

Is there a significant difference in mental toughness between semi-professional/professional  
and amateur goalkeepers in football?

Karl Kearns

X15016480

B.A. Honours Psychology

## Submission of Thesis and Dissertation

### National College of Ireland Research Students Declaration Form (Thesis/Author Declaration Form)

**Name:** Karl Kearns  
**Student Number:** x15016480  
**Degree for which thesis is submitted:** B.A. Honours Psychology  
**Title of Thesis:** Is there a significant difference in mental toughness between semi-professional/professional and amateur goalkeepers in football?  
**Date:** 16<sup>th</sup> March 2021

#### Material submitted for award

- A. I declare that this work submitted has been composed by myself. X
- B. I declare that all verbatim extracts contained in the thesis have been distinguished by quotation marks and the sources of information specifically acknowledged. X
- C. I agree to my thesis being deposited in the NCI Library online open access repository NORMA. X
- D. I declare that no material contained in the thesis has been used in any other submission for an academic award. X

## **Acknowledgements**

I would first like to thank my supervisor Dr Michelle Kelly for her invaluable guidance and advice throughout this process. She has been of immense support, both from an academic and personal perspective, and has helped me to make this a more enjoyable experience. I also thank Dr Matthew Hudson and Dr David Mothersill for their support during the final year project classes. I also extend my appreciation to all of the lecturers and staff throughout my time in NCI.

I would like to thank Stephen McGuinness and Ollie Cahill of the Professional Footballers Association of Ireland for giving me unprecedented access to the goalkeepers in the League of Ireland. I would also like to thank all of the people in the football family in the amateur game in Ireland who circulated the questionnaire without hesitation allowing me to reach the number of participants I did.

I would like to thank my parents for their support and patience with me during this process. I'll make it up to them eventually. Finally, I would like to thank my brother Conor, for getting me access to the goalkeeper's union, for proof-reading my work and for being the inspiration behind this research.

## **Abstract**

The aim of this research was to identify if there were any significant differences in the scores of mental toughness, extraversion, and neuroticism between goalkeepers in football depending on what level of competition they played at. Participants were scored on the Sports Mental Toughness Questionnaire and a condensed version of the Big Five Personality Trait Test with questions covering extraversion and neuroticism only. There were 88 participants in the study (Males=81, Females=7) from two different levels of competition (Amateur=60, Semi-Professional/Professional=28). Independent samples t-tests were conducted to compare the means of mental toughness and extraversion. Non-parametric Mann-Whitney u tests were conducted for the mental toughness subscales of control, confidence and constancy, and the personality trait neuroticism. There were no statistically significant findings for mental toughness or extraversion. However, semi-professional/professional goalkeepers scored higher in neuroticism which was contrary to the expectations of the researcher. Amateur goalkeepers also scored significantly higher in the mental toughness subscale of control. The study was the first of its kind into footballers in Ireland and could be used as a platform for further research with those participants.

## Contents

Introduction -----	7
Mental Toughness-----	8
Personality -----	11
Levels of Competition -----	12
Goalkeepers -----	13
Method -----	15
Participants -----	15
Design -----	15
Measures/Materials -----	16
Procedure -----	17
Results -----	18
Discussion -----	22
Mental Toughness -----	22
Neuroticism -----	23
Extraversion -----	24
Implications and Future Research -----	24
Limitations -----	26

Conclusion	27
References	28
Appendix	38

## **Introduction**

Sports psychology is a popular field of study and occupation with the improvement of player performances at the forefront of employed sport psychologists' agendas (Lane, 2012). Attributes such as mental toughness in the field of sport have been the subject of an increasing number of studies in the last two decades (Golby & Sheard, 2004; Chen & Cheesman, 2013; Guillen & Santana, 2018). Success at the top level of sport is often described as being the result of fine margins with athletes at the professional level of sport possessing technical qualities that are broadly similar. The fine margins are often considered to be mental attributes with mental toughness being recognised as one of the key attributes (Cowden, 2017). Numerous studies have examined mental toughness in rugby (Golby & Sheard, 2004), mixed-martial arts (Chen & Cheesman, 2013), cricket (Bull, Shambrook, James & Brooks, 2007) and football (Thelwell, Weston & Greenlees, 2005), and focused predominantly on mental toughness at varying levels of competition, including professional, semi-professional and amateur (Chen & Cheesman, 2013), and elite athletes (Bull, Shambrook, James & Brooks, 2007). These studies aimed to determine the edge, if any, that mental toughness gives athletes. Research has so far identified that goalkeepers demonstrate stronger mental skills than outfield players but there has been no research that this researcher is aware of conducted into goalkeepers at different levels of competition (Laws, 2006).

Although research in sports psychology quite commonly investigates mental toughness, there have been few studies that focus on a unique position within the most popular sport in the world, association football. Goalkeepers are unique as they operate as individuals in what is a team game; often becoming the target of exaggerated and intense scrutiny, particularly in the wake of a below par performance (Kristiansen, Roberts & Sisjord, 2011). The uniqueness

of the position and the pressures placed upon goalkeepers makes this group a particularly interesting focus for examining the impact of sport mental toughness. The aim of this literature review is to provide an overview of the research that has been conducted into the mental attributes and characteristics of goalkeepers in differing levels of competition and to explain the necessity for further research on the topic of mental fitness in goalkeepers.

## **Mental Toughness**

Mental toughness has been described as both a personality trait and a state of mind (Jones, 2002) and has been defined by Tutko and Richards (1971) in a sporting context as “the ability of an athlete to withstand strong criticism and to avoid becoming upset when losing or performing poorly” (p. xx). It is apparent from this definition, why being mentally tough is considered a desired trait or state of mind when engaging in a competitive scenario such as sport. Being mentally tough involves reacting positively to a challenging situation, the likes of which often occur in sport (Thelwell, Weston & Greenlees, 2005); but also being more consistent than your opponents in being determined, focused and remaining in control in pressurised situations (Jones, 2002). In comparing a mentally tough player to their opponent, Jones (2002) explains that one with mental toughness will “generally, cope better than opponents with the many demands (competition, training, lifestyle) that sport places on a performer”.

Defining and measuring mental toughness can be challenging, as there are many characteristics that may contribute to this trait. For example, a study by Jones (2002) identified 12 attributes that were required in order for an athlete to be considered mentally tough. These included attributes relating to self-belief, thriving under pressure, remaining focused and not being adversely affected by other athletes’ performances. These 12 attributes are important for athletic performance as they prevent the athlete from being distracted from executing their objective by becoming overwhelmed with negative thoughts or emotions. The primary measure



for recording mental toughness is through self-reports by athletes. This makes measuring the level of mental toughness difficult as it is possible that an athlete will attempt to report themselves in the best light instead of answering the questionnaire accurately. One way to avoid self-report bias is to have an athlete's coach also mark the athlete on the questionnaire and comparing the results. If the athlete and coach have a similar view on the athlete's mental attributes, then it is likely to be accurate. One such measure is the 14-point Sports Mental Toughness Questionnaire (SMTQ) which has been validated for its effectiveness by Sheard et al (2009). The SMTQ is derived from the 48-point scale Mental Toughness Questionnaire (MTQ48). Relying on self-reports can be considered challenging for psychologists as such measures are open to subjectivity which is difficult to avoid (Lane, 2012)

It is believed that the more mentally tough an athlete is, the more successful they will be (Cowden, 2017). In a study conducted in 1996, Olympic athletes were asked to list the 10 reasons for success in competition. Of the 20 listed, the top 5 were all psychological reasons and the number 1 listed reason for success was mental toughness (Hacker, 2000). This indicates the importance placed on the psychological attribute by the people that engage in sport. Further research that supports the importance of the development of mental skills for performance was conducted by Asamoah and Grobbelaar (2016) who found that goalkeepers self-reported these skills as the second most important for operating at a professional level of competition. Asamoah and Grobbelaar's (2006) research was an investigation into the training methods of goalkeepers and what is included in a holistic programme that is used to develop professional footballers. It is apparent from these results that mental skills were significant to the goalkeepers interviewed. Mental toughness is believed to not only be inherited, but also open to development at different stages of an athlete's career (Jones, 2002). Several studies on mental toughness in soccer players noted that participants believed that mental toughness was also devel-

oped through experiences in their formative stages (Thelwell, Weston & Greenlees, 2005; Powell & Myers, 2017). With this in mind, coaches, parents and mentors should create an environment which allows an athlete to develop their mental toughness. For athletes to be in a position to develop mental toughness, they should be exposed to some challenging training circumstances at a young age (Crust & Clough, 2011). Parents and coaches should create these environments. Training sessions should be designed to test and pressure the athlete into a higher level of performance. As the athlete matures, they should then be more involved in making decisions in relation to their development (Crust & Clough, 2011), as self-directed learning has been shown to be important in an athlete's mental toughness development (Mahoney, Gucciardi, Ntoumanis & Mallet, 2014). At the more mature stages of their career, athletes are then able to take ownership of their own psychological development and tend to engage more in sports psychology to assist with "the design, implementation, and evaluation of their own performance enhancement techniques" (Hacker, 2000)

Once a level of mental toughness is considered to be at a high level, there is then the challenge of maintaining that level. Studies suggest that there are three mechanisms required to maintain the level of mental toughness in an athlete: the desire and motivation to succeed, a support network and effective use of psychological skills (Connaughton, Wadey, Hanton & Jones, 2008). These findings are replicated in a study focusing on achievement in soccer where Van Yperen (2009) recognised the psychological factors that influenced success in the sport were commitment, problem-solving and social support. Premier League academies in England have also recognised the need to develop and maintain mental toughness in their players although it was also reported that football academies had fewer ideas on how to develop these skills in players (Cook et al., 2014). This represents a gap that needs to be filled by academies to not only develop the best footballers they can but also to cultivate mental toughness in those players that do not make the grade and have to deal with the disappointment of being released.

According to research conducted on players that were released from academies, 55% of participants suffered from “clinical levels of psychological distress” three weeks after their release (Blakelock et al., 2016).

## **Personality**

Some research in relation to mental toughness has shown that certain characteristics and attributes are necessary to compete at high levels of sport (Connaughton et al., 2010; Golby & Sheard, 2004). There have also been studies that have examined certain personality traits to determine if these have an impact on sporting success (McKelvie et al., 2003; Mirzaei et al., 2013) specifically extraversion and neuroticism. Early studies examining extraversion in a sporting context found that extraversion was positively related with athletic performance especially amongst athletes that compete in team sports (Taylor & Doria, 1981) This could be due to extraverted people portraying high levels of assertiveness, high activity level and positive emotions. (Smelser & Bates, 2001) These would be considered desirable traits for a goalkeeper operating at a high level. Neuroticism, on the other hand, is less desirable in sport as people that are considered neurotic are ill at ease in pressurised environments, identify ordinary situations as threatening and can experience frustration and hopelessness (Widiger & Oltmanns, 2017). Neuroticism was found to be negatively correlated with athletic performance due to the characters of the trait including aggression, selfishness and low emotional stability (Mirzaei et al., 2013). None of these are desirable in a goalkeeper particularly one that is relied on to perform to a high level. Research into personality traits in football have focused on development (Cook et al., 2014; Musculus & Lobinger, 2018) and predictions of heading frequency (Webbe & Ochs, 2007). There have been few studies relating to personality traits in goalkeepers in football but there has been research conducted into goalkeepers in handball that found no significant effect of extraversion on the performances of the participants but found them to

be more neurotic (Fasold et al., 2020). The Big Five Personality Test has been used to identify traits in risky sport participation but never, in this researcher's knowledge, in relation to association football and specifically goalkeepers (Tok, 2011). The gap in the research exists for a study of this nature. The research could be used to identify the significance, if there is any, of personality traits of goalkeepers and whether they differ as the level of competition becomes more challenging.

### **Levels of Competition**

There has been research conducted into levels of mental toughness at different levels of competition in several sports to date, including mixed martial arts (MMA), rugby and athletics. According to Chen & Cheesman (2013) there is a discernible difference between the levels of mental toughness in mixed martial arts athletes competing at differing levels of competition. Specifically, the study shows that the level of threat and competition in the professional ranks is higher than at an amateur level and to compete at such a level requires confidence and mental toughness. These findings are replicated in relation to rugby; Golby and Sheard (2004) recognised that rugby players operating at a higher level were able to identify challenging situations as an opportunity for growth and exhibited greater levels of commitment to improvement. There has also been research conducted into elite level athletes in an attempt to identify the mental characteristics it takes to succeed (Bull, Shambrook, James & Brooks, 2007; Connaughton, Hanton & Jones, 2010; Macnamara & Collins, 2013 ). In relation to football, research conducted on Spanish footballers at under 16 and under 19 found that mental toughness is positively correlated with level of competition with players from the 1st Division measuring significantly mentally tougher than those playing in the 3rd Division (Guillen & Santana, 2018). Premier League academies have started to recognise the importance of mental toughness in players and have started attempting to develop these skills in their players (Cook

et al., 2014). There is a foundation of existing research that provides a platform for further study into the mental toughness in football and whether it is significant in predicting the level of competition that a player can reach.

## **Goalkeepers**

The goalkeeping position is unique in sport and there is a dearth of research conducted specifically into the mental aspect of the position (Laws, 2006). A study into field hockey and soccer reported that goalkeepers self-reported higher levels of anxiety in comparison to other positions on the pitch (Sewell & Edmondson, 1996). In a qualitative study using three professional goalkeepers playing in European leagues, goalkeepers referenced utilising similar strategies for coping with pressure as other sportspeople specifically: social support and problem-focused coping (Kristiansen, Roberts & Sisjord, 2011). Research comparing the psychological characteristics of football players by the position they play found that goalkeepers demonstrated stronger motivation and were more success orientated but those playing at a second division level are more prone to frustration and negativity (Turovksy et al., 2013). Further research conducted into the psychological characteristics of footballers found that goalkeepers demonstrated higher levels of ability to cope with pressure but also scored the lowest in confidence (Csáki et al., 2017). Goalkeeper training has started to change at the academy level in England to help cultivate environments where mental toughness and psychological skills can be developed which in turn will develop better players (Cook et al., 2014). With this in mind, it could be beneficial to establish whether there are discernible differences between goalkeepers at different levels of competition, experience and age. This provides a platform to expand on the research into goalkeeper's psychology at differing levels of competition. This study aims to identify what makes goalkeepers operating a professional level different to operating at an amateur level.

## **The Current Study**

The rationale for this study is that despite there being a body of research into mental toughness in sport, there is no significant research into goalkeepers in the most popular sport in the world, association football (Miller, 2021). There are numerous studies into mental toughness in sport and this research aims to add to the body of work. The research has so far identified mental toughness as a key factor in success (Dennis, 1978), recognised that it can be developed and maintained (Connaughton, Wadey, Hanton & Jones, 2008) and identified that it differs at different levels of competition (Guillen & Santana, 2018) but has yet to tie all three together with the added layer of a specialised position of goalkeeper. Van Ypren (2009) attempts to identify why some association football players have success in the sport and why some do not. It is hoped that the results of this study will produce results that can be built on with further research into the topic in the future and will provide a platform to encourage the use of sports psychologists in the psychological development of goalkeepers in Ireland. In relation to personality types, it is hoped that if this research identifies traits that are prevalent in goalkeepers operating a high level of competition, then identifying these traits in young players could help make talent identification less of a lottery.

The aim of this study, therefore, is to ascertain whether there is a statistically significant difference in the mental toughness of association football goalkeepers operating at professional/semi-professional and amateur level in Ireland. A secondary aim of this study is to discover if there is a statistically significant difference in the levels of neuroticism and extraversion in the above referenced participants. The research questions and hypotheses for this study are as follows:

Research question 1: Are there differences in mental toughness between amateur and professional/semi-professional goalkeepers?

Research Question 2: Are there differences in the levels of neuroticism between amateur and professional/semi-professional goalkeepers?

Research Question 3: Are there differences in the levels of extraversion between amateur and professional/semi-professional goalkeepers?

Research Question 4: Are there differences in the levels of mental toughness of older goalkeepers at a semi-professional/professional level when compared with younger goalkeepers at any level.

## **Methods**

### **Participants**

This study consists of 88 goalkeepers playing association football in Ireland. The participants are separated into those playing at an amateur level and those being paid to play either semi-professionally or professionally. The amateur players operate in leagues such as the Leinster Senior League, the United Churches Football League, the Athletic Union League, and the Women's National League. The semi-professional and professional participants play in the League of Ireland Premier and First Divisions. The participants were separated into three age categories, 18-23, 24-29 and 30+. There were 34 respondents in the 18-23 category, 27 respondents in the 24-29 category and 27 in the 30+ category. Of the 88 respondents, 81 were playing in male leagues and 7 were playing in female leagues.

### **Design**

This study is a quantitative, cross-sectional, between groups design. The independent variable is the level of professionalism the goalkeeper is playing at, either amateur or semi-professional. The dependant variables are the level of mental toughness as scored on the Sports Mental Toughness Questionnaire (SMTQ) and the levels of extraversion and neuroticism as scored on the Big Five Personality Test. This study is comparing the levels of mental toughness,

neuroticism, and extraversion in amateur and semi-professional/professional goalkeepers in association football in Ireland.

### **Measures/Materials**

The questionnaires used for this study were the Sports Mental Toughness Questionnaire (Sheard, Golby & Wersch, 2009) and a condensed version of The Big Five Personality Trait test focusing on the questions pertaining to the personality traits of extraversion and neuroticism. Prior to answering the questions relating to mental toughness and personality traits, participants were asked to answer questions relating to demographics, specifically about gender, age and level of professionalism. The Sports Mental Toughness Questionnaire is a 14-point self-report scale the questions are split into three subscales: confidence, control, and constancy. The reliability and validity of the SMTQ was tested by Sheard et. al (2009) found it to be a reliable measure of mental toughness. There are 6 questions relating to confidence, 4 relating to control and 4 relating to constancy. The SMTQ is scored on 4-point Likert scale ranging from 'Not true' to 'Very true'. The condensed version of the Big Five Personality Trait test contains questions relating to the personality traits of extraversion and neuroticism. There are 10 questions relating to each trait. The questions are on 5-point Likert scale ranging from '1=disagree' to '5=agree'. The scores are then totalled as follows: Extraversion = 20 + (1) - (6) + (11) - (16) + (21) - (26) + (31) - (36) + (41) - (46). Neuroticism = 38 - (4) + (9) - (14) + (19) - (24) - (29) - (34) - (39) - (44) - (49). This questionnaire was conducted entirely online and therefore access to either a computer or mobile device was required in order to take part. Google Forms was used to host the questionnaire. The results of the questionnaire were calculated using IBM Statistical Package for Social Sciences (SPSS) version 27. The use of SPSS was provided by the National College of Ireland.



## **Procedure**

A research proposal was submitted to the National College of Ireland in order to be granted ethical approval to conduct the research. The ethical guidelines were laid out by NCIRL and the Psychological Society of Ireland (PSI). Permission was sought from the Professional Footballers Association of Ireland (PFAI) to gather questionnaire responses for the benefit of the research. Ethical approval and permission to collect data were granted by NCIRL and the PFAI. The questionnaire was developed on Google Forms and distributed by the PFAI to their members that fit the criteria of being a goalkeeper. Amateur goalkeepers were collected using snowball sampling. Prominent persons within the amateur game in Ireland were asked to fill in the questionnaire and pass it on to anyone that they know that fit the requirements for participation. The link was circulated through WhatsApp messenger and email. Respondents were given an option to participate in the study and were also given two weeks to submit their answers. The participants were advised that once their responses were submitted, they would not be able to withdraw their consent as the questionnaire was set up to be anonymous. Respondents were advised that the questionnaire would take roughly 10 minutes to complete. A debrief form at the end of the questionnaire thanked respondents for their participation and gave them the researchers contact details if they had any questions about the study.

## Results

### Descriptive

Frequency statistics were conducted to determine the demographics of the participants. Table 1 displays statistics pertaining to the gender of the league the participants competed in. 92% ( $N=81$ ) of the participants competed as goalkeepers in a male football league. 8% ( $N=7$ ) competed as goalkeepers in a female football league. Table 2 displays statistics relating to the age group the participants belonged to. 38.6% ( $N=34$ ) of the participants were in the age group 18-23, 30.7% ( $N=27$ ) of the participants were in the age group 24-29 and 30.7% ( $N=27$ ) were in age group 30+. Table 3 identifies the level of football the participants are competing at. 68.2% ( $N=60$ ) of the participants competed at an amateur level while 31.8% ( $N=28$ ) competed in the semi-professional/professional league in Ireland.

**Table 1**  
*Descriptive Statistics*

	Frequency	Percent
<i>Gender</i>		
Female	7	8
Male	81	92
<i>Age Group</i>		
18-23	34	38.6
24-29	27	30.7
30+	27	30.7
<i>Competition Level</i>		
Amateur	60	68.2
Semi-Professional/Professional	28	31.8

## **Mental Toughness**

An independent samples t-test was conducted to test the first hypothesis that semi-professional/professional goalkeepers will score higher on the Sports Mental Toughness Questionnaire than amateur goalkeepers. Preliminary analyses of the assumptions of normality were conducted to ensure there was no violation. There was no statistically significant difference in scores between amateur goalkeepers ( $M=37.87$ ,  $SD=4.098$ ) and semi-professionals/professionals ( $M=37.29$ ,  $SD=4.135$ ),  $t(86) = .618$ ,  $p=.582$ , two tailed. The magnitude of the differences in the means (mean difference =  $-.896$ , 95% CI:  $-4.116$  to  $2.324$ ) was small (Cohen's  $d = .14$ ).

The subscales of control, constancy and confidence violated the assumptions of normality and as a result, Mann-Whitney tests were conducted to test for significance. In the subscale of control, amateur goalkeepers ( $M=50.54$ ) scored significantly higher than semi-professional/professional goalkeepers ( $M=31.55$ ),  $U=477.5$ ,  $p=.001$ . There were no statistically significant findings for the subscale of constancy between amateur goalkeepers ( $M=44.33$ ) and semi-professional/professional goalkeepers ( $M=44.88$ ),  $U=850.5$ ,  $p=.923$ . There were also no statistically significant findings for the subscale of confidence between amateur goalkeepers ( $M=41.37$ ) and semi-professional/professional goalkeepers ( $M=51.21$ ),  $U=1028$ ,  $p=.09$ .

**Table 2***Comparison between Amateur and Semi-Professional/Professional Goalkeepers*

	Amateur			Semi-Pro/Pro			t	df	p	95% CL	Cohen's D
	M	SD	N	M	SD	N					
Mental Toughness	37.87	4.1	60	37.29	4.14	28	.62	86	.58	-1.29, 2.45	.14

**Table 3***Subscales of Control, Constancy and Confidence*

	Amateur		Semi-Pro/Pro	
	M	U	M	p
Control	50.54	477.5	31.55	.001
Constancy	44.33	850.5	44.88	.923
Confidence	41.37	1028	51.21	.09

A two-way between groups ANOVA was conducted to explore the impact of age and professionalism on levels of mental toughness. Participants were divided into three groups by their age (18-24, 25-29 and 30+). Participants were also classified as either amateur or semi-professional/professional. The interaction effect between age group and level of professionalism was not significant ( $F(2, 82) = 0.785$ ). The main effect for age did not reach statistical significance,  $F(2, 82) = 1.29$ ,  $p = .282$ . The main effect for level of professionalism also did not reach statistical significance,  $F(2, 82) = 0.78$ ,  $p = 0.381$ .

### Neuroticism

The test for neuroticism violated the assumptions of normality and as a result, Mann-Whitney tests were conducted to test for significance. Semi-Professional/professional goalkeepers ( $M = 54.61$ ) tested significantly higher than amateur goalkeepers ( $M = 39.78$ ), in neuroticism on the Big Five Personality Test,  $U = 557$ ,  $p = .011$ .

**Table 4**  
*Neuroticism*

	Amateur		Semi-Pro/Pro		
	M		M	U	p
Neuroticism	39.78		54.61	557	.011

**Extraversion**

An independent samples t-test was conducted to test the third hypothesis to compare the score on questions relating to extraversion on the Big Five Personality Test. The results showed there was no statistically significant difference between amateur goalkeepers ( $M=25.62$ ,  $SD=8.485$ ) and semi-professional/professional goalkeepers ( $M=22.29$ ,  $SD=6.727$ ),  $t(86) = 1.825$ ,  $p=.079$ , two tailed. The magnitude of the differences in the means (mean difference = 3.331, 95% CI: -.298 to 6.959) was medium (Cohen's  $d = .44$ )

**Table 5**  
*Extraversion*

	Amateur			Semi-Pro/Pro			t	df	p	95% CL	Cohen's D
	M	SD	N	M	SD	N					
Extraversion	25.62	8.49	60	22.29	6.73	28	1.83	86	.08	-.3, 6.96	.44

## **Discussion**

### **Mental Toughness**

The purpose of this research study was to examine if football goalkeepers playing in Ireland at a semi-professional/professional level were significantly mentally tougher in comparison to goalkeepers playing at an amateur level. The results of the research indicate that there is no statistically significant difference in the levels of mental toughness between amateur and semi-professional/professional goalkeepers and do not support the hypothesis that semi-professional/professional goalkeepers would score higher on the Sports Mental Toughness Questionnaire (SMTQ). The hypothesis was developed from previous research that found athletes with greater levels of mental toughness perform better (Mahoney, Gucciardi, Ntoumanis & Mallet, 2014). Mental toughness has also been found to have helped athletes recover from setbacks and poor performances quicker (Goldberg, 1998). In research conducted into Mixed Martial Arts competitors at differing levels of professionalism it was reported that the professional athletes were significantly mentally tougher than the amateur which gave an indication that this would be consistent throughout other sports such as football (Chen & Cheesman, 2013). Professional athletes are also more likely to have access to resources that would help them to develop their mental skills such as a sport psychologist (Bull et al., 2005). However, there have been few studies conducted into the mental toughness of football players and even fewer specific to goalkeepers, therefore it is difficult to draw exact comparisons. There are 31 registered professional goalkeepers in the League of Ireland and 28 of them submitted responses to the questionnaire. This is a significant return and the responses can be seen as a representation of the general level of mental toughness of the professional goalkeepers in Ireland. There are however two key findings of the research that were unexpected and warrant further attention. The first key finding is that amateur goalkeepers scored significantly higher in the SMTQ sub scale of control. This is an interesting finding and is contrary to what

was hypothesised and is also not consistent with previous research into sports mental toughness. The subscale of control relates to an athlete's ability to manage their emotions particularly in times of distress. It is therefore surprising that amateur goalkeepers scored significantly higher than semi-professional/professional goalkeepers in this measure. According to results from research conducted by Cowden (2017), athletes that report higher in mental toughness generally compete at a higher level and are more successful. This corroborates similar results found in research conducted by Golby & Sheard (2010). In research conducted with rugby players from various levels of competition it was found that players at the highest level were able to control negative emotions better than players operating at a lower level (Golby & Sheard, 2004). The research found no significant difference in mental toughness between the three age groups. The hypothesis that semi-professional/professional goalkeepers that were in the oldest age group of 30+ would be significantly mentally stronger than any other group was rejected. It was hypothesised that goalkeepers in the oldest age group would be mentally stronger than their younger counterparts due to their greater experience. Mental toughness can also be developed over time so the participants in the older group would have a longer period in which to develop these skills (Thelwell et al., 2005). None of the hypotheses pertaining to mental toughness appear to be significant in this sample of goalkeepers in Ireland.

### **Neuroticism**

The second key finding of this research is that semi-professional/professional goalkeepers scored higher in neuroticism than amateur goalkeepers. This was contrary to the hypothesis that amateur goalkeepers would score higher in this measurement. According to the Big Five Personality Test, neuroticism is the personality trait of being emotional. Emotions can affect people in ways that are detrimental to performance so it was therefore hypothesised that goalkeepers playing at a higher level would be more capable of controlling them. This control would enable goalkeepers to remain calm and composed in the event of a mistake, which is an

essential skill in the position. There was some existing literature to support the hypothesis that lower levels of neuroticism were beneficial for athletic performance (Piedmont et al., 1999). Contrary to these findings, there is also research to support higher levels of neuroticism being beneficial when operating under certain conditions (Thoresen et al., 2004). These results are rarely examined in greater detail and there needs to be some further work put in to establish their credibility.

### **Extraversion**

There were no significant differences in extraversion scores on the Big Five Personality Test between amateur and semi-professional/professional goalkeepers. People that score high in extraversion tend to be sociable and are more comfortable in crowds. Therefore, it was hypothesised that semi-professional/professional would score higher on this measure as they would be more accustomed to playing in front of larger crowds. It was anticipated that the ability to perform in front of these crowds would be a key factor that distinguishes semi-professional/professional goalkeepers from amateur ones as extraversion has been positively associated with better performances (Thoresen et al., 2004). Extraversion has been linked to success due to the increased likelihood of a person putting themselves out there in a confident manner and being positive (Thoresen et al., 2004). Previous research also indicates that athletes score higher than non-athletes in extraversion (Steca et al., 2018; Egloff & Gruhn, 1996). Like mental toughness, it would be interesting to discover whether the differing levels of extraversion is visible between athletes at different levels of competition.

### **Implications and Future Research**

#### ***Positions***

This research was conducted with the aim of opening a conversation in relation to the capacity of footballers in Ireland to deal with the mental pressures that come with playing football. Goalkeepers are the subject of particular interest due to the uniqueness and often



loneliness of their position. The Professional Footballers Association of Ireland give players access to a psychologist for support throughout the year and last year almost 50% of the cases were goalkeepers. This can be interpreted in a number of ways. It could be the case that goalkeepers seek support from outside their teammates because of the nature of the position. There is only room for one starting goalkeeper so teammates that play in the position are in direct competition with each other throughout the season. There are 10 outfield positions for a player to compete for depending on their versatility. This study could be replicated with players from all positions of a football pitch to see if the difference between amateur and semi-professional/professional is present with a larger sample size. Similar studies have presented results that indicate that semi-professional/professional players are mentally tougher than those operating at an amateur level so it would be interesting to see if this result can be replicated in Irish football. There is research to support that goalkeepers demonstrate stronger mental skills than outfield players and it would be interesting to see if this finding is replicated within Irish football. Goalkeepers have demonstrated significantly higher than outfield players on coping under pressure, concentration and confidence (Laws, 2006).

### ***Gender***

The majority of the participants in this study competed in a male league (N=81) while the remaining (N=7) competed in a female league. Women's football is increasing in participation and popularity in Ireland and in time could lead to a larger sample size being available to conduct this research with. Women's football in Ireland is entirely amateur so the two groups being compared could be goalkeepers in the Women's National League, where the elite play, and the other group would be made up of players in leagues below this level. This comparison would appear to be the best way of comparing mental toughness at different levels of participation.

### ***General Population Comparison***

It would be interesting to compare the levels of mental toughness of athletes with a sample of the general population to discover whether those that compete in sport are mentally tougher than those that do not. To carry out this research, two groups, one athlete and one control group, would be asked to fill in the Mental Toughness Questionnaire (MTQ48) and then their mean scores would be compared. The MTQ48 is the questionnaire from which the SMTQ derived. It may be the case that mental toughness does not have as significant an effect on the level that athletes compete at but a comparison of athletes and non-athletes could reveal if there is a difference in mental toughness between those two groups. There is some suggestion that athletes have an inherent level of toughness so it would be interesting to see if there is a significant difference (Jones, 2002).

### **Limitations**

There are several limitations to this research that need to be addressed. Firstly, the results were obtained through self-report questionnaires which rely on a participant to be honest in their responses and to possess self-awareness. There is the potential for a participant to answer from the perspective of what they would like to be as opposed to what they are really like. Athletes often need to view themselves in a positive light in order for them to retain the confidence to be able to perform at their optimum level. It is possible that this impedes their ability to view themselves in an objective manner. Another limitation of this study is the changeable nature of football in Ireland. Apart from those who are employed by what would be perceived to be the best football clubs at the semi-professional/professional level, it is likely that there are participants with varied careers. There is often movement between the amateur and professional ranks with many amateur players having played in the professional League of Ireland before dropping out to pursue another career while playing football as a hobby. It is therefore likely that several of the participants in this sample have played at both the amateur and semi-professional/professional levels and in some cases in the recent past.

## **Conclusion**

This report was developed to identify if any significant differences exist in relation to mental toughness, extraversion and neuroticism between football goalkeepers playing at an amateur or semi-professional/professional level. This research has not made any statistically significant discoveries pertaining to the hypotheses stated. There have been conflicting findings in relation to the topic of mental toughness in athletes and this research sides with belief that there is no statistically significant difference in the levels of mental toughness between participants depending on which level of competition they are at. There was no statistically significant difference in the levels of extraversion demonstrated by amateur and semi-professional/professional athletes however, there was a statistically significant finding in relation to neuroticism. Semi-professional/professional goalkeepers demonstrated higher levels of neuroticism than amateur goalkeepers which was contrary to what was predicted. These findings are in line with some research in the area but contradict other findings. Despite not being statistically significant, these findings are adding to the literature pertaining to goalkeepers in football. Anecdotal evidence points us towards goalkeeper's engagement with mental health support services and further research will be conducted into the position to ascertain the reason for this. This research has opened the discussion on the mental characteristics and personality types of goalkeepers in Ireland and can be used to provide a platform for further discussion.

## References

- Asamoah, B., & Grobbelaar, H. (2016). Positional comparisons of mental toughness, psychological skills and group cohesion among soccer players. *African Journal For Physical Activity And Health Sciences*, 22(3), 747-759. Retrieved 5 March 2021, from.
- Behnke, M., Tomczak, M., Kaczmarek, L., Komar, M., & Gracz, J. (2017). The Sport Mental Training Questionnaire: Development and Validation. *Current Psychology*, 38(2), 504-516. <https://doi.org/10.1007/s12144-017-9629-1>
- Biswas-Diener, R. (2009). Average to A+: realising strengths in yourself and others, by A. Linley. *The Journal Of Positive Psychology*, 4(5), 423-425. <https://doi.org/10.1080/17439760902992480>
- Blakelock, D., Chen, M., & Prescott, T. (2016). Psychological Distress in Elite Adolescent Soccer Players Following Deselection. *Journal Of Clinical Sport Psychology*, 10(1), 59-77. <https://doi.org/10.1123/jcsp.2015-0010>
- Bull, S., Shambrook, C., James, W., & Brooks, J. (2005). Towards an Understanding of Mental Toughness in Elite English Cricketers. *Journal Of Applied Sport Psychology*, 17(3), 209-227. <https://doi.org/10.1080/10413200591010085>
- Bull, S., Shambrook, C., James, W., & Brooks, J. (2007). Towards an Understanding of Mental Toughness in Elite English Cricketers. *Journal Of Applied Sports Psychology*, 17(3), 209-227. <https://doi.org/10.1080/10413200591010085>

- Chen, M., & Cheesman, D. (2013). Mental Toughness of Mixed Martial Arts Athletes at Different Levels of Competition. *Perceptual And Motor Skills*, 116(3), 905-917. <https://doi.org/10.2466/29.30.pms.116.3.905-917>
- Connaughton, D., Hanton, S., & Jones, G. (2010). The Development and Maintenance of Mental Toughness in the World's Best Performers. *The Sport Psychologist*, 24(2), 168-193. <https://doi.org/10.1123/tsp.24.2.168>
- Cook, C., Crust, L., Littlewood, M., Nesti, M., & Allen-Collinson, J. (2014). 'What it takes': perceptions of mental toughness and its development in an English Premier League Soccer Academy. *Qualitative Research In Sport, Exercise And Health*, 6(3), 329-347. <https://doi.org/10.1080/2159676x.2013.857708>
- Coulter, T., Mallett, C., & Gucciardi, D. (2010). Understanding mental toughness in Australian soccer: Perceptions of players, parents, and coaches. *Journal Of Sports Sciences*, 28(7), 699-716. <https://doi.org/10.1080/02640411003734085>
- Cowden, R. (2017). Mental Toughness and Success in Sport: A Review and Prospect. *The Open Sports Sciences Journal*, 10(1), 1-14. <https://doi.org/10.2174/1875399x01710010001>
- Cowden, R., & Meyer-Weitz, A. (2016). Sports Mental Toughness Questionnaire: Evaluation for use in South African competitive tennis. *Journal Of Sport Behavior*, 39(4), 372-384. Retrieved 23 November 2020, from.
- Cowden, R., Mascaret, N., & Duckett, T. (2018). A person-centered approach to achievement goal orientations in competitive tennis players: Associations with motivation and

mental toughness. *Journal Of Sport And Health Science*.  
<https://doi.org/10.1016/j.jshs.2018.10.001>

Crust, L., & Clough, P. (2011). Developing Mental Toughness: From Research to Practice. *Journal Of Sport Psychology In Action*, 2(1), 21-32.  
<https://doi.org/10.1080/21520704.2011.563436>

Csáki, I., Szakály, Z., Fózer-Selmec, B., Kiss, S., & Bognár, J. (2017). Psychological and Anthropometric Characteristics of a Hungarian Elite Football Academy's Players. *Physical Culture And Sport. Studies And Research*, 73(1), 15-26.  
<https://doi.org/10.1515/pcssr-2017-0002>

Dennis, P. (1978). Mental Toughness and Performance Success and Failure. *Perceptual And Motor Skills*, 46(2), 385-386. <https://doi.org/10.2466/pms.1978.46.2.385>

Eagleton, J., McKelvie, S., & De Man, A. (2007). Extra Version and Neuroticism in Team Sport Participants, Individual Sport Participants, and Nonparticipants. *Perceptual And Motor Skills*, 105(1), 265-275. <https://doi.org/10.2466/pms.105.1.265-275>

Egloff, B., & Jan Gruhn, A. (1996). Personality and endurance sports. *Personality And Individual Differences*, 21(2), 223-229. [https://doi.org/10.1016/0191-8869\(96\)00048-7](https://doi.org/10.1016/0191-8869(96)00048-7)

Fasold, F., Inzenhofer, V., Lingner, K., Noël, B., & Klatt, S. (2020). Personality traits of handball goalkeepers. *Journal Of Human Sport And Exercise*, 15(2).  
<https://doi.org/10.14198/jhse.2020.152.04>

- Gieske, B. (2015). Psychological and Cognitive Aspects of Goalkeeping Aptitude. Lindenwood University.
- Golby, J., & Sheard, M. (2004). Mental toughness and hardiness at different levels of rugby league. *Personality And Individual Differences*, 37(5), 933-942. <https://doi.org/10.1016/j.paid.2003.10.015>
- Gordon, S., & Gucciardi, D. (2011). A strengths-based approach to coaching mental toughness. *Journal Of Sport Psychology In Action*, 2(3), 143-155. Retrieved 21 November 2020, from.
- Gould, D., Dieffenbach, K., & Moffett, A. (2002). Psychological Characteristics and Their Development in Olympic Champions. *Journal Of Applied Sport Psychology*, 14(3), 172-204. <https://doi.org/10.1080/10413200290103482>
- Gucciardi, D., Hanton, S., & Mallett, C. (2012). Progressing measurement in mental toughness: A case example of the Mental Toughness Questionnaire 48. *Sport, Exercise, And Performance Psychology*, 1(3), 194-214. <https://doi.org/10.1037/a0027190>
- Gucciardi, D., Peeling, P., Ducker, K., & Dawson, B. (2016). When the going gets tough: Mental toughness and its relationship with behavioural perseverance. *Journal Of Science And Medicine In Sport*, 19(11), 81-86. Retrieved 21 November 2020, from.
- Guillen, F., & Santana, J. (2018). Exploring Mental Toughness in Soccer Players of Different Levels of Performance. *Revista Iberoamericana De Psicologia Del Ejercicio Y El Deporte*, 13(2), 297-303. Retrieved 16 November 2020, from [https://www.researchgate.net/publication/325741929\\_Exploring\\_mental\\_toughness\\_in\\_soccer\\_players\\_of\\_different\\_levels\\_of\\_performance](https://www.researchgate.net/publication/325741929_Exploring_mental_toughness_in_soccer_players_of_different_levels_of_performance).

- Hacker, C. (2000). Women's World Cup: Performance enhancement through mental skills training. *Professional Psychology: Research And Practice*, 31(4), 363-364. <https://doi.org/10.1037/h0092813>
- Havolli, J. (2018). Comparison between Some Morphological Characteristics and Motor Tests of Young Handball and Football Goalkeepers. *Journal Of Physical Fitness, Medicine & Treatment In Sports*, 3(1). <https://doi.org/10.19080/jpfmts.2018.03.555604>
- 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. <https://doi.org/10.1080/10413200290103509>
- Kirkcaldy, B., & Furnham, A. (1991). Extraversion, neuroticism, psychoticism and recreational choice. *Personality And Individual Differences*, 12(7), 737-745. [https://doi.org/10.1016/0191-8869\(91\)90229-5](https://doi.org/10.1016/0191-8869(91)90229-5)
- Kristiansen, E., Roberts, G., & Sisjord, M. (2011). Coping with negative media content: The experiences of professional football goalkeepers. *International Journal Of Sport And Exercise Psychology*, 9(4), 295-307. <https://doi.org/10.1080/1612197x.2011.623451>
- Kristiansen, E., Roberts, G., & Sisjord, M. (2011). Coping with negative media content: The experiences of professional football goalkeepers. *International Journal Of Sport And Exercise Psychology*, 9(4), 295-307. <https://doi.org/10.1080/1612197x.2011.623451>
- Laborde, S., Allen, M., Katschak, K., Mattonet, K., & Lachner, N. (2019). Trait personality in sport and exercise psychology: A mapping review and research agenda. *International Journal Of Sport And Exercise Psychology*, 18(6), 701-716. <https://doi.org/10.1080/1612197x.2019.1570536>



- Lane, A. (2012). How Can We Measure What We Cannot See? Measurement Issues in Sport Psychology. *Measurement And Control*, 45(6), 187-190.  
<https://doi.org/10.1177/002029401204500605>
- Laws, A. (2006). Examining the relationship between psychological skills and confidence in goalkeepers (Masters). University of New Hampshire, Durham.
- Macnamara, A., & Collins, D. (2013). Do mental skills make champions? Examining the discriminant function of the psychological characteristics of developing excellence questionnaire. *Journal Of Sports Sciences*, 31(7), 736-744.  
<https://doi.org/10.1080/02640414.2012.747692>
- Maher, L. (2016). A comparative study of self-esteem, mental toughness and athletic identity in team and individual sports: male athletes (Undergraduate). National College of Ireland.
- Mahoney, J., Gucciardi, D., Ntoumanis, N., & Mallet, C. (2014). Mental Toughness in Sport: Motivational Antecedents and Associations With Performance and Psychological Health. *Journal Of Sport And Exercise Psychology*, 36(3), 281-292.  
<https://doi.org/10.1123/jsep.2013-0260>
- McKelvie, S., Lemieux, P., & Stout, D. (2003). Extraversion and Neuroticism in Contact Athletes, No Contact Athletes and Non-athletes: A Research Note. *Athletic Insight: The Online Journal Of Sport Psychology*, 5(3), 19-27. Retrieved 7 March 2021, from [https://www.researchgate.net/profile/Stuart-Mckelvie-2/publication/241678919\\_Extraversion\\_and\\_Neuroticism\\_in\\_Contact\\_Athletes\\_No\\_Contact\\_Athletes\\_and\\_Non-](https://www.researchgate.net/profile/Stuart-Mckelvie-2/publication/241678919_Extraversion_and_Neuroticism_in_Contact_Athletes_No_Contact_Athletes_and_Non-)

athletes\_A\_Research\_Note/links/0a85e535d09dfd888d000000/Extraversion-and-Neuroticism-in-Contact-Athletes-No-Contact-Athletes-and-Non-athletes-A-Research-Note.pdf.

Miller, M. (2021). Top 10 Most Popular Sports In The World 2021. The Cue Sports. Retrieved 7 March 2021, from <https://thecuesports.com/most-popular-sports-in-the-world/>.

Mirzaei, A., Nikbakhsh, R., & Sharififar, F. (2013). The relationship between personality traits and sport performance. *European Journal Of Experimental Biology*, 3(3), 439-442. Retrieved 7 March 2021, from <http://thehubedu-production.s3.amazonaws.com/uploads/3/c8556dd4-1f57-48fb-adc2-85df64716055/12327.pdf>.

Musculus, L., & Lobinger, B. (2018). Psychological Characteristics in Talented Soccer Players – Recommendations on How to Improve Coaches’ Assessment. *Frontiers In Psychology*, 9. <https://doi.org/10.3389/fpsyg.2018.00041>

Piedmont, R., Hill, D., & Blanco, S. (1999). Predicting athletic performance using the five-factor model of personality. *Personality And Individual Differences*, 27(4), 769-777. [https://doi.org/10.1016/s0191-8869\(98\)00280-3](https://doi.org/10.1016/s0191-8869(98)00280-3)

Platt, C. (2012). Education and welfare in professional football academies and centres of excellence: A sociological study (PsyD). University of Chester.

Powell, A., & Myers, T. (2017). Developing Mental Toughness: Lessons from Paralympians. *Frontiers In Psychology*, 8. <https://doi.org/10.3389/fpsyg.2017.01270>

- Sewell, D., & Edmondson, A. (1996). Relationships between field position and pre-match competitive state anxiety in soccer and field hockey. *International Journal Of Sport Psychology*, 27, 159-172. Retrieved 23 November 2020, from.
- 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. <https://doi.org/10.1027/1015-5759.25.3.186>
- 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, 186-193. <https://doi.org/10.1027/1015-5759.25.3.186>
- Smelser, N., & Bates, P. (2001). *International Encyclopedia of the Social & Behavioral Sciences* (1st ed.). Pergamon.
- Steca, P., Baretta, D., Greco, A., D'Addario, M., & Monzani, D. (2018). Associations between personality, sports participation and athletic success. A comparison of Big Five in sporting and non-sporting adults. *Personality And Individual Differences*, 121, 176-183. <https://doi.org/10.1016/j.paid.2017.09.040>
- Taylor, D., & Doria, J. (1981). Self-Serving and Group-Serving Bias in Attribution. *The Journal Of Social Psychology*, 113(2), 201-211. <https://doi.org/10.1080/00224545.1981.9924371>
- Thelwell, R., Weston, N., & Greenlees, I. (2005). Defining and Understanding Mental Toughness within Soccer. *Journal Of Applied Sport Psychology*, 17(4), 326-332. <https://doi.org/10.1080/10413200500313636>

- Thoresen, C., Bradley, J., Bliese, P., & Thoresen, J. (2004). The Big Five Personality Traits and Individual Job Performance Growth Trajectories in Maintenance and Transitional Job Stages. *Journal Of Applied Psychology*, 89(5), 835-853. <https://doi.org/10.1037/0021-9010.89.5.835>
- Tok, S. (2011). The Big Five Personality Traits And Risky Sport Participation. *Social Behavior And Personality: An International Journal*, 39(8), 1105-1111. <https://doi.org/10.2224/sbp.2011.39.8.1105>
- Turovksy, V., Koryagina, J., & Blinov, V. (2013). Psychophysiological characteristics of football players of various playing positions. *Siberian University Of Physical Culture And Sport, Omsk*, 427(33). Retrieved 7 March 2021, from.
- Tutko, T., & Richards, J. (1971). *Psychology of coaching*. Allyn and Bacon.
- Van Yperen, N. (2009). Why Some Make It and Others Do Not: Identifying Psychological Factors That Predict Career Suc-cess in Professional Adult Soccer. *The Sports Psychologist*, (23), 317-329. <https://doi.org/10.1123/tsp.23.3.317>
- Waleriańczyk, W., & Stolarski, M. (2020). Personality and sport performance: The role of perfectionism, Big Five traits, and anticipated performance in predicting the results of distance running competitions. *Personality And Individual Differences*, 109993. <https://doi.org/10.1016/j.paid.2020.109993>
- Webbe, F., & Ochs, S. (2007). Personality Traits Relate to Heading Frequency in Male Soccer Players. *Journal Of Clinical Sport Psychology*, 1(4), 379-389. <https://doi.org/10.1123/jcsp.1.4.379>

Weinberg, R., Freysinger, V., & Mellano, K. (2016). How can coaches build mental toughness? Views from sport psychologists. *Journal Of Sport Psychology In Action*, 9(1), 1-10. <https://doi.org/10.1080/21520704.2016.1263981>

Widiger, T., & Oltmanns, J. (2017). Neuroticism is a fundamental domain of personality with enormous public health implications. *Official Journal Of The World Psychiatric Association*, 16(2), 144-145. <https://doi.org/10.1002/wps.20411>

## Appendices

What gender league do you compete in?

Male

Female

At what level of football are you currently playing at?

Professional/Semi-Professional

Amateur

What age range do you fall into?

18-23

24-29

30+

**Extroversion:** The personality trait of seeking fulfilment from sources outside self or in community. High scorers tend to be very social while low scorers prefer to work on their projects alone.

**Neuroticism:** The personality trait of being emotional.

Select this box to confirm you give your consent to participate in this study:

	<b>Sports Mental Toughness Questionnaire</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
1	I can regain my composure if I have momentarily lost it				
2	I worry about performing poorly				
3	I am committed to completing the tasks I have to do				
4	I am overcome by self-doubt				
5	I have an unshakeable confidence in my ability				
6	I have what it takes to perform well while under pressure				
7	I get angry and frustrated when things do not go my way				
8	I give up in difficult situations				
9	I get anxious by events I did not expect or cannot control				
10	I get distracted easily and lose my concentration				
11	I have qualities that set me apart from other competitors				
12	I take responsibility for setting myself challenging targets				
13	I interpret potential threats as positive opportunities				
14	Under pressure, I am able to make decisions with confidence and commitment				

**1= Not true at all, 2= Sometimes, 3= True, 4= Very True**

<b>Personality Tests</b>			<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Extraversion							
1	1	I am the life of the party					
2	6	I don't talk a lot					
3	11	I feel comfortable around people					
4	16	I keep in the background					
5	21	I start conversations					
6	26	I have little to say					
7	31	I talk to a lot of different people at parties					
8	36	I don't like to draw attention to myself					
9	41	I don't mind being the centre of attention					
10	46	I am quiet around strangers					
<b>Neuroticism</b>			<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
11	4	I get stressed out easily					
12	9	I am relaxed most of the time					
13	14	I worry about things					
14	19	I seldom feel blue					
15	24	I am easily disturbed					
16	29	I get upset easily					
17	34	I change my mood a lot					
18	39	I have frequent mood swings					
19	44	I get irritated easily					
20	40	I often feel blue					

1= disagree, 2= slightly disagree, 3= neutral, 4= slightly agree, 5= agree

$$E = 20 + (1) \text{ ___ } - (6) \text{ ___ } + (11) \text{ ___ } - (16) \text{ ___ } + (21) \text{ ___ } - (26) \text{ ___ } + (31) \text{ ___ } - (36) \text{ ___ } + (41) \text{ ___ } - (46) \text{ ___ } = \text{ ___ }$$

$$N = 38 - (4) \text{ ___ } + (9) \text{ ___ } - (14) \text{ ___ } + (19) \text{ ___ } - (24) \text{ ___ } - (29) \text{ ___ } - (34) \text{ ___ } - (39) \text{ ___ } - (44) \text{ ___ } - (49) \text{ ___ } = \text{ ___ }$$