

To investigate whether there is an association between participating in a contact sport
such as boxing and levels of aggression.

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Abstract

Aggression and aggressive behaviour is defined as behaviour with the intent of harming another person either physically or psychologically either with provocation or without. In recent years there seems to be a growing opinion that aggressive behaviour and violence is increasing in today's society. Aggression and violence are closely related with violence often considered an expression of dysfunctional behaviour. Research investigating a link between gender and aggression has found a difference in levels of aggression in males and females; males have been identified as more physically aggressive than females. There is something animalistic about humans drive and competitiveness to succeed in a sporting event. Violence and aggression invade cultures all around the world and sport is no different. Personality traits are what define each and every person's character and therefore this impacts on how they behave, certain personality traits influence aggressive behaviour. The sample included 60 participants divided into two groups, boxing and other sport. The measures used to conduct the study were the Buss & Perry Aggression Questionnaires (AQ) and the Eysenck Personality Questionnaires-Revised (EPQ-R). A quantitative research design was used in to conduct the current study. The independent variable is competitive sport and exercise. The dependant variables are aggression levels and personality traits. A number of limitations were age, gender and self-report questionnaire method of data collection. The main findings in the study were aggression levels are higher in boxers and there was a statistically significant correlation between physical aggression and psychoticism in the group of other sport participants.

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Introduction

Aggression

Aggression and violence are closely related with violence often considered an expression of dysfunctional behaviour; however both aggression and violence are considered innate characteristics in humans and are widely accepted in society in certain settings. Aggression or aggressive behaviour is defined as behaviour with the intent of harming another person either physically or mentally either with provocation or without (Pond et al, 2012). While there is a clear separation between aggression and violence, aggression does not prevent acts of violence but usually refers to intentional behaviour with intent of causing psychological or physical harm which does include physical contact (e.g. pushing, hitting) and verbal abuse (Horne, Stoddard & Bell, 2007). The ever-long debate concerning 'nature versus nurture' applies particularly to behaviour, whether behaviour is genetic or learned there is research to support both the nature and nurture side of the argument and many suggest a combination of the two is what shapes our behaviour be it pro-social or aggressive. In recent years there seems to be a growing opinion that aggressive behaviour and violence is increasing in today's society (O'Brien, 2008) and the development of this behaviour still raises questions.

Aggression begins from an early age and can continue into adulthood if aggressive behaviour is not controlled. From the playground right through to adult life, children who behave aggressively from an early age are more likely to be aggressive in later life. Even an aggressive playing style can have an effect on this, half of children who display aggressive behaviour will continue to behave aggressively into adolescent years and throughout adulthood (Goleman, 2004). This is just one of the many examples of how aggression can be higher in some people than others, research suggests that personal past experiences have an effect on levels of aggression in humans. Research also suggests when a person is regularly exposed to aggression or violence they are more inclined to behave aggressively in certain situations, if exposed from an early age children are more likely to show externalizing behaviours as they grow up (Walters, Ronen & Rosenbaum, 2010). Identifying factors which influence aggression and aggressive behaviour is significant to reducing this behaviour in people; if some of the causal factors associated with aggression can be identified there is a chance of discontinuing highly aggressive behaviour. One major contributing factor to increasing levels of aggression is exposure to violence through media, entertainment, personal experience, violence at home etc. Indirect exposure to violence such witnessing physical fights, domestic violence etc. can have harmful, long lasting effects on children and a child's development (Veira et al., 2014). Research implies children who mix with aggressive peers are likely to be more aggressive than those who associate themselves with passive or submissive peers (Roos, Hodges & Salmivalli, 2014). This research demonstrates the impact recurring exposure to aggressive behaviour or violence has on children which, consequently is carried through to adolescence and adulthood, this

research really supports the 'nurture' side to the debate suggesting increased levels of aggression are learned due to environmental influences.

Aggression in children is common, whether or not this stems from genetics is debatable but high levels of aggression in early childhood is a strong predictor for aggressive behaviour throughout adult life (Cummings, Iannotti & Zahn-Waxler, 1985). Impulsive aggression comes from a failure to plan ahead combined with poor control of emotions (Goleman, 2004), this is seen frequently in children. This indicates a reason aggression is common in children and begins from a very early age, impulsive aggression tends to die out in later years however aggressive behaviour can still remain.

Research investigating a link between gender and aggression has found a difference in levels of aggression in males and females; males have been identified as more physically aggressive than females (Berke, Sloan, Parrott & Zeichner, 2012). This does not suggest females have low levels of aggression as this varies. In animals high levels of testosterone are linked to increased aggression, although studies have found a link between high levels of testosterone and aggression in criminal samples it is not quite as simple as that with humans (Kuepper & Hennig, 2007). Another biological approach in aiming to answer the question of nature versus nurture is the suggestion higher levels of aggression in males are linked to a chromosomal defect (Jarvik, Klodin & Matsuyama, 1973) this has raised questions and succumb to criticism. Whether it is genetic or learned there is lots of research to suggest aggression is higher in males than females with the indication that genetics has something to do with that. Even with toddlers aggressive behaviour occurred more frequent between two males than two females and even one male and one female (Hanish, Sallquist, DiDonato, Fabes & Martin, 2012). Aggressive behaviour occurs quite frequently in schools (Horne, Stoddard & Bell, 2007) and while this is similar to what was previously discussed about toddlers there is research that proposes the cause for this is not solely genetic. Something to support aggression as a learned behaviour is research findings suggesting exposure to violence through television or media from an early age has an impact on aggression and increasing aggression (Huesmann, Eron, Lefkowitz & Walder, 1973). The general aggression model, GAM (Anderson & Bushman, 2002) accounts for effects of exposure to media violence and video game violence where aggressive behaviour can be produced (Giles, 2010).

Exposure to violence through media, entertainment, sports and video games has been linked with higher levels of aggression in people, exposure being a key link with aggression. Over the last few decades there has been an accumulative body of research and literature supporting the idea that viewing violence in the media is a contributing factor to increased levels of aggression (Huesmann, Moise-Titus, Podolski & Eron, 2003). Clearly noticeable due to research, exposure to violence is associated with increased levels of aggression. Psychologists and researchers have aimed to identify causes of aggression for decades and have come up with numerous causal factors

including genetics, levels of testosterone and social learning (Przybylski, Deci, Rigby & Ryan, 2014). From a learning approach to aggression one of the most notable is Bandura's social learning theory, Bandura claims that humans learn to behave aggressively due to environmental factors (O'Brien, 2008), exposure is strongly linked with the theory. There are a number of ways a person can become exposed to aggression or violence such as media, video games, physical and verbal abuse and domestic violence; being regularly exposed or even exposed a number of times to any of these situations contribute to high levels of aggression in people. Casual factors can include frustration, provocation, or an aggressive cue; these factors are linked to aggression by influencing cognition, stimulation and arousal (Anderson & Bushman, 2002). In contrast Bowlby's attachment theory supports a nature approach (Bretherton, 1992) and discusses a critical period in which a child forms an attachment (0-5 years); if an attachment is not formed within this time period there is a chance of the child developing increased levels of aggression.

As aggression is such widely researched behaviour there are many tests and questionnaires designed to measure it in humans. Aggression is a difficult variable to measure, however some previous research have given some insight on the best ways to measure it, the Buss and Perry Aggression Questionnaire evaluates aggressive behaviours and is used to assess manifestations of aggression (Peralta, Pedrero, Bravo & Giráldez, 2014). An instrument developed in 1970s called CTS physical aggression scale is used to measure aggression in in couples dating, partners and married couples (Nocentini et al., 2011). A questionnaire called 'the aggression among peers at school questionnaire' is a test used to measure exposure to aggressive behaviour in peers at school (Baker-Henningham, Meeks-Gardner, Chang & Walker, 2009). The 'child-to-parent aggression questionnaire' is used to measure aggression between a child and parent throughout adolescent years (Calvete et al., 2013). These are just a few of some of the most frequently used measures of aggression among humans which are aimed to identify levels of aggression.

Aggression in sport

There has always been a link between aggression and sport. While some sports are more aggressive and violent than others, a sportsman of any kind would be lying if they said they never felt aggressive while competing at any stage, male or female, aggression among athletes has been previously described as somewhat of a problem in sport (Bredemeier, Weiss, Shields & Cooper, 1987). There is something animalistic about humans drive and competitiveness to succeed in a sporting event. Violence and aggression invade cultures all around the world (Pond et al., 2012), in media, crime and sport in particular as it is viewed acceptable. Questions have been asked as to why aggressive behaviour is acceptable in certain situations but totally intolerable in others, is this case hypocrisy. Although competitive sports are controlled with rules the behaviour is condoned, audiences and spectators praise 'the aggressive player' for

behaving aggressively to win, but are they overlooking the idea of inflicting harm on an opponent and accepting it as part of 'sport' (Griffin, 1996).

Some sports are more violent than others, for example golf being less violent than a martial art such as taekwondo; however this is not to say that golfers do not feel aggressive while competing. There is a debate as to whether or not some sports is considered media violence, as the media covers sports like boxing, mixed martial arts, football, ice hockey etc. all of which demonstrate violence. As much research has reached similar conclusions that exposure to media violence increases levels of aggression (Bushman, Gollwitzer & Cruz, 2014) this has raised a cause for concern. It is clear exposure to violence increases aggression but whether or not participating and competing in sports increases aggression is less clear.

Modern-day definitions of aggression describe it as behaviour with the intention of inflicting pain or harm on another person while that person is trying to avoid such harm (Joireman, Anderson & Strathman, 2003), this definition suggests sports like golf, swimming and tennis do not display aggressive behaviour whereas sports like boxing, taekwondo and Brazilian Jiu-Jitsu display violent and aggressive behaviour, this is not suggest people competing in non-physical aggressive sports do not feel aggressive while competing. Despite the positive benefits of participating in sports such as numerous physical health benefits, improved social life and decreased levels of anxiety and depression, aggressive behaviour has been one negative aspect associated with sport participation (Findlay & Coplan, 2008). It is not surprising there is a link between sport and aggression and in particular a link between physically aggressive sports like the three previously mentioned and higher levels of aggression.

Although aggression is considered a negative behaviour linked with sport involvement, research suggests two types of aggression in particular are associated with sport participation, hostility and instrumental (Keeler, 2007). Hostile aggression is an impulsive aggressive behaviour aimed at inflicting harm on another person intentionally (Bushman & Anderson, 2001). Instrumental aggression is aggressive behaviour in order to achieve an already planned goal or objective (Vitacco et al., 2009), in a sporting context this relates to physically harming or injuring an opponent for the sake of victory. Although there isn't a great deal of research done on peoples involvement with sports and aggression, what research has been done has been more in recent years. One sport that promotes violence more than others is boxing. Boxing is a male dominated sport that encourages violence and aggressive behaviour through rules and so called sportsmanship, commentators applaud heavy hits and knock outs, boxing has been criticised numerous times due to its ethical issues and vicious force (Lane, 2008). With some questions left unanswered in the study and as it was only related to males it found that men are attracted to the idea of male dominance and masculine power and boxing is the sport they can express this. Boxing is a highly skilled sport; however it is considered a highly controversial sport for some. Boxing not only allows but rewards the causing

harm on an opponent (McNamee & Parry, 2002). There have been strong suggestions that there is a correlation between involvement in combat sports and higher levels of aggression, some of the most popular combat sports include boxing, karate and mixed martial arts all with growing numbers especially with media coverage rapidly increasing among these sports, especially mixed martial arts. A study investigating levels of aggression among those who compete in boxing, karate, taekwondo and aikido, all forms of combat sports, concluded that the boxers had the highest levels of aggression while those who competed in karate had the lowest levels of aggression among the sample and were more inclined to control their emotions (Graczyk, Hucinski, Norkowski, Pęczak-Graczyk & Rozanowska, 2010).

Research investigating a relationship between exposure to contact sports such as boxing on television have found a correlation between the two suggesting there is a link, however there is a difference between violent behaviour committed by criminals and the sort of violent behaviour viewed in an organized sporting context performed according to rules and directed towards pro-social goals (Lefkowitz, Walder, Eron & Huesmann, 1973). Violence in sports is not tolerated in all cultures with some being more open to it than others, this affects aggression and how aggressive behaviour is accepted in certain societies and evidently this would suggest aggression is lower in cultures that have a low tolerance for violence in sport. Research demonstrates a similar outcome finding that violent societies appear to have higher levels of aggression (Shields & Bredemeier, 1996). Not all athletes experience higher levels of aggression as a result of participating in sport, although there is research suggesting there is a link between competing in sports and aggression, contact or non-contact, aggressive behaviour is not necessarily a result of participating in sports, even physical contact sports (Findlay & Coplan, 2008). Referring to the previously discussed topic of gender and aggression, aggression is higher in males than females (Berke, Sloan, Parrott & Zeichner, 2012) research has suggested something similar in relation to sports, young male competitors reported higher levels of physical and non-physical aggression than young females (Bredemeier, Weiss, Shields & Cooper, 1986) however both males and females had a tendency to aggress, males showed higher levels. Exposure to aggression and violence from an early age is one of many factors that influence levels of aggression in people and according to suggests of many researchers competing in sport is an influencing factor in levels of aggression.

Personality influences on aggression

Personality traits are what define each and every person's character and therefore this impacts on how they behave. Personality traits have been considered predictors of behaviour by researchers investigating a link between the two (Hilbig, Glöckner & Zettler, 2014), as there is a wide variety of personality traits there has been numerous theories and models proposed in an attempt to explain personality and categorize it. Like aggression, there is a debate around nature versus nurture in relation to personality

development. Many believe a combination of biology, genetics and environmental influences are responsible for personality development in humans. Research suggests personality traits are every changing right through childhood, adolescence and into adulthood (Roberts & Mroczek, 2008), people increase in social dominance (extraversion), conscientiousness and emotional stability as they get older, especially between the ages of 20 and 40 (Roberts, Walton & Viechtbauer, 2006). Personality traits differ with gender; females are reported to be higher in personality traits such as neuroticism, agreeableness and openness to feelings while males are reported to be higher in assertiveness and openness to ideas (Costa, Terracciano & McCrae, 2001). For some time personality traits have been used to predict important outcomes in life and research indicates there is an influence of personality traits on important life outcomes (Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007).

Trait theories with regards to personality suggest personality is genetic therefore supporting 'nature'. Bandura's social learning theory (O'Brien, 2008) suggests personality is learned through environmental influences and humans are not born with personality traits. Freud's psychodynamic theory proposes the development of personality is a combination of genetic and environmental influences (Babcock, 1992). Trait theories appear to be a popular explanation of personality and how it affects behaviour. Perhaps one of the most recognized is Eysenck's personality theory, based on a biological basis this theory of personality suggests emphasizes that both extraversion and neuroticism are behavioural patterns genetically influenced (Beattie & Corr, 2010). Originally Eysenck's personality theory consisted of two dimensions; Extraversion-Introversion (E), Neuroticism-Stability (Linden, 1970) and Psychoticism was later added as a third dimension and all made up of separate personality characteristics. Eysenck's personality theory has received criticism in the past wondering whether personality can be described by three factors (Fischbach & Moosbrugger, 2008).

A five factor (FFM) model called 'Big Five Personality Traits' was designed to label personality in humans. This 44 item inventory measures people's personality on certain dimensions with each of the factors further divided into personality traits (John & Srivastava, 1999), similar to Eysenck's personality theory. The big five dimensions consists of Extraversion vs. introversion, Agreeableness vs. antagonism, Conscientiousness vs. lack of direction, Neuroticism vs. emotional stability, Openness vs. closedness to experience. This is a more modern approach to personality and personality traits and is a widely accepted construct and predicts numerous organizational outcomes along with important life outcomes (Kluemper, McLarty & Bing, 2015).

Many believe personality and situational factors to be responsible for certain behaviours; personality traits have been linked to aggressive behaviour in people. Personality theories propose personality traits are one of the reasons some people are

more aggressive than others (Pauletti, Cooper & Perry, 2014). Psychoticism refers to a personality pattern typified by aggressiveness and interpersonal hostility, tends to be higher in males (Eysenck & Eysenck, 1991) and has been linked to risk-taking behaviour and criminal offending (Knust & Stewart, 2002). Criminal offenders, schizophrenics and children linked with anti-social behaviour have all reported raised levels of the psychoticism trait (Heath & Martin, 1990). While research suggests males are higher in the personality trait psychoticism, there is an indication adolescent females are higher in the personality traits extraversion and openness (De Bolle et al., 2015), contradictory to this however Branje, Van Lieshout, and Gerris (2007) reported males to have higher levels of extraversion and openness to experience, this demonstrates the confliction of many research results. Impression management is a term used to describe the behaviour of people when they aim to influence impressions others have on them (Rosenfeld, Giacalone & Riordan, 1995), personality is an important factor influencing this behaviour with people low in honesty likely to express this behaviour in a workplace environment (Bourdage, Wiltshire & Lee, 2015). The link between personality traits and how humans behave is no coincidence; a large body of literature makes it clear psychoticism trait, which is used to describe tough-mindedness and lack of empathy in people, has a considerable involvement with anti-social behaviour (Eysenck & Gudjonsson, 1989). Narcissistic personality traits are correlated with aggression (Kim, Namkoong, Ku & Kim, 2008). Psychoticism has also been found to be linked with impulsiveness (Forbes, 1980).

There are a number of tests and questionnaires designed with the purpose of measures personality traits in humans. The Big Five Personality Trait Short Questionnaire (BFPTSQ) was developed to measure five personality traits from the Big Five personality model (Morizot, 2014). The NEO- personality inventory-3 (NEO-PI-3) was developed as a more readable measure of the Big Five Personality traits (McCrae, Costa & Martin, 2005). The Narcissistic Personality Inventory-13 (NPI-13) is a 13 item inventory used to measure narcissistic behaviour in people (Gentile, 2013). The Eysenck Personality Questionnaire-Revised (EPQ-R) is questionnaire developed to measure three main dimensions of personality traits, psychoticism, extraversion and neuroticism as well as a lie scale (Eysenck & Eysenck, 1993). The EPQ-R is most relevant for measuring the psychoticism trait with an aim to identify a correlation between aggressive behaviour. The EPQ-R is a 48-item self-report questionnaire with yes/no answers. There are 12 questions to measure each of the three personality traits and a further 12 questions for a fourth scale, the Lie scale, which measures the tendency to answer questions in a socially desirable way. People that score high on the psychoticism trait have a tendency to express a lack of empathy and behave anti-socially (Heath & Martin, 1990), neuroticism has been linked with anxiety and an emotional character and extraversion has been associated with sociable and optimistic characterises.

Rationale of current study

With a substantial amount of research suggesting there is a correlation between actively competing in sports and aggression based on the above literature, the current study will be interested in investigating whether or not competing in more violent sports than others significantly increases aggression. Previous research found that aggression is particularly linked with physical contact sports and what this study will investigate is aggression levels higher in people who compete in boxing than those who compete in a less physically violent sport or just exercise e.g. football, gym. Some of the research suggested exposure to aggression and violence increases aggressive behaviour, so this study aims to investigate if participating in an aggressive sport like boxing increases levels of aggression in people. The literature also provided insight into the fact males tend to be more aggressive than females and this study will measure both male and female over the age of 18 with the intent of gaining further insight into previous research and also to recognize both the physical and psychological advantages and disadvantages of boxing. If participating in a physical contact sport such as boxing is a factor in increasing aggression levels in both males and females, then the question must be asked is this a socially acceptable sport. The socially negative effects of aggression and aggressive behaviour are clear however there are negative physical effects of increased levels of aggression including, high blood pressure, increased stress and anxiety. Anger is a feeling closely related to aggression that often leads to violent behaviour which in turn has a negative effect when people are unable to control their emotions they are likely to express this aggression towards others. A final reason for investigating higher levels of aggression in boxers than non-boxing athletes is very little research has been done examining this.

Previous research and literature has been strongly considered while choosing which measures to investigate the current studies aims. The Buss & Perry Aggression Questionnaire (AQ) will be used to measure levels of aggression in both groups of boxers and non-boxers. Furthermore the Eysenck Personality Questionnaire-Revised (EPQ-R) will be used to measure personality traits in both groups.

There are three main research aims of this study:

1. To investigate whether or not levels of aggression are higher in boxers than footballers people that regularly exercise.
2. To investigate a correlation between aggression levels and three different personality traits; extraversion, neuroticism and psychoticism.
3. Examine whether these traits differ between groups depending on what sport they partake in.

There are two hypotheses for the present study;

Hypothesis 1 - Aggression levels will be higher in boxers than non-boxers.

Hypothesis 2 – Aggression will be correlated with the trait, psychoticism.

In the case of the present study non-boxers refers to a group of footballers and non-competitive athletes.

Method

Participants

The sample included 60 participants divided into two groups; group 1 consisted of 30 participants, 26 males and 4 females ranging in age from 18 to 26 who all competed in boxing and group 2 consisted of 30 participants 26 males and 4 females ranging in age from 19 to 29. Participants were informed in full detail what the purpose of the study and what it involved along with written information on each consent form and questionnaire hand-out. Participants for group 1 were selected by visiting local boxing clubs and asking for informed consent of each participant. Similarly, participants for group 2 were selected by approaching local football clubs and people that regularly exercise for informed consent. A convenience sampling method was used to collect data from participants. No obligations were placed on participants to partake in the study and they were informed they could remove themselves at any time if they wished; each participant was also assured of total confidentiality and if participants wished they were informed they could use their initials instead of full name.

Presented in Table 1 below is the demographic information for group 1 (boxing) and group 2 (other sport).

Table 1- Demographic Information

Variable	Boxing	Other Sport
Age	20.9 (1.9)	22.03 (2.4)
Gender	26M, 4F	26M, 4F
Years Sport	7.47 (3.8)	8.53 (6.1)

Materials & Measures

The materials used to conduct the study were 60 Buss & Perry Aggression Questionnaires (AQ) and 60 Eysenck Personality Questionnaires-Revised (EPQ-R) along with 60 consent forms and pens for each participant. At the beginning of every questionnaire pack there was a page with questions asking age, gender and details including what sport the participant was involved with and what age they started. ***Buss & Perry Aggression Questionnaire*** (Bryant, & Smith, 2001) is a 29 item self-report questionnaire designed to measure levels of aggression consisting of four factors (Physical Aggression, Verbal Aggression, Anger, and Hostility). To answer the

questionnaire uses a 5 point scale from extremely uncharacteristic to extremely characteristic and requires participants to select one in order to indicate how well each statement represents them. The Buss & Perry Aggression questionnaire was scored on a scale of 0 to 1 with being the highest level of aggression. This is a widely used measure due to its reliability and validity (Reyna, Ivacevich, Sanchez & Brussino, 2011).

Eysenck Personality Questionnaire-Revised (Eysenck & Eysenck, 1993) is a 48 item self-report questionnaire designed to measure four dimensions of personality (Psychoticism, Extraversion, and Neuroticism and lie scale). The questionnaire uses a yes/no answering policy on every question and depending on the answer given it may score a point for any one of the personality traits, the maximum score for any one personality trait being 12. Reliability and validity of this questionnaire has much improved with the revised version (Eysenck, Eysenck & Barrett, 1985).

Design

A quantitative research design was used in to conduct the current study with a quasi-experimental design and correlation is being investigated. A survey design was used as a method of data collection. The independent variable (IV) is competitive sport and exercise. The dependant variables (DV) are aggression levels and personality traits. The study is a cross-sectional design with quantitative measures. The sample population was gathered using a between groups approach. Two groups in total were used to conduct the study; group 1 consisted of 30 participants (26M & 4F) that all competed in boxing, group 2 consisted of 30 participants (26M & 4F) that either played football or regularly exercised.

Procedure

The aim of the current study was to investigate whether or not levels of aggression are higher in boxers than footballers and people that regularly exercise. Also to investigate a correlation between aggression levels and three difference personality traits; psychoticism, extraversion and neuroticism and whether these traits differ depending on what sport a person is involved with. Once all research had been done and measures carefully considered the study had to receive an ethical review from ethics board at National College of Ireland. A major ethical consideration was participant's age; participants over the age of 18 were selected for each group as this saved a lot of ethical revising and a sample under 18 wasn't any more significant to the study than an adult sample. A consent form was developed for the purpose of gaining participants consent with a signature, this included information about the background of the study and participants involvement, participants were informed they were under no obligation to partake in or complete the study once started and if they wished to remain anonymous

they could use initials, a code was given to each participant for data input. Once it passed through the ethics board this meant the study was ethically sound so data collection could begin. 60 questionnaire packs were printed and stapled ready for use, each pack consisted of a consent form, participant background information, (age, gender, sport etc.) the Buss & Perry Aggression Questionnaires(AQ) and the Eysenck Personality Questionnaire-Revised (EPQ-R).

To begin the data collection a number of local boxing clubs were visited, firstly the consent of the head coach had to be gained to take 15 minutes of participant's time to complete questionnaires either before or at the end of their training session. Those over the age of 18 that wished to partake in the study were fully informed of what was required to complete the questionnaires and informed of no obligation to complete them. This was repeated at each boxing club until a total of 30 participant's data had been collected. The second part of data collection took a similar approach with attending training sessions of a local football club and repeating the process of gaining consent of the head coach and then participants, all over 18. The exact process was repeated at a gym until a total of 30 participants data had been collected from both footballers and regular exercisers. Once all the raw data has been collected it was firstly inputted into an excel spread sheet then processed in SPSS, defining all participants and variables. Using the SPSS program analysis was run including descriptive statistics, correlational and t-tests. Firstly descriptive statistics was run in order to identify demographic information for the two groups. Using the data collected to analyse both hypotheses a t-test and a Pearson product-moment correlation was run in SPSS. This data then interpreted and entered into tables.

Results

Descriptive Statistics

Presented in the tables below are the descriptive statistics for both group 1 (boxing) and group 2 (other sport). The tables display scores of the mean, standard deviation and the range of all 8 variables the present study aimed to investigate. The variables are divided into two groups of 4 representing aggression levels and personality traits. The first four are measures of aggression levels and consist of physical aggression, verbal aggression, hostility, anger. The last four are measures of personality traits and consist of psychoticism, extraversion, neuroticism, and lie scale.

Table 2 - Descriptive Statistics Group 1 (Boxing)

	PA	VA	H	A	P	E	N	L
Mean	0.52	0.56	0.40	0.52	5.37	8.47	4.20	1.97
SD	0.1	0.1	0.2	0.2	2.4	2.4	2.8	1.5
Range	0.55	0.4	0.67	0.5	10	7	10	4

Table 3 - Descriptive Statistics Group 2 (Other Sport)

	PA	VA	H	A	P	E	N	L
Mean	0.38	0.52	0.36	0.35	3.23	8.97	3.57	3.53
SD	0.2	0.1	0.2	0.2	1.8	2.5	3.1	2.1
Range	0.8	0.55	0.84	0.68	8	8	11	7

Clearly shown in tables 2 and 3 above are the descriptive statistics for each variable for both groups, boxing and other sport; consisting of mean scores, standard deviation and the range. It is visibly clear that on average participants in group 1 scored higher in physical aggression, verbal aggression, anger and hostility meaning levels of aggression was higher on all four factors in boxers. Participants from group 2 were marginally higher in the personality trait extraversion scored higher the personality trait neuroticism also. Participants from group 1 were higher in personality traits psychoticism however participants from group 2 scored higher on the lie scale.

Independent Samples t-test

An independent samples t-test was conducted to compare aggression levels and personality traits in boxers and other sportspersons. This particular analysis was used to determine whether there was a significant difference between one another. Results are presented below in table 4.

Table 4 –Inferential Statistics _ Independent t-test

Measure	Boxing	Other Sport	t-value	p-value
Age	20.90 (1.9)	22.03 (2.4)	-2.02	0.05
PA	0.52 (.1)	0.38 (.2)	3.12	0.00
VA	0.56 (.1)	0.52 (.1)	1.19	0.24
H	0.40 (.2)	0.36 (.2)	0.88	0.39
A	0.52 (.2)	0.35 (.2)	3.84	0.00
P	5.37 (2.4)	3.23 (1.8)	3.87	0.00
E	8.47 (2.4)	8.97 (2.5)	-0.79	0.43
N	4.20 (2.8)	3.57 (3.1)	0.83	0.41
L	1.97 (1.5)	3.53 (2.1)	-3.4	0.00

Note: Statistical Significant Difference $P \leq 0.05$

The above results report a mean age 20.90 in the boxing group and a mean age of 22.03 in the other sport group. T-test indicated that there was a statistically significant difference in the scores for physical aggression in boxing (M=0.52, SD=0.1) and other sport (M=0.38, SD=0.2) conditions; (t (58) =3.12, p=0.00).

There was no statistical significant difference between groups on verbal aggression in boxing (M=0.56, SD=0.1) and other sport (M=0.52, SD=0.1) conditions; (t (58) =1.19, p=0.24).

There was no statistically significant difference between groups on hostility in boxing (M=0.40, SD=0.2) and other sport (M=0.36, SD=0.2) conditions; (t (58) =0.88, p=0.39).

There was a statistically significant difference between groups on anger in boxing (M=0.52, SD=0.2) and other sport (M=0.35, SD=0.2) conditions; (t (58) =3.84, p=0.00).

There was a statistically significant difference in the scores for the psychoticism in boxing (M=5.37, SD=2.4) and other sport (M=3.23, SD=1.8) conditions; (t (58) =3.87, p=0.00).

There was no statistically significant difference between groups on extraversion in boxing (M=8.47, SD=2.4) and other sport (M=8.97, SD=2.5) conditions; (t (58) =-0.79, p=0.43).

There was no statistically significant difference between groups on neuroticism in boxing (M=4.20, SD=2.8) and other sport (M=3.57, SD=3.1) conditions; (t (58) =-0.83, p=0.41).

There was a statistically significant difference between groups on the lie scale in boxing (M=1.97, SD=1.5) and other sport (M=3.53, SD=2.1) conditions; (t (58) =-3.4, p=0.00).

These results suggest there is a significant difference between boxers and people that play football and regularly exercise in levels of physical aggression and anger. There is also a difference between the two groups in the personality trait psychoticism and the lie scale which measures to what degree participants try and control their score.

Correlation

A Pearson product-moment correlation coefficient was computed to assess the relationship between all variables; physical aggression, verbal aggression, hostility, anger, psychoticism, extraversion, neuroticism and the lie scale. Results from boxing group are present below in table 5.

Table 5 - Correlation Table Boxing

Variable	1	2	3	4	5	6	7	8
Physical Aggression	-							
Verbal Aggression	0.18	-						
Hostility	-0.36	0.29	-					
Anger	0.45*	0.29	0.30	-				
Psychoticism	0.14	0.10	0.08	-0.01	-			
Extraversion	-0.36	-0.35	0.07	-0.09	0.03	-		
Neuroticism	-0.13	0.12	0.51**	0.21	-0.22	-0.07	-	
Lie Scale	-0.05	-0.39*	-0.21	-0.47**	0.16	0.05	-0.05	-

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

Results reported there was a statistical significant correlation between the two variables physical aggression and anger (r (30) = 0.45, p=0.01). There was a statistical significant correlation between the two variables verbal aggression and lie scale (r (30) = -0.39, p=0.03). A statistical significant correlation was reported between the two variables hostility and neuroticism ((r (30) = 0.51, p=0.00). Finally there was a statistically significant correlation between anger and lie scale (r (30) = -0.47, p=0.01).

Results from the Pearson product-moment correlation coefficient for other sports group are present below in table 6.

Table 6 - Correlation Table Other Sport

Variable	1	2	3	4	5	6	7	8
Physical Aggression	-							
Verbal Aggression	0.16	-						
Hostility	0.49**	0.30	-					
Anger	0.47**	0.18	0.73**	-				
Psychoticism	0.41*	0.16	0.03	-0.16	-			
Extraversion	-0.48**	-0.17	-0.48**	-0.25	-0.04	-		
Neuroticism	0.38*	0.19	0.46*	0.54**	0.25	-0.35	-	
Lie Scale	0.10	0.19	-0.23	-0.22	0.16	0	-0.17	-

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

Results from the Pearson product-moment correlation coefficient for other sports group participants reported a statistically significant difference between variables physical aggression and hostility ($r(30) = 0.49, p=0.00$). There was a statistically significant difference between variables physical aggression and anger ($r(30) = 0.47, p=0.00$). There was a statistically significant difference between variables physical aggression and psychoticism ($r(30) = 0.41, p=0.02$). A statistically significant difference was reported between variables physical aggression and extraversion ($r(30) = -0.48, p=0.01$). A statistically significant difference was found between variables physical aggression and neuroticism ($r(30) = 0.38, p=0.04$). There was a statistically significant difference between the variables anger and hostility ($r(30) = 0.73, p=0.00$). A statistically significant difference was reported between the variables hostility and extraversion ($r(30) = 0.48, p=0.01$) as well as hostility and neuroticism ($r(30) = 0.46, p=0.01$). Finally a statistically significant difference was reported between variables anger and neuroticism ($r(30) = 0.54, p=0.00$).

Discussion

There were three main research aims the current study aimed to investigate; to investigate whether or not levels of aggression are higher in boxers than footballer's people that regularly exercise, to investigate a correlation between aggression levels and three different personality traits; extraversion, neuroticism and psychoticism and to examine whether these traits differ between groups depending on what sport they partake in. There were two hypotheses for the present study and after careful consideration into previous literature and research they were developed as follows, Hypothesis 1 believed aggression levels will be higher in boxers than non-boxers and hypothesis 2 believed aggression will be correlated with the trait psychoticism. Numerous amounts of research in the past have demonstrated a link between exposure to violence and increased aggressive behaviour and anti-social behaviour, furthermore there has been separate research suggesting a link between anti-social behaviour and increased levels of the personality trait psychoticism in people (Heath & Martin, 1990). The current study is one of few looking to investigate a relationship between aggression and boxing and to further investigate a correlation between aggression and personality traits.

To measure levels of aggression in participants the Buss & Perry Aggression Questionnaire (Bryant, & Smith, 2001) was used and this measures four factors of aggression; physical aggression, verbal aggression, anger and hostility. To measure personality traits in participants the Eysenck Personality Questionnaire-Revised (Eysenck & Eysenck, 1993) was used and this measure investigates four dimensions of personality, psychoticism, extraversion, neuroticism and the lie scale.

The results from the descriptive statistics which tell us the mean, standard deviation and range of scores found physical aggression to be higher in boxers than other sport with a mean of 0.52, standard deviation of 0.1 and range of 0.55. The results report both verbal aggression (M=0.56) hostility (M=0.52) and anger (M=0.40) all to be higher in participants that competed in boxing than participants involved with other sports. The descriptive statistics also tell us on average the personality trait psychoticism (M=5.37) was higher in boxing participants than other sport. The personality trait extraversion (M=8.97) was reported higher in other sport participants than boxers, other sport participants scored higher on the lie scale also (M=3.53). Boxers scored higher in the personality trait neuroticism (4.20).

An independent samples t-test was conducted to compare aggression levels and personality traits in boxers and other sport participants. This was used to determine whether there was a statistically significant difference between one another. The mean age of the boxing sample population was 20.90 and other sport was 22.03. The results from the t-test indicated a statistically significant difference between groups in physical aggression and anger with no statistically significant difference in verbal aggression and

hostility. The results from the t-test reported a statistically significant difference in personality traits psychoticism and the lie scale and reported no statistically significant difference in extraversion and neuroticism in both groups. From looking at both the descriptive statistics and t-test results there is a suggestion aggression levels in factors, physical aggression and anger are higher in boxers than physical aggression and anger aggression levels in participants from other sport. A statistically significant difference was identified between personality traits psychoticism and the lie scale, by looking at both descriptive statistics and t-test results it is visibly clear psychoticism levels were higher in boxers than other sport participants and other sport participants scored higher on the lie scale suggesting there was more of an attempt to manipulate results scores on certain questions. With a significant difference established between a number of variables this allowed for a Pearson product-moment correlation coefficient test to be conducted which would aim investigate a relationship or correlation between variables.

Surprisingly results from the Pearson product-moment correlation coefficient test show there was a significant correlation between physical aggression and psychoticism in participants from other sports, going slightly against the hypothesis which stated aggression would be correlated with the personality trait psychoticism as other sports participants had lower levels of aggression on average than boxers. Other statistically significant correlations between others sports variables included physical aggression and hostility, physical aggression and anger, physical aggression and extraversion, physical aggression neuroticism, anger and hostility, extraversion and hostility, neuroticism and hostility and anger and neuroticism. These results suggests the link between aggression and psychoticism, however aggression levels where higher in group 1; boxers and there was no significant correlation between the two variables with the boxing sample. What was correlated with boxers was physical aggression and anger, verbal aggression and lie scale, hostility and neuroticism and anger and lie scale.

It is clear there is an association with competing in boxing and levels of aggression, as research has suggested aggression tends to be higher in people who participate in sports (Findlay & Coplan, 2008) but the results found in the current study suggest aggression levels are higher in people that participate in a physical contact sport such as boxing than people that play sports and exercise regularly.

The current study also aimed to investigate a correlation between levels of aggression and personality traits with the proposal psychoticism may be higher in more aggressive individuals, the results reported this is not the case in the current study as individuals measured to have higher levels of aggression were not statistically significantly correlated with higher levels of psychoticism. However what was significantly correlation was hostility and neuroticism which is interesting research demonstrates hostile aggression to be quite impulsive aggressive behaviour (Bushman & Anderson, 2001) whereas a neurotic personality trait has been associated with anxiety and a rather

‘moody’ character in a person, to add to this suggestion participants from group 2 (other sports) were significantly correlated with hostility and neuroticism.

Hypothesis 1 stated aggression levels will be higher in boxers than individuals that regularly exercise or play football; the results from the current study support this hypothesis as the results reported higher aggression levels in boxers than other sport individuals on all four factors of aggression, physical aggression, verbal aggression, hostility and anger.

Hypothesis 2 stated that aggression will be correlated with the trait, psychoticism. The results reported a correlation between the variables physical aggression and psychoticism in other sports participants, there was no significant correlation with any of aggression factors with psychoticism in boxers. These findings do suggest a correlation between aggression and psychoticism the current study was interested in investigating whether psychoticism is correlation with higher levels of aggression, which in this case as results supporting hypothesis 1 state was individuals that compete in boxing.

The sample of boxers scored higher in the personality trait, neuroticism with a mean score of 4.20. Although this is not an extremely high score as the maximum score is 12 but previous research findings have suggested individuals that score high on the personality trait neuroticism have an increased likelihood of developing clinical neuroses than individuals with lower scores (Maltby, Day & Macaskill, 2010).

The current study’s findings further add to the already large body of literature suggesting there is relationship between competing in sports and higher levels of aggression, there are some characteristics and personality traits in sportspersons and competitors that suggest they are more likely to behave aggressively or violently (Smith & Stewart, 2003), the current studies results support the suggestion aggression is higher in individuals that play sports as consistently elevated levels of aggression were reported on the Buss & Perry Aggression Questionnaire for both groups. As hypothesis 1 was supported, that boxers would report higher levels of aggression than other sportspersons this adds to the relatively scarce body of literature suggesting combat sports such as boxing are associated with higher levels of aggression (Graczyk, Hucinski, Norkowski, Pęczak-Graczyk & Rozanowska, 2010).

One of the three aims was to examine whether personality traits differed between groups depending on what sport participants participated in, the results reported both groups to be relatively highly extraverted and there was very little difference there. A statistically significant difference was reported in the personality trait psychoticism between the two groups with boxers reporting higher levels of psychoticism. There was a difference in groups lie scale scores also with other sport individuals scoring higher. *Eysenck Personality Questionnaire-Revised* (Eysenck & Eysenck, 1993) has received a high level of support, it is seen as one of the long standing reliable measures for

personality traits and this is the reason it was chosen for this study. Eysenck claimed that the three 'super traits' that make up the basic structure of personality are psychoticism, extraversion and neuroticism (Maltby, Day & Macaskill, 2010).

One of the main reasons indicated for the higher levels of aggression in boxers is the psychological aggression and violence involved in the sport of boxing, although it is a sport with rules and regulations it doesn't make the physical contact involved any less violent. By accepting and even rewarding this behaviour (McNamee & Parry, 2002) perhaps it is unknowingly increasing aggressive behaviour and violence in society. Although football is a highly competitive sport involving physical contact including tackles, it is nowhere near the scale of aggressive behaviour involved with boxing, this suggests the reason for increased levels of aggression found in boxers. As research suggests the personality trait psychoticism is associated with an aggressive, hostile personality and this is why it was hypothesised to be correlated with higher levels of aggression in individuals. Although it was correlated with aggression behaviour which is physical aggression in other sport individuals it was predicted it would be correlated with individuals reporting higher levels of aggression between the two groups; the boxers.

Conclusion & Limitations

As with all studies there were a number of limitations with the current study. The first limitation was a gender issue, as boxing especially but football also is male dominant sports it was difficult to get a high number of female participants.

Previous research suggests males experience higher levels of aggression than females this would have been interesting to investigate and also what personality traits differ in males and females. This could not be achieved as only a small number of females participated in the study with not enough to report a significant result. With self-report questionnaires there is always some issue, although the validity of these questionnaires has proved reliable it is difficult to completely control for participants manipulating results in their favour, this was controlled as well as possible but it is difficult when taking ethics into consideration participants need to be informed what their involvement in the study is and what it is for.

Another notable limitation of the current study was age of participants, the age of each varied slightly, participants in boxing group had a mean age of 20.90 and participants from other sports group had a mean age of 22.03.

In summary, hypothesis one was supported with the results reporting higher levels of aggression in individuals participating in boxing, therefore boxers reported higher levels of aggression than individuals participating in football and regular exercisers. There was a statistically significant difference between levels of psychoticism in individuals from

the boxing group and individuals from the other sport group with boxers reporting higher levels of psychoticism. Participants from both groups scored similar on the personality trait extraversion stating no statistically significant difference between groups on that trait. Individuals in group 1, boxers on average scored higher on all aggression factors which are physical aggression, verbal aggression, hostility and anger. As well as scoring higher on all aggression factors, boxers scored higher on neuroticism and also psychoticism. Other sport participants reported a higher score on extraversion, and the lie scale.

Hypothesis two stated aggression will be correlated with the trait, psychoticism. This was not the case with the sample of boxers that reported higher levels of aggression between the two groups, however there was a correlation between physical aggression and psychoticism from other sports participants suggesting psychoticism is related to aggression in some way. To investigate the research aims and identify results descriptive statistics, independent t-test and Pearson's product-moment correlation coefficient were conducted. The investigation of all research aims was successfully achieved.

References

- Anderson, C. A., and Bushman, B. J. (2002). Human Aggression. Department of Psychology, Iowa State University, Ames, Iowa 50011-3180.
- Babcock, R. A. (1992). Review of 'Nature's thumbprint: The new genetics of personality'. *Psychosocial Rehabilitation Journal*, 16(1), 169-171. doi:10.1037/h0095720.
- Baker-Henningham, H., Meeks-Gardner, J., Chang, S., & Walker, S. (2009). Aggression Among Peers at School Questionnaire. *Psycstests*, doi:10.1037/t27112-000.
- Beattie, E. K., & Corr, P. J. (2010). Reinforcement, arousal and temporal factors in procedural learning: A test of Eysenck's and Gray's personality theories. *Journal of Individual Differences*, 31(4), 167-177. doi:10.1027/1614-0001/a000008.
- Berke, D. S., Sloan, C. A., Parrott, D., & Zeichner, A. (2012). Effects of female gender role and gender norm conformity on aggression in men: Does positive masculinity reduce the risk?. *Psychology Of Men & Masculinity*, 13(4), 367-378. doi:10.1037/a0026525.
- Bourdage, J. S., Wiltshire, J., & Lee, K. (2015). Personality and workplace impression management: Correlates and implications. *Journal Of Applied Psychology*, 100(2), 537-546. doi:10.1037/a0037942.
- Branje, S. J. T., Van Lieshout, C. F. M., & Gerris, J. R. M. (2007). Big Five personality development in adolescence and adulthood. *European Journal of Personality*, 21, 45-62. doi:10.1002/per.596.
- Bredemeier, B. J., Weiss, M. R., Shields, D. L., & Cooper, B. (1986). The relationship of sport involvement with children's moral reasoning and aggression tendencies. *Journal of Sport Psychology*, 8(4), 304-318.
- Bredemeier, B. J., Weiss, M., Shields, D., & Cooper, B. (1987). The relationship between children's legitimacy judgments and their moral reasoning, aggression tendencies, and sport involvement. *Sociology of Sport Journal*, 4(1), 48-60.
- Bretherton, I. (1992). The origins of attachment theory: John Bowlby and Mary Ainsworth. *Developmental Psychology*, 28(5), 759-775. doi:10.1037/0012-1649.28.5.759.
- Bushman, B. J., & Anderson, C. A. (2001). Is it time to pull the plug on hostile versus instrumental aggression dichotomy? *Psychological Review*, 108(1), 273-279. doi:10.1037/0033-295X.108.1.273.

- Bushman, B. J., Gollwitzer, M., & Cruz, C. (2014). There Is Broad Consensus: Media Researchers Agree That Violent Media Increase Aggression in Children, and Pediatricians and Parents Concur. *Psychology Of Popular Media Culture*, doi:10.1037/ppm0000046.
- Calvete, E., Gamez-Guadix, M., Orue, I., Gonzalez-Diez, Z., Lopez de Arroyabe, E., Sampedro, R., & ... Borrajo, E. (2013). Child-to-Parent Aggression Questionnaire. *PsycTests*, doi:10.1037/t27419-000.
- Costa Jr, P., Terracciano, A., & McCrae, R. R. (2001). Gender differences in personality traits across cultures: robust and surprising findings. *Journal of personality and social psychology*, 81(2), 322.
- Cummings, E. M., Iannotti, R. J., & Zahn-Waxler, C. (1985). Influence of conflict between adults on the emotions and aggression of young children. *Developmental Psychology*, 21(3), 495-507. doi:10.1037/0012-1649.21.3.495.
- De Bolle, M., De Fruyt, F., McCrae, R. R., Löckenhoff, C. E., Costa, P. J., Aguilar-Vafaie, M. E., & ... Terracciano, A. (2015). The emergence of sex differences in personality traits in early adolescence: A cross-sectional, cross-cultural study. *Journal Of Personality And Social Psychology*, 108(1), 171-185. doi:10.1037/a0038497.
- Eysenck, H. J & Gudjonsson, G. (1989). *Causes and cures of criminality*. New York: Plenum Press.
- Eysenck, H. J. E., & Eysenck, S. B. G. (1991). *Manual of the Eysenck Personality Scales (EPS Adult)*. London: Hodder & Stoughton.
- Eysenck, H. J., & Eysenck, S. G. (1993). *Eysenck Personality Questionnaire-Revised*. *PsycTests*, doi:10.1037/t05461-000.
- Findlay, L. C., & Coplan, R. J. (2008). Come out and play: Shyness in childhood and the benefits of organized sports participation. *Canadian Journal Of Behavioural Science/Revue Canadienne Des Sciences Du Comportement*, 40(3), 153-161. doi:10.1037/0008-400X.40.3.153.
- Fischbach, A., & Moosbrugger, H. (2008). The German EPP-D: How to shorten and improve the reliability and validity of Eysenck's Personality Profiler (EPP). *European Journal Of Psychological Assessment*, 24(2), 95-100. doi:10.1027/1015-5759.24.2.95.
- Forbes, R. A. (1980). In search of psychoticism: Some conclusion revised. *Personality & Individual Differences*, 1, 4, 335-40.
- Gentile, B., Miller, J. D., Hoffman, B. J., Reidy, D. E., Zeichner, A., & Campbell, W. K. (2013). *Narcissistic Personality Inventory–13*. *PsycTests*, doi:10.1037/t28884-000.

- Giles, D. (2010). *Psychology of the media*. Palgrave Macmillan.
- Goleman, D. (2004). *Destructive Emotions and how We Can Overcome Them: A Dialogue with the Dalai Lama*. Bloomsbury.
- Graczyk, M., Hucinski, T., Norkowski, H., Pęczak-Graczyk, A., & Rozanowska, A. (2010). The level of aggression syndrome and a type of practised combat sport. *Journal Of Combat Sports and Martial Arts*, 1(2), 1-14.
- Griffin, M. (1996). Aggression in sport: Inevitable, avoidable, or a matter of semantics?. *Peace And Conflict: Journal Of Peace Psychology*, 2(4), 385-386. doi:10.1207/s15327949pac0204_8.
- Hanish, L. D., Sallquist, J., DiDonato, M., Fabes, R. A., & Martin, C. L. (2012). Aggression by whom—aggression toward whom: Behavioral predictors of same- and other-gender aggression in early childhood. *Developmental Psychology*, 48(5), 1450-1462. doi:10.1037/a0027510.
- Heath, A. C., & Martin, N. G. (1990). Psychoticism as a dimension of personality: A multivariate genetic test of Eysenck and Eysenck's psychoticism construct. *Journal Of Personality And Social Psychology*, 58(1), 111-121. doi:10.1037/0022-3514.58.1.111.
- Hilbig, B. E., Glöckner, A., & Zettler, I. (2014). Personality and prosocial behavior: Linking basic traits and social value orientations. *Journal of Personality And Social Psychology*, 107(3), 529-539. doi:10.1037/a0036074.
- Horne, A. M., Stoddard, J. L., & Bell, C. D. (2007). Group approaches to reducing aggression and bullying in school. *Group Dynamics: Theory, Research, And Practice*, 11(4), 262-271. doi:10.1037/1089-2699.11.4.262.
- Huesmann, L. R., Eron, L. D., Lefkowitz, M. M., & Walder, L. O. (1973). Television violence and aggression: The causal effect remains. *American Psychologist*, 28(7), 617-620. doi:10.1037/h0038223.
- Huesmann, L. R., Moise-Titus, J., Podolski, C., & Eron, L. D. (2003). Longitudinal relations between children's exposure to TV violence and their aggressive and violent behavior in young adulthood: 1977-1992. *Developmental Psychology*, 39(2), 201-221. doi:10.1037/0012-1649.39.2.201.
- Jarvik, L. F., Klodin, V., & Matsuyama, S. S. (1973). Human aggression and the extra Y chromosome: Fact or fantasy?. *American Psychologist*, 28(8), 674-682. doi:10.1037/h0035758.
- John, O. P., & Srivastava, S. (1999). The Big-Five trait taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin & O. P. John (Eds.),

Handbook of personality: Theory and research (Vol. 2, pp. 102-138). New York: Guilford Press.

Joireman, J., Anderson, J., & Strathman, A. (2003). The aggression paradox: Understanding links among aggression, sensation seeking, and the consideration of future consequences. *Journal Of Personality And Social Psychology*, 84(6), 1287-1302. doi:10.1037/0022-3514.84.6.1287.

Keeler, L. A., (2007). The Differences in Sport Aggression, Life Aggression, and Life Assertion Among Adult Male and Female Collision, Contact, and Non-Contact Sport Athletes. *Journal of Sport Behaviour*. 30(1), 57-73. Retrieved from EBSCOhost.

Kim, E. J., Namkoong, K., Ku, T., & Kim, S. J. (2008). The relationship between online game addiction and aggression, self-control and narcissistic personality traits. *European psychiatry*, 23(3), 212-218.

Kluemper, D. H., McLarty, B. D., & Bing, M. N. (2015). Acquaintance ratings of the Big Five personality traits: Incremental validity beyond and interactive effects with self-reports in the prediction of workplace deviance. *Journal Of Applied Psychology*, 100(1), 237-248. doi:10.1037/a0037810.

Knust, S., & Stewart, A. L. (2002). Risk-taking behaviour and criminal offending: an investigation of sensation seeking and the Eysenck personality questionnaire. *Int J Offender Ther Comp Criminol*, 46(5), 586-602.

Kuepper, Y., & Hennig, J. (2007). Behavioral aggression is associated with the 2D:4D ratio in men but not in women. *Journal Of Individual Differences*, 28(2), 64-72. doi:10.1027/1614-0001.28.2.64.

Lane, A. M. (2008). Ethical issues working in professional boxing. *Athletic Insight: the Online Journal of Sport Psychology*, 10(4). 1536-0431. Retrieved from <http://hdl.handle.net/2436/48957>.

Lefkowitz, M. M., Walder, L. O., Eron, L. D., & Huesmann, L. (1973). Preference for televised contact sports as related to sex differences in aggression. *Developmental Psychology*, 9(3), 417-420. doi:10.1037/h0034928.

Linden, J. D. (1970). Reviews, etc.: Eysenck Personality Inventory. *Professional Psychology*, 1(4), 413-415. doi:10.1037/h0020642.

McCrae, R. R., Costa, P. J., & Martin, T. A. (2005). NEO-Personality Inventory-3. *Psyc-tests*, doi:10.1037/t08484-000.

McNamee, M. J., & Parry, S. J. (Eds.). (2002). *Ethics and sport*. Routledge.

- Morizot, J. (2014). Big Five Personality Trait Short Questionnaire. *Psyctests*, doi:10.1037/t36090-000.
- Nocentini, A., Menesini, E., Pastorelli, C., Connolly, J., Pepler, D., & Craig, W. (2011). Physical dating aggression in adolescence: Cultural and gender invariance. *European Psychologist*, 16(4), 278-287. doi:10.1027/1016-9040/a000045.
- O'Brien, E. (2008). *Human Growth & Development: An Irish Perspective*. Dublin: Gill & Macmillan.
- Pauletti, R. E., Cooper, P. J., & Perry, D. G. (2014). Influences of gender identity on children's maltreatment of gender-nonconforming peers: A person \times target analysis of aggression. *Journal Of Personality And Social Psychology*, 106(5), 843-866. doi:10.1037/a0036037.
- Peralta, M. V., Pedrero, E. F., Bravo, L. G., and Giráldez, S. L. (2014). Psychometric properties of the AQ Aggression Scale in Chilean students. *Psicothema*, 26(1), 39-46. doi:10.7334/psicothema2013.84.
- Pond, R. J., DeWall, C. N., Lambert, N. M., Deckman, T., Bonser, I. M., & Fincham, F. D. (2012). Repulsed by violence: Disgust sensitivity buffers trait, behavioral, and daily aggression. *Journal Of Personality And Social Psychology*, 102(1), 175-188. doi:10.1037/a0024296.
- Pond, R. J., DeWall, C. N., Lambert, N. M., Deckman, T., Bonser, I. M., & Fincham, F. D. (2012). Repulsed by violence: Disgust sensitivity buffers trait, behavioral, and daily aggression. *Journal Of Personality And Social Psychology*, 102(1), 175-188. doi:10.1037/a0024296.
- Przybylski, A. K., Deci, E. L., Rigby, C. S., & Ryan, R. M. (2014). Competence-impeding electronic games and players' aggressive feelings, thoughts, and behaviors. *Journal Of Personality And Social Psychology*, 106(3), 441-457. doi:10.1037/a0034820.
- Roberts, B. W., & Mroczek, D. (2008). Personality trait change in adulthood. *Current directions in psychological science*, 17(1), 31-35.
- Roberts, B. W., Kuncel, N. R., Shiner, R., Caspi, A., & Goldberg, L. R. (2007). The power of personality: The comparative validity of personality traits, socioeconomic status, and cognitive ability for predicting important life outcomes. *Perspectives on Psychological Science*, 2(4), 313-345.
- Roberts, B. W., Walton, K. E., & Viechtbauer, W. (2006). Patterns of mean-level change in personality traits across the life course: a meta-analysis of longitudinal studies. *Psychological bulletin*, 132(1), 1.

Roos, S., Hodges, E. E., & Salmivalli, C. (2014). Do guilt- and shame-proneness differentially predict prosocial, aggressive, and withdrawn behaviors during early adolescence?. *Developmental Psychology*, 50(3), 941-946. doi:10.1037/a0033904.

Rosenfeld, P. R., Giacalone, R. A., & Riordan, C. A. (1995). *Impression management in organizations: Theory, measurement, and practice*. New York, NY: Routledge.

Shields, D. L., & Bredemeier, B. L. (1996). Sport, militarism, and peace. *Peace And Conflict: Journal Of Peace Psychology*, 2(4), 369-383. doi:10.1207/s15327949pac0204_7.

Veira, Y., Finger, B., Schuetze, P., Colder, C. R., Godleski, S., & Eiden, R. D. (2014). Child behavior problems: Role of cocaine use, parenting, and child exposure to violence. *Psychology Of Violence*, 4(3), 266-280. doi:10.1037/a0036157.

Vitacco, M. J., Van Rybroek, G. J., Rogstad, J. E., Yahr, L. E., Tomony, J. D., & Saewert, E. (2009). Predicting short-term institutional aggression in forensic patients: A multi-trait method for understanding subtypes of aggression. *Law And Human Behavior*, 33(4), 308-319. doi:10.1007/s10979-008-9155-7.

Walters, G. D., Ronen, T., & Rosenbaum, M. (2010). The latent structure of childhood aggression: A taxometric analysis of self-reported and teacher-rated aggression in Israeli schoolchildren. *Psychological Assessment*, 22(3), 628-637. doi:10.1037/a0019779.

Appendix A

NATIONAL COLLEGE OF IRELAND
Consent Form

FINAL YEAR RESEARCH PROJECT: INVESTIGATING THE RELATIONSHIP BETWEEN SPORT AND PERSONALITY TRAITS IN YOUNG ADULTS

Background to the study:

You are invited to take part in a research study which aims to investigate whether young adults who play different kinds of sports display different personality traits. I am undertaking this research as part of my final year project for a BA degree in Psychology, at the National College of Ireland (NCI), Dublin. This study has been approved by the ethics review committee in NCI.

I am looking for participants aged between 18 and 30 years who regularly take part in boxing, football or non-competitive sports (e.g. swimming, gym) to complete my study. Personality will be assessed using two self-report questionnaires.

Participants Involvement:

The study will ask for your full co-operation and honesty to complete three short questionnaires, which will take approximately 15 minutes. You are not obligated to partake in this study if you do not wish, and there is no obligation for you to complete the study once started. If you do agree to participate your identity will remain confidential and the data will be anonymised.

Consent to take part in the study:

- I agree to participate in this research project.
- I have read this consent form and the information it contains and had the opportunity to ask questions about them.
- I agree to my responses being used for education and research on condition that my privacy is respected, subject to the following:
- I understand that I will not be personally identifiable
- I understand that I am under no obligation to take part in this project.
- I understand I have the right to withdraw from this project at any stage.

**Participants wishing to preserve some degree of anonymity may use their initials (from the British Psychological Society Guidelines for Minimal Standards of Ethical Approval in Psychological Research)*

Name of Participant (Print): _____

Signature of Participant: _____

Name of person who sought consent (Print): _____

Signature of person who sought consent: _____

Participant Background Information

For Researcher Use Only: Participant Code: _____

Age: _____

Gender: _____

Do you play any sports? If yes, please give details:

Do you play sport competitively? If yes, please indicate which sports:

What age did you first start playing competitively? _____

What has been your main influence or motivation for starting/competing in your sport?

In your opinion, what role does your sport play in today's society?

Do you ever feel aggressive while competing?

Do you feel in control of your emotions when you are competing?

Appendix B

Using this 5 point scale, indicate how uncharacteristic or characteristic each of the following statements is in describing you.

	Extremely uncharacteristic	Somewhat uncharacteristic	Neither uncharacteristic nor characteristic	Somewhat characteristic	Extremely characteristic
1. Some of my friends think I am a hothead.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. If I have to resort to violence to protect my rights, I will.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. When people are especially nice to me, I wonder what they want.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I tell my friends openly when I disagree with them.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. I have become so mad that I have broken things.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. I can't help getting into arguments when people disagree with me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. I wonder why sometimes I feel so bitter about things.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Once in a while, I can't control the urge to strike another person.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. I am an even-tempered person.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. I am suspicious of overly friendly strangers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. I have threatened people I know.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. I flare up quickly but get over it quickly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. Given enough provocation, I may hit another person.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. When people annoy me, I may tell them what I think of them.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Extremely uncharacteristic	Somewhat uncharacteristic	Neither uncharacteristic nor characteristic	Somewhat characteristic	Extremely characteristic
15. I am sometimes eaten up with jealousy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. I can think of no good reason for ever hitting a person.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. At times I feel I have gotten a raw deal out of life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. I have trouble controlling my temper.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. When frustrated, I let my irritation show.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. I sometimes feel that people are laughing at me behind my back.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. I often find myself disagreeing with people.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. If somebody hits me, I hit back.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23. I sometimes feel like a powder keg ready to explode.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24. Other people always seem to get the breaks.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25. There are people who pushed me so far that we came to blows.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26. I know that "friends" talk about me behind my back.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27. My friends say that I'm somewhat argumentative.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
28. Sometimes I fly off the handle for no good reason.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
29. I get into fights a little more than the average person.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix C

Short-scale Eysenck Personality Questionnaire--Revised

1. Does your mood often go up and down?
2. Do you take much notice of what people think?
3. Are you a talkative person?
4. If you say you will do something, do you always keep your promise no matter how inconvenient it might be?
5. Do you ever feel 'just miserable' for no reason?
6. Would being in debt worry you?
7. Are you rather lively?
8. Were you ever greedy by helping yourself to more than your share of anything?
9. Are you an irritable person?
10. Would you take drugs which may have strange or dangerous effects?
11. Do you enjoy meeting new people?
12. Have you ever blamed someone for doing something you knew was really your fault?
13. Are your feelings easily hurt?
14. Do you prefer to go your own way rather than act by the rules?
15. Can you usually let yourself go and enjoy yourself at a lively party?
16. Are all your habits good and desirable ones?
17. Do you often feel 'fed-up'?
18. Do good manners and cleanliness matter much to you?
19. Do you usually take the initiative in making new friends?
20. Have you ever taken anything (even a pin or button) that belonged to someone else?
21. Would you call yourself a nervous person?
22. Do you think marriage is old-fashioned and should be done away with?
23. Can you easily get some life into a rather dull party?
24. Have you ever broken or lost something belonging to someone else?
25. Are you a worrier?
26. Do you enjoy co-operating with others?

27. Do you tend to keep in the background on social occasions?
28. Does it worry you if you know there are mistakes in your work?
29. Have you ever said anything bad or nasty about anyone?
30. Would you call yourself tense or 'highly-strung'?
31. Do you think people spend too much time safeguarding their future with savings and insurances?
32. Do you like mixing with people?
33. As a child were you ever cheeky to your parents?
34. Do you worry too long after an embarrassing experience?
35. Do you try not to be rude to people?
36. Do you like plenty of bustle and excitement around you?
37. Have you ever cheated at a game?
38. Do you suffer from 'nerves'?
39. Would you like other people to be afraid of you?
40. Have you ever taken advantage of someone?
41. Are you mostly quiet when you are with other people?
42. Do you often feel lonely?
43. Is it better to follow society's rules than go your own way?
44. Do other people think of you as being very lively?
45. Do you always practice what you preach?
46. Are you often troubled about feelings of guilt?
47. Do you sometimes put off until tomorrow what you ought to do today?
48. Can you get a party going?