

**Can self-esteem and locus of control predict impulsivity?**  
**Including effects of gender and age.**

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<b><u>Contents</u></b>	<b><u>Page</u></b>
<b>Acknowledgements</b>	<b>2</b>
<b>Abstract</b>	<b>3</b>
<b>Chapter 1: Introduction</b>	<b>4</b>
<b>Chapter 2: Methodology</b>	
<b>Chapter 3: Results</b>	
<b>References</b>	
<b>Appendices</b>	

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## **Abstract**

This study examined the underlying factors that predict impulsivity; self-esteem, internal, chance and other/external locus of control, gender and age differences. There were one hundred and one participants, eleven were from 'Bodywhys' eating disorder support groups, forty were from a national badminton centre and also fifty non psychology students. All participants were given a questionnaires booklet containing three questionnaires. The first questionnaire was the Rosenberg self-esteem questionnaire, followed by the Barrats impulsiveness scale then finally the multidimensional locus of control scale. Also age and gender were got from the participants. Two hypotheses was supported that self-esteem, internal, chance, other/external locus of control were correlated to impulsivity. Also that other/external locus of control and self-esteem attributed for 36% of variance in impulsivity. There were experimental issues and future recommendations mentioned in this study.

## **Introduction**

The following literature review will comprise of the issues surrounding impulsivity, self-esteem and locus of control in the Irish male and female population. It will also relate to age, gender and impulsive behaviours. Also other effects of impulsivity will also be discussed in the study such as body image. A study by Speck, Gray & Ahrens, (2004), examined the depiction of the ideal female body shape between the years of 1959 – 1999 stating “body size for fashion models decreased significantly during the 1980’ and 1990’s”. Alongside this they found that more flesh was revealed during these years and that with the increase on these thin images that eating disturbances were on the rise, as high value was placed on women to be thin in America. Andrist, (2003), also found that there was a decrease in female body weight and shape in the media in the last thirty years.

There are many attributes to body image issues but the most empirically researched is the socio-cultural model. Female beauty has been defined by thinness which is supported by the popular media ideals (Cusumano & Thompson, 1996). This leaves young men and women feeling the burden, of the overwhelming bombardment of media images which are portraying the desirable ‘ideal’. This pressure can have negative effects on the individuals ranging from low self-esteem, body dissatisfaction and depression (Ricciardelli & McCabe, 2001). “Body dissatisfaction is increasing among women all over the western world” (Glauert, Rhodes, Byrne, Fink & Grammer, 2009, p. 445).

With an increasing pressure on young males and females to be an ideal shape and weight, it’s giving rise to a number of eating related disorders. An eating disorder refers to a complex, potentially life-threatening condition, characterised by severe disturbances in eating behaviours (Fairburn & Harrison, 2003). “The eating disorder can be seen as a way of coping

with emotional distress, or as a symptom of underlying issues for the individual” (Bodywhys; The eating disorder association of Ireland [DOHC], 2012).

Causal factors of eating disorders have been stated to range anything from low-self esteem, low internal/external locus of control (depending on characteristic of eating disorder), traumatic life events or change, negative body image/body dissatisfaction and the mass media (Levine & Murnen, 2009). Eating disorders span from anorexia nervosa, which is a refusal to eat usually accompanied by intense exercise, calorie counting and laxative use. Death from anorexia is often seen when the patient cannot beat the illness. Weakness or loss of hair is seen and body hair production all over the body is increased, this is due because the body is constantly cold due to the lack of fat (Akan & Grilo, 1995). Bulimia nervosa is a binge and purge disorder, where the patient may binge on a high volume of food over a short period of time and then induce vomiting. The patient may go for several days on a restricted diet and then start the cycle all over again. Individuals are usually of normal or just above normal weight, so it can be harder to detect the eating disorder (Andrist, 2003). There is also binge eating disorder, which is seen as erratic eating behavioural patterns in individuals. The individual will consume large quantities of food without purging, the binge will be followed by feelings of self-hatred and weight gain (Cassin & VonRanson, 2005).

In the last thirty years the average sizes of fashion models have decrease along with the amount of skin on show. It was been documented the link between media images and eating disorders. Eating disorders are caused by many factors including self-esteem, locus of control, negative body image, mass media and body dissatisfaction. The three main eating disorders are anorexia nervosa, bulimia nervosa and binge eating disorder.

Eating disorders are seen to be not solely just about the food but as the individuals underlying coping mechanism to the stresses they face in the world (Troop 1998). People deal with stress differently and people have different coping mechanisms. People with an eating disorder can be organized and categorized by personality traits and coping strategies (Jauregui- Lobera, Estebanez, Santiago Fernandez, Alvarez Bautista & Garrido, 2009). It was reported that inadequate coping strategies centred on emotions, could be a risk factor for developing an eating disorder. Wonderlich, Crosby, Mitchell, Thompson, Relin, Demuth, Smyth & Haseltine., (2001) found a correlation between child sexual abuse and the development of an eating disorder later on in life. This was more prevalent in behaviours such as bulimia nervosa and bingeing or disordered behavioural patterns. Sansone & Sansone (2007) conducted a meta-analysis on the area of childhood trauma and eating disorders. Finding that childhood trauma increased the risk of developing borderline personality disorders and subsequent eating disorders particularly in women who were abused. Women's perceptions of body normality and the 'ideal' body differ greatly (Glauert *et al.*, 2009, 444). Women who report higher levels of body image dissatisfaction and dieting also report poorer self-esteem (Cusumano & Thompson, 1997).

The eating disorders are the coping mechanisms for the individuals who suffer from the eating disorder. When stressful life experiences arise the individual does not have adequate coping strategies. There are many causal factors when developing an eating disorder, some studies have found child abuse victims are at high risk factor. Some women's ideas of what are the norms in terms of body shape are warped. A link between dieting, poor self-esteem and body dissatisfaction was found.

“That myths can persist despite conflicting evidence is illustrated by the robustness of the belief that television and other mass media have sizable impacts on the public’s thought, feelings, and action even though most empirical studies indicate small negligible effects. The general acceptance of the myth of sizable media impacts is understandable because it seems commonsensical and serves the needs of media friends and foes alike” (McGuire, 1986, p. 174). Pressures from the media to be thin are everywhere, from the television we watch, to the advertisement boards around our towns. Music videos are becoming more explicit and portrayed in them are especially thin women (Reaves, Hitchon, Park, & Yun, 2004) and muscular, toned men (Leit, Gray, & Pope, 2002). To be thin is seen to be in control and to have power. It is deemed to be more attractive to be slender and in control on one’s own weight. Looking at these ‘perfect’ women had made women more prone to dieting and lead to a higher level of body anxiety (Hafner, Jagsch, Kund, Mager, Turk Pereira & Zimmermann, 2008; Fichter, Halmi, Kaplan, Keel, Mitchell, Rotondo, Strober, Woodside, Kaye & Bulik, 2008; Kelleh & Bolton, 2009).

Lew, Mann, Myers, Taylor & Bower (2007), examined the thin ideals of the media and its subsequent body dissatisfaction in females. It found that the images that the women saw in the media, increased their body dissatisfaction. The subjects were already women who had reported higher levels of body image issues. Their measures were the eating disorders inventory and the body dissatisfaction subscale. Participants were screened using an eating disorder body dissatisfaction self-report subscale and subjects were selected if they scored in the top third. Fifty one subjects were in the intervention group and forty five were in the control group. Both groups were shown images of females from popular fashion magazines (Cosmopolitan and Vogue). In the intervention group they wrote about the images and described non appearance dimensions and the control group wrote describing the models. It found that by using downward social comparison, women who had increased trait body



dissatisfaction could protect themselves from the negative effects of viewing the images by writing.

Humans constantly strive to have the perfect body, “in a consumer culture, the body becomes a vehicle for both the display of pleasure and the experience of pleasure.... within consumer culture, advertisements, the popular press, television, motion pictures provide a proliferation of stylized images of the body” (Johnston, 2001, p. 79-80). People get obsessed with how they look with a constant comparison to the visual images around. “Body image relates to their personal mental idea about his or her appearance physically, made up from many external influences” (Steese, Dollette, Phillips, Hossfeld, Matthews & Taormina (2006, p. 55-56). When this body image concern, reaches an abnormal level it can give rise to a number of problems for the individual. Self loathing is a common by-product of obsessing over body image (Beam, Servaty-Seib & Mathews, 2004).

Monteath & McCabe, (1997), looked at the factors placed by our cultural society on the female body image. In this paper their variables were self-esteem, locus of control and age. There were one hundred and one participants and participants had a mean age of twenty five years. The measures used were the body esteem scale, appearance evaluation subscale and body self relations questionnaire. Astonishingly women thought and perceived that they were four per cent heavier or bigger than they actually were. The variable locus of control didn't affect the prediction of body dissatisfaction but society, self-esteem and the individuals' body mass index did help define it (Lacey & Read, 1993). In an interesting study Fernandez- Arand, Crespa, Jimenez-Murcia, Krug & Vollejo-Ruiloba (2006) was the first study to examine bulimia sufferers who were blind. Considering visual perception of one's body image can lead to the predisposition of an eating disorder. It was found that people who had a handicap were also affected by eating disorders. The eating disorder becomes their way

of coping with their stress. So visual perception seemed to have no effect on the development of an eating disorder, and maybe is seen as the patient's way of controlling a certain aspect of their life.

As stated above there are pressures from the media to look a certain way. Review of the literature would suggest that a risk factor for developing an eating disorder is the mass media. Images depicting extremely thin models are giving rise to body image dissatisfaction and low self-esteem. Males and females are affected by these images, as portrayal of the ideal body is constantly bombarding society.

Impulsivity has been strongly related to body image and eating disorders (Littleton & Ollendick, 2003; Wiederman, 2000; White & Grilo, 2005; Hutchinson & Rapee, 2007). Independent research on impulsivity, are hard to find without body image or eating disorder involvement. Impulsive behaviours range from excessive spending, dis-inhibited sexual behaviour, excessive alcohol consumption and self harm. Impulsivity can be characterized by an action that is carried out suddenly without the thought of the future consequences, its rash and spontaneous as if the individual feels compelled. Impulsive behaviours are usually seen as dangerous actions and an openness to try new, perhaps risky behaviours such as drink driving, fighting, compulsive shopping, unprotected sexual intercourse, addictive gambling, excessive alcohol, stealing or drug use (Whiteside, Lynam, Miller & Reynolds, 2005; Miller, Flory, Lynam & leukefeld, 2003). These negative impulsive behaviours can lead to people being in contact with the law.

Mathias, Marsh-Richard & Dougherty, (2008), examined behavioural measures and the law. The participants were individuals who had been in contact with the law, and they found the main behavioural component of breaking the law was a lack of self-control which

was found to be impulsivity. Other bad by-products of impulsivity were found to be depression (Quinn, Stappenbeck, & Fromme, 2011). Gonzalez, Skewes & Reynold, (2011), studied the role of impulsivity and its relationship on depression and alcohol levels. Out of one hundred and forty three male and female participants they found that aspects of impulsivity such as sensation seeking, lack of perseverance and lack of premeditation, increased alcohol and depression levels in college students. The UPPS impulsive scale was used in this study.

Engel, Corneliussen, Wonderlich, Crosby, Grange, Crow, Klein, Bardone-Cone, Peterson, Joiner, Mitchell & Steiger (2005) found impulsivity and compulsivity was found in bulimia nervosa patients. Also present was abnormalities in depression, substance abuse, eating pathology and personality. Ravindran, Silva, Ravindran, Richter & Rector, (2009), found that the term obsessive compulsive disorder had a few other branches, body dysmorphic disorder and compulsive buying, kleptomania. Researchers found that serotonin re-uptake inhibitors had improved benefits on these behaviours with particular reference to body dysmorphic disorder patients. Hollander (2005) also found an obsessive-compulsive disorder spectrum. Impulsive disorders such as self injury, kleptomania and sexual compulsion, along with obsession over physical appearance, anorexia and body dysmorphic disorder were included.

Pechmann, Levine, Loughlin & Leslie (2005) found that teenagers are more likely to part-take in impulsive behaviours. They stated this is due from their brains changing quickly and that constantly makes them flexible. They are more influenced by media images for example. Their prefrontal cortex, are not fully developed until late adolescence or even early adulthood. Teenagers have many more cognitive weaknesses when compared to adult cognitive functioning and the example being the frontal lobe executive function. Other

deficiencies are visuospatial, verbal memory and reaction time slowing. The decreased inhibitory control causes these impulsive behaviours and emotions lead to reckless and risk seeking behaviours. These behaviours include unprotected sex, drug and alcohol abuse, driving under intoxication, fighting, theft, disobeying parents and school misconduct (Campbell & Muncer, 2009).

Finzi-Dottan & Zubery (2009), compared bulimia nervosa and anorexia nervosa sufferers and their impulsive patterns. They found impulsive behaviours and negative body image were notably higher in bulimia nervosa sufferers, although it was found in both groups. There were one hundred and sixty nine female eating disorder outpatients. Also seen was depression, anxiety and negative body image which then gave rise to impulsivity in bulimia sufferers. Scherr, Ferraro & Weatherly (2010), found that individuals who were clinically predisposed to an eating disorder had higher levels of anxiety and their behaviour was generally led by impulsivity.

There has also been an established link between impulsive behaviours and poor body image (Pompili, Girardi, Tatarelli, Ruberto & Tatarelli, 2006). Fernandez-Aranda, Pinheiro, Thornton, Berrettini, Crow, Fichter, Kaplan, Keel, Mitchell, Rotondo, Strober, Woodside, Kaye & Bulk (2008, p. 148), found women with eating disorders usually have impulsive disorders. Compulsive spending were found to be common in people with binge eating disorders. Also noted was increased substance abuse. This point was also found by Faber, Christenson, De Zwaan & Mitchell, (1995, p. 295-296). Substance abuse has been associated with poor body image and disordered eating patterns (Kelleh & Bolton, 2009). Also found was a correlation between alcohol use, impulsivity and body image and related eating and diet behaviours in males and females.

Impulsivity has been seen to be involved in many aspects, ranging from reckless and dangerous behaviours such as drink driving, unprotected sex, drug abuse and gambling to name a few. Impulsivity has also been linked to poor body image and eating disorders, especially present in bulimia nervosa patients.

“Self-esteem is a hypothetical construct that is quantified as the sum of evaluations across salient attributes of one’s self or personality. It is the overall affective evaluation of one’s own worth, value or importance. This conception underlies the assumption that measuring attitudes toward, or evaluations of one’s self reflects a person’s self-esteem” (Robinson, Shaver & Wrightsman, 1991, p.115). Individuals self-esteem are intrinsically linked to their personal body image and how they look (Kostanski & Gullone, 1998).

Female self-esteem is most at risk of vulnerability during early teens, paving the way for future problems, if it’s dented along the young woman’s life. “Self-esteem is a broadly defined personality variable referring to the degree to which an individual values and accepts him or herself” (Chubb, Fertman & Ross 1997, p. 52). A good base of self-esteem is developed at adolescence and leads to a positive life outlook and body perception. Steese *et al.*, (2006, p. 56), noted that females with lower self-esteem are more likely to partake in negative impulsive behaviours, such as alcohol and drug abuse, teen pregnancy and depression to name a few. Negative or low self esteem can lead to poor body image that can therefore lead to an eating disorder (Akan, 1995). Chubb, Fertman & Ross, (1997), stated that perception of physical appearance and lack of control has been seen as a factor to predicting self-esteem. High self-esteem is seen as a big predictor for a good satisfied life (Grossbard, Lee, Neighbors & Larimer, 2009).

Pokrajac-Bulian & Zivcic-Becirevic (2005), looked at self-esteem, locus of control, gender differences and body dissatisfaction. There were one hundred and eighty three males and five hundred and thirty four females, with an average age of twenty one years. The measures used were the Body shape questionnaire, Rosenberg self-esteem scale and the Externality scale. They found significant differences on all measures between men and women. Predictability body dissatisfaction and external locus of control was highest in females and self-esteem was highest in males. Grossbard *et al.*, (2009), also found self-esteem was lower in women but that men were also unhappy with a lack of muscularity.

Mellor, Fuller-Tyszkiewicz, McCabe & Ricciardelli , (2010), found that body dissatisfaction was positively correlated with low self-esteem and women were more unhappy with their bodies but that males were more concerned with physical looks. The measures were the Rosenberg self-esteem scale, Body image and Body change inventory and the body dissatisfaction scale. Johnson, Tobin and Dennis (1990) reported that there was a difference in borderline and non-borderline bulimics. Patients who had borderline personalities were more likely to indicate erratic eating patterns. Borda Mas, Navarro, Jimenez, Perez & Sanchez (2011), examined personality and perfectionism and its association between personality traits and eating disorders. They found an association and that self-esteem and borderline personality traits seemed to be the main variables for eating disorders. There were one hundred and fifty five women altogether, ninety three had an eating disorder and thirty one were at a high risk of developing one. The measures they used were the Body shape questionnaire, Eating attitudes test and the Eating disorder inventory.

Review of the research suggests that having poor or low self-esteem can lead to having poor body image, eating disorders and impulsive behaviours. Females appear to have lower levels of self-esteem when compared to men. Self-esteem, was reported to be most at

risk during the individual's adolescent years. Low self-esteem from teenage years seemed to predispose the individual to body image and behavioural issues later on in life.

In 1954 Julian B Rotter developed the concept of locus of control. Locus of control refers to the individual's belief that they can control their own life events. There are three different types of locus of control, internal, chance and other/external locus of control (Pokrajac-Bulian & Zivcic-Becirevic, 2005). Internal locus of control refers to the person thinking and believing that they are in control of their life. Chance locus of control means that the individual believes that their luck is down to chance and other/external locus of control is when the individual attributes the environment, a higher power, or other powerful people that are in control of them (Brosschot, Gebhardt, & Guido, 1994). Locus of control and self-esteem are said to be socially learned by the individual and developed throughout life. "Internal locus of control is defined as the perception that events are contingent on one's own behavior or one's own permanent characteristics, while external control is characterized by the feeling that outcomes are more a result of fate, luck, chance, or control of powerful others or are unpredictable due to the complexity of situations" (Clarke, 2004, p. 320).

A study by Kappes & Thompson, (1985) found that poor impulse control, low self-concept and external locus of control were found in juvenile delinquents. By implementing self-regulation skills and exercising self-control in times of stressful situations this improved impulsivity behaviours by using biofeedback training. "Hyperactivity, poor self-concept, perceived external locus of control, and impulsivity are personality determinants likely to contribute to delinquent behavior, then perhaps behavioral programs designed to emphasize personal and direct influence over specific outcomes may encourage responsible behaviours" (Kappes & Thompson, 1985, p. 699). Gilmore (1978) also supports the research that locus of control is a mediator for certain behaviour traits in children and adolescents.

Locus of control is imperative for a number of other tasks, impulsive and illiterate adolescents were given short therapy sessions to improve reading. The therapy was specifically focused on building up self-esteem and internalized locus of control. Results indicated a vast statistical significant improvement in the adolescents reading abilities Galbraith, & Alexander, (2005). Pokrajac-Bulian & Zivcic-Bocirevic (2005) found that Croatia female college students exhibited body dissatisfaction and also found was low locus of control and especially low self-esteem. Thoresen (2002) conducted a meta-analysis looking at whether self-esteem, locus of control and neuroticism were predictors of the same construct. Review of the research showed that locus of control and self-esteem were strongly related personality traits and that they were from the same higher order.

For locus of control and gender differences a study by Wenzel (1993), examined what the predictors for locus of control from gender and ethnic groups were. This study found that black women held chance or other locus of control higher then when compared with white women. Women were found in the majority of research to have higher other or external locus of control than men (Kliewer & Sandler, 1992; Chubb, Fertman & Ross, 1997). Locus of control is a person's belief that they have an influence over their own experiences. Parsons & Betz (2001), looked at locus of control in young women, and found body shame and locus of control was high, in those who were involved in stereotypical feminine sports such as gymnastics and synchronised swimming or ballet dancers.

Groth-Marnat & Scumaker (1988) found no correlation between locus of control and food intake. They had one hundred and one college students who participated. They were administered an Eating attitude test, a Golffarb fear of fat scale, age, current/past weight and



socioeconomic status. The degree of control and length of design may have had an effect on a lack of correlation found. Steese *et al.*, (2006, p. 56), carried out research on self-esteem, locus of control, self-efficacy, body image satisfaction and social support on girls. They found that increased social support, self-efficacy and improved perception of body image improved young women's attitudes towards themselves. Studies have found that low self-esteem paves the way for bad physical and mental health, eating disorders, impulsivity and anti-social behaviour (Erol & Orth, 2011; Cassin & Von Ranson, 2005; Benjamin & Wulfert, 2005).

Locus of control refers to the individual's belief that they are in control of their own fate. More specifically internal locus of control means the person feels that they are in control of their life whereas other or external locus of control means that the person believes that they are not in control over what happens in their life. Studies have found a correlation between low internal locus of control, low self-esteem, low body image and bulimia nervosa. Women have also been found to have higher levels of external/other locus of control when compared to men.

Previous research has mainly centred on female body image concerns. It has only been relatively recently that male body image issues have started to be addressed. Beforehand it was thought that it was only women who seemed to be constantly unhappy with their physical appearance. Men are constantly being portrayed in the media as the strong providers, with muscular physiques (Elliott & Elliott, 2005; Burgess, Stermer & Burgess, 2007). When faced with reality, they are just as concerned about their body hang-ups, height and un-toned limbs. McCaulay, Mintz & Glenn (1988) found that obsession over image and weight preoccupied both males and females. Men are seen to have a different model when it comes to body discontent when compared to women. Men are affected by exposure to material and

the individuals own body mass index and from that they make a visual and mental comparison (Jonason, Krcmar & Sohn, 2009). Conflicting to this is Slane, Burt & Klump (2010), who stated that men have the same internal and external symptoms as women. This research suggests that targeting both sexes in treatment and prevention programs would be beneficial. Also seen was more aggression and hyperactive external behaviours from men and alcohol was more prevalent in women with eating disorders.

Furnham & Greaves (1994), found men and women were different with respect to how and where they are dissatisfied with their bodies. Women were more depressed and had an overall lower level of self-esteem which was directly related to body dissatisfaction, which supports cultural stereotypes. Pope, Olivardia, Gruber & Borowlecki (1999), looked at male's body image in relation to young boys' action toy figures. They found that men were affected by their earlier years of play with toy action dolls. The dolls had increased muscularity and left some males with body image complexes, which could then therefore predispose them to an eating disorder. The research above suggests that this all adds to the cultural expectations placed on the individual on how they should look physically (Pope *et al.*, 1999).

“Men engage in impulsive and risky behaviours more frequently than women” (Cross, Copping & Campbell, 2011). These authors investigated the gender differences in impulsivity behaviours, in the field of literature (Cloninger, 1986; Campbell & Muncer, 2009; Carver, 2005; Gray & McNaughton, 2000). The three main areas that were examined were reward hypersensitivity, punishment hyposensitivity and inadequate effort control. Review from the research suggested that men had higher levels of risk taking and sensation seeking. Women though are more punishment sensitive. Overall there are differences in motivational rather than effortful forms of behavioural control (Carver, 2005).

There was limited research on the correlation between males and body image disturbances. The majority of the research cited that females were more prone to body dissatisfaction. Men were faced with muscular toy doll when growing up and this left some individuals with body complexes. The research stated that men were more likely to partake in impulsive negative behaviours than females.

As mentioned above there was a strong, well established relationship between impulsivity and body image. Impulsivity plays a big role in the research around eating disorders. Prior research examined the relationship with regards to impulsivity and body image. This research sets out to try and understand and predict impulsivity because of its role in predicting body image. What are the factors related to impulsivity? The outcome of this study would contribute to the ever expanding field of impulsive disorders and how self-esteem and locus of control affect it. Results of this study may help future treatment of destructive impulsive behaviours as they can be damaging to the individual. By investigating interaction of these variables (self-esteem, locus of control, gender and age), then what in predicts impulsivity maybe achieved.

To date there are limited studies that link self-esteem, locus of control, impulsivity, age and gender. Beautrais, Joyce & Mulder (1999), examined personality traits and cognitive styles as risk factors for serious suicide attempts. They found that the individuals had low self-esteem, impulsiveness and external locus of control. Feingold (1994) examined if there were gender differences in personality. The research found that men had significantly higher levels of self-esteem and females were more extroverted. Although, there were no differences in impulsiveness and locus of control, between the sexes. There were no differences in personality across different age groups. Therefore the present study will examine the effects of these variables with a mixture of eating disorder, sports and college participants. There is a

gap in the research regarding these variables collectively and research regarding the male population is severely lacking in this line of research (Castellani & Rugle, 1995). Also stated above was that impulsivity is a common personality trait of delinquents and individuals in trouble with the law. If certain aspects of impulsivity can be isolated then maybe behavioural programs for individuals that are beginning to show signs of negative behaviours could be implemented following results of this study. Treatment of impulsive disorders should also include other underlying issues such as self-esteem and locus of control. As stated above some research has looked at one or two of these variables on their own and have used some different and some similar measures or levels, that will be used in this present study.

It is hypothesized that males will exhibit statistically significantly higher levels of impulsivity than females, and that the 18-25 year old participants will report higher scores than the 26-40 year old participants. The second hypothesis is that males will exhibit statistically significantly higher levels of self-esteem than females, and that the 18-25 year old participants will report lower scores than the 26-40 year old participants. The third experimental hypothesis is that males and females will report statistically significant different levels of locus of control. It is the fourth hypothesis that self-esteem, internal locus of control, chance locus of control, other locus of control, and age will be statistically significantly correlated to levels of impulsivity. Finally hypothesized is that levels of self-esteem will still make a statistically significant contribution to the prediction of impulsivity scores after the effects of locus of control have been controlled for, and that the model as a whole will explain a substantial level of variation in scores on impulsivity for the current sample.

## Methodology

### Apparatus

**Rosenberg Self-Esteem Scale (Rosenberg, 1965).** This questionnaire was a ten item Likert scale with answers on a four point scale. The participant had an option of four possible answers ranging from strongly agree, agree, disagree to strongly disagree. A mark of three was given for strongly agree, two given for agree, one for disagree and a zero for strongly disagree. The Rosenberg Self-Esteem Scale is a self-esteem measure which was developed by sociologist Dr. Morris Rosenberg. There are five positively and five negatively worded questions. The questionnaire was easy to read and quick to complete which adds to its adaptability. See Appendix B

**Barrat impulsiveness scale (version 11) BIS 11.** This questionnaire contains a thirty item scale. Participants had a choice of four options ranging from rarely/never, occasionally, often and almost always/always. Rarely/never is appointed a mark of one, occasionally is marked a two, often is a three and almost always/always is appointed a mark of four. The information for the subject was that the questionnaire tests how the person thinks and acts. They were told to answer the questions quickly without dwelling on them. The Barrat impulsiveness scale measures impulsive personality traits. Its measures range from first order factors such as attention, motor, self-control, cognitive complexity, perseverance and cognitive instability impulsiveness. The three second order factors are attentional, motor and non planning impulsiveness. When the answers were calculated the total score indicates whether the participant had high or low impulsiveness. See Appendix C

**Multidimensional Locus of Control Scale.** There are three subscales with six items each with eighteen items in total. The measure of locus of control had three components which are internal locus of control, chance locus of control and others/external locus of control. The participant had the option of six answers ranging from strongly disagree which was awarded a mark of one, moderately disagree with a mark of two, slightly disagree with a three, slightly agree had a four, moderately agree with a five and strongly agree marked with a six. See Appendix D

**Demographic variables.** Three questions were also added at the beginning of the questionnaires, regarding the participant's age, gender and nationality as all participants had to be of Irish nationality. See Appendix B

### **Participants**

There were one hundred and one participants in this study. There were eleven participants from an eating disorder group, forty from a national badminton sports club and fifty non psychology students. There were both male and female participants ranging from the age of 18 – 38 years of age. The mean age of the participant sample was 23.52 years.

Bodywhys, the eating disorder association of Ireland was where the eleven participants were chosen from. Questionnaires were sent out to the support groups from Dublin, Galway and Carlow for a wider sample. The participants belonged to an eating disorder support group held by the organisation. The forty Irish national team badminton participants were chosen at random in a club in North Dublin, Ireland. Finally, the fifty non psychology student volunteers were randomly chosen from Dublin Business School. All participation was optional and subjects had the right of withdrawal and anytime during the testing. Full consent was given alongside the explanation of the study. See Appendix A

## **Design**

A between participants design was used in this study. The variables that were reported were impulsiveness, self-esteem, locus of control, gender differences and age. These variables were reported using standardised questionnaires with all participants completing the same questionnaires. In this study the dependent/criterion variable was the participant's impulsivity and the independent variables were self-esteem, internal locus of control, external locus of control, other locus of control, gender and age.

## **Procedure**

The eating disorder participants were contacted through support groups and the questionnaires were given out by the support group facilitators. The questionnaires were concealed in a stamped and addressed envelope. The questionnaires were placed on the floor beside the group's chairs and the individuals could pick up the envelopes if wanted. This was to ensure they could fill it out in their free time, when they felt secure and could fill out the questions as honestly as possible. The questionnaires were ordered in a way so that the participant could not anticipate what answers were required of them. The badminton sports team were administered the questionnaires in person. The club was informed of the experiment and the length time of completion. The questionnaires were collected three hours after initial hand-out. The Dublin Business School students were approached similarly to the badminton club participants except some participants would hand their questionnaires back over a period of three days. This was to ensure honestly answered questions. The cover letter informed the participant that the questionnaire will take twelve to fifteen minutes to complete and that it was only for people of Irish nationality. They were informed that the study was carrying out research on impulsivity, self-esteem and control in men and women.

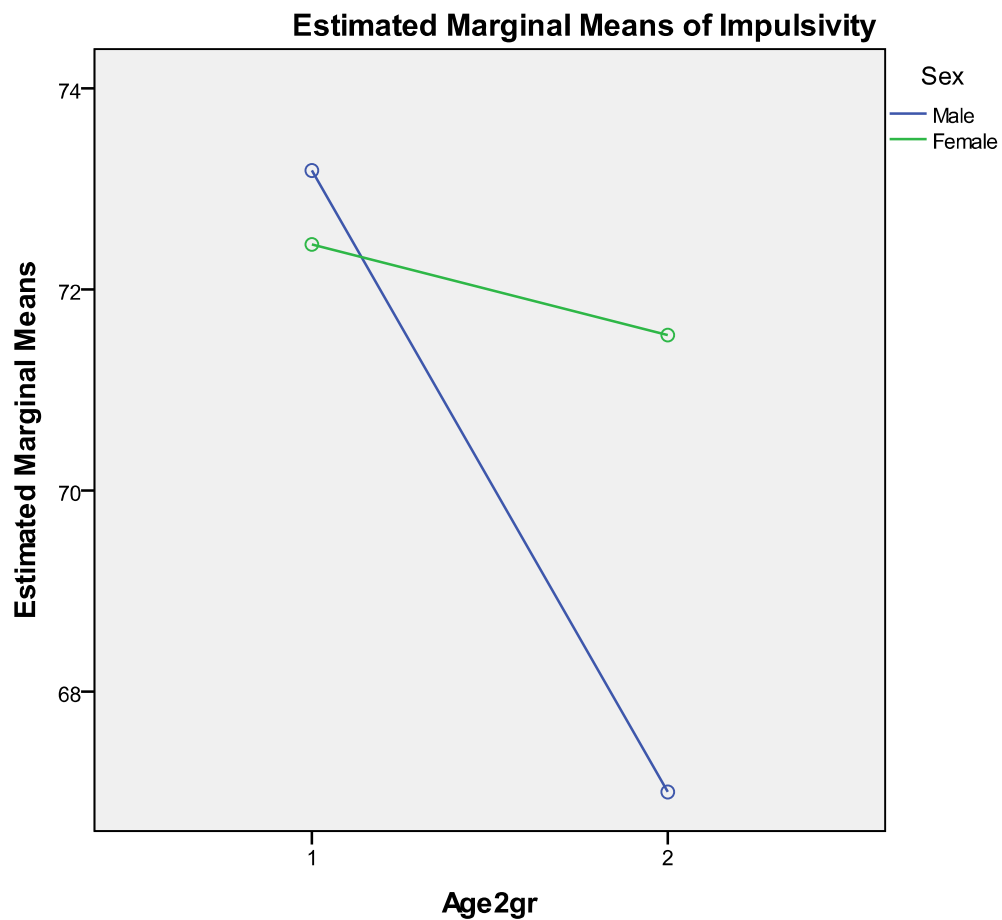
## **Results**

Table 1 below lists the Descriptive statistics, including means (M) and standard deviations (SD), for each of the variables investigated in the current study are presented in Table 1. The mean scores reported in table 1 indicate that participants in the current study exhibited low levels of impulsivity and possessed reasonably high levels of self-esteem. On the whole, respondents had low-to-moderate levels of internal, chance, and other-locus of control, respectively.

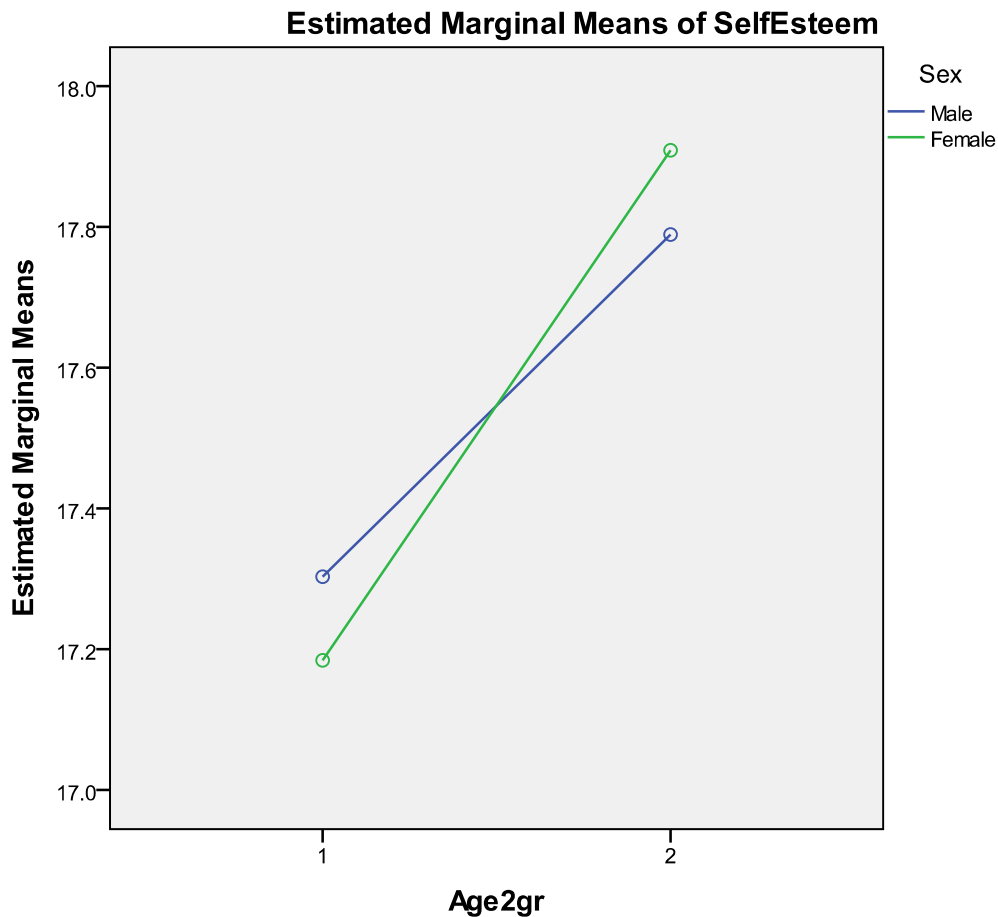
The first aim of this research project was to explore for gender and age differences in levels of impulsivity and self-esteem. In order to empirically investigate this research aim, two separate two-way between-groups analysis of variance tests were conducted. In order to control for the increased likelihood of making a Type 1 error as a result of running multiple test on the same data, a Bonferonni adjustment method was applied to the significance level ( $0.05 / 2$ ). In the case of the first two hypotheses, differences between groups, and interaction effects, were only considered to be statistically significant below a P value of 0.25.

The first hypothesis of the current study stated that females would exhibit statistically significantly higher levels of impulsivity than males, and that the 18-25 year old participants would report higher scores than the 26-40 year old participants. In order to investigate this research hypothesis a two-way between groups analysis of variance was carried out. Participants were divided into two groups according their age (18-25 year olds and 26-40 year olds). The interaction effect between gender and age was not statistically significant  $F(1, 97) = .76, p = .39$ . No statistically significant main effect for gender  $F(1, 97) = .40, p = .53$  was observed and the main effect for age also did not reach statistical significance  $F(1, 97) = 1.37, p = .25$ . These results fail to support the study's hypothesis that there would be statistically significant main effects for gender and age.





The second hypothesis of the current study stated that males would exhibit statistically significantly higher levels of self-esteem than females, and that the 18-25 year old participants would report lower scores than the 26-40 year old participants. In order to investigate this research hypothesis a two-way between groups analysis of variance was performed. Participants were divided into two groups according to their age (18-25 year olds and 26-40 year olds). The interaction effect between gender and age was not statistically significant  $F(1, 97) = .01, p = .93$ . No statistically significant main effect for gender  $F(1, 97) = .18, p = .67$  was observed and the main effect for age also did not reach statistical significance  $F(1, 97) = .00, p = 1.00$ . These results fail to support the study's hypothesis that there would be statistically significant main effects for gender and age.



The second aim of the current study sought to explore for gender differences in each of the three locus of control factors. In order to investigate this research aim, a multivariate analysis of variance (MANOVA) was carried out. The third hypothesis of the current study stated that male and females would report statistically significantly different levels of locus of control. In order to test this research hypothesis a one-way between-groups multivariate analysis of variance was performed. Three dependent variables were used: internal locus of control, chance locus of control, and other locus of control. The independent variable was gender. Preliminary analyses were performed to ensure that no violations of normality, linearity, univariate and multivariate outliers, homogeneity of variance-covariance matrices, and multicollinearity. There was no statistically significant differences between males and females on the combined dependent variables,  $F(3, 97) = .28$ ,  $p = .84$ , Wilks' Lambda = .991,

partial eta squared = .01. Results from the MANOVA failed to provide support the study's third hypothesis.

The third aim of this project was interested in explaining levels of impulsivity by developing a theoretical model including a number of measured variables included in this study. Each of the variables included in the current study was selected on the basis of their theoretical relationship with impulsivity, therefore each of the variables were correlated with impulsivity to determine the most parsimonious theoretical model possible. The fourth hypothesis of the current project stated that self-esteem, internal locus of control, chance locus of control, other locus of control, and age would be statistically significantly related to levels of impulsivity. In order to investigate this research hypothesis a Pearson's product moment correlation coefficient test was carried out. As described in Table 1, Self-esteem ( $r = -.45, p < .01$ ), internal locus of control ( $r = -.46, p < .01$ ), chance locus of control ( $r = .41, p < .01$ ), and other locus of control ( $r = .35, p < .01$ ) were all statistically significantly related to impulsivity. As such, these four variables were retained for inclusion in the regression model.

Table 1. Descriptive statistics, reliability, and correlations for all continuous variables

Variables	Imp	SE	I-LOC	C-LOC	O-LOC	Age
Impulsivity (Imp)	1					
Self-Esteem (SE)	-.45**	1				
Internal Locus of Control (I-LOC)	-.46**	.35**	1			
Chance Locus of Control	.41**	-.30**	-.71**	1		
Other Locus of Control	.35**	-.14**	-.28**	.35**	1	
Age	-.15	.02	.11	-.11	.06	1
<i>Means</i>	71.56	17.42	45.74	47.02	43.70	23.52
<i>Standard Deviations</i>	13.51	6.27	10.24	11.15	11.03	4.06
<i>Range</i>	40-113	0-30	12-72	14-72	13-72	18-38
<i>Possible Range</i>	30-120	0-30	12-72	12-72	12-72	n/a
<i>Cronbach's Alpha</i>	.87	.91	.82	.87	.84	n/a

Note. Statistical significance: \* $p < .05$ ; \*\* $p < .01$ ;

Given that so much evidence exists suggesting an association between self-esteem and impulsivity, hierarchical multiple regression analysis was selected in which self-esteem was entered into the regression equation subsequent to the entry of the three locus of control factors.

The fifth research hypothesis stated that levels of self-esteem would still make a statistically significant contribution to the prediction of impulsivity scores after the effects of locus of control had been controlled for, and that the model as a whole would explain a substantial level of variation in scores on impulsivity for the current sample. Preliminary analyses were carried out and demonstrated that there were no serious violations of the

assumptions of normality, linearity, and homoscedasticity. Additionally, the correlations amongst the predictor variables (internal locus of control, chance locus of control, other locus of control, and self-esteem) included in the study were examined and these are presented in Table 1. Although all independent variables were statistically significantly associated, most of these correlations were weak-to-moderate with the exception of the association between chance locus of control and internal locus of control, which was high ( $r = -.71$ ). Inspection of the VIF and tolerance results however indicated that multicollinearity was unlikely to be a problem (see Tabachnick and Fidell, 2007).

In the first step of the hierarchical multiple regression model, three predictor variables were entered: internal locus of control, chance locus of control, and other locus of control. This model was statistically significant  $F(3, 97) = 11.89; p < .001$  and explained 27 % of variance in levels of impulsivity (Table 2). After the entry of self-esteem at Step 2 the total variance explained by the model as a whole was 36% ( $F(4, 96) = 13.22; p < .001$ ). The introduction of self-esteem explained an additional 9 % of variance in levels of impulsivity, after controlling for the three locus of control factors ( $R^2 \text{ Change} = .086; F(1, 96) = 12.83; p < .001$ ). In the final model two of the four predictor variables emerged as statistically significant predictors of impulsivity. The strongest predictor of impulsivity was self-esteem ( $\beta = -.31, p < .01$ ), followed by other locus of control ( $\beta = .22, p < .05$ ). These standardized beta values indicate that self-esteem scores have a weak-to-moderate predictive influence on levels of impulsivity, while other locus of control has a weak predictive effect on levels of impulsivity. These results also suggest that lower levels of self-esteem are predictive of higher levels of impulsivity, and higher levels of other locus of control is predictive of higher levels of impulsivity. Results from the hierarchical multiple regression provide support for the project's final hypothesis.

Table 2: Hierarchical Regression Model of Impulsivity

	<i>R</i>	<i>R</i> <sup>2</sup>	<i>R</i> <sup>2</sup> <i>Change</i>	<i>B</i>	<i>SE</i>	<i>β</i>	<i>t</i>
<b><i>Step 1</i></b>	.52	.27***					
Internal Locus of Control				-.42	.16	-.32*	-2.56
Chance Locus of Control				.14	.15	.11	.88
Chance Locus of Control				.27	.11	.22*	2.42
<b><i>Step 2</i></b>	.60	.36***	.09***				
Internal Locus of Control				-.30	.16	-.23	-1.94
Chance Locus of Control				.10	.15	.08	.69
Chance Locus of Control				.26	.11	.22*	2.46
Self-Esteem				-.68	.19	-.31***	-3.58

Note. Statistical significance: \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

## **Discussion**

The primary objective of this study was to try and establish the relationship between impulsivity, self-esteem and locus of control. To examine if impulsive behaviour could be predicted by self-esteem and locus of control. Also if there were a difference between the sexes and age groups in relation to this. The relationship between impulsivity and body image has been clearly documented (Littleton & Ollendick, 2003; Wiederman, 2000; White & Grilo, 2005; Hutchenson & Rapee, 2007). The purpose of this study was to try to predict and understand impulsivity due to the role it plays in predicting body image. This study set out to find the relating factors to impulsivity. Impulsive behaviours are seen as negative behaviours, having openness to trying new dangerous behaviours (Whiteside *et al.*, 2005; Miller *et al.*, 2003). There was a lack in the literature for studies on impulsivity, self-esteem, locus of control, age and gender (Joyce & Mulder, 1999; Feingold, 1994).

In this current study the mean scores indicate that participants showed comparatively low levels of impulsivity and relatively high levels of self-esteem across the sample. Also found in the mean score was low to moderate levels of internal, chance and other locus of control. This study examined five hypothesis regarding predictors of impulsivity. The first hypothesis was that impulsivity would be higher in males than in females and also that the younger group (18-25) year old participants would report higher impulsivity scores than the older group of (26-40) year old participants. The null hypothesis was accepted and the experimental hypothesis was rejected. This means that impulsivity was not statistically significantly higher in the male group as was hypothesised. There was also no statistical significance between the age groups with regards to impulsivity.

The second hypothesis stated that men would exhibit higher levels of self-esteem than females and that the younger group (18-25) years old would have statistically significant

lower levels of self-esteem than the older age group (26-40) years old. The second null hypothesis was also accepted in which there were no statistically significant results. Males did not have higher levels of self-esteem than women and the age groups were not statistically different either. The third assumption was that men and women would convey statistically significant different levels of locus of control. Of the three aspects of locus of control (internal, chance, other) there was no statistical difference between the sexes for locus of control.

The fourth experimental hypothesis was that the variables self-esteem, internal locus of control, chance locus of control, other locus of control and age would be statistically significantly correlated to levels of impulsivity. Here the experimental hypothesis was accepted. Self-esteem, internal locus of control, chance locus of control and other locus of control were all statistically significantly related to levels of impulsivity. The fifth hypothesis was stated that after locus of control variables had been controlled for that levels of self-esteem would still make a statistically significant involvement in the prediction of impulsivity scores. Also suggested was that the model (internal locus of control, other locus of control, chance locus of control and self-esteem) as a whole would explain a considerable level of variance on impulsivity scores. The experimental hypothesis was supported in this study. After the locus of control variable had been controlled for, self-esteem still made a statistically significant input into predicting variance in impulsivity levels.

The first factor hypothesis that was examined was whether men would have higher levels of impulsivity than females and that the younger age group would also exhibit higher levels of impulsivity. The experimental hypothesis was denied, the outcome of this result was good news compared too much of the research out there that states young men are highly impulsive (Crean, Richards & de Wit, 2002; Knop, Teasdale, Schulsinger & Goodwin, 1985).



Late adolescent deaths are on the rise due from careless and reckless driving, drug, drink abuse and misadventure. The fact that there were no differences in between the age groups suggests that the subject group were relatively stable. These results may have been due to the fact that all the participants had relatively low levels of impulsivity, high levels of self-esteem and low to moderate locus of control.

A methodological problem occurs here with regards to impulsivity. The participants were gathered from an eating disorder group, sports group and a non psychology student group. The eating disorder clinical sample did not specify which eating disorder they had. This would have disrupted the findings due to the fact that it has been well established that bulimia nervosa sufferers are much more impulsive when compared to an anorexia nervosa sufferer (Engel *et al.*, 2005; Fahy & Eisler, 1993). In this study the diagnostic category of the exact eating disorder was withheld. Also the eating disorder group were given out the questionnaires by the support group facilitator and were provided with a stamped addressed envelope. Only certain kinds of people are likely to respond to the questionnaires as they take time to fill out and then post.

The sports group may have exhibited low levels of impulsivity due to the fact that they were Irish international players. These participants are involved in rigorous and scheduled training every day. The characteristic qualities of professional athlete do not go hand in hand with the characteristics of someone who has impulsive behaviours, like binge drinking due to training commitments. Although the non psychology students group, in review of the research would suggest that impulsivity levels would be higher in this group (Quinn *et al.*, 2011).

The second hypothesis stated that men would show statistically significant higher levels of self-esteem than females and that the younger age bracket would exhibit lower levels of self-esteem. The null hypothesis was also accepted here, that there were no differences between gender and age groups. This is quite surprising as a vast majority of research supports the assumption that older age groups and men have higher self-esteem (Grossbard et al., 2009; Steese et al., 2006; Akan, 1995; Harter, 2000; Pokrajac-Bulian & Zivcic-Becirevic, 2005). As stated earlier the group had a rather higher over all self-esteem score. This may be considered due to the fact that there were forty sports participants. From prior research it has been positively correlated that exercise releases endorphins, therefore lifting the mood of the participant (Tiggemann & Williamson, 2000). This may account for the lack of lowered self-esteem in the individual groups. Higher confidence and self-esteem rates in this group could be attributed to the fact that there were only eleven from the eating disorder group and a bigger sample from the sports and college groups. High levels of self-esteem from the college sample could also be attributed to the fact that the participants were handpicked. It would be fair to say if the participant was in a good mood, then they were more likely to fill out the questionnaire on that particular day.

The third factor hypothesis was the assumption that men and women would show statistically significant differences in their levels of locus of control. In this model were three aspects, internal, chance or other/external locus of control. The results showed that there were no differences between men and women. The results of this study does not support the findings of (Kliwer & Sandler, 1992; Chubb, Fertman & Ross, 1997) who found that women had statistically significant higher levels of external/other locus of controls when compared to males.

The fourth hypothesis was that self-esteem, internal, chance, other locus of control and age would be significantly correlated to levels of impulsivity. It was found that there was a relationship between the self-esteem, internal, chance and other/external locus of control variables with levels of impulsivity. These results support a majority of the research (Beautrais & Joyce, 1999; De Neve & Cooper, 1998).

The fifth and final hypothesis was that when the variables internal, chance and other locus of control were controlled for, that self-esteem would still make a statistically significant contribution to variance of impulsivity levels. This experimental hypothesis has been accepted as self-esteem was attributed to impulsivity levels when locus of control variables had been accounted for. Surprisingly internal, chance, other/external locus of control predicted 27% of variance of impulsivity scores. When internal, chance, other/external locus of control variable had been managed, self-esteem predicted 9% of impulsivity variance. The model of internal, chance, other/external locus of control combined with the self-esteem variable predicted for the large value of 36% in variation of impulsivity.

By examining the final two hypothesis and their results show that in order to decrease levels of impulsivity or impulsive behaviour, self-esteem would then in turn have to be increased. A study by King, Vidourek, Davis and McClellan, 2002, found that fourth graders who had high levels of self-esteem, was found to be a major factor against their involvement in risky or dangerous behaviour. This study would indicate that individuals who showed high levels of impulsivity and if it was causing negative consequences, a program could be implemented to raise the individual's self-esteem.

Swann, Chang-Schneider and Larsen McClarty, (2007), examined peoples self views and noted that there were several things individuals could do to increase their self-esteem. These in no particular order include dressing well, clean hygiene, ignoring self taunting

insults, regular exercise, facing your fears, being assertive, rewarding yourself for success, no negative thinking and make plans to gain confidence.

Also a factor in predicting variance on impulsivity levels was locus of control but more specifically was the other or external locus of control. That contributed to 27% variance as stated earlier. In order to decrease impulsivity then there must be a decrease in other/external locus of control. If individuals feel that whatever actions they do that they have no control over what will happen, then they are more likely to partake in risky or impulsive behaviours. Other or external locus of control, individuals believe that the world around them or their environment or some higher power controls their decisions. These people don't feel that they are in charge over their actions, an external or other locus of control type personality trait increases the risk of reckless and impetuous actions. If the individual learns to gain more internal locus of control, that they feel that they are more in control of their actions and what happens to them is mostly down to that individual then this decreases impulsivity. Supporting this research is a study by Clarke (2004), impulsiveness was found to correlate with other/external locus of control in individuals with problem gambling.

The findings of this study indicate that in today's society of increasing anti-social behaviour and violent crime many of these behaviours are characteristic of impulsivity. Irresponsible actions with only the consequences of are thought post activity. This study examined Irish men and women so apply it personally to our society. There was little information on the correlation of Irish impulsivity, self-esteem and locus of control (O'Halloran, Carr, O'Reily, Sheering, Cherry & Turner, (2002). Treatment of offenders might include increasing positive self-esteem and confidence. Also treatment could include self affirmations that the individual is in control and responsible for their own action could help.

As stated earlier body image is very strongly correlated to impulsivity, and more specifically to certain eating disorders. All these variables are linked together and cause some level of variance in each other. By increasing self-esteem and internal locus of control the individual may improve body image concerns. Weiss & Ebert, (1983) examined bulimia nervosa females and non eating disordered females with regards to impulsivity and found that the bulimia nervosa sufferers had significantly higher impulsivity rates. They also concluded that these females has high external locus of control but found by increasing levels of self-esteem the impulsivity levels declined which supports this study. This study is therefore invaluable for ways in improving negative impulsive behaviours by manipulating other trait behavioural characteristics. The main variables that seem to affect impulsivity is external locus of control and self-esteem and by increasing self-esteem and decreasing external locus of control thinking behaviour in a person, impulsivity may then in turn decrease.

There were a few practical implications for this current study. They were methodological issues and some were stated above. Firstly the sample size on a whole was relatively large at one hundred and one participants but there were only eleven participants in the eating disorder group. The number for the sports group (forty) and the student group (fifty) were quite similar. Increasing the number of the eating disorder group would have increased the samples richness and may have modified some of the results. In addition to this the actual sample, eating disorder, sports and college groups may not have represented the normal population. International professional badminton athletes may have exhibited extremely high levels of self-esteem and low levels of impulsivity and external locus of control. Also in the eating disorder group the clinical sample did not give an exact diagnostic category of what type of eating disorder they had so this would have affected the outcome of the data.

In future studies the researcher should make note that the number of participants from each of the sample groups should be similar. Also selection of participants may be more beneficial if they represented more of the normal population to avoid outliers. Definition of specific eating disorders would enable clearer analysis of the data to enable attributes to certain traits to the type of eating disorder characteristics. To increase numbers of returned questionnaires in future studies in special clinical samples, perhaps a more direct approach of handing them out or an online questionnaire for the subjects ease and convenience would be more beneficial. As the questionnaires had only four possible answers it may not have portrayed exactly what the participant wanted to convey. Future research may consider using a qualitative type research design as participant's feelings and thoughts on certain issues may not be as easily conveyed by ticking a box.

To summarise, this study tried to examine the underlying predictors for impulsivity with self-esteem and internal, chance and other/external locus of control, gender and age. A strong relationship between body image and impulsivity was found in prior research, resulting in the motive for this study. This intention was to understand and predict impulsivity because of its role in predicting body image and what other factors then in turn are related to impulsivity. There were no differences between age, men and women for impulsivity, self-esteem or locus of control scores. Internal, chance, other/external locus of control and self-esteem were related in predicting variance in impulsivity scores. The research may have benefits in treatment of individuals who engage in negative impulsive behaviours by building up self-esteem and lowering external locus of control. Research issues have been raised over the methodology in this study with some concerns over diagnosis of eating disorders and questionnaire types for future examination. Optimistically this study has set out to recognise and predict the correlated variables to impulsivity and contributed to the current research surrounding this complex area to better understand our society.

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## **Appendix A. Participant consent forms**

Dear participant,

I am a final year psychology student carrying out research on impulsive behaviours, self-esteem and control in Irish men and women. I would greatly appreciate if you would contribute by completing this questionnaire. However, it is only for Irish men and women only. It will take approximately 10 – 12 minutes to complete. There are no right or wrong answers but please if possible answer all questions with honesty. All your information will be kept strictly confidential. Participants can withdraw at anytime. If you have any questions of queries please do not hesitate to contact me at [REDACTED]

Thank you for your cooperation,

Jennifer King

**Appendix B. Rosenberg Self-esteem questionnaire.**

Age:

Gender:

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 |

**Appendix C. Barrat Impulsiveness scale.**

DIRECTIONS: People differ in the ways they act and think in different situations. This is a test to measure some of the ways in which you act and think. Read each statement and put an X on the appropriate circle on the right side of this page. Do not spend too much time on any statement. Answer quickly and honestly.

O

O

O

O

Rarely/Never

Occasionally

Often

Almost Always/Always

1 I plan tasks carefully.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2 I do things without thinking.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3 I make-up my mind quickly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4 I am happy-go-lucky.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5 I don't "pay attention."	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6 I have "racing" thoughts.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7 I plan trips well ahead of time.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8 I am self controlled.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9 I concentrate easily.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10 I save regularly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11 I "squirm" at plays or lectures.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12 I am a careful thinker.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13 I plan for job security.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14 I say things without thinking.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15 I like to think about complex problems.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16 I change jobs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

17 I act "on impulse."	0	0	0	0
18 I get easily bored when solving thought problems.	0	0	0	0
19 I act on the spur of the moment.	0	0	0	0
20 I am a steady thinker.	0	0	0	0
21 I change residences.	0	0	0	0
22 I buy things on impulse.	0	0	0	0
23 I can only think about one thing at a time.	0	0	0	0
24 I change hobbies.	0	0	0	0
25 I spend or charge more than I earn.	0	0	0	0
26 I often have extraneous thoughts when thinking.	0	0	0	0
27 I am more interested in the present than the future.	0	0	0	0
28 I am restless at the theater or lectures.	0	0	0	0
29 I like puzzles.	0	0	0	0
30 I am future oriented.	0	0	0	0

### Appendix D. Multidimensional locus of control scale

Instructions: Each item below is a belief statement about your medical condition with which you may agree or disagree. Beside each statement is a scale which ranges from strongly disagree (1) to strongly agree (6). For each item we would like you to circle the number that represents the extent to which you agree or disagree with that statement. The more you agree with a statement, the higher will be the number you circle. The more you disagree with a statement, the lower will be the number you circle. Please make sure that you answer **EVERY ITEM** and that you circle **ONLY ONE** number per item. This is a measure of your personal beliefs; obviously, there are no right or wrong answers.

		SD	MD	D	A	MA	SA
1=STRONGLY DISAGREE ( <b>SD</b> ) 2=MODERATELY DISAGREE ( <b>MD</b> ) 3=SLIGHTLY DISAGREE ( <b>D</b> )		4=SLIGHTLY AGREE ( <b>A</b> ) 5=MODERATELY AGREE ( <b>MA</b> ) 6=STRONGLY AGREE ( <b>SA</b> )					
1	If I get sick, it is my own behavior which determines how soon I get well again.	1	2	3	4	5	6
2	No matter what I do, if I am going to get sick, I will get sick.	1	2	3	4	5	6
3	Having regular contact with my physician is the best way for me to avoid illness.	1	2	3	4	5	6
4	Most things that affect my health happen to me by accident.	1	2	3	4	5	6
5	Whenever I don't feel well, I should consult a medically trained professional.	1	2	3	4	5	6
6	I am in control of my health.	1	2	3	4	5	6
7	My family has a lot to do with my becoming sick or staying healthy.	1	2	3	4	5	6
8	When I get sick, I am to blame.	1	2	3	4	5	6
9	Luck plays a big part in determining how soon I will recover from an illness.	1	2	3	4	5	6
10	Health professionals control my health.	1	2	3	4	5	6
11	My good health is largely a matter of good fortune.	1	2	3	4	5	6
12	The main thing which affects my health is what I myself do.	1	2	3	4	5	6

13	If I take care of myself, I can avoid illness.	1	2	3	4	5	6
14	Whenever I recover from an illness, it's usually because other people (for example, doctors, nurses, family, friends) have been taking good care of me.	1	2	3	4	5	6
15	No matter what I do, I 'm likely to get sick.	1	2	3	4	5	6
16	If it's meant to be, I will stay healthy.	1	2	3	4	5	6
17	If I take the right actions, I can stay healthy.	1	2	3	4	5	6
18	Regarding my health, I can only do what my doctor tells me to do.	1	2	3	4	5	6