a both physical activity and cognitive behavioural therapy (CBT) as part of their weight loss program compared to those who just use CBT (Nadine, Zillmann, Grove, Jackson, Byrne & Dove, 2010). According to research involving 12 year old Canadian grade six students investigating the relationship between physical activity self-esteem and academic achievement has revealed a positive relationship between self-esteem and physical activity (Tremblay, Wyatt & Willms, 2000).

However in a study examining the relationships among self-esteem, stress and physical activity levels no significant relationship was found between self-esteem and physical activity (Hubbs, Doyle, Bowden & Doyle, 2012). Furthermore a study examining global self-esteem and physical activity levels in grade 7, 8 and 9 students in schools in the Zarqa education directorate no significant relationship was found between global self-esteem and physical activity (Abedalhafiz, Altahyneh & Al-Haliq, 2002).

Relationships between Physical Activity, Self-esteem & Body Image (1.4.3)

In research examining different aspects of body image and psychological, social and sexual functioning through adulthood only self-esteem was found to have significant relationships between the different aspects of body image (Davison & McCabe, 2005). In addition a study of athletic vs. non-athletic adolescent (12-14 years old) Turkish girl's it was found that body image was positively correlated with self-esteem, and the athletic girls were seen to have higher levels of body image and self-esteem, another finding of the research was that the participation of sport seemed to play a part in putting off the typically seen fall of self-esteem levels as adolescents got older (Dorak, 2011).

Self-Efficacy (1.5.1)

Self-efficacy can be defined as an individual's capability to react to a situation and produce a sought after result. (APA Dictionary, 2007). According to Bandura self-efficacy is our belief that we are going to succeed in certain situations. A persons self-efficacy beliefs can be

affected by past performance experiences, observational learning, verbal persuasion and emotional arousal (Bandura, 1997). The concept plays a major role in Bandura's social learning theory, which focuses on how personality is shaped by social experience and observational learning (Bandura, 1997). According to Bandura measurement of self-efficacy should be domain specific but research by Judge et al (1997) has expanded self-efficacy to a global level (as cited in Fitzmaurice, 2012).

A person with high self-efficacy is willing to give many challenges a go as they are willing to push themselves to the limit and carry on with challenges even if the solution doesn't come easily. A person with low self-efficacy may believe that a task is impossible for them to accomplish, which will in turn lead them to believe it is a stressful event which they cannot handle (McEntee, 2013). In a study of adolescents examining a number of different factors in depression it was found that low self-efficacy was the most robust predictor of depression (Flett, Panico & Hewitt, 2011). In addition Research has shown that perceived bicultural self-efficacy has been related to lower levels of anxiety and depressive symptoms in bicultural college students (David, Okazaki & Saw, 2009). According to Fioravanti, Casale, Mantegazza, Leonardi & Raggi (2010) self-efficacy is an important construct in predicting health related quality of life of Myasthenia Gravis patients. Research has shown that level of self-efficacy can be increased from learning coping mechanisms (Rice, 1999 as cited in McEntee, 2013).

Research on Self Efficacy (1.5.2)

Much research has been carried out on the construct self-efficacy in relation to physical activity. A study by McAuley (1992) revealed that self-efficacy has been found to predict the adoption and the maintenance of exercise participation. Furthermore a study by Koringa et al (2012) revealed that combined planning and self-efficacy interventions can increase physical activity. In addition research by Rudolph & Butki (1998) discovered that as little as 10 minutes of aerobic exercise can enhance perceptions of efficacy. Moreover research investigating the correlates of PA behaviour in major cities and regional settings found that self-efficacy for exercise and outcome expectancies were the strongest correlates of moderate to vigorous PA (Vandelanotte, Rebar & Duncan, 2013). Furthermore a study of student nurses and NHS staff revealed that self-efficacy for PA was positively correlated with PA levels (Mo, Blake & Batt, 2011). Interestingly when examining age, sex and physical activity as predictors in self-efficacy levels, Langan & Marotta (2000) found that only physical activity predicted self-efficacy at a significant level in older adults (age 60-74). Furthermore research examining the relationship between self-efficacy and PA in adolescent and parent dyads Rutkowski & Connelly (2010) found that parent and adolescent physical activity was positively correlated with general self-efficacy scores. In addition a study of 15 year old Polish adolescents revealed that high levels of general self-efficacy were seen to predict physical activity (Kololo, Guszowska, Mazur & Dzielska, 2012). In a study of urban Latino school children's physical activity correlates and daily physical activity participation it was found the self-efficacy for physical activity predicted physical activity levels in children. Furthermore a study of college students by Hutchins, Drolet & Ogletree (2010) showed that a moderate positive correlation between physical activity and

exercise self-efficacy. In addition Barg et al (2012) found the both action and maintenance self-efficacy were positively correlated with physical activity while studying inactive middle aged women over a 12 week.

Demographic variables and the association with PA (1.6)

Previous research has shown how demographic variables age and gender play a part in how active a person is. These variables have an effect on PA and in doing so can also affect levels of self-efficacy, self-esteem, body esteem. Research has shown as age increases the level of physical activity decreases (Devonshire-Gill & Norton, 2013). In addition previous research has that adolescent males are more active than females (Collings et al, 2012). Another demographic variable that could affect how physically active participant is whether the participant plays sport and the type of sport the participant plays. Research in an American sample shows that different sports can promote a better body image (Parks & McKay, 1997).

Aim of the current research (1.7)

The aim of the current study is to look at body esteem and the components of the body esteem scale rather than just body image as a whole. Another objective of the researcher is to add to the previous research on self-esteem and PA try help resolve the previous ambiguous findings about the relationship between self-esteem and PA. During the research for this project a lot of the literature measuring PA and self-efficacy focused on the domain specific self-efficacy for PA, another objective of the current research is to look at the relationship between PA and

general self-efficacy and replicate the findings of research by Mo, Blake & Batt, 2011; Rutkowski & Connelly, 2010; Kololo, Guskowska, Mazur & Dzielska, 2012. The researcher also thought it was important to look at the variables self-esteem; self-efficacy and body esteem in a real world setting and see how they relate to physical activity rather than looking at how they react to a physical activity intervention which is somewhat an artificial setting. The final aim of the research is to look at the relationship between PA and these variables in an Irish sample as the researcher was unable to find research on these variables in an Irish population.

Hypothesis (1.8)

Hypothesis 1: There will be a significant relationship between self-efficacy scores and physical activity scores.

Hypothesis 2: There will be a significant relationship between self-esteem scores and physical activity scores.

Hypothesis 3: There will be a significant relationship between body esteem scores and physical activity scores in males.

Hypothesis 4: There will be a significant relationship between body esteem scores and physical activity scores in females

(2) Method section

Participants (2.1)

A total of one hundred and ninety five ($n = 195$) participants took part in this study. The target population for this study were people who were interested in physical activity. A purposive sample of 110 participants were taken from the Sports & Exercise courses in Inchicore & Pearse Colleges. An email was sent to these colleges to seek approval to use this sample and access was granted. A copy of the email granting approval is marked (E) in the appendices. The remaining 85 participants were gathered from an online survey which was attached to the researchers Facebook and Twitter accounts. Friends of the research began to share the online survey on their Facebook and Twitter accounts resulting in a greater volume of participants. This is known as a snowball method of sampling. One hundred and thirty two ($n = 132$) of the participants are male sixty three ($n = 63$) are female and. The sample was a mix of sports club members ($n=129$) and non-members ($n=65$) subjects. The mean age of the sample was 26.74 ($SD= 8.49$) and the age range was from 16 to 65 years old. Participation was voluntary and there was no incentives offered.

Design (2.2)

This study can be conceived of as a cross sectional, quantitative, and correlational design used to examine if there is a significant relationship between (1) PA and self-esteem (2) PA and self-efficacy (3) PA and the components of male body esteem and (4) PA and the components of

the female body esteem. The predictor variable (PV) for the study is physical activity levels (IPAQ) and the criterion variable(s) (CV) are self-esteem (RSE), self-efficacy (GSE) and the components of the body esteem scale, physical condition (PC), physical attractiveness (PA) and upper body strength (UBS) for males and physical condition (PCF), weight concern (WC) and sexual attractiveness (SA). The correlational design will interpret an observation of the relationships between PA and self-esteem, PA and self-efficacy and PA and the components of body esteem in the form of a correlational coefficient. Demographic variables included gender, age and sports club membership status.

Materials (2.3)

A survey, consisting of 4 frequently used and reliable questionnaires and a demographic questionnaire designed by the author of this study was used in this research project. The first questionnaire in the survey was a demographic questionnaire. This questionnaire had five questions on it gathering data such as the participant's sex, age, whether they took part in PA, sports club membership status and what sports they played. Participants were asked to read each question and answer appropriately.

The second scale used in the survey is the Rosenberg Self Esteem Scale (Rosenberg, 1989). The Rosenberg self-esteem scale (RSE) is a 10 item statement scale which measures self-esteem levels by asking participants to respond to both positive and negative statements. Examples of these statements are "On the whole, I am satisfied with myself" and "At Times, I think I am no good at all" (Rosenberg, 1989). After reading these statements, participants circle

either strongly agree (SA), agree (A), disagree (D) or strongly disagree (SD), depending on how they felt about the statement. When scoring the results of the RSE the negative statements (2, 5, 6, 8, and 9) are reversed scored and all the scores are added. Higher scores mean higher self-esteem. A Cronbach's alpha rating for the Rosenberg Self Esteem Scale (RSE) has been found to fall between the ranges of .77 to .88 for various samples (Blascovich & Tomaka, 1993).

The third scale used in the survey is the body esteem scale (BES) developed by Franzoi & Shields (1984) used to evaluate how participants felt about different parts and functions of their bodies. The BSE examines 3 subscales of body esteem for males and females. For males it measures physical attractiveness (PA), upper body strength (UBS) and physical condition (PC). For females it measures sexual attractiveness (SA), weight concern (WC) and physical condition (PC). It is a 35 item scale with items being answered on a 5 point Likert scale. Participants are asked to read each item on the scale and are then asked how they feel about that particular part or function of their body with one of the following responses, 1 Have strong negative feelings, 2 Have moderate negative feelings, 3 Have no feeling one way or the other, 4 Have moderate positive feelings and 5 Have strong positive feelings (Franzoi & Shields, 1984). Examples of some of the items on the BSE are Reflexes, Lips, Buttocks and Weight.

To determine a participant's score on any of the subscales of the BSE all of the items of the subscale must be added together. For example, for male physical condition, the participants rating on 13 items are added together (Franzoi & Shields, 1984). Throughout different studies the BES has proven to be reliable, valid and consistent (Franzoi, 1994). A Cronbach's alpha rating

for the BES has typically been seen to fall between 0.78-0.87 for internal consistency (Franzoi & Shields, 1984).

The fourth scale used in the survey is the General Self Efficacy Scale (Schwarzer & Jerusalem, 1995). This measure was originally developed in German and has been translated into 28 languages, including English (Schwarzer and Jerusalem's 1995). The GSE is a 10 statement scale with statements being answered on a 4 point Likert scale. The GSE assesses self-efficacy levels by measuring general feelings toward yourself. Participants are asked to read each statement on the scale and respond by choosing an answer which expresses best how they feel about the statement. Answers on the scale range from 1 Not at all true, 2 Hardly true, 3, Moderately true and 4 Exactly true. Examples of the statements are "I can always manage to solve difficult problems if I try hard enough" and "If I am in trouble, I can usually think of a solution". All the scores from the 10 items are then added together. Higher scores mean higher self-efficacy. The GSE has generally high internal consistency has been demonstrated by the typical Cronbach's alpha falling between 0.75 and .090 (Schwarzer, 1995).

The fifth scale used in the questionnaire is the International Physical Activity Questionnaire Short Form. The IPAQ assesses physical activity across four domains (leisure time PA, domestic and gardening activities, work related PA and transport related PA). There 7 questions on the questionnaire. Examples of the questions are "During the last 7 days, on how many of those days did you do vigorous physical activities like heavy lifting, digging, aerobics or fast bicycling?" and "How much time did you usually spend doing vigorous physical activities on one of those days". Participants are asked to record the number of days of the last 7 days that

they engaged in Vigorous Intensity PA, Moderate Intensity PA and walking undertaken in any of the four domains introduced above. Participants must also record the hours and minutes spent doing any of these activities.

To calculate IPAQ scores minutes per week are transferred into MET-minutes by multiplying the minutes per week by the value of 8.0 MET's for vigorous activity, 4.0 for moderate activity, and 3.3 for walking. Only values of ten minutes or more are to be recorded. The reason behind this is that it is argued that at least ten minutes PA is needed to receive health benefits. Any response below ten minutes should be scored as zero (IPAQ, 2005). A maximum value of 960 minutes (16 hours) is applied to the sum of all walking, moderate, and vigorous times; values above this are considered unreasonably high and should be excluded. Total MET minutes per week for each respondent is found by adding all three. The IPAQ includes an additional indicator variable of hours spent sitting per day; this measure is not included in the summary score for physical activity and can be reported separately as median values. Data for total physical activity collected with IPAQ can be reported categorically or as a continuous measure; however, energy expenditure is non-normally distributed in many populations (IPAQ, 2005). The IPAQ is an effective measure of general activity as it includes all types of energy expenditure and is appropriate for determining whether individuals meet public health guidelines for regular physical activity (Dishman, Vandenberg, Motl, & Nigg, 2010). Research by Craig et al (2003) examining the international reliability and validity of the IPAQ questionnaires in 12 different countries found the IPAQ to have good reliability (Spearman's 0.8) and moderate criterion validity (0.3) when used to measure population levels of PA among 18- to 65-yr-old adults (Craig, et al., 2003).

Procedure (2.4)

The proposed research project was approved by an ethics committee at Dublin Business School. Dr. Patricia Frazer was assigned to the researcher as a supervisor. Pearse and Inchiecore colleges were contacted by email requesting permission to use their students as part of the researcher's sample. Permission was granted and data collection took place before lectures to minimize disruption caused to the class. A short description of the study was given to the students before the questionnaire was handed out and the students were asked to read the cover note carefully. The cover note told potential participants that the researcher was interested in physical activity and its relationship with self-esteem, self-efficacy and body image. It also gave details concerning how long the questionnaire would take to complete (15 minutes), it advised participants that some questions may cause minor negative feelings, and that participation was completely voluntary and anonymous, but warned participants that completing and submitting the questionnaire was taken as consent. Because the survey was anonymous participants were advised that once the questionnaire had been handed in their data could not be retrieved. The survey was completed after 15 minutes and the lecturer and students were thanked for giving up their time. 120 questionnaires were handed out and 110 were returned.

Other participants were recruited with the help of an online survey which was created in Google docs. This survey was the same format as the paper survey. Participants were advised to read the cover note contained the details of the survey before taking part. The survey was then posted on the researcher's Facebook and Twitter accounts and friends of the researcher shared the

online survey on their Facebook and Twitter accounts. After two weeks the online survey had recruited 95 participants and it was then closed.

After all the questionnaires were collected the researcher then entered the data on to a SPSS statistical software package. The researcher then exported the online survey into an excel document which was then exported into a SPSS statistical software package and then merged with the paper responses for analysis. The researcher then recoded some of the items on the Rosenberg Self Esteem scale. All the scales were then totaled. The researcher then carried out statistical tests on the variables of interest to acquire descriptive statistics and test the hypothesis. A results section was produced after these statistical tests were carried out. This section was used so the researcher could interpret these results and discuss the findings of the research project.

Results section (3)

Descriptive statistics (3.1)

Preliminary analysis were run on the data to ensure that there was no violation of the data. Data was found to be not normally distributed for total IPAQ scores (skewness=1.34, standard error=.18) and for male (skewness=1.25, standard error=.22) and female (skewness=1.86, standard error=.32) IPAQ scores separately. Data was also no normally distributed for RSE scores (skewness=.096, standard error=.18) and physical attractiveness scores (skewness=.175, standard error=.221). Even though the data was not normally distributed the researcher decided to run parametric tests anyway because they are seen as a more robust test.

Descriptive statistics where ran on the data set by the researcher which resulted in the following findings. The age range of the participants was between 16 and 65. The mean age of the participants was (m=26.74) and the standard deviation (SD = 8.49). There total number of participants in this study was 195. Of the participants 132 (67.7%) where male and 63 (32.3%) where female. 178 (91.3%) participants reported that they took part in PA while 16 (8.2%) said they did not. 130 (67%) of the participants were members of a sports club while 64 (33.6%) were not. 25 (12.8%) participants did not take part in sports, 37 (19%) of the participants played football and went to a gym, 17 (8.7%) of the participants took part in boxing and went to a gym, 34 (17.4%) of the participants took part in football, 6 (3.1%) of the participants took part in rugby, 34 (17.4%) of the participants went to a gym, 9 (4.6%) of the participants took part in

dance classes, 14 (7.2%) of the participants took part in GAA football or hurling, 12 (6.2%) of the participants took part in athletics and 7 (3.6%) participants took part in walking.

Table 1 contains the mean and standard deviations for self-efficacy and self-esteem for the different category of sports that the participants played. The male participant's means and standard deviations for the subscales of the body esteem scale for each sport can be seen in table 2. The female participant's means and standard deviations for the subscales of the body esteem scale for each sport can be seen in table 3.

Table 1: *Self-efficacy and self-esteem mean and standard deviations of the sports the participants play.*

Sport the participant plays	Frequency (f)	Self-Efficacy	Self Esteem
No Sport	24	Mean=30.21 (SD=2.86)	Mean=30.83 (SD=4.00)
Football and Gym	36	Mean=30.08 (SD=3.872)	Mean=30.14 (SD=4.92)
Boxing and Gym	16	Mean=31.56 (SD=5.32)	Mean=30.02 (SD=4.187)
Football	33	Mean=31.84 (SD=4.11)	Mean=29.94 (SD=4.91)
Rugby	7	Mean=28.43 (SD=2.76)	Mean=26.86 (SD=5.113)
Gym	32	Mean=30.81 (SD=4.091)	Mean=30.03 (SD=5.60)
Dance	8	Mean=30.75 (SD=3.24)	Mean=31.13 (SD=4.01)
G.A.A Football and Hurling	14	Mean=31.00 (SD=5.791)	Mean=29.79 (SD=5.57)
Athletics	12	Mean=31.42 (SD=4.481)	Mean=30.00 (SD=4.61)
Walking	7	Mean=31.71 (SD=3.251)	Mean=28.57 (SD=6.294)

Table 2: *Physical condition male, upper body strength and physical attractiveness mean and standard deviations for the sport the participant plays*

Male Body Esteem				
<u>Sport</u>	<u>Frequency(f)</u>	<u>PC</u>	<u>UBS</u>	<u>PA</u>
Dose not play sport	9	Mean=40.33 (SD=10.571)	Mean=28.56 (SD=6.64)	Mean=37.11 (SD=5.56)
Football & Gym	34	Mean=48.03 (SD=10.07)	Mean=32.94 (SD=6.90)	Mean=38.76 (SD=6.78)
Boxing & Gym	13	Mean=49.00 (SD=12.53)	Mean=34.85 (SD=7.71)	Mean=41.46 (SD=9.05)
Football	29	Mean=47.86 (SD=8.76)	Mean=30.62 (SD=5.17)	Mean=39.24 (SD=5.40)
Rugby	7	Mean=48.00 (SD=7.66)	Mean=35.86 (SD=6.72)	Mean=40.14 (SD=6.36)
Gym	17	Mean=48.53 (SD=10.59)	Mean=36.18 (SD=5.97)	Mean=38.71 (SD=9.27)
G.A.A Football & Hurling	9	Mean=47.89 (SD=10.48)	Mean=32.78 (SD=7.92)	Mean=35.89 (SD=8.80)
Athletics	5	Mean=49.80 (SD=3.70)	Mean=30.20 (SD=3.70)	Mean=34.20 (SD=4.21)
Walking	2	Mean=41.00 (SD=7.071)	Mean=27.50 (SD=.71)	Mean=38.00 (SD=2.83)
Dance	0	**** ****	**** ****	**** ****

Table 3: *Sexual attractiveness, weight control and physical condition female mean and standard deviations for the sports the participant plays*

Female Body Esteem				
<u>Sport</u>	<u>Frequency (f)</u>	<u>SA</u>	<u>WC</u>	<u>PCF</u>
Dose not play sport	13	Mean=45.46 (SD=6.69)	Mean=27.69 (SD=8.59)	Mean=26.85 (SD=4.72)
Football & Gym	0	**** ****	**** ****	**** ****
Boxing & Gym	4	Mean=49.75 (SD=7.41)	Mean=33.50 (SD=8.74)	Mean=32.50 (SD=3.87)
Football	4	Mean=43.75 (SD=8.46)	Mean=27.75 (SD=4.03)	Mean=27.00 (SD=5.89)
Rugby	0	**** ****	**** ****	**** ****
Gym	15	Mean=45.20 (SD=7.193)	Mean=27.40 (SD=8.72)	Mean=31.13 (SD=7.12)
G.A.A Football & Hurling	5	Mean=47.80 (SD=10.85)	Mean=28.00 (SD=6.70)	Mean=32.20 (SD=2.68)
Athletics	6	Mean=47.00 (SD=6.48)	Mean=29.83 (SD=6.11)	Mean=30.67 (SD=4.72)
Walking	4	Mean=49.50 (SD=6.95)	Mean=30.25 (SD=5.38)	Mean=26.50 (SD=6.25)
Dance	7	Mean=42.71 (SD=7.95)	Mean=29.57 (SD=6.21)	Mean=31.86 (SD=4.67)

Inferential statistics (3.2). The Main Findings

A Pearson's r correlation was used to explore the relationship between the physical activity scores (PV) and self-efficacy scores (CV). The mean scores for physical Activity was 4235.90 (SD=3260.84) and for self-efficacy 30.90 (SD=4.09). A Pearson's correlation coefficient found that there was a strong positive significant relationship between physical activity scores and self-efficacy scores ($r=0.158$, $p<0.05$, 2-tailed).

A Pearson's r correlation was used to explore the relationship between the physical activity scores (PV) and self-esteem scores (CV). The mean scores for physical activity was 4235.90 (SD=3260.84) and for self-esteem was 30.18 (SD=4.93). A Pearson's correlation coefficient found that there was no significant relationship between Physical Activity scores and self-esteem scores ($r=0.88$, $p>0.05$, 2-tailed).

A Pearson's r correlation was used to explore the relationship between the physical activity scores (PV) and upper body strength scores (CV). The mean score for physical activity was 4609.30 (SD=3224.63) and for upper body strength was 32.76 (SD=6.72). A Pearson's correlation coefficient found that there was weak positive significant relationship between physical activity scores and upper body strength scores ($r=0.22$, $p<0.05$, 2-tailed).

A Pearson's r correlation was used to explore the relationship between the physical activity scores (PV) and male physical condition scores (CV). The mean score for physical activity was 4609.30 (SD=3224.63) and for male physical condition was 47.63 (SD=9.856). A Pearson's correlation coefficient found that there was weak positive significant relationship between physical activity scores and male physical condition scores ($r=0.294$, $p<0.01$, 2-tailed).

A Pearson's r correlation was used to explore the relationship between the physical activity scores (PV) and general physical attractiveness scores (CV). The mean scores for physical activity was 4609.30 (SD=3224.63) and for physical attractiveness was 38.80 (SD=7.17). A Pearson's correlation coefficient found that there was no significant relationship between physical activity scores and physical attractiveness scores ($r=0.173$, $p>0.05$, 2-tailed).

A Pearson's r correlation was used to explore the relationship between the physical activity scores (PV) and female physical condition (CV). The mean scores for physical activity was 3424.73 (SD=3218.20) and for female physical condition was 29.85 (SD=5.62). A Pearson's correlation coefficient found that there was moderate positive significant relationship between physical activity scores and female physical condition scores ($r=0.391$, $p<0.01$, 2-tailed).

A Pearson's r correlation was used to explore the relationship between the physical activity scores (PV) and sexual attractiveness (CV). The mean scores for physical activity was 3424.73 (SD=3218.20) and for sexual attractiveness was 45.87 (SD=7.24). A Pearson's correlation coefficient found that there was a weak positive significant relationship between physical activity scores and sexual attractiveness scores ($r=0.135$, $p<0.05$, 2-tailed).

A Pearson's r correlation was used to explore the relationship between the physical activity scores (PV) and weight control scores (CV). The mean scores for physical activity was 3424.73 (SD= SD=3218.20) and for weight control was 28.39 (SD=7.468). A Pearson's correlation coefficient found that there was no significant relationship between physical activity scores and weight control scores ($r=0.273$, $p>0.05$, 2-tailed).

Discussion (4)

The purpose of the current study was to provide a quantitative review of the relationship between physical activity and self-esteem, self-efficacy and body image by looking at the components of the body esteem scale. One of the objectives of the researcher was to look at the relationship between physical activity levels and general self-efficacy levels and replicate the findings of the previous research. Another of the aims of the current study was to add to the results of the previous researchers and try and help resolve the previous ambiguous findings in the relationship between self-esteem and physical activity. Another objective of the researcher was to look at the components of the body esteem scale rather than just body image as a whole. The researcher also thought it was important to look physical activity levels in a real world setting and see how they relate to self-esteem, self-efficacy and the components of body esteem rather than looking at how they react to a physical activity intervention which is somewhat an artificial setting. The final goal of the researcher was to understand the relationship between these PA, self-efficacy, self-esteem and body image in an Irish context. To our knowledge this is one of the first studies using these variables in an Irish sample.

The previous research led to the formulating of the hypothesis mention in chapter 1.8. The analysis of the hypothesis led to the formulation of the results which can be seen in the previous chapter. This final chapter will discuss these results in relation to previous research and also discuss the strengths and limitations of the current research and towards the end discuss the researcher's thoughts for future research.

The first aim of the current study was to look at the relationship between PA and self-efficacy. After statistical analysis it was found that there was a strong positive significant relationship between the PA and self-efficacy ($p < 0.05$) meaning that the association between PA and self-efficacy was strong according to this research project. Much of the previous research has found PA and self-efficacy to have a significant relationship (Mo, Blake & Batt, 2011; Rutkowski & Connelly, 2010; Kololo, Guskowska, Mazur & Dzielska, 2012), the results of this research project is in line with and somewhat backs up the previous research. While the current research focused on General self-efficacy much of the previous research had focused on the domain specific self-efficacy. In one such study Koring et al (2012) discovered that physical activity levels could be increased in a sample ($n=883$) of adult male and females with a mean age of 43.2 ($SD=13.5$) three weeks after a intervention which targeted action planning, coping planning and volitional self-efficacy. By increasing combined planning and volitional self-efficacy the researchers were able to increase PA levels. This relationship between PA and self-efficacy can be seen in the current research although the current research looks at the relationship between PA and self-efficacy in a real world environment.

Furthermore research by Hutchins, Drolet & Ogletree (2012) looked at adults ($n=324$) with a mean age of 24.13 and measured their self-efficacy for exercise and PA levels. The results of their research have shown that self-efficacy for exercise was shown to predict PA behaviour. The results are similar to the current research which also shows a significant relationship between PA and self-efficacy, the current research also shares a similar correlational design. It is however important to note that current research focuses on general self-efficacy and not the domain specific self-efficacy for exercise.

The current research focused on the relationship between general self-efficacy and PA levels another study by Rutkowski & Connelly (2010) also focused on these variables and revealed a similar result. In their study Rutkowski & Connelly looked at parent and child dyads and in both parent ($p>.05$) and child ($p>.01$) GSE was positively correlated with PA levels. Another similarity between this and the current research is the use of the IPAQ (2001) in the adult sample to measure PA. A positive relationship between general self-efficacy and PA levels was also seen by Kololo, Guskowska, Mazur & Dzielska (2012) who examined 2277 15 year old Polish adolescent boys and girls. When examining the relationship between knowledge of physical activity, social support, self-efficacy, perceived barriers to physical activity, and level of physical activity among healthcare employees and students in a National Health Service (NHS) Trust Mo, Blake & Batt (2011) found self-efficacy to be one of the predictors of PA, the strong positive relationship shown in the current research backs up this research.

The second aim of the current research was to look at the relationship between PA and self-esteem. After statistical analysis it was found that there was no significant relationship between the PA and self-esteem ($p<0.05$) meaning that there was no association between PA and self-esteem in the current research. This finding contradicts the findings of previous research (Armstrong & Omen-Early, 2009; Garcia, Castillo & Quearalt, 2011; Nadine, Zillmann, Grove, Jackson, Byrne & Dove, 2010; Tremblay, Wyatt & Willms, 2000).

Interestingly research investigating the relationship between PA levels and global self-esteem of 687 male and female grades 7 through 9 students of a Zarqa education directorate also

shares similarities with the current research project as they also found no significant relationship between PA and self-esteem levels and like the current research the Rosenberg self-esteem scale was used to measure self-esteem.

In addition research by Hubbs, Doyle, Bowden & Doyle (2012) has revealed a similar finding to the current research. In their study they examined the relationships between PA, self-esteem and perceived stress among American college students who were 18 years old and older. Like the current research no significant relationships were found between PA and self-esteem. A reason given to why there was no significant relationship between PA and self-esteem was the high levels of PA (Hubbs, Doyle, Bowden & Doyle, 2012). This could also be a reason why the current research has shown no significant relationship between PA and self-esteem.

Hypothesis 3 examined the relationship between PA and female body esteem. After statistical analysis it was found that there was a moderate positive significant relationship between the PA and female physical condition ($p < 0.01$), a weak but positive significant relationship between PA and sexual attractiveness ($p < 0.05$) and there was no significant relationship found between PA and weight control ($p > 0.05$). The first association between PA and physical condition was probably the most expected of the three. This subscale of the body esteem scale seems to relate to physical activity the best as the items on this scale assess stamina, strength and agility (Franzoi, & Shields, 1984). The second association between PA and sexual attractiveness might not have been expected as much because the items measured are not directly related to physical activity and cannot be changed by exercise. The third finding that there was

no significant relationship between PA and weight control was a surprise to the researcher. This particular subscale focuses on body parts that can be directly altered through PA.

Although the current research doesn't as expected back up the previous research (Vocks, Heckler, Rohrig & Legenbauer, 2008; Burgess, Grogan, Burwitz, 2005; Seguin, Eldridge, Lynch & Paul, 2013) in all aspects of the body esteem scale the subscale physical condition which is most related to PA does share a significant relationship with PA. Research by Zabinski, Calfas, Gehrman, Wilfley & Sallis (2001) looking into PA interventions found that at baseline PA and body dissatisfaction had an inverse relationship, a negative relationship was also seen between PA and dissatisfaction with body parts of concern and finally no relationship was found between drive for thinness and PA. Although the intentions of their research was to boost PA levels one of the negative outcomes of the intervention was that females drive for thinness increased. Increased awareness to health issues is cited as a possible explanation for this and this in some way could explain why PA levels in the current study show no significant relationship with weight concern (Zabinski, Calfas, Gehrman, Wilfley & Sallis, 2001). In addition research by Forest & Stuhldreher (2007) found that people who were dissatisfied with their bodies were more likely to exercise to lose weight than those who were happy with their bodies, but they were also more likely to eat less fruit and veg and eat more take away food. Although participants in the present study have high PA levels they may also have high calorie intakes or may have a bad diet which may contribute to PA levels and weight concern not sharing a significant relationship.

The final aim of the current research was to examine the relationship between PA and the components of male body esteem. After statistical analysis it was found that there was a weak

positive significant relationship between the PA and upper body strength ($p < 0.05$), a weak but positive significant relationship between PA and physical condition ($p < 0.05$) and there was no significant relationship found between PA and physical attractiveness ($p > 0.05$). The first finding and second finding of this hypothesis were expected as they back up the previous research that says PA levels are associated with body image (Hausenblas & Fallon, 2005). The first finding that UBS was associated to PA was expected because the items on the body esteem scale that make up the UBS sub scale are all that can be altered through exercise and those who have the highest PA levels would in turn have the most satisfaction in this area of body esteem. The second finding that PC was associated with PA was the most expected of the three as they items on this subscale are most related to PA and reflect how the individual feels about their stamina, strength and agility (Franzoi, & Shields, 1984). The final finding that there was no relationship between physical attractiveness and physical activity was unexpected. A reason for this may have to do with the items on this subscale which are nose, lips, face, ears, chin, buttocks, appearance of the eyes, cheeks/cheekbones, hips, feet and sex organs. Not many of these organs can be altered by PA and thus meaning no relationship between PA and physical attractiveness.

Research Strengths & Limitations (4.1)

Hopefully overall this study will contribute positively to previous research on the relationship of physical activity, self-efficacy, self-esteem and body esteem but there are limitations to this study so this section will acknowledge and further discuss them. One of the limitations of the current research is in its design. Correlational studies cannot attribute cause and effect relationships they can only say that there is an association between the variables. This limitation is

seen throughout much of the research on PA, body image, self-esteem and self-efficacy as many studies have been conducted in correlational design. This issue has led to critiques across all areas of science and psychology, but due to the time constraints of this study such experimental research or longitudinal studies were out of reach.

Other explanations for the results obtained in this research could have been that the data was not normally distributed for PA levels, self-esteem, and physical attractiveness and physical condition on the male body esteem scale. Another problem for the current sample is that the gender split is uneven and therefore not representative.

Another potential problem in interpreting the data is the researcher was worried that the survey would be a burden to participants it was decided to use the short form of questionnaires if possible. This resulted in the researcher choosing the IPAQ short form which doesn't include questions about PA in work, the household, and transport PA. Another potential problem the IPAQ is it is a self-report measure and participants could have over/underestimated the amount of PA done in a week. Participants may also have mistaken whether PA should be classed as moderate or intense which could have left the IPAQ scores open to bias.

Taking these problems with the IPAQ into account the researcher decided it would have been more beneficial to use a self-reported measures rather than looking at participants in a PA intervention because it was an aim of the current research to view the associations between PA and self-efficacy, self-esteem and body image in a real world environment.

Future Research (4.2)

Further research could be carried out examining the differences between the variables self-esteem, self-efficacy and body esteem across different sports. Previous research has shown that American football players have a better body image than cross country runners (Parks & McKay, 1997). Research in an Irish population could look at the differences between the self-efficacy, self-esteem and body image in participants of Irish sports like G.A.A football and hurling compared to athletics, football, rugby etc. Future research could also include questionnaires on diet and calorie intake to see if a bad diet or a high calorie intake could be responsible for no relationship being found in the current research between PA levels and weight concern for females and PA levels and Physical attractiveness for men.

Conclusion (4.3)

Physical activity has been shown to have many benefits for the physical and mental health of people today. The current research project has shown the positive relationship between PA levels and general self-efficacy, it has also shown the positive relationships between PA and physical condition and upper body strength in males and the association between PA levels and physical condition and sexual attractiveness in females. The current research was unable to find significant relationships between PA and self-esteem, PA and physical attractiveness in males and PA and weight concern in females.

Reference Section

Abedalhafiz, A., Altahyneh, Z., & Al-Haliq, M. (2012). THE RELATIONSHIP BETWEEN PHYSICAL ACTIVITY AND SELF-ESTEEM AMONG STUDENTS OF ZARQA EDUCATION DIRECTORATE. *International Journal of Academic Research*, 4(6), 39-48. doi:10.7813/2075-4124.2012/4-6/B.07

Agostini, L. M., Netto, J. B., Miranda, M. r., & Figueiredo, A. A. (2011). Erectile dysfunction association with physical activity level and physical fitness in men aged 40-75 years. *International Journal of Impotence Research*, (3), 115. doi:10.1038/ijir.2011.15; published online 12 May 2011

American Psychological Association (2007) APA Dictionary 1st Ed. Vandenbos (Eds). Washington DC, USA: American Psychological Association

Armstrong & Oomen-Early (2009). Social Connectedness, Self-Esteem and Depression Symptomatology among collegiate athletes versus non-athletes. *Journal of American Health*, Volume 57, no.5.

Bandura, A. (1997). *Self-Efficacy: The exercise of control*. New York, NY: Freeman

Barg, C. J., Latimer, A. E., Pomery, E. A., Rivers, S. E., Rench, T. A., Prapavessis, H., & Salovey, P. (2012). Examining predictors of physical activity among inactive middle-aged

women: An application of the health action process approach. *Psychology & Health*, 27(7), 829-845. doi:10.1080/08870446.2011.609595

Barton, J., & Pretty, J. (2010). What is the best dose of nature and green exercise for improving mental health? A multi-study analysis. *Environmental science & technology*, 44(10), 3947-3955.

Baumeister, R. F., Campbell, J.D., Krueger, J. I., & Vohs, K.D. (2003). Does high self-esteem cause better performance, interpersonal success, happiness, or healthier lifestyles? *Psychological Science in the Public Interest*, 4(1), 1-44

Berryman, J. W. (2010). Exercise is medicine: a historical perspective. *Current sports medicine reports*, 9(4), 195-201.

Bhattacharjee, A., & Deb, S. (2007). Suicidal tendencies among depressive patients. *Journal of the Indian Academy of Applied Psychology*, 33(2), 213-218.

Blake T, Rust J. SELF-ESTEEM AND SELF-EFFICACY OF COLLEGE STUDENTS WITH DISABILITIES. *College Student Journal*[serial online]. June 2002;36(2):214. Available from: Academic Search Complete, Ipswich, MA. Accessed March 27, 2014

Blashill, A. J., & Wilhelm, S. (2013, December 23). Body Image Distortions, Weight, and Depression in Adolescent Boys: Longitudinal Trajectories Into Adulthood. *Psychology of Men & Masculinity*. Advance online publication. doi: 10.1037/a0034618

Burgess, G., Grogan, S., & Burwitz, L. (2006). Effects of a 6-week aerobic dance intervention on body image and physical self-perceptions in adolescent girls. *Body image*, 3(1), 57-66.

Brown, J. D. (1986) Evaluation of self & others: Self enhancement bias in social judgement. *Social cognition*, 4, 353-376

Cash, T. F., Counts, B., & Huffine, C. E. (1990). Current and vestigial effects of overweight among women: Fear of fat, attitudinal body image, and eating behaviours. *Journal of Psychopathology and Behavioural Assessment*, 12(2), 157-167.

Craig, C.L., Marshall, A.L., Sjöström, M., Bauman, A.E., Booth, M.L., Ainsworth, B.E., Pratt, M., Ekelund, Yngve, A., Sallis, J.F., & Oja, P. (2003). International Physical Activity Questionnaire: 12-country reliability and validity. *Medicine and Science in Sport and Exercise*. 1381-1395.

Collings, P. J., Wijndaele, K., Corder, K., Westgate, K., Ridgway, C. L., Dunn, V., & ... Brage, S. (2014). Levels and patterns of objectively-measured physical activity volume and intensity distribution in UK adolescents: the ROOTS study. *International Journal of Behavioural Nutrition & Physical Activity*, 11(1), 1-23. doi:10.1186/1479-5868-11-23

Crockenberg, S., & Soby, B. (1994). Self-esteem and teenage pregnancy. In A. Mecca, N. Smelser, & J. Vasconcellos (Eds.), *the social importance of self-esteem* (pp. 125-164). Berkeley: University of California Press

David, E. R., Okazaki, S., & Saw, A. (2009). Bicultural self-efficacy among college students: Initial scale development and mental health correlates. *Journal of Counselling Psychology*, 56(2), 211-226. doi:10.1037/a0015419

Davison, T., & McCabe, M. (2005). Relationships between Men's and Women's Body Image and Their Psychological, Social, and Sexual Functioning. *Sex Roles*, 52(7/8), 463-475. doi:10.1007/s11199-005-3712-z

Devonshire-Gill, K., & Norton, K. (2013). Proportion of adults achieving sufficient physical activity increases in South Australia, 1998 - 2010. *Population Health Metrics*, 11(1), 23-30. doi:10.1186/1478-7954-11-23

Dorak, F. (2011). SELF-ESTEEM AND BODY IMAGE OF TURKISH ADOLESCENT GIRLS. *Social Behaviour & Personality: An International Journal*, 39(4). Chicago

Dwyer, J. T., Feldman, J. J., & Mayer, J. (1967). **Adolescent** dieters: Who are they? *American Journal of Clinical Nutrition*, 24(10), 1045-1056.

Erbil, N. (2013). The Relationships between Sexual Function, Body Image, and Body Mass Index among Women. *Sexuality & Disability*, 31(1), 63-70. doi:10.1007/s11195-012-9258-4

Ferrand, C., Perrin, C., & Nasarre, S. (2008). Motives for regular physical activity in women and men: A qualitative study in French adults with type 2 diabetes, belonging to a patients' association. *Health & Social Care In The Community*, 16(5), 511-520. doi:10.1111/j.1365-2524.2008.00773.x

Fenton, C., Brooks, F., Spencer, N. H., & Morgan, A. (2010). Sustaining a positive body image in adolescence: an assets-based analysis. *Health & Social Care In The Community*, 18(2), 189-198. doi:10.1111/j.1365-2524.2009.00888.x

Fioravanti, G., Casale, S., Mantegazza, R., Leonardi, M., & Raggi, A. (2010). Self-Efficacy, Social Support and Locus of control as correlates of Health-Related Quality of Life in Myasthenia Gravis. *Bollettino Di Psicologia Applicata*, (261/262), 19-27.

Flett, G., Panico, T., & Hewitt, P. (2011). Perfectionism, Type A Behaviour, and Self-Efficacy in Depression and Health Symptoms among Adolescents. *Current Psychology*, 30(2), 105-116. doi:10.1007/s12144-011-9103-4

Franzoi, S. L., & Shields, S. A. (1984). The Body Esteem Scale: Multidimensional Structure and Sex Differences in a College Population. *Journal of Personality Assessment*, 48(2), 173

Forrest, K. Z., & Stuhldreher, W. L. (2007). PATTERNS AND CORRELATES OF BODY IMAGE DISSATISFACTION AND DISTORTION AMONG COLLEGE STUDENTS. *American Journal of Health Studies*, 22(1), 18-25.

Goodwin, R. D. (2003). Association between physical activity and mental disorders among adults in the United States. *Preventive Medicine*, 36, 698 – 703.

Graff, S., Alves, B., Toscani, M., & Spritzer, P. (2012). Benefits of pedometer-measured habitual physical activity in healthy women. *Applied Physiology, Nutrition & Metabolism*, 37(1), 149-156. doi:10.1139/h11-145

Grodner, M. (1991). The psychology of eating disorders. *Nutri-News*, August.

Gross, J., & Rosen, J. C. (1988). Bulimia in Adolescents: Prevalence and Psychosocial Correlates. *International Journal of Eating Disorders*, 7(1), 51-61

Hausenblas, H. A., & Fallon, E. A. (2006). Exercise and body image: A meta-analysis. *Psychology & Health*, 21(1), 33-47. doi:10.1080/14768320500105270

Hippocrates. *Hippocrates: With an English Translation by W. H. S. Jones.*

London: William Heinemann; 1953.

Holmes, M. D., Chen, W. Y., Feskanich, D., Kroenke, C. H., & Colditz, G. A. (2005). Physical activity and survival after breast cancer diagnosis. *Jama*, 293(20), 2479-2486

Hubbs, A., Doyle, E. I., Bowden, R. G., & Doyle, R. D. (2012). Relationships among Self-Esteem, Stress, and Physical Activity in College STUDENTS. *Psychological Reports*, 110(2), 469-474. doi:10.2466/02.07.09.PR0.110.2.469-474

Hutchins, M., Drolet, J. C., & Ogletree, R. J. (2010). Physical Activity Patterns and Self-Efficacy of Selected College Students. *Health Educator*, 42(2), 84-88.

Judge, T.A., Locke, E.A., & Durham, C.C. (1997). The dispositional causes of job satisfaction: A core evaluations approach. *Research in Organizational Behaviour*, 19, 151–188.

Keel, P. K., Dorer, D. J., Franko, D. L., Jackson, S. C., & Herzog, D. B. (2005). Postremission predictors of relapse in women with eating disorders. *American Journal of Psychiatry*, 162(12), 2263-2268.

Kilpatrick, M., Hebert, E., & Bartholomew, J. (2005). College Students' Motivation for Physical Activity: Differentiating Men's and Women's Motives for Sport Participation and Exercise. *Journal of American College Health*, 54(2), 87-94.

Kirkcaldy, B. D., Shephard, R. J., & Siefen, R. G. (2002). The relationship between physical activity and self-image and problem behaviour among adolescents. *Social Psychiatry & Psychiatric Epidemiology*, 37(11), 544

Kololo, H., Guskowska, M., Mazur, J., & Dzielska, A. (2012). Self-efficacy, self-esteem and body image as psychological determinants of 15-year-old adolescents' physical activity levels. *Human Movement*, 13(3), 264. doi:10.2478/v10038-012-0031-4

Koring, M., Richert, J., Parschau, L., Ernsting, A., Lippke, S., & Schwarzer, R. (2012). A combined planning and self-efficacy intervention to promote physical activity: A multiple mediation analysis. *Psychology, Health & Medicine*, 17(4), 488-498.
doi:10.1080/13548506.2011.608809

Korn, L., Gonen, E., Shaked, Y., & Golan, M. (2013). Health Perceptions, Self and Body Image, Physical Activity and Nutrition among Undergraduate Students in Israel. *Plos ONE*, 8(3), 1-7.
doi:10.1371/journal.pone.0058543

Kumar Veluswamy, S., Maiya, A. G., Nair, S., Guddattu, V., Sreekumaran Nair, N., & Vidyasagar, S. (2014). Awareness of chronic disease related health benefits of physical activity among residents of a rural South Indian region: a cross-sectional study. *International Journal of Behavioural Nutrition & Physical Activity*, 11(1), 1-14. doi:10.1186/1479-5868-11-27

Langan, M. E., & Marotta, S. A. (2000). Physical Activity and Perceived Self-Efficacy in Older Adults. *Adultspan Journal*, 2(1), 29.

Leung, R. W., Kamla, J., Lee, M. C., & Mak, J. Y. (2007). Preventing and treating type 2 diabetes through a physically active lifestyle. *Journal of Physical Education, Recreation & Dance*, 78(4), 38-54.

Loosemore, C. J., Mable, H. M., & Galgan, W. D. (1989). Body image disturbance in selected groups of men. *Psychology: A Journal of Human Behaviour*, 26(2/3), 56-58.

MacAuley, D. (1994). A history of physical activity, health and medicine. *Journal of the Royal Society of Medicine*, 87(1), 32.

McAuley, E. (1992). The role of efficacy cognitions in the prediction of exercise behaviour in middle-aged adults. *Journal of behavioural medicine*, 15(1), 65-88.

McCabe, M. (2013). Relationship of Self-efficacy, Encouragement And Neighbourhood influence to physical activity for adults. Department of psychology. Dublin Business School.

McEntee, K. (2013). The Effects of Religiosity on Stress, Self-Efficacy and Autonomy among College Students. Department of psychology. Dublin Business School.

Mo, P. H., Blake, H., & Batt, M. E. (2011). Getting healthcare staff more active: The mediating role of self-efficacy. *British Journal of Health Psychology*, 16(4), 690-706. doi:10.1111/j.2044-8287.2010.02007.x

Molina-García, J., Castillo, I., & Queralt, A. (2011). LEISURE-TIME PHYSICAL ACTIVITY AND PSYCHOLOGICAL WELL-BEING IN UNIVERSITY STUDENTS 1. *Psychological reports*, 109(2), 453-460.

Muth, J. L., & Cash, T. F. (1997). Body-image attitudes: What difference does gender make? *Journal of Applied Social Psychology*, 27, 1438 –1452.

Nadine, Zillmann, Grove, Jackson, Byrne & Dove, (2010) PHYSICAL ACTIVITY BOOSTS PHYSICAL SELF-CONCEPT AND SELF ESTEEM IN OBESE WOMEN. *Acta Universitatis Palackianae Olomucensis. Gymnica*, 40(3), 77.

Nguyen-Michel, S. T., Unger, J. B., Hamilton, J., & Spruijt-Metz, D. (2006). Associations between physical activity and perceived stress/hassles in college students. *Stress & Health: Journal of the International Society for the Investigation of Stress*, 22(3), 179-188.

doi:10.1002/smi.1094

Parks, P., & Read, M. H. (1997). Adolescent male athletes: Body image, diet, and exercise. *Adolescence*, 32(127), 593

Pate, R. R., Pratt, M., Blair, S. N., Haskell, W. H., Macera, C. A., Bouchard, C., et al. (1995). Physical activity and public health: A recommendation from the Centres for Disease Control and Prevention and the American College of Sports Medicine. *Journal of the American Medical Association*, 273(5), 402-407

Perez, M., Vohs, K. D., & Joiner Jr., T. E. (2005). DISCREPANCIES BETWEEN SELF--AND OTHER--ESTEEM AS CORRELATES OF AGGRESSION. *Journal Of Social & Clinical Psychology, 24*(5), 607-620.

Pyszczynski, T., Greenberg, J., Solomon, S., Arndt, J., & Schimel, J. (2004). Why Do People Need Self-Esteem? A Theoretical and Empirical Review. *Psychological Bulletin, 130*(3), 435-468. doi:10.1037/0033-2909.130.3.435

Reed, K., Wood, C., Barton, J., Pretty, J. N., Cohen, D., & Sandercock, G. R. (2013). A Repeated Measures Experiment of Green Exercise to Improve Self-Esteem in UK School Children. *PloS one, 8*(7), e69176.

Rice, P. L., (1999). *Stress and Health 3rd Ed.* Pacific Grove, CA, USA: Brooks/Cole Publishing Company

Rosenberg, M. (1965). *Society and the adolescent self-image.* Princeton, NJ: Princeton University Press.

Rudolph, David L., and Brian D. Butki. "Self-efficacy and affective responses to short bouts of exercise." *Journal of applied sport psychology* 10.2 (1998): 268-280.

Rutkowski, E. M., & Connelly, C. D. (2012). Self-efficacy and physical activity in adolescent and parent dyads. *Journal for Specialists in Paediatrics Nursing, 17*(1), 51-60.

doi:10.1111/j.1744-6155.2011.00314.x

Saxena, S. S., Van Ommeren, M. M., Tang, K. C., & Armstrong, T. P. (2005). Mental health benefits of physical activity. *Journal of Mental Health*, 14(5), 445-451.

doi:10.1080/09638230500270776

SCARPA, S., NART, A., GOBBI, E., & CARRARO, A. (2011). DOES WOMEN'S ATTITUDINAL STATE BODY IMAGE IMPROVE AFTER ONE SESSION OF POSTURE CORRECTION EXERCISES? *Social Behaviour & Personality: An International Journal*, 39(8), 1045-1052. doi:org/10.2224/sbp.2011.39.8.1045

Schilder P. A imagem do corpo: as energias construtivas dapsique. São Paulo. Editora Martins Fontes; 1999 as cited in Costa Lda C, de Vasconcelos Fde A. Influence of socioeconomic, behavioral and nutritional factors on dissatisfaction With body image among female university students in Florianopolis, SC. *Rev Bras Epidemiol* 2010;13:1- 12.

Schwarzer, R., & Jerusalem, M. (1993). Erfassung leistungsbezogener und allgemeiner Kontrollund Kompetenzerwartungen [Assessment of performance-related and general control and competence beliefs]. In G. Krampen (Ed.), *Diagnostik von Attributionen und Kontrollüberzeugungen* (pp. 127-133). Göttingen, Germany: Hogrefe.

Schwarzer, R. & Jerusalem, M. (1995). Generalized Self-Efficacy Scale. In J. Weinmann, S & M. Johnston (Eds). *Measures in health psychology: a user's portfolio* (35-37) Windsor, U.K; NFER-NELSON

Seguin, R. A., Eldridge, G., Lynch, W., & Paul, L. C. (2013). Strength Training Improves Body Image and Physical Activity Behaviours Among Midlife and Older Rural Women. *Journal of Extension*, 51(4), 19.

Short, C. E., Vandelanotte, C., Rebar, A., & Duncan, M. J. (2013). A Comparison of Correlates Associated With Adult Physical Activity Behaviour in Major Cities and Regional Settings. *Health Psychology*, doi:10.1037/hea0000027

Sharma, S., & Agarwala, S. (2013). Contribution of Self Esteem and Collective Self Esteem in Predicting Depression. *Psychological Thought*, 6(1). 117-123. doi:10.5964/psyc.v6i.50.

Steiger, A. E., Allemand, M., Robins, R. W., & Fend, H. A. (2014). Low and decreasing self-esteem during adolescence predict adult depression two decades later. *Journal of Personality and Social Psychology*, 106(2), 325-338. doi:10.1037/a0035133

Striegel-Moore, R. H., & Silberstein, L. (1985). Toward an understanding of risk factors for bulimia. *American Psychologist*, 41(3), 246-263.

Tremblay, M. S., Inman, W. J., & Willms, D. J., (2000). The Relationship between Physical Activity, Self Esteem, & Academic Achievement. Human Kinetics Publishers. *Paediatric Science*, 12, 312-323.

Tyson, P., Wilson, K., Crone, D., Brailsford, R., & Laws, K. (2010). Physical activity and mental health in a student population. *Journal of mental health, 19*(6), 492-499.

Vocks, S. S., Hechler, T. T., Rohrig, S. S., & Legenbauer, T. T. (2009). Effects of a physical exercise session on state body image: The influence of pre-experimental body dissatisfaction and concerns about weight and shape. *Psychology & Health, 24*(6), 713-728.

doi:10.1080/08870440801998988

Wagner, J., Gerstorf, D., Hoppmann, C., & Luszcz, M. A. (2013). The nature and correlates of self-esteem trajectories in late life. *Journal of Personality and Social Psychology, 105*(1), 139-153. doi:10.1037/a0032279

Yang, J., Dedovic, K., & Zhang, Q. (2010). Self-esteem and risky decision-making: An ERP study. *Neurocase (Psychology Press), 16*(6), 512-519. doi:10.1080/13554791003785893

Zabinski, M. F., Calfas, K. J., Gehrman, C. A., Wilfley, D. E., & Sallis, J. F. (2001). Effects of a Physical Activity Intervention on Body Image in University Seniors: Project GRAD. *Annals Of Behavioural Medicine, 23*(4), 247.

Web references

World Health Organization (2002). Retrieved from
<http://whqlibdoc.who.int/publications/2002/9241562072.pdf>

World Health Organization (2014). Retrieved from

<http://www.who.int/dietphysicalactivity/pa/en/>

Get Active Ireland (2014). Why be active. Retrieved from

<http://www.getirelandactive.ie/why-get-active/why-be-active/>

The heart foundation (2014), heart health information. Retrieved from

http://www.irishheart.ie/iopen24/physical-activity-t-7_19_73.html

The international physical activity questionnaire short form (2002) retrieved from

<https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFpbnx0aGVpcGFxfGd4OjYwZTk5NzU4MjFIYWZkYjA>

Appendices

Appendices (a) Participant Information sheet

Dear respondent, my name is Ross Hannigan and I am in the final year of my BA Hons Degree in psychology and therefore have to conduct a research project. I am interested in physical activity and its relationships with self-esteem, body image and self-efficacy. This research is being conducted as part of my final year project and will be submitted for examination.

You are invited to take part in this study and participation involves completing and returning the attached anonymous survey. It will take approximately 15 minutes. While the survey asks some questions that might cause some minor negative feelings, it has been used widely in research. If any of the questions do raise difficult feelings for you, contact information for support services are included on the final page.

Participation is completely voluntary and so you are not obliged to take part. Participation is anonymous and confidential. Thus responses cannot be attributed to any one participant. For this reason, it will not be possible to withdraw from participation after the questionnaire has been collected.

The questionnaires will be securely stored on a password protected computer. It is important that you understand that by completing and submitting the questionnaire that you are consenting to participate in the study.

Should you require any further information you can contact me at rossi.gh@hotmail.com.
My supervisor can be contacted at Patriciafrazer@dbs.ie. Thank you for taking the time to
complete this survey.

Demographic Information

Q1. Sex _____

Q2. Age _____

Q3. Do you take part in physical activity? YES/NO

Q4. Are you a member of a sports club? YES/NO

Q5. What sports do you play? _____

Appendices (b) General-self efficacy scale

1	I can always manage to solve difficult problems if I try hard enough.	
2	If someone opposes me, I can find the means and ways to get what I want.	
3	It is easy for me to stick to my aims and accomplish my goals.	
4	I am confident that I could deal efficiently with unexpected events.	
5	Thanks to my resourcefulness, I know how to handle unforeseen situations.	
6	I can solve most problems if I invest the necessary effort.	
7	I can remain calm when facing difficulties because I can rely on my coping abilities.	
8	When I am confronted with a problem, I can usually find several solutions.	
9	If I am in trouble, I can usually think of a solution.	
10	I can usually handle whatever comes my way.	

Response Format

1 = Not at all true 2 = Hardly true 3 = Moderately true 4 = Exactly true

Appendices (c) Rosenberg Self-esteem scale

Below is a list of statements dealing with your general feelings about yourself. Please

Indicate how strongly you agree or disagree with each statement. SA=strongly agree, A=agree,

D=disagree and SD=strongly disagree

1	On the whole, I am satisfied with myself.	SA	A	D	SD
2	At times I think I am no good at all.	SA	A	D	SD
3	I feel that I have a number of good qualities.	SA	A	D	SD
4	I am able to do things as well as most other people.	SA	A	D	SD
5	I feel I do not have much to be proud of.	SA	A	D	SD
6	I certainly feel useless at times.	SA	A	D	SD
7	I feel that I'm a person of worth, at least on an equal plane with others.	SA	A	D	SD
8	I wish I could have more respect for myself.	SA	A	D	SD
9	All in all, I am inclined to feel that I am a failure.	SA	A	D	SD
10	I take a positive attitude toward myself.	SA	A	D	SD

Appendices (d) The body esteem scale

Instructions: On this page are listed a number of body parts and functions. Please read each item and indicate how you feel about this part or function of your own body using the following scale: 1= Have strong negative feelings, 2= Have moderate negative feelings, 3= Have no feeling one way or the other, 4= Have moderate positive feelings, or 5= Have strong positive feelings

1.	body scent	_____
2.	appetite	_____
3.	nose	_____
4.	physical stamina	_____
5.	reflexes	_____
6.	lips	_____
7.	muscular strength	_____
8.	waist	_____
9.	energy level	_____
10.	thighs	_____
11.	ears	_____
12.	biceps	_____
13.	chin	_____
14.	body build	_____
15.	physical coordination	_____
16.	buttocks	_____
17.	agility	_____
18.	width of shoulders	_____
19.	arms	_____
20.	chest or breasts	_____
21.	appearance of eyes	_____
22.	cheeks/cheekbones	_____
23.	hips	_____
24.	legs	_____
25.	figure or physique	_____
26.	sex drive	_____
27.	feet	_____
28.	sex organs	_____
29.	appearance of stomach	_____
30.	health	_____
31.	sex activities	_____
32.	body hair	_____
33.	physical condition	_____
34.	face	_____
35.	weight	_____

Appendices (d) the International Physical Activity Questionnaire Short Form

Q1. During the last 7 days, on how many days did you do vigorous physical activities like heavy lifting, digging, aerobics, or fast bicycling?

Think about only those physical activities that you did for at least 10 minutes at a time.

Days per week _____

Q2. How much time in total did you usually spend on one of those days doing vigorous physical activities? Hour's _____ Minutes _____

Q3. Again, think *only* about those physical activities that you did for at least 10 minutes at a time. During the last 7 days, on how many days did you do **moderate** physical activities like carrying light loads, bicycling at a regular pace, or doubles tennis? Do not include walking.

Days per week _____

Q4. How much time in total did you usually spend on one of those days doing moderate physical activities? Hour's _____ Minutes _____

Q5. During the last 7 days, on how many days did you **walk** for at least 10 minutes at a time?

This includes walking at work and at home, walking to travel from place to place, and any other walking that you did solely for recreation, sport, exercise or leisure.

Days per week _____

Q6. How much time in total did you usually spend walking on one of those days?

Hour's _____ Minutes _____

The last question is about the time you spent sitting on weekdays while at work, at home, while doing course work and during leisure time. This includes time spent sitting at a desk, visiting friends, reading traveling on a bus or sitting or lying down to watch television.

Q7. During the last 7 days, how much time in total did you usually spend *sitting* on a week day?

Hour's _____ Minutes _____

Appendices (e)

To whom it may concern,

My name is James Claffey and I am the co-ordinator and head of department of sports science in Pearse College, Crumlin. I am writing this letter at the request of a student currently registered as a student in your college.

Student number 1291795
Student name: Ross Hannigan
Year: Year 4

He has requested to perform quantitative research with my exercise, sport and fitness courses in Pearse College FE,

I am writing to confirm that after review within the department we can confirm it is ok for Ross to come on site under supervision of myself to conduct his research for final year project.

Yours in sport
James Claffey

List of Contacts for support (if needed).

Ross Hannigan (Conductor of this study):

Mental Health Ireland: 01-2841166

Samaritans (emotional support helpline): 1850609090

