A comparative study of self-esteem, mental toughness and athletic identity in team and individual sports: male athletes.

Luke Maher

BA (Hons) Psychology

National College of Ireland   **2016**

Submission of Thesis and Dissertation

National College of Ireland

Research Students Declaration Form

(Thesis/Author Declaration Form)

Name: **Luke Maher**

Student Number: **13562887**

Degree for which thesis is submitted: **Hons(BA)Psychology**

Material submitted for award

>   (a) I declare that the work has been composed by myself.

>   (b) I declare that all verbatim extracts contained in the thesis have been distinguished by quotation marks and the sources of information specifically acknowledged.

>   (c) My thesis will be included in electronic format in the College Institutional Repository TRAP (thesis reports and projects)

>   (d) *Either* *I declare that no material contained in the thesis has been used in any other submission for an academic award.

>   *Or* *I declare that the following material contained in the thesis formed part of a submission for the award of

_____

(State the award and the awarding body and list the material below)

Signature of research student: _____

Date:_____

Submission of Thesis to Norma Smurfit Library, National College of Ireland

Student name: Luke Maher.   Student number: 13562887.

School : Psychology department, school of business.   Course: Psychology

Degree to be awarded: BA(Hons)Psychology

Title of thesis: A comparative study of self-esteem, mental toughness and athletic identity in team and individual sports: male athletes.

One hard bound copy of your thesis will be lodged in the Norma Smurfit Library and will be available for consultation. The electronic copy will be accessible in TRAP (http://trap.ncirl.ie/), the National College of Ireland's Institutional Repository. In accordance with normal academic library practice all theses lodged in the National College of Ireland Institutional Repository (TRAP) are made available on open access.

I agree to a hard bound copy of my thesis being available for consultation in the library. I also agree to an electronic copy of my thesis being made publicly available on the National College of Ireland's Institutional Repository TRAP.

Signature of Candidate: _____

For completion by the School:
The aforementioned thesis was received by_____
Date:_____
This signed form must be appended to all hard bound and electronic copies of your thesis submitted to your school

<u>Acknowledgements</u>

Abstract

Self-esteem, mental toughness and athletic identity are all psychological factors which are essential in order for athletes to maximise their performance, enjoyment and maintain positive mental health. The research of the psychological characteristics of athletes is an area that must receive more focus, as it is sometimes neglected as athletes are not seen as a vulnerable group. The current study hypothesized that team and individual athletes would have different levels of self-esteem, athletic identity and mental toughness. Furthermore, it was explored whether years of experience and hours of practice per week would affect levels of self-esteem, athletic identity and mental toughness. The sample consisted of 104 athletes, (51%) individual athletes and (49%) team athletes. Participants from 7 different sports were included, 3 were team sports and 4 individual sports. The measures used to test the dependent variables were the Rosenberg self-esteem scale, Sport mental toughness scale and an Athletic Identity subscale developed from the Academic and Athletic identity scale. Results revealed that team athletes scored significantly higher on levels of athletic identity than individual athletes, However, no significant difference was found on levels of mental toughness and self-esteem between the two groups. Furthermore it was revealed that the most experienced individuals had significantly higher levels of self-esteem and athletic identity than the least experienced. Also, it was revealed that individuals who put in the greatest number of hours of practice per week had the highest levels of mental toughness and athletic identity.

Table of Contents

<u>Introduction</u>

Emotion related research in sport psychology has been associated with a number of factors beyond the physiology of athletes, which have been found to be paramount in the performance and mental well-being of athletes. Sport psychology is broadly defined as ''the study and application of psychological factors and the effect they have on athletic skills and performance (Silva & Weinberg, 1984). Self-esteem, athletic identity and mental toughness are some of the emotional factors which can significantly affect the performance and general life of an athlete.

Team and Individual athletes

A number of psychological factors have been uncovered and their importance in sport has been highlighted due to the growth in the field of sport psychology. One significant factor which may affect an athlete's performance, and even their psychological well-being, is whether the sport involves a solo individual performance or a team performance. There are a number of fundamental differences in team and individual sport athletes that are important to be uncovered so that the right support can be put in place for athletes where necessary. Due to the increasingly competitive nature of sport a number of characteristics such as motivation, self-confidence, coping strategies, self-esteem, and mental toughness, all play a vital role in the success of an athlete and the maintenance of their psychological well-being. Also, due to the variation in modern day sport along with a number of differences in environmental stimuli and stressors found in each sport, it is important not to assume that athletes from all sports are the same (Schaal et al., 2011).

A number of factors associated with positive performance have been revealed through extensive research in the field of performance psychology. Kajbafnezhad, Ahadi, Heidarie, Askari & Enayati (2011) carried out a study in which they tested the key mental skills required to achieve success and a high level of performance in sport. Their results indicated that there was an immense difference between individual and team athletes in terms of their mental skills, such as concentration, management of anxiety, and self-talk. Team sport athletes scored significantly higher on levels of mental skills. It is suggested that working in a team with other athletes may help individuals stay focused throughout competition and training.

Burnout and stress are also factors that can affect athletes' self-esteem and athletic identity. These factors can cause a major decline in athletic performance, and in some cases may drive an individual to give up competitive sport. Burnout and stress can be the result of over-training, low self-esteem and a lack of mental toughness when dealing with an excess of stressors and the build up of pressure in sport. Nafian et al. (2014) found that individual and team athletes differed on levels of stress and burnout, with team athletes reporting significantly higher levels than individual athletes. This could be due to team pressure from a coach, manager, or teammates (Goodger al., 2007).

Self-esteem in Athletes

Self-Esteem is an essential characteristic for individuals to be successful in sport and general life. Self-esteem is the confidence an individual has in his/her own ability and how they value themselves accordingly (Rosenberg, 1965a). Self-esteem is often measured on a continuum and can be quantified as high, medium or low in quantitative research. When considering self-esteem, it is important to note that not only low levels can negatively affect an individual

emotionally, but having levels of self-esteem which are too high can also be problematic (Baumeister et al., 1993). Self-esteem occurs in all individuals in concurrence with a person's thoughts, actions, feelings and beliefs, and is a vital factor for an individual to achieve personal goals and maintain positive mental health (Maslow, 1987). A number of studies have found there to be a positive relationship between sports participation and self-esteem. Research suggests that sport participation increases self-esteem and enhances general psychological well-being (Slutzky & Simpkins, 2009; Weinberg, 1995; Whitehead & Corbin, 1997). Sport psychologists, practitioners and other researchers have suggested why self-esteem is enhanced by sports participation. This positive connection between self-esteem and sports participation is likely due to the positive health and social characteristics associated with being involved in sport. Also, the increase in body image and physical competence that comes with being involved in sport are factors closely associated with self-esteem. (Bowker, 2006; Whitehead & Corbin, 1997).

Kocak (2015) carried out a study on the self-esteem levels of 215 futsal players between 18-30 years of age, and the results showed that 93% of the participants had self-esteem scores ranging from medium to high, compared to the general population which were found to have scores ranging from low to medium. Furthermore, this study reported that an increase in age was negatively associated with levels of self-esteem in futsal athletes, unlike in the general population where self-esteem increases along with age (Trzesniewski, Tracy, Gosling & Potter, 2002). Similarly, Yigiter (2014) tested levels of self-esteem on student athletes and non-athletes, and found that athletes scored significantly higher on their levels of self-esteem. This shows the importance of sport participation and psychical activity, as well as the impact it has on the significant factor of mental health that is self-esteem.

It is important to note that esteem is needed from others as well as the self in order for an individual to grow (Maslow, 1987). This can be seen in sport, as individuals who participate in sports also need support from other team members, managers and coaches in order for their self-esteem to grow, and to perform to their maximum potential. Coaches are known to use a number of specific techniques that enhance athletes' evaluation of themselves, and therefore improve athletic performance. For example, some coaches use mental imagery techniques where they have an athlete imagine themselves performing at their optimum, therefore allowing athletes to practise the task in their mind before competition. This type of technique can significantly boost feelings of self-confidence and general self-esteem in an athlete, and can improve competitive performance (Mamassis & Doganis, 2004: Feltz & Lirgg, 2001). Team sport athletes generally get less one-on-one time with a coach as team coaches usually work with a team in a more general sense and spend less time with individuals, and therefore may work as a disadvantage for team athlete's growth of self-esteem.

In a study on perfectionism and performance anxiety in musicians, Sinden (1999) found that individuals with low self-esteem and high concern over mistakes were significantly affected by performance anxiety. Performance anxiety is also known to occur in athletes and often causes athletes to choke under pressure and not perform to their full potential. This shows the significant impact low levels of self-esteem can have on an athlete's performance. In a previous study which investigated the different levels of self-esteem in team sport athletes, individual sport athletes and non-athletes, Kumar et al. (1985) found that individual sport athletes did in fact score higher in personally and socially perceived self-esteem than team sport athletes, although this study only consisted of one hundred people and only used college athletes in one age bracket. Furthermore, in a study carried out exploring the differences in

levels of self-esteem in team and individual athletes, with a sample of just under 2000 students, Ómarsson, (2013) reported results in congruence with Kumar et al. (1985), which suggested that athletes who participated in individual sports scored significantly higher on levels of self-esteem than individuals competing in team sports. Zaccaro, Peterson & Walker, (1987) suggests that the higher levels of self-esteem among individual athletes could be due to the glory being given to them individually after a sporting accomplishment, in contrast to a team sport where the achievement is shared and not quite as personal. This may be seen as a positive but, in contrast, if an athlete suffers a loss in an individual sport it may negatively affect them more than a team sport athlete as there is no one to share the burden of the loss with.

The majority of research on levels of self-esteem in athletes reports individual athletes producing higher levels of self-esteem. In contradiction Branscombe & Wann (1991) suggest that team sport athletes should have higher levels of self-esteem as a strong team identification may provide feelings of belongingness and also act as a buffer to feelings of isolation. Also, support and esteem from teammates should prove to positively influence self-esteem in team athletes.

Mental toughness of Athletes

Mental toughness is an indispensable characteristic of a successful athlete; it has been acknowledged as one of the most fundamental traits underpinning performance and excellence in a sporting setting (Gucciardii et al., 2015). Mental toughness is made up of a number of tangible attributes. Suggested definitions include: an individual's ability to persevere in the face of adversity and challenging situations (Goldberg, 1998), an ability to bounce back effectively from failure (Carr, 2010), and also an individual's ability to try their

best every time and their ability to maintain concentration and confidence after a loss (Karageorghis & Terry, 2010). In a study carried out on the mental toughness of elite sport performers by Jones (2002), 12 distinct attributes which are vital in order for elite athletes to be mentally tough were identified. The importance of each attribute was ranked between one and twelve. The three most important attributes of a mentally tough elite sports person were; one, having an unshakeable self-belief in one's own ability to reach their goals; two, was having an unshakable self-belief that you possess greater ability and qualities than your opponents; and thirdly, having an unquenchable internal desire and motivation to succeed over their opponents. All twelve attributes of elite mentally tough athletes were related to desire, motivation, self-belief, handling pressure, and handling failure. All twelve attributes found to be vital for mental toughness are equally reported by individual and team sport athletes.

A growing body of research has identified the importance of a number of skills which can be coached and strengthened in order to make an individual more resilient in sport. Some of the psychological techniques which have been found to be most effective in improving mental toughness include positive thinking, mental imagery, changes of mindset and strength based approaches which focus on reinforcing inherent strengths (Gordon 2012 ; Gucciardi & Gordon, 2011; Weinberg & Williams, 2006). These techniques could be very beneficial for both team and individual athletes in order to enhance resilience/mental toughness. Mental toughness techniques have become an extremely important focal point for athletes, coaches and a number of other sport governing bodies. These techniques are becoming more commonly used with the goal of enhanced performance, enjoyment of sport and improved general mental well being. Similarly, Harmison (2011) suggests that in order for individuals to be resilient in achieving their peak performance, they need competent mental skills such as

relaxation skills, attention control and optimal levels of arousal. Ideally, in order for an athlete to enhance mental toughness these skills can be practiced and strengthened. This can be achieved either with a sport psychologist working directly with team or individual athletes, or it can be achieved by working with a coach and teaching a coach the techniques to make it possible for the them to incorporate these mental skills into a training regime. Furthermore, in a study carried out comparing highly skilled athletes to average skilled athletes, findings of the study demonstrated that the highly skilled athletes exhibited significantly higher levels of mental toughness. This was suggested to be due to being more competitive in nature, having greater confidence in their own technical ability and having an internal locus of control (Thomas, Schlinker & Over, 1996).

Zeng (2003) reported significantly higher self-confidence levels in team athletes in comparison to individual athletes. This result gives us reason to believe that mental toughness levels will also be higher in team sport athletes, as according to the "sport mental toughness questionnaire" (Sheard, Golby & Wersch, 2009), self-confidence is a key element of mental toughness. Similiarily, Jalili, Hosseini & Salehian (2011) results from a study carried out on female athletes are in agreement with Zeng (2003) results. This study revealed that there were significant differences in levels of mental toughness between team athletes and individual athletes, with team athletes scoring higher on levels of mental toughness. This could be due to the fact that team athletes have been found to be more aggressive, jealous and have more pride than individual athletes. This may be due to the completive nature within a team where team mates are competing with each other on a regular basis, this constant competition therefore requiring greater mental toughness. Furthermore, athletes who participate in team sports are impacted strongly by ''team resilience''. Team resilience is a psychosocial process which protects a group of individuals collectively from the negative possible outcomes of

stressors, pressure and adversity. Individuals in a team combine their resources to positively deal with adversity and challenges to react and cope effectively (Masten & O'Dougherty Wright, 2010). Although a number of studies found significant differences in levels of mental toughness between team sports and individual sport, another study's results contradict these findings. Nicholls, Polman, Levy & Backhouse, (2009) found that there is no significant relationship between team and individual sport athletes on levels of mental toughness. Also, when the affect of experience on mental toughness was tested, Nicholls et al. (2009) revealed that there was a significant relationship between mental toughness and years of sporting experience. Results revealed that athletes' levels of mental toughness increased in correlation with increasing age and a greater number of years of sporting experience. Also, as age and years of experience are likely closely related, it is suggested that biological and learning experience factors may have an impact on this result.

Athletic Identity

Athletic identity is a self-concept based on the degree of strength in which a person identifies with their athletic role; it is developed from a self-schema about oneself. (Griffith & Johnson, 2002). Stambulova (1994) suggested that one third of an athlete's life is engaged by his or her sport career. This shows how important sport is for an athlete's psychological well-being as it is central to their identity. It has never been distinguished whether individual sport athletes or team sport athletes have higher levels of athletic identity. Athletic Identity is paramount to the success of athletes but also can be potentially dangerous and can lead to future problems. Individuals with very strong athletic identities can experience high levels of stress and anxiety in competitions which may become overwhelming and traumatic for the athlete (Petrie, Trent, Deiter & Harmison, 2014).

Also, the current literature suggests that high levels of athletic identity can cause a negative effect on the development of a broader personal identity, as the development of their identity is too strongly based around their athletic persona. This can be unrealistic as this persona can't always be maintained. This can be very problematic for athletes who are overly dependent on this role, and thus if for any reason this role gets disrupted, for example by a serious injury, athletes can in turn suffer from lack of self-esteem, anxiety and depression (Werthner & Orlick, 1986). Although having excessively high levels of athletic identity can be problematic, research has found that high levels of athletic identity can also be beneficial. Having a strong athletic identity is associated with a number of both psychological and physical health benefits such as high levels of exercise, above average levels of self-confidence, as well as increases in the quality of social relationships (Petitpas, 1978). Supplementary to the physical and mental health benefits of athletic identity, other scholars have found that high levels of athletic identity can be advantageous in the deterrence of the use of recreational drugs, smoking and consumption of alcoholic substances due to a strong association and commitment to sport (Hudson, 2000).

Cornelius, (1995) suggests that an individual's athletic identity is contingent on their past years of experience, current sport involvement and whether they have been successful throughout their sporting career. Therefore, an individual's athletic identity often varies depending on how often they participate in sport and the amount of experience they have in that sport. In addition, a study was carried out by Chen, Snyder & Magner, (2010) on the effects of sports participation of student athletes on social life and general identity. Results of this study revealed that individual athletes scored higher on the variable 'importance of sport' which is closely related to athletic identity. Although individual athletes scored higher on the variable 'importance of sport', team sports athletes found that their personal role as an

athlete, personal attributes and social relationships to be more important, therefore suggesting that team athletes would most likely score higher on athletic identity. These results show a number of important variables which are imperative in the formation of athletic identity, and can be seen in both team and individual athletes. This study's results are limited as it doesn't calculate a specific score for levels of athletic identity as it was of qualitative nature.

Years of Experience in sport

Years of experience in sport participation impacts on a number of different variables that are fundamental for an individual to achieve success. For example, expert performance can only be achieved with an extensive amount of years of experience in their sport domain. This is due to the amount of practice carried out and levels of knowledge gained through years of experience (Ericsson, 2006). Mental toughness is a vital characteristic for the success of athletes and is affected by years of experience, Connaughton, Wadey, Hanton & Jones, (2008) outlined a number of underlying stages of mental toughness development which occur in the early, middle and later years of sport participation. Results from this study suggested that each stage offered a distinctive impact on the development of mental toughness. During the early development stage of sport, results showed that athletes first develop mental toughness through challenging and rewarding experiences in sport, whereas in the middle years of sport, competition becomes more intense and athletes have to deal with a plethora of pressures and stressors in which greater resilience is required to adapt appropriately. Lastly, in their later years of sport an athlete is at their most experienced and mental toughness should be at its greatest, due to the accumulation of competitive sport experiences that the athlete has participated in.

Self-esteem is known to be an underlying factor in the success, failure and mental well-being of athletes. There has been a limited amount of research carried out on levels of self-esteem relative to age and years of experience in sport. A number of studies in psychology have investigated the effect age has on general levels of self-esteem. In a global study of self-esteem across life span Robins et al. (2002) reported that individuals' levels of self-esteem in adulthood are steadily increasing in males between the ages of 18 and 69, and thus there is a strong possibility that an athlete's levels of self-esteem may increase relative to their age and years of experience in sport.

Rationale and Hypotheses:

The purpose of the present study is to investigate whether male individual athletes or team athletes differ on levels of self-esteem, athletic identity and mental toughness. The study will also explore the affects of years of experience and hours of practice per week on above dependent variables. The rationale of this study is to add to the body of research in the area of sport psychology, specifically relating to a number of emotional factors which significantly affect sporting performance and the mental health of athletes. Furthermore, as stated above there is only one study which compares self-esteem in team and individual athletes (Kumar et al. 1985). The results of this study were quite limited as the sample consisted of athletes from only one age bracket. The present study aims to expand on that research. Additionally, Zeng (2003) found that individual sport athletes had lower confidence levels than team athletes. This suggests that self-esteem scores may be higher in team athletes as self-esteem and self-confidence are closely related factors (Sheard et al., 2009). Having high levels of mental toughness and self-esteem is important for performance in sport and to thrive in all areas of life, and because of this it is a centre of interest in sport psychology. Also, it is understood

that self-esteem improves with age (Robins et al., 2002), and thus this study aims to investigate whether greater years of experience improves self-esteem in athletes.

Stambulova's (1994) findings demonstrates that one third of an athlete's life is engaged by their sport, but no distinction is made between individual and team athletes. The present study aims to highlight whether it is necessary to put greater emphasis on either individual or team athletes when advising athletes to develop other interests, so that athlete's lives are more balanced and not only based around sport. This is significantly important as athletes are not seen as a vulnerable group and therefore very little support is set up for athletes' psychological well-being. Practical implications of this study could be useful to offer recommendations to sports clubs, organisations and other sporting bodies.

Hypothesis 1: That team athletes will have significantly higher levels of self-esteem than individual sport athletes.

Hypothesis 2: That team athletes will score significantly higher than individual athletes on levels of athletic identity.

Hypothesis 3: That there will be a difference in levels of mental toughness between team sport athletes and the individual sport athletes.

Hypothesis 4: That athletes with greater years of experience will have higher levels of athletic identity, mental toughness and self-esteem.

Hypothesis 5: That athletes who spend the most time practising per week will have the highest levels of athletic identity, self-esteem and mental toughness.

Method

Participants:

The current sample consisted of a total of 104 male athletes: The mean age for the sample was 25.71, with a standard deviation of 7.50 and a range of 18-59 years. The respondents for this study came from seven different types of sports: Soccer (n = 30), martial arts (n= 27), Gaelic football (n = 17), Tennis (n = 10), golf (n = 9), boxing (n = 6), hurling (n = 5). Participants from the selected sports were picked as they represent a cross section of both team and individual sports. Of those 104 athletes 51% were individual sport athletes (n = 53) and 49% were team sport athletes (n = 51). The total sample was further split into 5 groups depending on the athlete's years of experience: 0-5 years' experience (n = 26), 5-10 years' experience (n = 18), 10-15 years' experience (n = 23), 15-20 years' experience (n = 28) and greater than 20 years' experience (n = 9). The sample was also grouped depending on the amount of hours of sport practiced per week: 4 hours or less (n= 21), 4-8 hours (n = 51) and greater than 8 hours' participation a week (n = 32). A purposive sampling method was used as only male athletes were eligible to participate in the study.

Study Design:

The design for this study is a quantitative, cross sectional design. The cross sectional between groups design was used as the differences between two groups were being analyzed. The proposed study will investigate whether there is a difference between the two independent variables: "team athletes" and "individual athletes" on the three dependent variables self-esteem, athletic identity and mental toughness. Also years of experience along with hours of practice per week were independent variables as it's hypothesized these independent variables will have an effect on the dependent variables. The study was carried out through

self-report questionnaires and completed on google forums. All data collected was then analyzed using IBM SPPS software.

Measures:

Each participant was firstly given a list of demographic questions to complete along with 3 questionnaires. Demographic information required from each participant was: age, years of experience in sport, category of sport (individual or team sport), type of sport and hours of practice per week.

Self-esteem was assessed using the Rosenberg self-esteem scale (RSES) (Rosenberg, 1965a). The RSES is a 10-item self-report questionnaire that measures an individual's self-worth by measuring positive and negative feeling about the self. The sample used to develop the scale consisted of 5,024 university students from 10 universities' in New York. All items are answered using a 4-point Likert scale format ranging from strongly agree to strongly disagree. Scores of strongly agree are afforded a 4, scores of agree are afforded a 3, scores of disagree are afforded a 2 and strongly disagree responses are afforded a 1.

Scoring can be somewhat complex using this scale as it involves a combined ratings method. Reversed coding is used on questions 2, 5, 6, 8 and 9. On items 1, 3, 4,7,10 "disagree" or "strongly disagree" responses indicate low self-esteem and on items 2, 5,6,8,9 "disagree" or "strongly disagree" responses indicate high self-esteem. Scores range between 1-40 with higher scores reflecting higher self-esteem and vice versa. Scores are totaled by the sum scores of all 10-items.

The Rosenberg Self-Esteem Scale has a Guttman scale coefficient of reproducibility of 9.2, this indicates a strong internal consistency. The scale also has high construct reliability with a

strong internal reliability consistency ranging from .85 and .88, and a Cronbach alpha of .88. Furthermore, the scale demonstrates excellent validity as its scores correlate with other self-esteem scales such as the Coopersmith self-esteem inventory and also coincides with predictions of depression and anxiety measures (Rosenberg, 1965b).

Mental toughness was assessed using the Sport Mental Toughness questionnaire (SMTQ) (Sheard, Golby & Wersch, 2009). The SMTQ is a 14-item self-report questionnaire for the assessment of mental toughness in sport. The scale was developed based on 1,442 male and female athletes taken form 25 sports classifications with ages ranging from 16-63 years of age.

  The SMTQ responses are rated on a 4-point likert scale with responses ranging from 1 "not at all true" to 4 "very true". The SMTQ also contains 3 subscales: Confidence (6 items), Constancy (4 items), and Control (4 items). A total of 1,142 male and female athletes ranging from 16 to 63 years of age participated in the SMTQ scale development and evaluation phases. Using raw data themes and quotes from qualitative studies, a corpus of sport-relevant items was developed. Reversed coding is used on items 9, 10, 11, 12, 13, and 14. High mental toughness responses are 'very true' or "true" on items 1, 2, 3, 4, 5, 6, 7, 8 and 'not at all true' or "true" on items 9, 10, 11, 12, 13, 14. Scores range between 14-56 with higher scores indicating higher levels of mental toughness. The researcher conducted exploratory and confirmatory factor analysis which revealed a Cronbach's alpha of .79 which shows good reliability an internal consistency. Also evidence of further reliability and validity was established by Kline (2005) who provided strong total Cronbach's alpha for the scale of .70. And reliable scores for the three sub-sections of mental toughness: Confidence 0.80, Constancy 0.74, and Control 0.71.

Athletic Identity was measured using the 6 item athletic identity sub scale of the Academic and Athletic Identity Scale (Yukhymenko, 2014). The Athletic Identity subscale is a self-reported questionnaire which operates on a 6 point Likert scale with responses ranging from 1 'not central to my sense of self' to 6 'very central to my sense of self. The scores range from 6-36, with higher scores indicating higher levels of athletic identity. The Academic and Athletic identity scale has an omega coefficient of .93 which respectively indicates an adequate reliability. Also as a subscale of the Academic and Athletic Identity scale was used a further reliability test had to be administered for Athletic Identity. The researcher conducted exploratory and confirmatory factor analysis which revealed a Cronbach's alpha of .79 which shows good reliability an internal consistency.

Apparatus used for this study included a computer with access to google forums, IBM SPSS software, Microsoft word and the above questionnaires.

Procedure

Firstly, an ethical proposal for the present study was written up to ensure that the research adhered to the National College of Ireland and the Psychological Society of Irelands ethical guidelines. Prior to the commencement of data collection, a preliminary study was conducted using 6 athletes. The preliminary study simply required the athletes to complete the questionnaire which was to be used for the study in question. The participants were timed so that the average completion time of the questionnaire could be recorded for future reference. Also the preliminary study was beneficial in ensuring that all questions asked were clear and easy to understand so that results would be as accurate as possible. Date collection for the current study then began once the preliminary study was completed and the questionnaire was deemed appropriate for use.

The participants for the study then were recruited through a number of, semi-professional teams, university teams and private sport clubs. The participants were met with prior to being given the questionnaire so that they could be informed in person of the nature of the study. In this meeting it was outlined that all possible participants would have full anonymity and the choice to withdraw from the study at any time. Once the participants were informed of the nature of the study a link to the questionnaire was then put up on their sports team's private website were the athletes had the choice to participate in the study. The individuals who decided to participate first had to click a box in the questionnaire indicating that they give consent to take part in the study. All demographics and questions from the above measures were required in order for their data to be eligible for use in the research. The questionnaire took approximately 6 minutes to fill out and all data was collected over a 6-week period.

Results

Descriptive statistics will be displayed in two tables below. *Table 1* representing the frequencies of all participants. *Table 2* then displays the means, confidence intervals, standard error mean, median, standard deviation, range and Cronbach's alpha used to measure participant's athletic identity, mental toughness and self-esteem. Out of the 104 athletes participating in the study, 51% were individual sport athletes (n = 53) and 49% were team sport athletes (n = 51). Descriptive results showed that participants on average had high levels of self-esteem (M = 31.23, SD = 4.42), mental toughness (M = 40.46, SD = 5.59) and athletic identity (M = 26.79, SD = 5.06).

Table 1. *Frequency for the current sample (n = 104)*

Variable	Frequency	Valid percentage

Athlete Type		
Individual Athlete	51	49%
Team Athlete	53	51%
Years of Experience		
0-5 Years	26	25.0%
5-10 Years	18	17.3%
10-15 Years	23	22.1%
15-20 Years	28	26.9%
20 + Years	9	8.7%
Sport Types		
Soccer	30	28.8%
Martial Art	27	26.0%
Gaelic Football	17	16.3%
Tennis	10	9.6%
Golf	9	8.7%
Boxing	6	5.8%
Hurling	5	4.8%
Hours practice in sport a week		
2 hours or less	3	2.9%
2 – 4 hours	18	17.3%
4 - 8 hours	51	49%
More than 8 hours	32	30.8%

Table 2. Descriptive statistics and reliability for all continuous variables.

	Means(95% confidence intervals)	Std. Error Mean	Median	SD	Range	Cronbach's Alpha
Self-Esteem	31.23 (30.29 - 32.16)	.47	32	4.82	10 - 40	.88
Mental toughness	40.46 (39.38 - 41.55)	.55	39	5.59	27 - 53	.79
Athletic Identity	26.79 (25.80 – 27.77)	.50	27	5.06	11 – 36	.86

Comparison between team and individual athletes:

T-tests were used in order to compare mean scores of individual and team athletes on their

levels of self-esteem, athletic identity and mental toughness.

Self-esteem:

Hypothesis 1 stated that team athletes will have significantly higher levels of self-esteem than

individual sport athletes. The first independent samples t-test was conducted to compare self-

esteem scores for individual athletes and team athletes. There was no significant difference in

scores between the two groups on their levels of self-esteem, $t(102) = .967$, $P > .05$, two-

tailed with individual athletes (M = 30.76, SD = 4.448,) and team athletes (M= 31.68, SD =

5.154) (see table 3).The magnitude of the differences in the means (mean difference = .915,

95% CI: -9.61 to 2.8) was small (eta squared = .01).

Mental toughness:

Hypothesis 2 stated that there would be a difference in levels of mental toughness between

male team sport athletes and individual sport athletes. The second independent samples t-test

was conducted to compare sport mental toughness scores for individual and team athletes.

There was no significant difference in scores between the two groups on their levels of

mental toughness, $t(102) = -.051$, $P > .05$, two tailed with Team athletes (M = 40.43, SD =

5.559) and individual athletes (M = 40.49, SD = 5.669) (see table 3). The magnitude of the

difference in the means (mean difference = -0.56, 95% CI: -2.240 to 2.128) showed no effect (eta squared = -0.002).

Athletic Identity:

Hypothesis 3 stated that there would be a difference in levels of athletic identity between male team sport athletes and individual sport athletes The final independent samples t-test was conducted to compare athletic identity scores for individual and team athletes. There was a significant difference in scores between the two groups of athletes, $t(102) = 2.59$, $p<.05$, two tailed with team sport athletes ($M = 28.02$, $SD = 4.088$) scoring higher than individual athletes ($M = 25.51$, $SD = 5.662$) (see table 3). The magnitude of the differences in the means (mean difference = 2.51, 95% CI: .579 to 4.44) was medium (eta squared .06).

Table 3. *Independent samples t-test results. Mean scores, standard deviations, t-values and p-values for self-esteem, mental toughness and athletic identity.*

Measure	Team Athletes	Individual athletes	t-value	p- value
	Means (SD)			
Athletic Identity	*28,02 (4.1)*	*25.51 (5.6)*	*2.59*	*.011*
Mental toughness	40.43 (5.5)	40.49 (5.7)	*-.051*	*.959*
Self-esteem	30.76 (4.4)	30.76 (4.4)	*.97*	*.336*

Note: Statistical significant difference $P \leq 0.05$

Comparison between different levels of experience:
Two multivariate analysis of variance tests were used in order to investigate hypothesis 4, whether years of experience and hours of practice per week affected the three dependant variables; self-esteem, athletic identity and mental toughness.

Years of experience:

A one-way multivariate analysis of variance (MANOVA) was conducted to test the hypothesis that there would be one or more mean difference between years of experience and levels of self-esteem, athletic identity and mental toughness. Participants were divided into five groups depending on their amount of sporting experience (0-5 years, 5-10 years, 10-15 years, 15-20, 20 or more).

The homogeneity of variance assumption was tested across the groups using $P < .001$ as a criterion. Box's M (22.176) was not significant, p (.678) > (.001) indicating that the sample is of equal variance and the Wilk's Lambda test is appropriate to use.

Using an alpha level of .05, we see that this test is significant, Wilk's value = .74 $F(12, 257)$ = 2.62, $p < .001$, multivariate 2 = .19. This significant F indicates that there are significant differences among the years of experience groups on a linear combination of the three dependent variables. The partial *eta* squared = .096 which indicates that approximately 9.6% multivariate variance of the dependent variables is associated with years of experience.

There was a statistically significant difference in self-esteem scores for two of the five years of experience groups. Post-hoc comparisons using the Tukey HSD test indicated that the mean for the 20 or more years of experience group (M = 35.44, SD = 3.58) scored significantly higher (P = .006) than the least experienced athletes with less than 5 years' experience (M = 29.19, SD = 4.46).

There was no significant difference in mean scores between the 0-5 years', 5-10 years' and 10-15 years' of experience groups.

Furthermore, there was a statistical significant difference in levels of athletic identity for three of the five years of experience groups. Post-hoc comparisons using the Tukey HSD test indicated that the mean score for the groups of athletes with 15-20 years of experience (M = 28.79, SD = 3.90) scored significantly higher (P = .003) than the 0-5 years' experience group

(M = 24.00, SD = 5.81). Also the most experienced group with greater than 20 years' experience (M = 29.33, SD = 3.74) scored significantly higher (P = .034) than the group with less than 0-5 years' experience.

No statistical significance was found between levels of mental toughness and years of experience. All results from the MANOVA are presented in table 4.

Table 4: MANOVA result, *number of participants, mean scores, standard deviations, f-values and p-values for all years of experience groups.*

Years of experience	Group	N	Mean	Standard deviations	F-value	P-value
Self-Esteem	0-5 years	26	29.19	4.46	3.19	**.016**
	5-10 years	18	31.72	3.99		
	10-15 years	23	31.43	3.25		
	15-20 years	28	31.29	6.14		
	>20 years	9	35.44	3.58		
Mental toughness	0-5 years	26	39.96	5.93	1.19	.321
	5-10 years	18	40.00	5.41		
	10-15 years	23	39.83	4.50		
	15-20 years	28	40.54	6.16		
	>20 years	9	44.22	5.26		
Athletic Identity	0-5 years	26	24.00	5.81	4.92	**.001**
	5-10 years	18	25.22	4.39		
	10-15 years	23	27.74	4.79		
	15-20 years	28	28.80	3.90		
	>20 years	9	29.33	3.74		

Comparison between hours of Practice in sport:

A one-way multivariate analysis of variance (MANOVA) was conducted to test hypothesis 5, that there would be one or more mean difference between hours of practice per week and levels of self-esteem, athletic identity and mental toughness. Participants were divided into four groups depending on the amount they practice their sport per week (4 hours or less, 4-8 hours, greater than 8 hours).

The homogeneity of variance assumption was tested across the groups using $P < .001$ as a criterion. Box's M (22.494) was not significant, p (.45) > (.001) indicating that there are significant differences between the covariate matrixes, therefore the Pillai's Trace test must be used as it is more robust.

Using an alpha level of .05, we see that this test is significant, Pillai's Trace= .18 $F (6, 200) = 3.23$, $p < .001$; multivariate partial *eta* squared = .088. The multivariate effect size was .088 which indicates that approximately 8.8% multivariate variance of the dependent variables is associated with hours of sport practice per week.

There was a statistically significant difference found on levels of mental toughness scores for the years of experience groups. Post-hoc comparisons using the Tukey HSD test indicated that the mean for athletes in the group with greater than 8 hours of practice a week (M = 42.34, SD = 5.93) scored significantly higher (P = .011) than the group who only practiced less 4 hours a week (M = 37.86, SD = 5.33). There were no other significant differences between the 4-8 hours a week group.

Also a statistically significant difference was found in athletic identity scores and hours of practice per week. Post-hoc comparisons using the Tukey HSD test indicated that the mean for athletes in the group with greater than 8 hours of practice a week (M = 29.25 SD = 4.90)

scored significantly higher (P < .001) than the 4 hours or less group (M = 24.05, SD = 3.63); and significantly higher (P = .023) than the 4-8 hours' groups (M = 26.37 SD = 5.04). No statistical significance was found between levels of self-esteem and hours of practice per week. All results from the MANOVA are presented in table 5.

Table 5: MANOVA result, *number of participants, mean scores, standard deviations, f-values and p-values for all hours of participation groups.*

Hours of practice per week	Group	N	mean	Standard deviation	F-value	P-value
Self-esteem	4 hours or less	21	30.14	6.10	1.10	.336
	4- 8 hours	51	31.12	4.82		
	>8 hours	32	32.13	3.74		
Mental toughness	4 hours or less	21	37.86	5.33	4.38	**.015**
	4-8 hours	51	40.35	5.01		
	>8 hours	32	42.34	5.93		
Athletic Identity	4 hours or less	21	24.05	3.63	8.00	**.001**
	4-8 hour	51	26.37	5.04		
	>8 hours	32	29.25	4.90		

Discussion

Team athletes vs. Individual athletes

The current study sought to investigate whether team and individual athletes differed in their levels of self-esteem, athletic identity and mental toughness. Another aim of the study was to explore the effects of hours of practice and years of experience on self-esteem, athletic

identity and mental toughness. Hypothesis one stated that team athletes should have significantly higher levels of self-esteem than individual sport athletes. Previous research from Kumar et al (1985) and Ómarsson (2013) both reported findings that individual athletes score higher on levels of self-esteem than team athletes. Surprisingly, the results from the present study found that there was no significant difference between team and individual sport athletes on their levels of self-esteem. The dissimilarity in results may have something to do with the difference in age groups within the samples, as the current study uses a variety of ages ranging from 18 to 59 years, compared to Ómarsson (2013) who had a sample of solely high school athletes aged 17 and Kumar et al (1985) whose study consisted of undergraduate student athletes. Although it was hypothesized that team athletes would score higher on levels of self esteem, the present study found no difference. However, a plausible explanation for team athletes not scoring higher on self-esteem may be that some of the selected individual sports used in the current study have somewhat of a team element involved; for example, in martial arts, boxing and tennis, most of the training is in fact carried out in a group environment. This is important to note as Branscombe & Wann (1991) suggest that team athletes should have higher levels of self-esteem, as being part of a social group promotes feelings of belongingness and lack of isolation. Thus it is possible that because many of the individual sports require athletes to work in social groups in order to practice and prepare for competition, many individual athletes may also get the same benefits as team athletes due to the social aspect that is present in many individual sports. This may account for there being no significant difference found in the present study. Furthermore, all previous research comparing team and individual athletes on self-esteem levels used both female and male participants, in contrast to the current study which specifically used only male athletes. The gender mix may account for the dissimilarity between results from the current study and the previous research mentioned above. Also, perhaps some of the inconsistent findings

across literature could be due to cross-cultural differences as the current study mainly consisted of athletes from Ireland whereas the samples from the other two studies solely consisted of American participants and Icelandic participants respectively.

The second hypothesis then stated that team athletes would score significantly higher than individual athletes on levels of athletic identity. The results from the current study show that team athletes score significantly higher than individual athletes on their levels of athletic identity. After relevant literature was reviewed it was apparent that there was no evidence that a study comparing team and individual athletes specifically on levels of athlete identity had been done prior. The most closely related study on athletic identity used a qualitative design and compared team and individual athletes on social life and general identity (Chen et al., 2010). The results of this study found that team athletes rated the importance of their role as an athlete, social relationships and personal attributes as more highly than individual athletes. These findings are complementary to the results of the current study as the above variables are highly related to the formation of athletic identity. We can infer that significantly higher levels of athletic identity in team athletes may be explained by the theory of social identity. This theory suggests that being part of a distinct social team impacts strongly on a person's identity and who they think they are (Hogg, 2006). As team athletes have shared goals and attributes, something that separates them from individual athletes whose goals are primarily concentrated on themselves, less social interaction and bonding is likely to occur between individual athletes and therefore they won't form as much of a relationship with other athletes, which affects their athletic identity. Team members on the other hand share team goals, wins and losses and succeeding is contingent on team work within the team, and because of this it is more likely stronger relationships will be reinforced between team athletes (Tajfel & Turner, 2004). Furthermore, the sense of belongingness that

26

comes with being part of a specific team and the formation of strong relationships is likely to increase athletic identity.

The third hypothesis stated that levels of mental toughness will differ between team and individual athletes. However, the hypothesis was rejected as no significant difference was found between team and individual athletes on their levels of mental toughness. This finding is in line with previous results which also revealed no difference between the two groups of athletes (Nicholls et al., 2009). A suggestion as to why no difference is found may due to the commonly implied idea that mental toughness is an innate genetic characteristic and that often mentally tough individuals don't share similar environmental factors (Horsburgh et al., 2009), although there are some conflicting findings around whether mental toughness is innate or malleable and can be developed. Previous research highlights how mental toughness can be strengthened using practised techniques usually put in place by a sport psychologist. The current study only uses amateur and semi-professional athletes who most likely wouldn't practice or even know about mental toughness strengthening techniques, particularly in Ireland where sport psychologists are rarely utilized in amateur sports (Gordon 2012; Gucciardi & Gordon, 2011; Weinberg & Williams, 2006). Thus if mental toughness is primarily a genetic trait which can only be strengthened using specific techniques typically only practiced with professional athletes, this somewhat explains why amateur team and individual athletes don't differ on mental toughness levels.

Years of experience

The fourth hypothesis then stated that athletes with greater experience in sport will exhibit higher levels of athletic identity, mental toughness and self-esteem. The results supported the hypothesis as the most experienced athletes (>20 years) were found to have significantly

higher levels of self-esteem than the least experienced athletes (0-5 years experience), although the 5-10 years experience, 10-15 years of experience and 15- 20 years experience did not score significantly higher than the 0-5 years group. This shows that only experts and novices differ in levels of self-esteem. Furthermore, this result may be explained by age: Robins et al. (2002) reveled that self-esteem is steadily increasing in adulthood between the ages of 18 and 69. As the most experienced athletes are likely to be older, this may explain why the highest levels of self-esteem are found in the most experienced group.

Similarly, the most experienced group (>20 years experience) individuals had the greatest levels of athletic identity, and both the >20 years and 15-20 years experience groups both scored significantly higher than the 0-5 years experience group on their levels of athletic identity. These results are consistent with findings of Cornelius (1995) who suggests that an individual's athletic identity is contingent on years of experience and their success as an athlete. Also it could possibly be concluded that the longer an individual is involved in sport, the greater the number of social connections will be made through friendships with other athletes and the involvement with a number of sporting organizations over a number of years. This is of course going to increase an individual's athletic identity.

Surprisingly, the results of the current study did not support the common assertion that more experienced athletes have higher levels of mental toughness, yet in the current study no significant difference was found in levels of mental toughness between any of the five different experience groups. This finding is conflicting with results of Nicholls et al. (2009) which found that mental toughness significantly increases with years of experience. A plausible explanation for the conflicting findings may be that the current study consisted of amateur and semi professional athletes compared to Nicholls et al. (2009) sample in which

most of his participants performed internationally and nationally. This is important to note as mental toughness becomes more significant when performing at an elite level due to the increased pressure in higher levels of sport, thus years of experience may only come into play in elite athletes. Another possible explanation for current findings is the implied idea that mental toughness is a fixed biological characteristic (Horsburgh et al., 2009), and therefore that mental toughness would not be effected by years of experience.

Hours of practice

The fifth hypothesis stated that athletes who practice the most amount of time per week will have the highest levels of athletic identity, self-esteem and mental toughness. This hypothesis was supported as mental toughness was found to be significantly higher in the athletes who practice for greater than 8 hours per week as compared to the the group who practice less than 4 hours a week. This finding is supported by Crust & Clough, (2011) who suggest that athletes become more mentally tough from being exposed to challenging situations when practicing in training and in competition. These situations help athletes in learning how to persevere and bounce back effectively in adverse situations. Also, it is presumed that the athletes who practice more than 8 hours a week are most serious about there sport, but it is possible they have incorporated some sort mental skills training into their practice which would strengthen and improve mental toughness (Harmison, 2011). Furthermore, individuals who practice less hours a week are bound to be less mentally tough as they are simply less exposed mentally and physically to demanding circumstances in sport.

Similarly, levels of athletic identity were found to increase along with hours of practice per week, as both the greater than 8 hours practice group and 4-8 hours group both scored significantly higher on levels of athletic identity than the less than 4 hours group. This

finding is congruent with the findings of Cornelius, (1995) who suggests that athletic identic

is contingent on current sport involvement. Thus the more an athlete practises the more

involved they are in their sport, and the more involved they become with other athletes will in

turn increase levels of athletic identity. The hypothesis was rejected as no difference was

found between levels of self-esteem and the amount of practice athletes did per week. A

plausible explanation for this may be due to the fact that all groups in the study are athletes

who practise sport, and past research suggests that any amount of sport participation

increases self-esteem (Slutzky & Simpkins, 2009; Weinberg 1995; Whitehead, & Corbin,

1997). Therefore, maybe a certain amount of sports participation and practice improves self-

esteem yet anything above a couple of hours may not cause a further increase in self-esteem.

 Limitations

As is often the case, the current research had a number of limitations. The use of an online

questionnaire might compromise the reliability of findings, as some individuals may be in a

distracting environment when completing the questionnaire, whereas others may sit down

and concentrate completely on the questionnaire without distraction. Therefore, for future

reference it may be useful to have all athletes complete the questionnaire in an environment

were they can give the questionnaire their full attention. Also, as this study only used amateur

and semi professional athletes, results therefore cannot account for elite or professional

athletes. Also, distribution of age was a limitation as ages ranged between 18 and 59, yet the

average age was 25. Another limitation was that the sample consisted of just males, and

therefore findings are not representative of the entire athlete population.

Implications and future research

This study highlights the importance of a number of important psychological aspects which are fundamental for athletes to be successful in sport and in order to stay psychologically healthy. Findings from the study also support past findings which indicate how important involvement in sport is for mental toughness and self-esteem, as both characteristics were found to be high on average for athletes in the study. Also, as athletic identity is higher in team athletes, it may be important for sporting organizations and bodies to encourage team athletes to have other interest other than just sport. This would be beneficial so that if for any reason their involvement in sport is suddenly disrupted, for example, by a career ending injury, it won't have such severe consequences. Also, for future reference it may be useful to have all athletes complete the questionnaire in an environment where they can give the questionnaire their full attention. Future research on this topic should include professional athletes when comparing team and individual athletes, as it's been found that elite athletes have greater levels of mental toughness and experience greater levels of pressure (Thomas et al. 1996). Also, if this study was to be repeated it would be beneficial to use a gender mix, a greater sample size , and also a greater number of sports in order to get a more representative finding of team and individual athletes.

Conclusion

In conclusion this study has compared individual and team athletes on levels of athletic identity, mental toughness and self-esteem. Also, the effect of years of experience and hours of practice on the above dependent variables were explored. It was revealed that team and individual athletes did not differ on levels of mental toughness or self-esteem rejecting hypothesis 1 and 3. Perhaps for future research, if this study included elite athletes as well as amateurs' results the findings may be different. It has been found that team athletes score

higher than individual athletes on levels of athletic identity, and this finding was particularly important as it's the first time team and individual athletes have been compared on levels of athletic identity in a quantitative study. Furthermore, levels of athletic identity and self-esteem were found to increase with years of experience in sport. Surprisingly, mental toughness was not effected by years of experience, which may be due to mental toughness being a somewhat fixed biological characteristic. An implication of this finding could be for sporting bodies and clubs to encourage the use of sport psychologists so that mental toughness can be strengthened in athletes so it increases with years of experience. The results exploring amounts of practice per week found that both mental toughness and athletic identity increased with hours of practice. This result emphasizes the importance of practice for athletes, in order to improve mental toughness. This is very relevant as athletes need to be mentally tough to perform well, avoid burnout and maintain positive mental health.

References

Baumeister, R. F., Heatherton, T. F., & Tice, D. M. (1993). When ego threats lead to self-regulation failure: negative consequences of high self-esteem. *Journal of personality and social psychology*, *64*(1), 141.

Bowker, A. (2006). The relationship between sports participation and self-esteem during early adolescence. *Canadian Journal of Behavioural Science/Revue canadienne des sciences du comportement*, *38*(3), 214.

Branscombe, N. R., & Wann, D. L. (1991). The positive social and self concept consequences of sports team identification. *Journal of Sport & Social Issues*, 15(2), 115-127.

Carr, D. (2010). *Winning through mental toughness: The key to success in sports and in life*. United States: Xulon Press.

Cashmore, E. (2002). *Sport and exercise psychology: The key concepts*. London: Routledge.

Kumar, A., Pathak, N., & Thakur, G. P. (1985). Self-esteem in individual athletes, team members, and nonathletes. Perceptual And Motor Skills, 61(1), 178.

Chen, S., Snyder, S., & Magner, M. (2010). The effects of sport participation on student-athletes' and non-athlete students' social life and identity. *Journal of Issues in Intercollegiate Athletics*, *3*(1), 176-193.

Connaughton, D., Wadey, R., Hanton, S., & Jones, G. (2008). The development and maintenance of mental toughness: Perceptions of elite performers. *Journal of Sports Sciences*, *26*(1), 83-95.

Cornelius, A. (1995). The relationship between athletic identity, peer and faculty socialization, and college student development. *Journal of College Student Development*, 36, 560-573.

Crust, L., & Clough, P. J. (2011). Developing mental toughness: From research to practice. *Journal of Sport Psychology in Action*, *2*(1), 21-32.

Ericsson, K. A. (2006). The influence of experience and deliberate practice on the development of superior expert performance. *The Cambridge handbook of expertise and expert performance*, 683-703.

Feltz, D. L., & Lirgg, C. D. (2001). Self-efficacy beliefs of athletes, teams, and coaches. *Handbook of sport psychology*, *2*(2001), 340-361.

Gledhill, A., & Adams, M. (2007). *BTEC national sport & exercise science student book: 2007* (2nd ed.). Oxford: Heinemann.

Goodger, K., Gorely, T., Lavallee, D., & Harwood, C. (2007). Burnout in sport: A systematic review.

Goldberg, A. S. (1998). Sports slump busting: 10 steps to mental toughness and peak performance. Champaign, IL: Human Kinetics.

Gordon, S. (2012). Strengths-based approaches to developing mental toughness: Team and individual. *International Coaching Psychology Review*, 7(2), 210-222.

Griffith, K. A., & Johnson, K. A. (2002). Athletic identity and life roles of Division I and Division III collegiate athletes. *Journal of Undergraduate Research*, 5, 225-231

Gucciardi, D. F., Jackson, B., Hodge, K., Anthony, D. R., & Brooke, L. E. (2015). Implicit theories of mental toughness: Relations with cognitive, motivational, and behavioural correlates. Sport, Exercise, And Performance Psychology, 4(2), 100-112.

Gucciardi, D. F., & Gordon, S. (2011). Mental toughness in sport: Developments in research and theory. London: Routledge.

Harmison, R. J. (2011). Peak performance in sport: Identifying ideal performance states and developing athletes' psychological skills.

Hogg, M. A. (2006). Social identity theory. *Contemporary social psychological theories*, *13*, 111-1369.

Horsburgh, V. A., Schermer, J. A., Veselka, L., & Vernon, P. A. (2009). A behavioural genetic study of mental toughness and personality. *Personality and Individual Differences*, *46*(2), 100-105.

Hudson, A. (2000). Effects of athletic involvement on the social life: A study of 68 track and field athletes. Unpublished manuscript.

Jones, G. (2002). What is this thing called mental toughness? An investigation of elite sport performers. *Journal of applied sport psychology*,*14*(3), 205-218.

Jalili, F., Hosseini, A., & Salehian, H. (2011). Comparison of personality dimensions, mental toughness, and social skills of female students athletes (team-individual) and non-athletes. *Annals of Biological Research*, *2*(6), 554-560.

Kajbafnezhad, H., Ahadi, H., Heidarie, A. R., Askari, P., & Enayati, M. (2011). Difference between Team and Indyvidual Sports with Respect to Psychological Skills, Overall Emotional Intelligence and Athletic Success Motivation in Shiraz City Athletes. *Journal of Basic and Applied Scientific Research*, *1*(11), 1904-1909.

Kline, R. B. (2005) Principles and practice of structural equation modeling (2nd ed.) New York: Guilford.

Kocak, M. (2015). An Analysis of Futsal Players' Self-Esteem Levels. *Educational Research And Reviews*, *10*(15), 2124-2129.

Kumar, A., Pathak, N., & Thakur, G. P. (1985). Self-esteem in individual athletes, team members, and nonathletes. Perceptual And Motor Skills, 61(1), 178.

Mamassis, G., & Doganis, G. (2004). The effects of a mental training program on juniors pre-competitive anxiety, self-confidence, and tennis performance. *Journal of Applied Sport Psychology*, *16*(2), 118-137.

Maslow A. H. (1987). Motivation and Personality (3rd ed.). New York: Harper & Row.

Nafian, S., Vajdi, E., Dehkordi, A. N., Shahraki, F. G., Aghdaei, M., & Partovi, H. (2014). EVALUATION OF STRESS AND BURNOUT LEVELS AMONG INDIVIDUAL AND TEAM MALE ATHLETES. *Medicinski Glasnik / Medical Gazette*, *19*(53), 29-36.

Nicholls, A. R., Polman, R. C., Levy, A. R., & Backhouse, S. H. (2009). Mental toughness in sport: Achievement level, gender, age, experience, and sport type differences. Personality and Individual Differences, 47(1), 73-75.

Ómarsson, B. P. (2013). Effects of sport participation on adolescent self-esteem and body-image: differences in gender and types of sports explored.

Petitpas, A. J. (1978). Identity foreclosure: A unique challenge. Personnel and Guidance Journal, 56, 558-561

Petrie, Trent A., Jay Deiters, and Robert J. Harmison. 2014. "Mental toughness, social support, and athletic identity: Moderators of the life stress–injury relationship in collegiate football players." Sport, Exercise, And Performance Psychology 3, no. 1: 13-27.

Robins, R. W., Trzesniewski, K. H., Tracy, J. L., Gosling, S. D., & Potter, J. (2002). Global self-esteem across the life span. *Psychology and aging*, *17*(3), 423.

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

Rosenberg, M. (1965b). Rosenberg self-esteem scale (RSE). *Acceptance and commitment therapy. Measures package*, *61*.

Schaal, K., Tafflet, M., Nassif, H., Thibault, V., Pichard, C., Alcotte, M., ... & Toussaint, J. F. (2011). Psychological balance in high level athletes: gender-based differences and sport-specific patterns. *PloS one*, *6*(5), e19007.

Sheard, M., Golby, J., & van Wersch, A. (2009). Sports Mental Toughness Questionnaire. *Psyctests*, doi:10.1037/t01346-000

Stambulova, N. B. (1994). Developmental sports career investigations in Russia: A postperestroika analysis. The Sport Psychologist, 8, 221-237.

Sheard, M., Golby, J., & van Wersch, A. (2009). Progress toward construct validation of the Sports Mental Toughness Questionnaire (SMTQ). *European Journal of Psychological Assessment*, *25*(3), 186-193.

Silva, J. M., & Weinberg, R. S. (Eds.) . (1984) . *Psychological foundations of sport.* Champaign, IL: Human Kinetics.

Sinden, L. M. (1999). *Music performance anxiety: Contributions of perfectionism, coping style, self-efficacy, and self-esteem* (Doctoral dissertation, ProQuest Information & Learning).

Slutzky, C. B., & Simpkins, S. D. (2009). The link between children's sport participation and self-esteem: Exploring the mediating role of sport self-concept. *Psychology of Sport and Exercise*, *10*(3), 381-389.

Tajfel, H., & Turner, J. C. (2004). The Social Identity Theory of Intergroup Behavior. In J. T. Jost, J. Sidanius, J. T. Jost, J. Sidanius (Eds.) , *Political psychology: Key readings* (pp. 276-293). New York, NY, US: Psychology Press.

Thomas, P. R., Schlinker, P. J., & Over, R. (1996). Psychological and psychomotor skills associated with prowess at ten- pin bowling. *Journal of sports sciences*, *14*(3), 255-268.

Weinberg, R. S., & Williams, J. M. (2006). Integrating and implementing a psychological skills training program. In J. M. Williams (Ed.), Applied sport psychology: Personal growth to peak performance (pp. 425–457). New York: McGraw-Hill.

Werthner, P.m & Orlick, T. (1986). Retirement experiences of successful Olympic athletes. Inernational Journal of Sport Psychology, 17, 337-363.

Whitehead, J. R., & Corbin, C. B. (1997). *Self-esteem in children and youth: The role of sport and physical education*. Human Kinetics.

Yigiter, K. (2014). A Comparative Study on American and Turkish Students? Self Esteem in

    Terms of Sport Participation: A Study on Psychological Health.*Educational Research And*

    Reviews, *9*(15), 531-534.

Zaccaro, S. J., Peterson, C., & Walker, S. (1987). Self-serving attributions for individual and

    group performance. *Social Psychology Quarterly*, 257-263.

Zeng, H. Z. (2003). The Differences between Anxiety and Self-Confidence between Team

    and Individual Sports College Varsity Athletes. International Sports Journal, 7(1), 28.

Appendices

Information page

Hello, my name is Luke Maher and I am currently in the final year of my BA(Hons) Psychology degree at National College of Ireland. I would appreciate if you could spare a couple of minutes to complete a short questionnaire.

About the study:
The current study aims to investigate whether levels of self-esteem, sport mental toughness and athletic identity differ between team sport athletes and individual sport athletes. Participants of the study are asked to complete a short questionnaire which should take approximately 4 minutes.

Participants of this study:
In order to take part in this study you must be male, aged 18 years or older and currently active in either a team or an individual sport. Participation is voluntary, with the ability to withdraw from the study without reason at any time. Participants in this study will not be asked to disclose their identity as this study is completely anonymous. The data collected during this study will be stored safely by the researcher in a password encrypted file and destroyed after 5 years. Data collected will not be used for any other purposes than in studying the comparison between self-esteem, mental toughness and athletic identity in team and individual sports.

Instructions:
Please complete all questions outlined by circling your answer. If you have any problems with or questions about this study, feel free to contact me at luke.maher93@gmail.com. Thank you in advance. Luke Maher.

Form Title
Do you agree to participate in this study? *Required

- Yes, I agree to participate

Demographics

Age*

39

Sport you participate in?*

- Team Sport
- Individual Sport

Specific sport you participate in?* Soccer, GAA, Hurling, Tennis, Golf, Martial Arts etc..

Years of experience in your sport? *

- 0-5
- 5-10
- 10-15
- 15-20
- 20 or more

Hours spent at sport per week? *

- 2 hours or less
- 2-4 hours
- 4-8hours
- <8 hours

Rosenberg self-esteem scale

Below is a list of statements dealing with your general feelings about yourself. Please indicate how strongly you agree or disagree with each statement by circling your answer.

On the whole, I am satisfied with myself.*

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

At times I think I am no good at all.*

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

I feel that I have a number of good qualities.*

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

I am able to do things as well as most other people.*

- Strongly Agree

40

- Agree
- Disagree
- Strongly Disagree

I feel I do not have much to be proud of.*

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

I certainly feel useless at times. *

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

I feel that I'm a person of worth, at least on an equal plane with others.*

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

I wish I could have more respect for myself.*

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

All in all, I am inclined to feel that I am a failure.*

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

I take a positive attitude toward myself.*

- Strongly Agree
- Agree
- Disagree
- Strongly disagree

Sport Mental toughness Questionnaire

Below is a list of statements dealing with general sport mental toughness. Please indicate how true each statement is in regarding to yourself, by circling one answer from 1 to 4, with 1 meaning not at all true and 4 meaning very true.

I interpret potential threats as positive opportunities. *

	1	2	3	4	
Not at all true					Very true

I have an unshakeable confidence in my ability. *

	1	2	3	4	
Not at all true					Very true

I have qualities that set me apart from other competitors. *

	1	2	3	4	
Not at all true					Very true

I have what it takes to perform well while under pressure. *

	1	2	3	4	
Not at all true					Very true

Under pressure, I am able to make decisions with confidence and commitment. *

	1	2	3	4	
Not at all true					Very true

I can regain my composure if I have momentarily lost it. *

	1	2	3	4	
Not at all true					Very true

I am committed to completing the tasks I have to do. *

	1	2	3	4	
Not at all true					Very true

I take responsibility for setting myself challenging targets. *

	1	2	3	4	
Not at all true					Very true

I give up in difficult situations. *

1 2 3 4

Not at all true   Very true

I get distracted easily and lose my concentration.*_

       1 2 3 4

Not at all true   Very True

I worry about performing poorly.*_

       1 2 3 4

Not at all true   Very true

I am overcome by self-doubt.*_

       1 2 3 4

Not at all true   Very true

I get anxious by events I did not expect or cannot control.*_

       1 2 3 4

Not at all true   Very true

I get angry and frustrated when things do not go my way.*_

       1 2 3 4

Not at all true   Very true

Subscale of the Academic and Athletic Identity Scale

Below is a list of statements in relation to athletic identity. The scale consists of 11 items with responses anchored by 1 (not central to my sense of self) and 6 (very central to my sense of self), representing a 6-point scale. Please circle the number that you feel most applies to you.

**Being a capable athlete ***_

               1 2 3 4 5 6

Not central to my sense of self   Very central to my sense of self

Being a good athlete.*_

               1 2 3 4 5 6

Not central to my sense of self   Very central to my sense of self

Being athletic.*_

1 2 3 4 5 6

Not central to my sense of self   Very central to my sense of self

Being proud to be an athlete.*_

1 2 3 4 5 6

Not very central to my sense of self   Very central to my sense of self

Being satisfied with my athletic achievements. *_

1 2 3 4 5 6

Not very central to my sense of self   Very central to my sense of self

Doing well during sport competitions.*_

1 2 3 4 5 6

Not very central to my sense of self   Very central to my sense of self