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Positive Effects of Exercise on Health and Wellbeing of Active Individuals Compared to Sedentary.

Submitted in partial fulfilment of requirements for the degree.

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Abstract. Objective: The current study examined relationships among social physique anxiety, obligation to exercise, reasons for exercise, self – esteem, body – esteem & psychological health. **Participants and Methods:** College students & members of the general public (*N* = 100; 50 women, 50 men) volunteered to complete questionnaires. **Results**: There was no significant difference (t (98) = -1.000, p = .320) between exercise and sedentary group in the scores on psychological health. Psychological health (r = .34), obligation to exercise (r = .40), self-esteem (r = .48), and social physique anxiety (r = -.55) were statistically significantly related ($p < 0.01$) to body esteem levels. **Conclusions**: Regular exercise does appear to effect body – esteem but not psychological health when compared active individuals with sedentary. The four predictor variables were statistically significantly related to body esteem levels.

Introduction

The overall aim of this research is to investigate primarily the role that exercise plays in individuals general health and well being, but also the role that gender plays in how people perceive themselves in terms of their body and physique. This research will explore whether participants who regularly exercise are less anxious and have a more positive body image than those who do not. In particular the focus will be on those individuals who exercise on a regular basis, their frequency of exercise, and reasons for exercising. Previous research by Tiggemann and Prichard (2005) has shown participation in regular physical activity has a number of physical and psychological benefits to an individuals' well being. It is no secret that participation in regular aerobic exercise has a beneficial effect on psychological stress and overall health by lowering blood pressure and heart rate, cutting body fat, strengthening muscles, enhancing immune function, increasing maximal oxygen uptake, and improving oxidative outcomes (Irwin & Friedman, 1999).

Literature Review:

Sedentary Lifestyle & General Health

Anxiety and depression are associated with low physical fitness and a sedentary lifestyle (Oeland, Laessoe, Olesen and Jorgensen 2010). According to the British Medical Association (BMA) (2003), the sedentary lifestyles and the unhealthy diets of many adolescents are contributing to 'a global epidemic' of obesity. The BMA report shows that the 1998 Health Survey in England showed an increase in the prevalence of those classified as overweight and obese with a 21 per cent prevalence rate for adolescents aged 13 to 16. Changes in both diet and exercise are assumed to contribute to the growth in obesity but until relatively recently

there was limited research into the actual level of physical activity of young people. However, Prentice and Jebb (1995) state that the growth in obesity in Britain is more closely related to changes in proxy measures of physical inactivity such as car ownership, computer use and television viewing than to measures of household food consumption. Exercise ameliorates many of the known vascular risk factors by positive effects on blood pressure, LDL cholesterol, HDL cholesterol, triglycerides, and HbA1c levels. Exercise appears to aid in the loss of weight and visceral fat. The results are the better glycemic control and improved quality of life (Albright, 2000). Low physical fitness is seen as a general characteristic of patients with depression and/or anxiety. Inactive individuals have significantly higher risk of depression compared to active individuals. Correspondingly, lower levels of depression and anxiety are associated with regular exercise (Oeland, Laessoe, Olesen and Jorgensen 2010).

Technology is moving at such a fast pace it is little wonder that the new generation are less active than our parents or our grandparents, for example, it is estimated that today's young people on average expend between 600 and 700 kcal per day less than their counterparts 50 years ago (Boreham and Riddoch, 2001). In today's age of xbox, wii, reality television and social networking, opportunities for sedentary alternatives to an active lifestyle are far greater now than they ever were (Currie et al., 2004; Norman, Schmid, Sallis, Calfas, & Patrick. 2005). Possessing a healthy bank balance, a credit card and the use of the internet can enable an individual to not have to leave their home, as all their needs can be met by delivery, assuming they do not fall ill. A sedentary individual is characterized by or requiring much sitting, and is accustomed to sitting or to taking part in little or no exercise. Emerging evidence suggests that sedentary behaviour, as distinct from a lack of moderate to vigorous physical activity, has independent and qualitatively different effects on, physical function, human metabolism, and health outcomes and thus should be treated as a separate and unique

construct (Owen Leslie, Salmon and Fotheringham 2000; Hamilton, Healy, Dunstan, Zderic, and Owen, 2008; Owen, Healy, Matthews, and Dunstan, 2010).

Positive Effects of Exercise

Regular physical exercise as an alternative treatment for stress motivates people to adopt better lifestyle habits (Antunes et al, 2005). Physically active individuals are those who meet established guidelines for physical activity (usually reflected in achieving a threshold number of minutes of moderate to vigorous physical activity per day). Exercise promotes psychological well-being and can also improve one's physiological development. Regular exercise participation dramatically improved the well-being of people suffering from chronic health conditions (Graham, Kremer and Wheeler, 2008). With regular exercise participation, individual components of well-being, including stress management and coping, have been shown to significantly improve (Edwards, 2006). Additionally, regular exercisers see themselves as having more purpose in life, personal growth, autonomy, positive relations with others and conditioning than non-exercisers (Edwards, Ngcobo, Edwards and Palavar, 2005).

Presently, in Ireland, 39% of adults are overweight and 18% are obese. Of these, slightly more Men than Women are obese and there is a higher incidence of the disease in lower socio-economic groups (DOHC). Only 41% of Irish adults participate in moderate or vigorous physical activity for at least 20 minutes three or more times a week (SLAN, 2007). Statistically 1 in 5 people in Ireland are physically inactive (SLAN, 2007). Exercise guidelines for adults (aged 18–64) are, at least 30 minutes a day of moderate activity on 5 days a week (or 150 minutes a week). All able bodied adults should be active. Some physical activity is better than none, more is better than some, and any amount of physical activity you

do is of some benefit to your health. The National Guidelines on Physical Activity for Ireland (2009). The current study examines whether men and women who participate in sport will have a more positive body image than sedentary individuals.

Reasons & Motivations for Exercise

Regular exercise is associated with lower levels of anxiety and can increase self-esteem and physical self-concept (Spence, Poon, & Dyck, 1997). Individuals are more susceptible to diseases such as CVD, hypertension and type 2 diabetes as a result of physical inactivity (Oeland, Laessoe, Olesen, and Jorgensen 2010). These benefits, however, have not been found in all samples. Self-esteem and body satisfaction in young women have actually been found to decrease with increasing amounts of exercise (Penas-Lledlo, Sancho, & Waller, 2002; Tiggemann & Williamson, 2000). A reason for this is that, a lot of women look at exercise as means of speeding up the process of losing weight and adopt it as a primary strategy for altering body shape (Furnham, Badmin, & Sneade, 2002). Exercising for attractiveness, body tone, and weight control is associated with an increase in body dissatisfaction, disturbed eating and lower body-esteem (Furnham et al., 2002; McDonald & Thompson, 1992; Silberstein, Striegel-Moore, Timko & Rodin, 1988; Tiggemann & Williamson, 2000).

Functional reasons for exercise such as fitness, health, and enjoyment have been associated with increased body-esteem and self-esteem, along with lower levels of body dissatisfaction (Strellan, Mehaffrey & Tiggemann, 2003; Tiggemann & Williamson, 2000). Research on body dissatisfaction, much of which has focused on females, shows that, on the whole they are dissatisfied with their bodies (Cooper & Fairburn, 1983). Alternatively, similar research carried out on males has suggested that they tend to be happier with their body weight (Leon, Carroll, Chernyk & Finn, 1985), body shape (Fallon & Rozin, 1985;

Huenemann, Shapiro & Hampton, 1966) and physical appearance (Pliner, Chaiken & Flett, 1990). However, there is a growing body of evidence showing that this just is not the case. Previous research by Franco, Tamburrino, Carroll & Bernal, (1988) along with Miller, Coffman & Linke, (1980) has shown that many males are unhappy with their weight and shape, although somewhat less so than their female counterparts. The nature of body image dissatisfaction in males and females is however, slightly different. In females dissatisfaction with body image is usually focused on weight loss, while dissatisfaction in males alternates between weight loss and weight gain. The current research study examines whether females exercise more for appearance related reasons and not for health/fitness/enjoyment reasons when compared to their male counterparts.

Self Determination Theory & Motivation Continued

Literature today suggests that exercise ensures successful brain functioning and is backed up by overwhelming evidence **(**Cotman, Berchtold, & Christie, 2007). Reasons for exercising also vary. It has been suggested by Ingledew, Markland and Sheppard (2004) that it is not sufficient to look only at the surface motivations of exercise, as the underlying reason for exercise is not revealed, they recommended using the self-determination theory (SDT) (Deci and Ryan, 2000) as it facilitates a more differentiated view of motivation. SDT examines the extent to which human behaviours are self-determined and the degree to which people's actions are influenced by internal and external forces.

SDT distinguishes between intrinsic and extrinsic motivation and amotivation. Intrinsic motivation is seen in fully self determined individuals: their motivation for particular behaviours is a fully integrated part of their sense of self and their participation in exercise is purely for the enjoyment of it. Extrinsic motivation is more instrumental; the activities are

engaged in because of a desired end result instead of the enjoyment of the activity itself. For example, if an individual understood and identified with exercises benefits to their own health, they would exercise in a willing manner in an attempt to achieve personally valued outcomes (Deci and Ryan, 2000). Intrinsic and identified motives have been linked with increased exercise participation (Ingledew and Markland, 2008; Standage, Sebire and Loney, 2008) and higher levels of physical activity (Wilson, LeBlanc and Blanchard, 2007) while more controlled types of motives have been identified as having a negative influence on activity levels (Craike, 2008).

Lewis and Sutton (2011) found that the strongest predictor for exercise frequency was participants' sex, with males engaging in exercise more often than females, supporting many previous studies (e.g., Santos, Page, Ribeiro and Mota, 2009; Buckworth and Nigg, 2004) which indicate males have more active lifestyles than females. More autonomous forms of exercise motivation were more strongly correlated with increased participation while external behavioural regulation and amotivation were negatively correlated with exercise participation, as predicted by SDT (Lewis and Sutton, 2011). Males have been found to exercise more for health/fitness reasons while females are more likely to exercise for appearance related reason (Strelan, Mehaffey & Tiggeman, 2003). Body dissatisfaction is a major motivating factor for individuals participating in exercise. College aged men and women will exercise to improve negative body image (Smith, Handley, & Eldredge, 1998). The current study examines whether psychological health, exercise obligation, self esteem, and social physique anxiety will be a statistically significant predictive model of body esteem levels.

Gender & Body Satisfaction

Silberstein, Striegel-Moore, Timko & Rodin, (1988) found that 46.8 per cent of the males they studied desired to gain weight, while only 4.4 per cent of the females desired to get bigger. The males were fairly evenly split in those desiring to gain weight as opposed to losing weight. It has been pointed out by Davis, Shapiro, Elliot & Dionne, (1993) that males are coming under increasing pressure to obtain the ideal culturally-prescribed shape, this of course being even more relevant in 2012 with mass advertising campaigns on looking younger, getting a ripped physique etc. In males the difference between the desire for shape change, as opposed to the female desire to lose weight, may be a function of different ideals, since the male ideal is achieving that perfect v-shaped figure, the female ideal is that of the catwalk model, that is, being extremely thin (Furnham & Calnan, 1998). This is also shown through the change in perception of being underweight, since underweight males are dissatisfied with their body weight, underweight females are satisfied (Cash, Winstead & Janda, (1986).

Achieving the ideal v-shaped figure for males fits with the desire to gain additional weight and turn it into muscle. An individual's degree of satisfaction with their bodies has profound implications for their self-esteem, social behaviour and general self perception. Not being happy with one's physical appearance can lead to social anxiety and avoidant behaviour. Previous research by Lerner, Karabenick & Stuart, (1973) on the relationship between body satisfaction and self-esteem has shown that female body image satisfaction is highly correlated with self-esteem. Alternatively, male's self-esteem was also affected by the degree of body dissatisfaction, regardless of the direction of dissatisfaction (Silberstein, Striegel-Moore, Timko & Rodin, 1988). The current research study examines whether males and females differ significantly in levels of self – esteem and body – esteem when compared to sedentary individuals.

Barriers to Physical Activity

With the ever growing problem of obesity worldwide and specifically in Ireland, an understanding as to why some participants do not exercise and what factors are preventing them from doing so will be looked at. "UP TO 327,000 children are either obese or overweight and experts have warned Ireland is heading for a US-style epidemic where 33% of children have weight problems" (Hough, examiner.ie). There are many barriers to physical activity: anxiety sensitivity (AS) has been recognized by recent research as a dispositional variable which could analyze those who are sensitive to exercise-related symptoms (e.g. racing heart, sweating, breathlessness; Reiss & McNally, 1985). Individuals with high levels of AS may experience significantly higher levels of distress compared with those having low levels of AS when engaged in moderate to vigorous intensity exercise.

Social Physique Anxiety, Society & Stereotypes

Physical inactivity has become an emerging topic of interest for many investigators, as inactivity is the number one risk factor for many diseases. Gaining a better understanding as to why individuals choose to participate, or not participate in regular exercise is important to this study and also to health professionals and those employed in the fitness industry. Social physique anxiety (SPA) is defined as the degree to which people are anxious or nervous when others are observing or evaluating their physique (Hart, Leary, & Rejeski, 1989). SPA has been found to relate negatively to body cathexis, body esteem, and interaction anxiety, but not social desirability (Hart et al., 1989). The image that an individual has of his or her body is largely determined by their social experience. SPA has been documented to be positively related to percentage of body fat and body dissatisfaction (Hart et al., 1989; Hausenblas & Fallon, 2002). Body image is elastic and open to change through new information. Media

imagery may be particularly important in producing changes in the ways that the body is experienced and evaluated, depending on the viewer's perception of the importance of those cues Tiggemann, (2002).

Modern society and the media put great pressure on the individual to look physically attractive. The ideal stereotypical woman in Western society is typically perceived as very skinny. There is an obsession in western culture with losing weight and being thin. Models, actresses, and other famous women are usually underweight, and most media sources targeted at women are about losing weight. Women experience higher levels of social physique anxiety (SPA) than men (Chu, Bushman, Woodward, 2008). This may reduce physical activity (Smiths, Tart, Presnell, Rosenfield & Otto, 2010). Women with high SPA report less leisure time physical activity than men and women with low SPA (Lantz, Hardy, & Ainsworth, 1997). Other barriers include: convenience, weight issues, confidence, and motivation. For these reasons and more, many women adopt unhealthy eating and exercise habits. College women are negatively influenced by women models in fashion magazines, resulting in lower body image satisfaction (Turner, Hamilton, Jacobs, Angood, & Dwyer, 1997).

The ideal stereotypical man in Western society is often perceived as big and muscular. As a result, men will sometimes adopt unhealthy workout techniques that can involve the use of steroids or other drugs in order to build muscle mass (Kanayama, Barry, Hudson, & Pope, 2006). Hart, Leary & Rejeski (1998) developed a scale to assess social physique anxiety (SPAS) which will be used in this study. It has been suggested by Kowalski, Kowalski & Crocker (2001) that, college women's perception of physical conditioning is more important than social physique anxiety in influencing participation in exercise, but their specific behaviours may be influenced by social physique anxiety. The current research study

examines whether participation in regular exercise leads to lower levels of social physique anxiety.

Obligtion to Exercise

Obligatory exercise can be defined as "a dominance of exercise in daily life and withdrawal symptoms if exercise is not possible. Addicts may exercise despite injury, at the expense of interpersonal relationships, to the detriment of their work, or with other negative consequences" (Rodgers, Hall, Blanchard, & Munroe, 2001, p. 152). Despite the use of the terms addiction and dependence in the literature, there is some controversy regarding whether exercise can truly become an addiction or whether people can become dependent on exercise (Hauck & Blumenthal, 1992; Pierce, 1994). It does appear, however, that some individuals are driven to exercise when they are injured, sick, or to an extent that is clearly beyond levels necessary for health benefit (Blumenthal, O'Toole, & Chang, 1984; Coen & Ogles, 1993). Though disputed, obligatory exercisers may be coerced by underlying physiological mechanisms associated with habituation to exercise (Allen & Coen, 1987; Mondin, Morgan, Piering, Stegner, & et al., 1996).

Thompson and Pasman (1998) created the Obligatory Exercise Questionnaire (OEQ) as a general measure of exercise activity. Obligatory exercise refers to an individual's commitment to and involvement in exercise. Men and Women's obligation to exercise will be looked at building on previous research by Chu, Bushman, Woodward, (2008). Chu et al (2008) concluded that obligation to exercise appears to be similar for both sexes. However, women, appear to have higher levels of anxiety regarding how others evaluate their physique than males do Chu et al (2008). In this study Men and Women from the general population will be looked at, along with college students building on previous research by Chu et al

(2008). The current research study seeks to replicate findings by Chu et al (2008) that male and female obligation to exercise is similar.

Gender & Self - Esteem

Moreover, men and women with low self-esteem exercise to try and improve their appearance and mood (Furnham, Badmin, & Sneade, 2002). Some research has indicated that although self-esteem declines during adolescence in both men and women, women experience a decline more rapidly than do men (Heaven & Ciarrochi, 2008), with the greatest gender difference reported in late adolescence (Kling, Hyde, Showers, & Buswell, 1999) and the gap becoming smaller, but still significant, over time. However, other studies have found no gender differences at all in self esteem (Dixon & Kurpius, 2008; Richardson & Benbow, 1990).

The current research study examines whether males and females differ in levels of self – esteem. As can be expected, research suggests a positive link between exercise and self-esteem and especially among those whose self-esteem is relatively low and including adolescents as they strive to develop a sense of self (Fox, 2000). While the idea that exercise enhances self-esteem makes intuitive sense, Johnsgard (1989) among others has made the point that exercise will do little to improve self-esteem if it is deficient primarily in other areas of life such as education, emotional or behavioural problems or a lack of social skills. However, if the young individual's low self-esteem has its roots in poor body image or lack of fitness or weight control then exercise can have a positive effect and the effect appears to be most powerful when aerobic activities are used.

Body Image & Gender

Body image plays a big role in exercise participation: females dissatisfied with their body image tend to be more concerned with losing weight, while males dissatisfaction is concerned as much with weight gain as weight loss (Silberstein, Striegel-Moore, Timko, & Rodin, 1988). Participation in sports is one of the best ways to improve body image according to research performed by the Melpomene Institute in Minneapolis. It has been found that women who participate in sports and physical activity have a more positive body image than those women who do not participate in any form of physical activity (Allender, Gill, Cowburn & Foster, 2006). Although research certainly supports the idea that women exhibit more weight preoccupation than men, recent research has begun to suggest that it may depend on the specific attitude or behaviour in question. For example, some research suggests that there are no gender differences in body dissatisfaction (Smolak & Levine, 1994) or body attitudes (Wilcox, 1997). Females in distress about their physical appearance were more likely to give weight management or appearance as their motive for exercise (Cash, Novy & Grant, 1994). Based on the self-objectification theory, individuals make judgments of themselves as a result of influences by society and beliefs about how others seem them. According to Grossbard et al. (2009) socio-cultural perspectives on body image propose that gender differences in body dissatisfaction likely represent different cultural standards for ideal body types: for females, a thin physique represents attractiveness and for males, a more muscular, mesomorphic build symbolizes power and success.

Study Rationale & Aims

This research will focus on males and females aged 18 – 53 who participate in regular exercise compared to those who do not. The research will look at gender differences in relation to issues such as social physique anxiety, self – esteem, negative body – image and

obligation to exercise. From a review of the literature no relevant studies could be found in Ireland. The purpose of this research is to examine whether individuals who participate in regular exercise are less affected by issues such as social physique anxiety, self – esteem and negative body – image when being compared to relatively sedentary individuals. The aim of this research is to explore the reasons why individuals choose to exercise regularly and use these reasons to help motivate those who do not into getting active. Overall the results from this research should contribute to the literature on exercise, the barriers against and yield useful information for the health service of Ireland in helping with the problems of obesity and inactivity. It is hoped that the outcomes of this research can assist health professionals with understanding better, individual's reasons for exercising and the barriers against as discussed.

There has been much research on the health benefits of regular physical activity on anxiety and body image but sampling has mainly been from college students (e.g., Zabinski, Calfas, Gehrman, Wilfrey & Sallis, 2001; Chu, Bushman, Woodward, 2008) and not the general population. This research expands on the work done by Chu et al., (2008) examining social physique anxiety in both men and women who regularly exercise, compared to those who do not exercise. To date, in Ireland, no studies have sought to predict or determine whether body – esteem will be significantly related to variables under investigation in the current study, including psychological health, self – esteem, exercise obligation and social physique anxiety. The current study will examine whether exercise obligation will be the strongest predictor of body – esteem within the current sample.

Hypotheses of the Current Study

1. Obligation to exercise will also be looked in both men and women, firstly it is hypothesised that male and female obligation to exercise will be similar, replicating findings by Chu et al., (2008).
2. Secondly, it is hypothesised that participation in regular exercise leads to lower levels of social physique anxiety.
3. Thirdly it is hypothesised that participation in regular exercise is associated with higher self esteem when comparing active individuals with in-active ones. -
4. Fourthly, it is hypothesised that men and women who exercise will have higher esteem for their bodies than sedentary individuals.
5. Fifthly, it is hypothesised that female participants will exercise more for appearance related reasons and not for health/fitness/enjoyment compared to their male counterparts.
6. Sixthly, it is hypothesised that scores on psychological health will differ significantly between active and sedentary individuals.
7. Seventhly, it is hypothesised that men and women who participate in sport will have a more positive body image than sedentary individuals.
8. Eighthly, it was hypothesised that men and women would score similar on body – esteem.
9. Ninthly, it is hypothesised that body esteem will be significantly related with a number of variables under investigation in the current study including psychological health, self esteem, exercise obligation and social physique anxiety.
10. Finally, it is hypothesised that psychological health, exercise obligation, self esteem, and social physique anxiety will be a statistically significant predictive model of body esteem levels. It is hypothesised that these four predictor variables will contribute to a

substantial level of explained variance in the criterion variable. It is hypothesised that exercise obligation will be the strongest predictor of body esteem within the current sample.

Method

Participants

Participants were one hundred students (N = 100) and lay individuals, consisting of a convenience sample of college students, friends and acquaintances. The sample for the current study consisted of fifty men (n = 50) and fifty women (n =50). Fourteen males (n =14) reported that they did not exercise at all compared to nineteen (n = 19) females. Participants ranged in age from 18 to 53, with an average age of 27.84 years (*M* = 27.84 years, *SD* = 7.42). The majority of individuals who participated in this study were undergraduate students of full and part – time courses. Participant's demographic information was collected including age, sex, and whether or not they played sport (See Appendix 2, 2.1)

Procedure

The participants were instructed to fill out six questionnaires along with the demographic questions on the title page as accurately and honestly as possible (See Appendix 2). Participants were recruited from four separate undergraduate psychology classes in Dublin Business School. The remaining participants were recruited from lay friends and acquaintances over a period of four weeks. Students were asked by their lecturer to participate in the study and could decline if they wished to do so. All other participants were asked to participate individually. After being given out the questionnaires the participants filled them out individually. The questionnaires were given out and collected in a 20 minute period in each of the four classes. The completion time for the lay participants was around 15 minutes. Approval for the current study was granted from the Psychology Department of Dublin Business School.

Of the 130 questionnaires that were handed out, only 100 could be used in the current study. Twenty questionnaires were incorrectly filled out while a further ten participants did not return their questionnaires when requested. Those cases excluded from the final analysis were due to insufficient data provided. Participants were required to complete a questionnaire booklet which included an instruction sheet and a consent form attached to the front of the booklet. Each participant was provided with a brief description of the study, instructions in how to complete the questionnaire, and the general completion time (approximately 20 minutes). Participants were assured about the confidentiality of their participation and informed that they could withdraw from the study at any time (See Appendix 2). The questionnaires were collected from the participants when they were done filling them out and the lecturer and participants were thanked for their time (See Appendix 2.8).

Design and Measures

The current study is a quantitative cross-sectional design, descriptive in nature, and based on a convenience sample.

The General Health Questionnaire-12 (GHQ: Goldberg, 1992): The GHQ-12 is a shortened version of the well-validated GHQ-60 (See Appendix 2.2). The shortened version has been demonstrated to be equally valid and reliable, and thus possessing excellent psychometric properties (see Shevlin & Adamson, 2005). The items selected load heavily in the factor analysis of the full version and avoid symptoms of physical illness. Each of the 12 items asks whether the respondent has experienced a particular symptom or item of behaviour recently using a four-point scale; 'less than usual', 'no more than usual', 'rather more than usual' or 'much more than usual'. GHQ method or bimodal method, and C-GHQ method (both methods give a total score 0 to 12) (Montazeri et al, 2003; Hankins, 2008). In all methods, higher scores indicate worse conditions (Gao et al, 2004; Hankins, 2008, Sanchez-Lopez &

Dresch, 2008). The GHQ-12 demonstrated acceptable internal reliability for the current sample (α = .761).

The Obligatory Exercise Questionnaire (OEQ: Thompson & Pasman, 1991): The OEQ is a 20-item scale that measures individuals' attitudes and activity levels associated with their exercise routine (See Appendix 2.4). Thompson and Pasman proposed that the OEQ is a useful tool for researchers studying exercise behaviours. Participants respond to each of the 20 items using a 4-point Likert scale ranging from 1 (*never*) to 4 (*always*). Summed scores range from 20 to 80; low scores indicate low obligation to exercise, and high scores indicate high obligation to exercise. The OEQ demonstrated acceptable internal reliability for the current sample (α = .752).

The Social Physique Anxiety Scale (SPAS: Hart, Leary, & Rejeski, 1989): The SPAS is a 12-item scale that measures the degree of anxiety an individual experiences as a result of perceived observation or evaluation of his or her physique (See Appendix 2.7). Participants respond to each of the 12 items, which are measured using a 5 - Point Likert scale that ranges from 1 (never) to 5 (extremely). The SPAS demonstrated acceptable internal reliability for the current sample (α = .903).

The Body Esteem Scale (BES: Franzoi & Shields, 1984): The BES was used to measure men's and women's body attitudes, and consists of 35 body parts and functions rated on a 5-point Likert scale that ranges from "1" ("Have strong negative feelings") to "5" ("Have strong positive feelings") (See Appendix 2.4). Factor analysis indicates that the body items that comprise the BES are best conceptualized as composed of three gender-specific dimensions. The three women's BES subscales measure attitudes toward sexual attractiveness (body scent, lips, ears, chin, chest or breasts, appearance of eyes, cheeks/cheekbones, sex drive, sex organs, sex activities, body hair, face), weight concern

(appetite, waist, thighs, body build, buttocks, hips, legs, figure or physique, appearance of stomach, face), and physical condition (physical stamina, reflexes, muscular strength, energy level, biceps, physical coordination, agility, health, physical condition). In contrast, the three men's BES subscales measure attitudes toward physical attractiveness (nose, lips, ears, chin, buttocks, appearance of eyes, cheeks/cheekbones, hips, feet, sex organs, face), upper body strength (muscular strength, biceps, body build, physical coordination, width of shoulders, arms, chest or breasts, figure or physique, sex drive), and physical condition (appetite, physical stamina, reflexes, waist, energy level, thighs, physical coordination, agility, figure or physique, appearance of stomach, health, physical condition, weight) (See Appendix 2.3). The BES demonstrated acceptable internal reliability for the current sample ($\alpha = .901$).

The Rosenberg Self-Esteem Scale (RSES: Rosenberg, 1965) is a 10-item measure and each item is answered along a four point Likert scale ranging from 'strongly agree' to 'strongly disagree' (See Appendix 2.7). Within the current study items were recoded so that higher scores indicated higher levels of self-esteem (See Appendix 2.5). The RSES demonstrated acceptable internal reliability for the current sample ($\alpha = .712$).

The Reasons for Exercise Inventory (REI) was developed by Silberstein et al. (1988). The original version of REI has 25 items, including seven-subscales: Weight Control, Fitness, Health, Physical Attractiveness, Mood, Enjoyment, and Body Tone. Sample items from each subscale regarding reasons for exercise include: Weight Control, "To lose weight;" Fitness, "To increase my energy level;" Health, "To improve my overall health;" Physical Attractiveness, "To be sexually desirable;" Mood, "To improve my mood;" Enjoyment, "To socialize with friends;" and Body Tone, "To improve my overall body shape." Responses are rated on a seven-point scale ranging from not at all important (1) to extremely important (7) (See Appendix 2.6). Only those participants who exercised were asked to complete this section. All subscales of the REI demonstrated acceptable internal reliability among the

current sample with all Cronbach Alpha values above 0.7 with the exception of the Weight Control subscale which yielded an internal reliability level of $\alpha = .6$.

Analysis

Descriptive statistics were initially carried out to measure means and standard deviations of the sample population and the different variables under investigation. A series of Independent samples t-tests, with a suitable Bonferonni adjusted significance level, were also used to compare self – esteem, body – esteem, attractiveness, fitness & health between males and females, and sedentary and active people on general health. Pearson's Correlations were first employed in order to measure the relationships between body esteem and the other measured variables in this study. Correlation analysis was conducted as a precursor to the development of a parsimonious regression model. Only those variables theoretically related to body esteem, and significantly correlated with body esteem were retained for inclusion in the regression analysis. A standard multiple regression analysis was then carried out in order to assess the total amount of variance explained by the theoretical model and to determine which variables within the model were significant predictors of body esteem.

Results

Descriptive statistics, including means (M) and standard deviations (SD), for each of the variables investigated in the current study are presented in Table 1 (See Appendix 1.1).

Firstly it was hypothesised that male and female obligation to exercise would be similar, replicating findings by Chu et al., (2008). Secondly, it was hypothesised that participation in regular exercise leads to lower levels of social physique anxiety. Thirdly it was hypothesised that participation in regular exercise is associated with higher self - esteem when comparing active individuals with in-active ones. Fourthly, it is hypothesised that men and women who exercise will have higher esteem for their bodies than sedentary individuals. Fifthly, it was hypothesised that female participants will exercise more for appearance related reasons and not for health/fitness/enjoyment compared to their male counterparts.

Sixthly, it was hypothesised that scores on psychological health will differ significantly between active and sedentary individuals. Seventhly, it was hypothesised that men and women who participate in sport will have a more positive body image than sedentary individuals. Eighthly, it was hypothesised that men and women would score similar on body – esteem. Ninthly, it was hypothesised that body esteem will be significantly related with a number of variables under investigation in the current study including psychological health, self esteem, exercise obligation and social physique anxiety. Finally, it was hypothesised that psychological health, exercise obligation, self esteem, and social physique anxiety will be a statistically significant predictive model of body esteem levels. It was hypothesised that these four predictor variables will contribute to a substantial level of explained variance in the criterion variable. It is hypothesised that exercise obligation will be the strongest predictor of body esteem within the current sample.

Of the 100 participants, 68% were active while 32% were sedentary. An independent-samples t-test was conducted to compare male and female obligation to exercise. There was no significant difference (t (98) = 1.04, p = .302) in the scores for obligation to exercise supporting previous research by Chu et al. (2008) (see Table 1, Appendix 1.1). These results suggest that the men and women surveyed feel just as obligated to exercise. Participation in regular exercise did not lead to lower levels of social physique anxiety (p > .05).

An independent-samples t-test was conducted to compare the sedentary and exercise group with respect to levels of self – esteem. There was no significant difference (t (98) = -.162, p = .872) in the scores for self –esteem, thus not supporting this study's hypothesis (see table 1). An independent - samples t – test was conducted to compare self – esteem between male and female participants of which no significant difference (t (98) = .084, p = .933) was found and therefore failing to provide support for the study's hypothesis (see table 1). An independent-samples t-test was conducted to compare the sedentary and exercise group in levels of body – esteem. There was a significant difference (t (98) = -3.871, p = .000) in the scores for body –esteem. This finding supported the study's hypothesis that sedentary individuals would report lower levels of body esteem (see Table 1). The magnitude of difference between the two groups in terms of body esteem was considered to be moderate (eta squared = 0.13).

An independent - samples t – test was also conducted to compare body – esteem between male and female participants of which no significant difference (t (98) = 1.067, p = .289) was found, supporting the study's hypothesis. An independent-samples t- test was conducted to compare the sedentary and exercise group in scores on psychological health. There was no significant difference (t (98) = -1.000, p = .320) in the scores on psychological health not supporting the hypothesis (see Table 1). An independent samples t-test was conducted to examine whether women exercised more for appearance reasons than males did.

No significant difference (t (68) = 1.009, p = .316) was found not supporting the hypothesis (see Table 1).

The ninth aim of this project was interested in developing a predictive model to explain body-esteem levels among the current sample. In order to develop the most parsimonious predictive model of body-esteem possible, all variables of interest (those theoretically related to the outcome variable) were correlated with body esteem. Only those variables statistically significantly associated with the criterion variable were retained for inclusion in the regression model. As described in Table 2 (Appendix 1.2) psychological health (r = .34), obligation to exercise (r = .40), self-esteem (r = .48), and social physique anxiety (r = -.55) were statistically significantly related ($p < 0.01$) to body esteem levels. As all independent variables were statistically significantly related to the criterion variables, and these correlations were all above an r value of .3, these variables were therefore retained for inclusion in the regression model.

Since no theoretical justification existed for the order of entry of the independent variables into the regression equation, standard multiple regression analysis was employed. The theoretical model which included four predictor variables (Psychological Health, Obligation to Exercise, Self-esteem, and Social Physique Anxiety) explained 50% of variance in respondent's body esteem level ($F (4, 95) = 24.04$, $p < .01$) (see Table 3, Appendix 1.3). Three of the four predictor variables emerged as significant predictors of body esteem levels. The strongest predictor was exercise obligation ($\beta = .38$, $p < .01$), followed by social physique anxiety ($\beta = -.34$, $p < .01$) and self-esteem ($\beta = .30$, $p < .01$) (see Table 3). The standardized beta value for exercise obligation indicates that although a statistically significant predictor, its influence on the prediction of body esteem is weak, and higher reported levels of exercise obligation is a predictor of higher levels of body-esteem. The standardized beta value for social physique anxiety indicates that its influence on the

prediction of body esteem is also weak, and higher reported levels of social physique anxiety is a predictor of lower levels of body-esteem. The standardized beta value for self-esteem also indicates that although a statistically significant predictor, its influence on the prediction of body esteem is weak, and higher reported levels of self-esteem is a predictor of higher levels of body-esteem.

Discussion

In the current study, the statistical analysis of the data supported six out of the ten hypotheses. The current research study looked at gender differences in relation to issues such as social physique anxiety, self – esteem, body – image and obligation to exercise. The current research study also examined whether individuals who participate in regular exercise are less affected by issues such as social physique anxiety, self – esteem and negative body – image when being compared to relatively sedentary individuals. Obligation to exercise, self – esteem and social physique anxiety were looked at as significant predictors of body – esteem among the sample. It was thought that exercise obligation would be the strongest predictor of body esteem within the current sample.

1. The data supports the hypothesis that men and women's obligation to exercise would be similar. This finding supports research by Chu et al, (2008) who found that obligation to exercise appears to be similar in both sexes. Males had a higher mean level of exercise obligation than did women. This is what would be expected due to chance and does not reach the level of significance. As can be observed from the descriptive statistics, males reported higher mean scores for exercise obligation than did female's, however, on the basis of the results from the independent samples t-test this observed difference was deemed not to be statistically significant. Obligation to exercise was also found to be a significant predictor of body – esteem. Brehm & Steffen (1998) had suggested that men were more likely to be obligatory exercisers than women. This was not the case in the current study.

2. The second hypothesis that participation in regular exercise leads to lower levels of social physique anxiety was supported by a weak to moderate significant relationship between exercise frequency and social physique anxiety scores. It appears that if SPA influences exercise motivation, it must be through an interaction of situational factors related

to the display of the physique. Seeing as regular exercise can enhance one's appearance by reducing weight and body fat and increasing muscle tone, many individuals who are encouraged by self-presentational motives engage in exercise that will improve their appearance and make them appear "healthier." This interaction may be manifested through the selection of exercise settings, based upon such factors as normative exercise attire and social identity (Leary, 1992).

3. The third hypothesis that participation in regular exercise is associated with higher self esteem when comparing active individuals with in-active ones was not supported by the data. While the idea that exercise enhances self-esteem makes intuitive sense, Johnsgard (1989) among others has made the point that exercise will do little to improve self-esteem if it is deficient primarily in other areas of life such as education, emotional or behavioural problems or a lack of social skills. However, if the young individual's low self-esteem has its roots in poor body image or lack of fitness or weight control then exercise can have a positive effect and the effect appears to be most powerful when aerobic activities are used. This was a surprising finding but could have been limited by the amount of sedentary participants at only thirty two.

4. The fourth hypothesis hypothesised that men and women who exercise will have a more positive body image than sedentary individuals was supported by the data. This supports recent research by (Paffenbarger, Hyde, Wing, Lee, & Kampert, 1994; Phillips, Kiernan, & King, 2001) that virtually any physical activity has a beneficial effect when compared with being sedentary.

5. The fifth hypothesis hypothesised that female participants will exercise more for appearance related reasons and not for health/fitness/enjoyment compared to their male counterparts, this was not supported by the data. Males and females did not differ on reasons

for exercise such as health, fitness or enjoyment. This does not support previous research that found males exercise more for health/fitness reasons while females are more likely to exercise for appearance related reason (Strelan, Mehaffey & Tiggeman, 2003) or more recent research by Prichard & Tiggemann (2005).

6. The sixth hypothesis hypothesised that scores on psychological health would differ significantly between active and sedentary individuals was not supported by the data. This finding does not support findings by Oeland, Laessoe, Olesen and Jorgensen (2010) that anxiety and depression are associated with low physical fitness and a sedentary lifestyle This was surprising but could be explained by the fact that only 32% of the sample circled 0 for number of times a week they exercised therefore qualifying as sedentary. Not finding large effects of exercise on psychological health could be attributed to the use of a non-clinical sample of college students. The participants in this study were healthy sedentary college students.

7. The seventh hypothesis hypothesised that men and women who participate in sport will have a more positive body image than sedentary individuals was not supported by the data. This again was surprising but could again be explained by the fact that only 32% of the sample circled 0 for number of times a week they exercised, therefore qualifying as sedentary.

8. The eighth hypothesis hypothesised that men and women would score similar on body – esteem was supported by the data. This goes against previous research by Cooper & Fairburn (1983) on body dissatisfaction, much of which has focused on females, showing that, on the whole they are dissatisfied with their bodies. The current study found that men and women are equally as happy with their bodies. This finding can be explained in part by previous research by Strellan et al., (2000) who found, reasons for exercise such as fitness,

health, and enjoyment have been associated with increased body-esteem and self-esteem, along with lower levels of body dissatisfaction. Also this hypothesis does not support research by Franco, Tamburrino, Carroll & Bernal, (1988) along with Miller, Coffman & Linke, (1980) has shown that many males are unhappy with their weight and shape, although somewhat less so than their female counterparts.

9. The ninth aim of this project was interested in developing a predictive model to explain body-esteem levels among the current sample. In order to develop the most parsimonious predictive model of body-esteem possible, all variables of interest (those theoretically related to the outcome variable) were correlated with body esteem. Only those variables statistically significantly associated with the criterion variable were retained for inclusion in the regression model. As described in Table 2, psychological health, obligation to exercise, self-esteem, and social physique anxiety were statistically significantly related to body esteem levels. As all independent variables were statistically significantly related to the criterion variables, and these correlations were all above an r value of .3, these variables were therefore retained for inclusion in the regression model. This was a significant finding as no previous research study In Ireland had sought to predict or determine whether body – esteem would be significantly related to variables under investigation in the current study, including psychological health, self – esteem, exercise obligation and social physique anxiety. Obligation to exercise, self – esteem and social physique anxiety were found to be significant predictors of body – esteem among the sample.

10. The tenth and final hypothesis hypothesised that psychological health, exercise obligation, self esteem, and social physique anxiety would be a statistically significant predictive model of body esteem levels was supported by the data. It was hypothesised that these four predictor variables will contribute to a substantial level of explained variance in the criterion variable. It was hypothesised that exercise obligation will be the strongest predictor

of body esteem within the current sample, this was supported by the data. Exercise obligation was the strongest predictor of body – esteem from the data. This was also a significant finding as no previous research study In Ireland had sought to predict or determine whether body – esteem would be significantly related to exercise obligation. Since no theoretical justification existed for the order of entry of the independent variables into the regression equation, standard multiple regression analysis was employed.

The theoretical model which included four predictor variables (Psychological Health, Obligation to Exercise, Self-esteem, and Social Physique Anxiety) explained 50% of variance in respondent's body esteem level (see Table 3, Appendix 1). Three of the four predictor variables emerged as significant predictors of body esteem levels. The strongest predictor was exercise obligation, followed by social physique anxiety and self-esteem. The standardized beta value for exercise obligation indicates that although a statistically significant predictor, its influence on the prediction of body esteem is weak, and higher reported levels of exercise obligation is a predictor of higher levels of body-esteem. The standardized beta value for social physique anxiety indicates that its influence on the prediction of body esteem is also weak, and higher reported levels of social physique anxiety is a predictor of lower levels of body-esteem. The standardized beta value for self-esteem also indicates that although a statistically significant predictor, its influence on the prediction of body esteem is weak, and higher reported levels of self-esteem is a predictor of higher levels of body-esteem.

Problems & Limitations

One problem with the current study is that it relied on self-report questionnaires. The answers given to us by the participants could have been untrue. Most of the questionnaires were given out in a classroom situation with participants sitting close to one another. Due to the sensitive nature of some of the questions posed it is not hard to see why there may have been some

untrue answers to the questions. The questionnaires were split up over 8 single pages and not done back to back. It may have seemed to the participants that it was going to take a little over the 10 minutes that was outlined on the cover page. With so many other students handing out questionnaires to the same sample some were not so enthusiastic about filling out more questionnaires. The reasons for exercise inventory questionnaire clearly stated that it should not be filled out if you never exercise, which was ignored by twenty six of the thirty two participants deemed as sedentary.

On reflection the demographic questions on the cover page could have been more specific, in particular how many days a week the participant exercised on an average week. If this question had been specified as physical exercise or exercise that the individual set out to do, there might have been more sedentary participants included in the study. The rationale behind this is the fact that a lot of individuals circled that they participated in exercise one day a week which leads to the belief that some individuals have very different ideas of exercise. The participants were mostly college students from undergraduate psychology classes, so our sample did not represent the whole of the population although twenty five of our participants were not students. Of the one hundred participants only thirty two could be deemed as sedentary. Ideally what was wanted for the study was twenty five men and women who exercised regularly and twenty five men and women who were sedentary to make a better comparison from the sample. Overall one hundred and thirty questionnaires were handed out of which only one hundred could be used in the sample. Twenty questionnaires were incorrectly filled out while a further ten participants did not hand their questionnaires back up. Those cases excluded from the final analysis were due to insufficient data provided. Of the excluded cases the majority were active females which were not needed as the twenty five participants for that sample were already collected.

Future Research

Future research could ask participants more detailed questions, especially the sedentary individuals. The reasons why sedentary individuals do not exercise could not be properly examined as there was no specific questionnaire in use in the current sample for sedentary individuals and their reasons for not exercising. A physical activity questionnaire could be used in future research to rectify this oversight in the current research study. Further follow-up work could use a larger sample size that is more representative of the general human population. Future research could further investigate body – esteem and its link with self – esteem, exercise obligation and social physique anxiety. The current research findings open the door for more research on reasons why individuals choose to exercise regularly in comparison to sedentary individuals taking gender into account. Such research could test and expand on our conclusions that men and women's reasons for exercise and body image are very much the same. A larger sample of sedentary individuals from the general population may support the current hypotheses on the sedentary versus exercise groups.

Summary & Conclusions

In summary, physical health may enhance some aspect of psychological health, but participants who exercised on a regular basis were not psychologically better off than sedentary individuals according to the data. This current research study focused on males and females aged 18 – 53 who participate in regular exercise compared to those who do not. The research looked at gender differences in relation to issues such as social physique anxiety, self – esteem, body – image and obligation to exercise. Men and women did not differ significantly in relation to their levels of social physique anxiety, body – image or obligation to exercise. The current research study should make a good addition to the literature on exercise and psychological health when comparing active and sedentary

individuals especially with respect to the Irish population where there is a gap in such research. It was examined whether individuals who participate in regular exercise are less affected by issues such as social physique anxiety, self – esteem and negative body – image when being compared to relatively sedentary individuals. Surprisingly, sedentary individual's scores were only slightly significant on levels of body esteem when compared to active individuals.

Much of the previous research on the health benefits of regular physical activity has focused on anxiety and body image but sampling had mainly been from college students (e.g., Zabinski, Calfas, Gehrman, Wilfrey & Sallis, 2001; Chu, Bushman, Woodward, 2008) and not the general population. The current research study expanded on the work done by Chu et al., (2008) examining social physique anxiety in both men and women who regularly exercise, compared to those who do not exercise. Participants from the general population were also included but no significant difference in social physique anxiety was found. The theoretical model which included four predictor variables (Psychological Health, Obligation to Exercise, Self-esteem, and Social Physique Anxiety) explained 50% of variance in respondent's body esteem level. Three of the four predictor variables emerged as significant predictors of body esteem levels. The strongest predictor was exercise obligation, followed by social physique anxiety and self-esteem. To date, in Ireland, no studies have sought to predict or determine whether body – esteem would be significantly related to certain variables under investigation in the current study, including psychological health, self – esteem, exercise obligation and social physique anxiety.

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Appendix 1, 1.1

Table 1 reports the means, standard deviations t values and significance levels of the sample on each of the measured variables.

Variables	**Group**	**N**	**M**	**SD**	***t***	***p***
Exercise Obligation	Male	50	43.28	10.15	1.04	.302
	Female	50	41.10	10.86		
Total Self - Esteem	Sedentary	32	31.75	6.86	-.162	.872
	Exercise	68	31.96	5.48		
Total Self - Esteem	Male	50	31.94	6.25	.084	.933
	Female	50	31.84	5.63		
Body - Esteem	Male	50	99.34	20.76	1.067	.289
	Female	50	95.22	17.96		
Body - Esteem	Sedentary	32	87.03	16.24	-3.871	.000
	Exercise	68	102.12	19.01		
General Health	Sedentary	32	35.72	5.16	-1.00	.320
	Exercise	68	36.88	5.5		

Note: p significant at .05 level.

Appendix 1.2

Table 2.

Correlations between Body Esteem and other variables.

Variables	1	2	3	4	5
1. Body Esteem	---				
2. Psych Health	.34**	---			
3. Obligation to Exercise	.40**	.03	---		
4. Self Esteem	.48**	.50**	-.06	---	
5. Social Physique Anxiety	-.55**	-.30**	-.10	-.49**	---

Note: ** Correlation is significant at the .01 level (2-tailed).

Appendix 1.3

Table 3.

Standard multiple regression of psychological health, exercise obligation, self esteem and social physique anxiety on Body Esteem.

	R	R^2	$adjR^2$	***t***	***β***	***p value***
Model:	.709	.503	.482			
Psychological Health				.972	.08	.334
Exercise Obligation				5.13	.38	.000**
Self Esteem				3.21	.30	.002**
Social Physique Anxiety				-4.00	-.34	.000**

Note: b indicates Standardised Slopes of predictors with associated *p* values, ** significant at .01 level

APPENDIX 2

Dear participant.

I am a final year Psychology student carrying research on the many positive effects regular exercise has on the health and well being of those who participate in such exercise versus those who do not. The research will explore whether participants who regularly exercise are less anxious and have a more positive body image than those who do not. Please, help in the research by completing the attached questionnaires carefully, and answer all questions as honestly and accurately as possible. There are no "right" or "wrong" answers. Try not to spend too long on any one question. The questionnaire should take around 10 minutes to complete. The information given and results will be taken in the strictest confidence and I do not wish for you to disclose your name. You are free to withdraw from the study at any point.

Appendix 2.1

Please circle: Male Female

Age_____

On average how many times a week do you exercise? (Circle answer) 0 1 2 3 4 5 6 7

Do you exercise in a Gym__At Home__Outside__Other (please circle)

Do you play sports? Yes No (please circle)

Do you count calories or diet on a regular basis? Yes No (please circle)

Do you smoke? Yes No (please circle)

Do you drink alcohol? Yes No (please circle)

Dear participant.

The purpose of these research questionnaires is to outline the many positive effects regular exercise has on the health and well being of those who participate in such exercise versus those who do not. The research will explore whether participants who regularly exercise are less anxious and have a more positive body image than those who do not. Please read the questionnaires carefully and answer all questions truthfully. The information given and results will be taken in the strictest confidence and I do not wish for you to disclose your name.

General Health Questionnaire: *Appendix 2.2*

Please circle the answer which most applies to you.

HAVE YOU RECENTLY:

1 **-Been able to concentrate on whatever you're doing?**	Better than usual	Same as usual	Less than usual	Much less than usual
2 **- Lost much sleep over worry?**	Not at all	No more than usual	Rather *more* than usual	Much more than usual
3 **-Felt that you are playing** a **useful part in things?**	More so than usual	Same as usual	Less useful than usual	Much less useful
4 **-Felt capable of making decisions about things?**	More so than usual	Same as usual	Less so than usual	Much less capable
5 **-Felt constantly under strain?**	Not at all	No more than usual	Rather more than usual	Much more than usual
6 **-Felt you couldn't overcome your difficulties?**	Not at all	No more than usual	Rather more than usual	Much more than usual
7 **-Been able to enjoy your normal day-to-day activities?**	More so than usual	Same as usual	Less so than usual	Much less than usual
8 **-Been able to face up to your problems?**	More so Than usual	Same as usual	Less so than usual	Much less than usual
9 **-Been feeling unhappy and depressed?**	Not at all	No more than usual	Rather more than usual	Much more than usual
10 **-Been losing confidence in yourself?**	Not at all	No more than usual	Rather more than usual	Much more than usual
11 -Been thinking of yourself as a **worthless person?**	Not at all	No more than usual	Rather more than usual	Much more than usual
12- Been feeling reasonably happy, all things considered?	More so than usual	About same as usual	Less so than usual	Much less than usual

Body – Esteem Questionnaire: *Appendix 2.3*

Instructions: **On this page are listed a number of body parts and functions. Please read each item and indicate by circling 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

5 = Have strong positive feelings

1. Body scent	1	2	3	4	5
2. Appetite	1	2	3	4	5
3. Nose	1	2	3	4	5
4. Physical stamina	1	2	3	4	5
5. Reflexes	1	2	3	4	5
6. Lips	1	2	3	4	5
7. Muscular strength	1	2	3	4	5
8. Waist	1	2	3	4	5
9. Energy level	1	2	3	4	5
10. Thighs	1	2	3	4	5
11. Ears	1	2	3	4	5
12. Biceps	1	2	3	4	5
13. Chin	1	2	3	4	5
14. Body build	1	2	3	4	5
15. Physical coordination	1	2	3	4	5
16. Buttocks	1	2	3	4	5
17. Agility	1	2	3	4	5
18. Width of shoulders	1	2	3	4	5
19. Arms	1	2	3	4	5
20. Chest or breasts	1	2	3	4	5
21. Appearance of eyes	1	2	3	4	5
22. Cheeks/cheekbones	1	2	3	4	5
23. Hips	1	2	3	4	5
24. Legs	1	2	3	4	5
25. Figure or physique	1	2	3	4	5
26. Sex drive	1	2	3	4	5
27. Feet	1	2	3	4	5
28. Sex organs	1	2	3	4	5
29. Appearance of stomach	1	2	3	4	5

Obligatory Exercise Questionnaire: *Appendix 2.4*

Listed below are a series of statements about people's exercise habits. Please circle the number that reflects how often you could make the following statements:

1 – NEVER 2 – SOMETIMES 3 – USUALLY 4 – ALWAYS

1. I engage in physical exercise on a daily basis. 1 2 3 4
2. I engage in one/more of the following forms of exercise: walking, jogging/running or weightlifting 1 2 3 4
3. I exercise more than three days per week. 1 2 3 4
4. When I don't exercise I don't feel guilty. 1 2 3 4
5. I sometimes feel like I don't want to exercise, but I go ahead and push myself anyway. 1 2 3 4
6. My best friend likes to exercise. 1 2 3 4
7. When I miss an exercise session, I feel concerned about my body possibly getting out of shape. 1 2 3 4
8. If I have planned to exercise at a particular time and something unexpected comes up (like an old friend comes to visit or I have some work to do that needs immediate attention) I will usually skip my exercise for that day. 1 2 3 4
9. If I miss a planned workout, I attempt to make up for it the next day. 1 2 3 4
10. I may miss a day of exercise for no good reason. 1 2 3 4
11. Sometimes, I feel a need to exercise twice in one day, even though I may feel a little tired. 1 2 3 4
12. If I feel I have overeaten, I will try to make up for it by increasing the amount I exercise. 1 2 3 4
13. When I miss a scheduled exercise session I may feel tense, irritable or depressed. 1 2 3 4
14. Sometimes, I find that my mind wanders to thoughts about exercising. 1 2 3 4

1 – NEVER 2 – SOMETIMES 3 – USUALLY 4 – ALWAYS

15. I have had daydreams about exercising. 1 2 3 4

16. I keep a record of my exercise performance, such as how long I work out, how far or fast I run.
1 2 3 4

17. I have experienced a feeling of euphoria or a high during or after an exercise session. 1 2 3 4

18. I frequently push myself to the limits. 1 2 3 4

19. I have exercised when advised against such activity (i.e. by a doctor, friend, etc.) 1 2 3 4

20. I will engage in other forms of exercise if I am unable to engage in my usual form of exercise
1 2 3 4

Self – Esteem Questionnaire: *Appendix 2.5*

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

If you strongly agree, circle **SA**.
If you agree with the statement, circle **A**.
If you disagree, circle **D**.
If you strongly disagree, circle **SD**.

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

Reasons for Exercise Inventory: ***Appendix 2.6***

Please respond to the items below as honestly as possible. To what extent is each of the following an important reason that you have for exercising? Use the scale below, ranging from 1 to 7, in giving your answers. **(If you never exercise, please skip this section.) circle answer.**

1 2 3 4 5 6 7

not at all important — moderately important — extremely important

1. To be slim	1	2	3	4	5	6	7
2. To lose weight	1	2	3	4	5	6	7
3. To maintain my current weight	1	2	3	4	5	6	7
4. To improve my muscle tone	1	2	3	4	5	6	7
5. To improve my strength	1	2	3	4	5	6	7
6. To improve my endurance, stamina	1	2	3	4	5	6	7
7. To improve my flexibility, coordination	1	2	3	4	5	6	7
8. To cope with sadness, depression	1	2	3	4	5	6	7
9. To cope with stress, anxiety	1	2	3	4	5	6	7
10. To increase my energy level	1	2	3	4	5	6	7
11. To improve my mood	1	2	3	4	5	6	7
12. To improve my cardiovascular fitness	1	2	3	4	5	6	7
13. To improve my overall health	1	2	3	4	5	6	7
14. To increase my resistance to illness and disease	1	2	3	4	5	6	7
15. To maintain my physical well-being	1	2	3	4	5	6	7
16. To improve my appearance	1	2	3	4	5	6	7
17. To be attractive to members of the opposite sex	1	2	3	4	5	6	7
18. To be sexually desirable	1	2	3	4	5	6	7
19. To meet new people	1	2	3	4	5	6	7
20. To socialize with friends	1	2	3	4	5	6	7
21. To have fun	1	2	3	4	5	6	7
22. To redistribute my weight	1	2	3	4	5	6	7

23. To improve my overall body shape	1	2	3	4	5	6	7
24. To alter a specific area of my body	1	2	3	4	5	6	7

Social Physique Anxiety Questionnaire: *Appendix 2.7*

Instructions: **Read each item carefully and indicate how characteristic it is of you according to the following scale.**

1 = Not at all characteristic of me

2 = Slightly characteristic of me

3 = Moderately characteristic of me

4 = Very characteristic of me

5 = Extremely characteristic of me

_____ 1. I am comfortable with the appearance of my physique or figure.

_____ 2. I would never worry about wearing clothes that might make me look too thin or overweight.

_____ 3. I wish I wasn't so up-tight about my physique or figure.

_____ 4. There are times when I am bothered by thoughts that other people are evaluating my weight or muscular development negatively.

_____ 5. When I look in the mirror I feel good about my physique or figure.

_____ 6. Unattractive features of my physique or figure make me nervous in certain social settings.

_____ 7. In the presence of others, I feel apprehensive about my physique or figure.

_____ 8. I am comfortable with how fit my body appears to others.

_____ 9. It would make me uncomfortable to know others were evaluating my physique or figure.

_____ 10. When it comes to displaying my physique or figure to others, I am a shy person.

_____ 11. I usually feel relaxed when it's obvious that others are looking at my physique or figure.

_____ 12. When in a bathing suit, I often feel nervous about how well proportioned my body is.

Appendix 2.8

Thank you very much for your participation and please do not hesitate to contact me with any issues you may have arising from the questionnaires. If you feel you have been affected by any of the issues raised in the questionnaires, please tear away and keep this page.

I have included links to various websites below which have contact information if you feel you need to talk to someone. My e – mail address is [redacted]

Patrick Gilhooley

www.samaritans.org/talk_to_someone/find_my_local_branch/ireland.aspx helpline: **1850 60 90 90**

www.aware.ie/ helpline: **1890 303 302**

www.mentalhealthireland.ie/links-mainmenu-23/19-anxiety-panic-attacks-ocd

ie.reachout.com/inform-yourself/anxiety-panic-and-shyness/social-anxiety/