The relationship between emotional intelligence, anxiety, coping skills and psychological skill levels in South African female field-hockey players

N Tinkler

Orcid.org/0000-0002-1682-0180

Thesis accepted in fulfilment of the requirements for the degree Doctor of Philosophy in Health Sciences with Human Movement Science at the North-West University

Promoter: Prof A Kruger

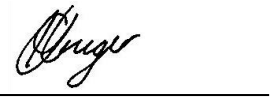
Co-promoter: Dr J Jooste

Graduation: June 2021

Student number: 21619476

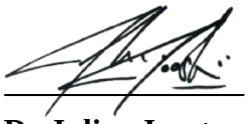
DECLARATION

This thesis is in fulfilment of the requirements for a Doctor of Philosophy degree in Human Movement Science within Physical Activity, Sport and Recreation (PhASRec) in the Faculty of Health Sciences at the North-West University. The co-authors of the three articles that form part of this thesis, namely Professor Ankebé Kruger (promoter and co-author) and Doctor Julius Jooste (co-promoter and co-author), hereby give permission to the candidate, Ms Nicola Tinkler, to include the three articles as part of the doctoral thesis. The contribution (advisory and supportive) of these two co-authors was kept within reasonable limits, thereby enabling the candidate to submit this thesis for examination purposes.



Prof Ankebé Kruger

Promoter and co-author



Dr Julius Jooste

Co-promoter and co-author

ACKNOWLEDGEMENT

Firstly, I am grateful to my Heavenly Father for His unfailing love, grace and favour that carried me through during my studies. You have equipped me with wisdom, perseverance and above all, peace. May Your name forever be exalted.

> You're always moving in the unseen. The breath You exhale sustaining me. Before I call, you know my need. You're always going before me. I'm confident Your faithfulness will see me through. My soul can rest, my righteousness is found in You. With every moment left, in every borrowed breath, let this be true. That all my heart, for all my life, belongs to You. I won't win this battle with the strength in my own hands. You're the mountain-mover and only You can.
>
> *Confident* from Steffany Gretzinger and Bobby Strand

The path you take when completing a doctoral degree is to say the least unique. It is sometimes lonely and at times frustrating, but it is also very enriching and inspiring. It is a road that one does not walk alone and I would like to thank the following special people:

My loving parents and brother; thank you for your faith in me, your encouragement, love and financial support. Thank you for being the anchor that grounds me, and for making me feel as if I can achieve anything. Thank you for walking this road called life with me. I love you.

My promoter, Professor Ankebé Kruger; thank you for your endless support, guidance and patience. Your valuable knowledge and experience have contributed tremendously to this study. Thank you for always knowing what to say to motivate and encourage me, especially when I needed it the most. Your greatness is seen in how gracefully and humbly you handle things – an attribute I will always strive for.

My co-promoter, Doctor Julius Jooste. Thank you for sharing your priceless knowledge and time, even with more than 10 000 kilometres between us. Your exceptional ability to teach, academic expertise, precision, and strive for excellence was a true source of inspiration.

My dear friends. Thank you for your never-ending care, prayers and constant check-ins. Also for your continuous encouragement during difficult times and for celebrating small victories with me. I am blessed for your part in my journey.

ABSTRACT

The relationship between emotional intelligence, anxiety, coping skills and psychological skill levels in South African female field-hockey players

The competitive game of field-hockey is filled with high-pressure situations, in which physical and psychological demands are required for achieving sport excellence. Due to the specific nature of hockey, players have to cope with certain demands which will have an impact on their performance and overall psychological well-being. Players' physical attributes are of utmost importance for high-level sport participation. However, psychological factors are often the determining factor in sport success and excellence. Literature regarding the psychological skills of hockey seems to be well-documented. However, limited to no literature is available pertaining to the relationship between emotional intelligence (EI), competitive state anxiety, coping skills and psychological skills application in female hockey players. Based on the limited research, the following research questions were formulated: 1) What is the relationship between EI and components of competitive state anxiety levels among female field-hockey players from South Africa? (Article 1), 2) What is the relationship between EI and coping skill levels among female field-hockey players from South Africa? (Article 2), and 3) What is the relationship between EI and psychological skills application among South African female field-hockey players? (Article 3). The objectives of the study were subsequently formulated as follows: 1) To determine the relationship between EI (perception of emotions, managing own emotions, managing others' emotions and utilisation of emotions subscales) and components of competitive state anxiety levels (cognitive anxiety, somatic anxiety and self-confidence) among female field-hockey players from South Africa; 2) To determine the relationship between EI (perception of emotions, managing own emotions, managing others' emotions and utilisation of emotions subscales) and coping skill levels (coping with adversity, coachability, concentration, confidence, goal setting, mental preparation, peaking under pressure, freedom from worry and total coping ability) among female field-hockey players from South Africa; and 3) To determine the relationship between EI (perception of emotions, managing own emotions, managing others' emotions and utilisation of emotions subscales) and psychological skills application (achievement motivation, goal setting, anxiety control, maintaining confidence, concentration, mental rehearsal subscales and total sport psychological skills application) among South African female field-hockey players.

The convenient sample consisted of sixty senior-level female (average age: 21.57±3.65 years) field-hockey players from South Africa. All players completed a demographic questionnaire

together with four self-reported questionnaires, namely the Emotional Intelligence Scale (EIS), the Competitive State Anxiety Inventory-2 (CSAI-2), the Athletic Coping Skills Inventory-28 (ACSI-28) and the Psychological Skills Inventory (PSI). With regard to the first objective, the findings indicated an above-average level for total EI, a low cognitive/somatic anxiety with self-confidence being low to moderate. Players also perceived their cognitive and somatic anxiety to be neutral (neither facilitative nor debilitative) to performance, while self-confidence was perceived as facilitative to performance. Furthermore, significantly positive correlations were found between managing own and others' emotions as well as total EI and self-confidence. Managing own and others' emotions were significantly negatively associated with cognitive anxiety. In addition to this, the linear regression analyses indicated total EI to be a significant predictor of the players' self-confidence. Second objective – Overall, the players reported a higher than average level of coping ability. Likewise, the findings indicated that players' non-verbal recognition and expression of emotions (perception of emotions) were significantly and positively associated with the ability to cope with adversity and level of concentration. The findings further suggested that when players know how to manage their own emotions, their confidence and achievement motivation are likely to increase, amidst a noted decrease in their level of coachability. Players' management of others' emotions associated positively with confidence and achievement motivation and total coping skill scores. Furthermore, a significant positive association was observed between players' ability to utilise their emotions and their coachability. Essentially, the findings from the linear regression analyses indicated EI to be a strong predictor of coping ability. Third objective – Overall, the players reported a higher than average level of psychological skills application. Also, several significant correlations were noted between players' dimensions of EI and psychological skills (concentration, achievement motivation, maintaining confidence, goal setting and mental rehearsal) with EI demonstrating a strong predictive utility on players' level of psychological skills application. In conclusion, the findings in the present study suggest that EI plays a key role in controlling cognitive anxiety, improving and maintaining confidence, enhancing overall coping skill ability and total psychological skills in hockey players. Emotional intelligence therefore is considered a worthy contributor in psychological profiling of players. Overall, the present study provides a strong basis for exploring EI interventions in sports to combat uncontrollable competitive state anxiety, and facilitate coping ability and psychological skills application.

Key Words: Anxiety, coping skills, emotional intelligence, hockey, performance, psychological skills

OPSOMMING

Die verband tussen emosionele intelligensie, angs, hanteringsvaardighede en sielkundige vaardigheidsvlakke by vroulike hokkiespelers in Suid-Afrika

Die mededingende spel van veldhokkie is gevul met hoëdruk-situasies waar fisieke en sielkundige eise aan spelers gestel word om uitnemendheid in sport te bereik. Vanweë die spesifieke aard van hokkie moet spelers voldoen aan sekere eise wat 'n impak op hul prestasie en algehele sielkundige welstand kan hê. Die fisieke eienskappe van spelers is baie belangrik vir deelname op hoë vlak, maar sielkundige faktore is dikwels die bepalende faktor vir sukses en uitnemendheid in sport. Literatuur rakende die sielkundige vaardighede van hokkie blyk goed gedokumenteer te wees, maar daar is egter beperkte literatuur oor die verband tussen emosionele intelligensie (EI), mededingende angs, hanteringsvaardighede en die toepassing van sielkundige vaardighede by vroulike hokkiespelers, en het nog nie veel aandag van navorsers getrek nie. Op grond van die beperkte navorsing is die volgende navorsingsvrae geformuleer: 1) Wat is die verband tussen EI en komponente van mededingende vlakke van angs onder vroulike hokkiespelers van Suid-Afrika? (Artikel 1), 2) Wat is die verband tussen EI en hanteringsvaardigheidsvlakke onder vroulike hokkiespelers van Suid-Afrika? (Artikel 2), 3) Wat is die verband tussen EI en die toepassing van sielkundige vaardighede onder Suid-Afrikaanse vroulike hokkiespelers? (Artikel 3). Die doelstellings van die studie is vervolgens ook soos volg geformuleer: 1) Om die verband tussen EI (persepsie van emosies, die bestuur van eie emosies, die bestuur van ander se emosies en die benutting van emosies) en komponente van mededingende vlakke van angs (kognitiewe angs, somatiese angs en selfvertroue) onder vroulike hokkiespelers van Suid-Afrika te bepaal; 2) Om die verwantskap tussen EI (persepsie van emosies, die bestuur van eie emosies, die bestuur van ander se emosies en die benutting van emosies) en hanteringsvaardigheidsvlakke (die hantering van teenspoed, afrigting, konsentrasie, vertroue, doelwitstelling, geestelike voorbereiding, piek onder druk, vryheid van bekommernisse en totale hanteringsvermoë) onder vroulike hokkiespelers van Suid-Afrika te bepaal; 3) Om die verwantskap tussen EI (persepsie van emosies, die bestuur van eie emosies, die bestuur van ander se emosies en die benutting van emosies) en die toepassing van sielkundige vaardighede (prestasiemotivering, doelwitstelling, angsbeheer, handhawing van vertroue, konsentrasie, beelding en totale sielkundige vaardigheidstoepassing) onder Suid-Afrikaanse vroulike hokkiespelers te bepaal.

Die gerieflikheid-steekproef het bestaan uit sestig senior-vlak vroulike (gemiddelde ouderdom: 21.57±3.65 jaar) hokkiespelers van Suid-Afrika. Al die spelers het 'n demografiese vraelys sowel

as vier self-gerapporteerde vraelyste ingevul: die Emosionele Intelligensie Skaal (EIS), die Kompetisie-Angs-Inventaris-2 (CSAI-2), die Atleet Hanteringsvaardigheidsinventaris-28 (ACSI-28) en die Sielkundige Vaardigheidsinventaris (PSI). Wat die eerste doelstelling betref, dui die bevindings op ‘n bogemiddelde vlak van totale EI, 'n lae vlak van somatiese/kognitiewe angs, met selfvertroue laag tot matig. Spelers het ook hul kognitiewe en somatiese angs as neutraal (nie fasiliterend of debiliterend) beskou, terwyl selfvertroue as fasiliterend tot prestasie beskou is. Verder is beduidende positiewe korrelasies gevind tussen die bestuur van eie en ander se emosies sowel as totale EI en selfvertroue. Die bestuur van eie en ander se emosies is aansienlik negatief geassosieer met kognitiewe angs. Verder het die lineêre regressie-analises aangedui dat totale EI 'n beduidende voorspeller van spelers se selfvertroue is. Tweede doelwit – Oor die algemeen het die spelers ‘n hoër hanteringsvlak as die gemiddelde vlak aangemeld. Die bevindinge het ook aangedui dat spelers se nie-verbale erkenning en uitdrukking van emosies (persepsie van emosies) betekenisvol en positief geassosieer word met konsentrasievlak en die vermoë om teëspoed te hanteer. Die bevindinge het verder aangedui dat wanneer spelers weet hoe om hul eie emosies te bestuur, hul selfvertroue en prestasiemotivering waarskynlik sal toeneem te midde van 'n merkbare afname in hul afrigbaarheidsvlak. Spelers se hantering van ander se emosies het positief gekorreleer met selfvertroue en prestasiemotivering en totale hanteringsvaardighede. Verder is 'n beduidende positiewe verband tussen spelers se vermoë om hul emosies te benut en hul afrigbaarheid waargeneem. In wese het die bevindinge uit die lineêre regressie-analises aangedui dat EI 'n sterk voorspeller is van hanteringsvermoë. Derde doelwit – Oor die algemeen het die spelers 'n hoër as die gemiddelde vlak van sielkundige vaardighede aangedui. Verskeie beduidende korrelasies is ook opgemerk tussen spelers se dimensies van EI en sielkundige vaardighede (konsentrasie, prestasiemotivering, handhawing van vertroue, doelwitstelling en beelding) met EI wat 'n sterk voorspellende nut toon op die vlak van toepassing op sielkundige vaardighede in spelers. Ter afsluiting; die bevindings in die huidige studie dui daarop dat EI 'n sleutelrol speel in die beheer van kognitiewe angs, die verbetering en handhawing van selfvertroue, die verbetering van die algemene vermoë om die hantering van vaardighede en totale sielkundige vaardighede by hokkiespelers te verbeter. Emosionele intelligensie word dus beskou as 'n waardige bydraer tot die sielkundige profielsamestelling van spelers. Oor die algemeen bied die huidige studie 'n sterk basis om EI-intervensies in sport te ondersoek om onbeheerbare mededingingsangs te bekamp, en om die hanteringsvermoë en sielkundige vaardighede toe te pas.

Sleutelwoorde: Angs, emosionele intelligensie, hanteringsvaardighede, hokkie, prestasie, psigologiese vaardighede

TABLE OF CONTENT

DECLARATION ..... **I**

ACKNOWLEDGEMENT ..... **II**

ABSTRACT ..... **III**

OPSOMMING ..... **V**

LIST OF TABLES ..... **XIII**

LIST OF ABBREVIATIONS ..... **XIV**

1.1 Problem statement **1**

1.2 Objectives **4**

1.3 Hypotheses **4**

1.4 Structure of the thesis **5**

1.5 References **7**

CHAPTER 2 ..... **11**

LITERATURE REVIEW: THE ROLE OF PSYCHOLOGICAL CONSTRUCTS IN SPORTS PERFORMANCE **11**

2.1 Introduction **11**

2.2 Hockey **13**

2.2.1 The game of hockey 13

2.2.2 Physiological and psychological demands of hockey 13

2.3 Emotions in sports **16**

2.3.1 Emotions: Definition and conceptual considerations 16

2.3.2 The role of emotions in sports performance 17

2.4 Emotional Intelligence (EI) **19**

2.4.1 Emotional Intelligence: Definition and conceptual considerations 19

2.4.2 Characteristics of emotional intelligence 19

2.4.3 Emotional intelligence: The trait-state debate / Doing or being? 21
2.4.4 Assessing emotional intelligence in sports 22
2.4.5 The relationship between emotional intelligence and sports performance 24
2.5 Anxiety 28
2.5.1 Anxiety: Definition and conceptual considerations 28
2.5.2 The relationship between anxiety and sports performance 30
2.5.2.1 Inverted-U Theory 32
2.5.2.2 Multidimensional Anxiety Theory (MAT) 33
2.5.2.3 The Individual Zones of Optimal Functioning (IZOF) 34
2.5.2.4 The Catastrophe Model of Anxiety 35
2.5.3 Assessing anxiety in sports 35
2.5.4 The relationship between anxiety and emotional intelligence 37
2.6 Coping skills 38
2.6.1 Coping skills: Definition and conceptual considerations 38
2.6.2 Assessing coping skills in sports 40
2.6.3 The relationship between coping skills and sports performance 41
2.6.4 The relationship between coping skills and emotional intelligence 43
2.7 Psychological skills 44
2.7.1 Psychological skills: Definition and conceptual considerations 44
2.7.2 Assessing psychological skills in sports 45
2.7.3 The relationship between psychological skills and sports performance 46
2.7.3.1 Achievement motivation 48
2.7.3.2 Goal setting 49

2.7.3.3 Anxiety control 50

2.7.3.4 Maintaining confidence 50

2.7.3.5 Concentration 51

2.7.3.6 Mental preparation/Imagery 52

2.7.4 The relationship between psychological skills and emotional intelligence 53

2.8 Conclusion 54

2.9 References 57

CHAPTER 3 88

THE RELATIONSHIP BETWEEN EMOTIONAL INTELLIGENCE AND COMPONENTS OF COMPETITIVE STATE ANXIETY AMONG FEMALE FIELD-HOCKEY PLAYERS FROM SOUTH AFRICA 88

Abstract 89

Introduction 90

Purpose of the study 92

Methodology 92

Research Design 92

Participants 92

Instruments 93

Emotional Intelligence Scale (EIS) 93

The Competitive State Anxiety Inventory-2 (CSAI-2) 93

Data collection procedure 94

Ethical clearance 94

Analysis of data 94

Results 94

Discussion **97**

Practical application/recommendation **99**

Conclusion **100**

Acknowledgements **100**

References **101**

CHAPTER 4 ..... **107**

EMOTIONAL INTELLIGENCE: AN ASSOCIATION WITH COPING SKILLS AMONG FEMALE FIELD-HOCKEY PLAYERS FROM SOUTH AFRICA **107**

Abstract **108**

Introduction **109**

Method **111**

Research design 111

Participants 111

Measuring Instruments **112**

Emotional Intelligence Scale (EIS) 112

The Athletic Coping Skills Inventory (ACSI-28) 112

Procedure **113**

Statistical Analysis **113**

Results **113**

Discussion **117**

Conclusion **121**

References **123**

CHAPTER 5 ..... **129**

EMOTIONAL INTELLIGENCE AND PSYCHOLOGICAL SKILLS APPLICATION AMONG FEMALE FIELD-HOCKEY PLAYERS **129**

Abstract **130**

Introduction **131**

The link between EI and psychological skills in sports **131**

Measures of EI and Psychological Skills **132**

Gender, EI and Psychological Skills **132**

Aim of the study **133**

Method **133**

Participants and setting 133

Measures **133**

Emotional Intelligence Scale (EIS) 133

Psychological Skills Inventory (PSI) 134

Procedure **134**

Statistical Analysis **134**

Results **135**

Discussion **138**

Implications for research and practice **140**

Limitations of the study and suggestions for further research **140**

Conclusion **140**

Author contribution **141**

Acknowledgements **141**

References **142**

CHAPTER 6 ..... **146**
CONCLUSION, LIMITATIONS AND RECOMMENDATIONS **146**
6.1 Summary **146**
6.2 Conclusions **149**
6.3 Limitations **150**
6.4 Recommendations **151**
6.5 Contribution of study **152**
ANNEXURES **153**
APPENDIX A: ETHICAL APPROVAL **153**
APPENDIX B: INFORMED CONSENT FORM **156**
APPENDIX C: LANGUAGE EDITING CERTIFICATE **160**
APPENDIX D: JOURNAL GUIDELINES: SOUTH AFRICAN JOURNAL FOR RESEARCH IN SPORT, PHYSICAL EDUCATION AND RECREATION **161**
APPENDIX E: JOURNAL GUIDELINES: JOURNAL OF PHYSICAL EDUCATION AND SPORT **170**
APPENDIX F: JOURNAL GUIDELINES: JOURNAL OF PSYCHOLOGY IN AFRICA **174**
APPENDIX G: PROOF OF ACCEPTANCE/SUBMISSION (ARTICLE 1) **181**
APPENDIX H: PROOF OF ACCEPTANCE/SUBMISSION (ARTICLE 2) **182**
APPENDIX I: PROOF OF ACCEPTANCE/SUBMISSION (ARTICLE 3) **183**
APPENDIX J: QUESTIONNAIRE: THE EMOTIONAL INTELLIGENCE SCALE (EIS) **185**
APPENDIX K: QUESTIONNAIRE: THE COMPETITIVE STATE ANXIETY INVENTORY-2 (CSAI-2) **187**
APPENDIX L: QUESTIONNAIRE: THE ATHLETIC COPING SKILLS INVENTORY-28 (ACSI-28) **190**
APPENDIX M: QUESTIONNAIRE: THE PSYCHOLOGICAL SKILLS INVENTORY (PSI) **192**

LIST OF TABLES

Chapter 2

Table 2.1	Lyusin's (2004) levels and characteristics of emotional intelligence	20
Table 2.2	Emotional Intelligence subscale definitions	24
Table 2.3	Subscale terms and definitions of ACSI-28 psychological coping skills	40

Chapter 3

Table 1	Cronbach's Alpha values and Descriptive Statistics of Female Field-hockey Players	96
Table 2	Pearson's Product-moment Correlations Between Emotional Intelligence and Competitive State Anxiety Inventory subscales	97
Table 3	Summary of Linear Regression Analyses for the Impact of Emotional Intelligence on Anxiety and Self-confidence	97

Chapter 4

Table I	Descriptive statistics for the group of female field-hockey players (N = 60) and Cronbach's Alpha values for each subscale	114
Table II	Pearson Product-moment Correlations Between EI and ACSI-28 subscales	115
Table III	Summary of Linear Regression Analyses for the Impact of EI and Coping Skills	116

Chapter 5

Table 1	Cronbach's Alpha and Descriptive Statistics of Female Field-hockey Players (N = 60)	135
Table 2	Pearson Product-moment Correlations Between Emotional Intelligence and Psychological Skill subscales	136
Table 3	Summary of Simple Linear Regression Analyses for the Impact of Emotional Intelligence on Psychological Skills	137

LIST OF ABBREVIATIONS

ACSI-28	Athletic Coping Skills Inventory-28
CSAI-2	Competitive State Anxiety Inventory-2
EI	Emotional Intelligence
EIS	Emotional Intelligence Scale
ES	Effect Size
EQ	Emotional Quotient
EQ-I	Emotional Quotient Inventory
GPS	Global Positioning System
IHF	International Hockey Federation
IZOF	Individual Zones of Optimal Functioning
km	kilometres
km/h	kilometres per hour
M	Mean
m/m	metre per minute
$m.s^{-1}$	metre per second
max	maximum
min	minimum
MAT	Multidimensional Anxiety Theory
MSCEIT	Mayer-Salovey-Caruso Emotional Intelligence Test
n / N	Sample size
PETTLEP	Physical involvement, Environmental information, Task, Timing, Level of learning, Emotion and Perspective

PSI	Psychological Skills Inventory
SD	Standard Deviation
SPSS	Statistical Package for Social Sciences

CHAPTER 1
INTRODUCTION

1.1 Problem statement

Field-hockey (here-after referred to as hockey) is an intermittent sport played by males and females in many parts of the world (Leslie, 2012:5). This team sport consists of repeated activities from low to high intensity, followed by variable rest periods (Leslie, 2012:5; Maughan & Gleeson, 2004:150). In order to succeed in this sport, certain physiological, technical, tactical and psychological characteristics should be developed within players (Elferink-Gemser *et al*., 2004:1054).

However, researchers underscored that a key factor affecting sport performance is an athlete's ability to identify, recognise, assume and accept appropriate feelings and/or emotions during performance tasks (Ajayi & Fatokun, 2008:1; Birwatkar, 2014:19, Parveen, 2016:60), especially in team sports where performance is depended on the collective efforts and behavioural responses of all team members (Kajbafnezhad *et al*., 2011:1904).

Consequently, EI has become a key concept in sport psychology research over the past decade (April *et al*., 2012:83; Lane *et al*., 2009b:289; Meyer & Fletcher, 2007:1) and has been associated with optimal performance behaviours in individual and team sports (Asadi & Namazizade., 2015:997; Laborde *et al*., 2014:481). Emotional intelligence is generally perceived as "an ability to recognise the meanings of emotions and their relationships, and to reason and solve problems on the basis of them" (Mayer *et al*., 2000:267) and has been regarded relevant in sport based on the reasoning that the right combination (facilitative and debilitative) of emotions may assist athletes in dealing with stress and consequently lead to better performance outcomes (Weinberg & Gould, 2019:95). The effective management of emotions involves controlling of unproductive and debilitative behaviours such as in unpredictable situations like sports competition, which is paramount in efforts of attaining consistent performances (Birtwatkar, 2014:20).

The win at all cost nature associated with sports brings about various stressors and accompanying emotions (Litwic-Kaminska & Izdebski, 2016:80) that can essentially have a negative effect on athletes' performance, and longevity in their sports (Lazarus, 2000:229).

Ineffective cognitive processing (i.e., concentration), energy reduction, performance decrements and other negative outcomes in rugby union players may be the cause of these players failing to cope constructively with acute competition anxiety (Kruger, 2005:77). Moreover, it is essential for athletes to spend time on their mental game plan by allocating the majority of their mental resources to think about the competition in which they are engaged as well as how they want to participate and perform (Bridges & Knight, 2005:17). The link between EI and athletes' perceived levels of anxiety has been duly reported. For example, Fernandez-Berrocal *et al.* (2006:25) found an inverse relationship between EI and anxiety among adolescent athletes. Besides this, when athletes have a higher EI level, it is easier for them to deal with their anxiety effectively, therefore they also experience less negative performance consequences (Larner, 2009:35). It has also been revealed that the manner in which athletes handles or cope with their anxiety usually determines the difference between elite and average sports performances (Jarvis, 2006:113; Moran, 2004:67).

Coping is regarded as a crucial component in sport, where the athlete must learn how to deal with strong and counterproductive action tendencies which is a consequence of any emotion (Lazarus, 2000:241). Hence, it is necessary for athletes to understand emotions, especially during competition, their vulnerability to those emotions, and how best to cope so as to perform optimally (Lazarus, 2000:241). Another intricate yet prominent concept in sport psychology which is emphasised is 'coping ability'. Coping ability is defined by Hoedaya and Anshel (2003:159) as "an active process concerned with a person's attempt to reduce the intensity or frequency of a stimulus that is perceived to be threatening." The way a person manages specific internal and/or external stressors depends on their cognitive, affective, and behavioural capacities, which is a part of the concept of coping (Holt & Dunn, 2004:214). Coping usually takes place after an emotion has been experienced, so that the emotion can be regulated, or so that one can deal with the situation or condition that caused the emotion in the first place (Lazarus, 1999:37). Coping with stressors associated with sport requires a proper mental state, self-control and the ability to manage and maintain optimal arousal and concentration levels for peak performance (Anshel *et al*., 2000:751). However, negative consequences regarding sports performances, sport participation withdrawal and increased injuries may be due to the inability to cope with stressors (Nicholls & Polman, 2007:11). In this regard, researchers stated that EI increases stress tolerance in female student athletes and reinforces cognitive capacities for more adaptive coping in competition (Darvishi *et al*., 2015:25). In support of the relationship between EI and coping in undergraduate psychology students, Law (2004:25-26) posits that EI is a good

predictor of coping and problem-solving, and concluded that the development of more effective coping strategies has been seen in individuals with a higher EI than in those who do not have well-developed emotional abilities. Also, Nicholls *et al*. (2009:118) indicated that a higher emotional intensity was associated with lower coping effectiveness and vice versa in rugby union players. Furthermore, it was suggested that assessing coping strategies and certain emotion processes which are in line with performance measures, may benefit athletes (Nicholls *et al*., 2009:118). In this regard, it is stated that an athlete's psychological make-up and characteristics will influence how each situation is viewed and controlled (Jarvis, 2006:118). Supporting evidence proves that athletes require specific mental attributes to allow sufficient high performances (Najah & Rejeb, 2015:161).

Individuals who reported stronger perceptions of EI also indicated a more regular use of psychological skills (Lane *et al*., 2009a:198). Moreover, the use of psychological skills, such as self-talk and imagery correlated positively with athletes with a higher EI in volleyball, football and basketball (Soflu *et al*., 2011:2395). Besides, it is contended that athletes who possess the psychological edge will cope better with the many demands associated with sports (competition, training, lifestyle) and, specifically, be more in control under pressure, better in remaining confident, focused, determined and consistent (Jones *et al*., 2002:213).

Literature regarding the psychological skills of hockey players seems to be well documented (Elferink-Gemser, 2005:89, Eloff *et al*., 2011:37, Kruger, 2010:240), however literature covering the specific relationships between EI, anxiety and coping skills of female hockey players have not yet been duly documented. This paucity of research suggests that a significant opportunity exists for gaining knowledge and possibly for improving sports performance through EI-related interventions. Also, the role, awareness, understanding and communication of a players' own and others' emotions in hockey in an attempt to control anxiety, and to cope with performance demands by applying psychological skills, may offer a fresh perspective on current coaching and behaviour modification programmes employed in hockey and similar contexts. This research forms part of a service delivery project which included a convenient sample therefore, the same sample was used to complete Articles 1, 2 and 3. In light of the above-mentioned argument, the following research question is posed: What is the relationship between EI, components of competitive state anxiety, coping skills and psychological skills application among female field-hockey players from South Africa? The answer to this question should provide athletes, coaches and sport practitioners with more clarity concerning psychological constructs (EI, anxiety, coping and sport psychological skills) which can be used

and developed, since it proposes ways for improving an athlete's capacity to deal effectively with their own and others' emotions, which could in turn enhance sports and competitive performance (Stough *et al*., 2009:17). The results of this investigation among hockey players in South Africa can be of value to professionals working in the field of applied sports psychology. Hence, this study will be valuable for comprehending and addressing the role of emotional intelligence in terms of competitive state anxiety, coping skills, and psychological skills application of female hockey players. It is also conceivable that in the near future, sporting organisations will integrate emotional intelligence into sports preparation and mental training programmes so as to gain a competitive edge over competitors. Evidence concerning the impact of EI on the referred psychological factors may also provide impetus for further investigation involving a broader spectrum of female sports. This understanding could facilitate sport psychology service delivery (in terms of augmenting contemporary cognitive behaviour modification interventions) as well as broaden the dimension of coaching practices.

1.2 Objectives

The objectives of this study are to determine:

- The relationship between EI and components of competitive state anxiety levels (cognitive anxiety, somatic anxiety and self-confidence subscales) among female field-hockey players from South Africa;
- The relationship between EI and coping skill levels (total coping ability, coping with adversity, coachability, concentration, confidence, goal setting and mental preparation, peak under pressure and freedom from worry subscales) among female field-hockey players from South Africa;
- The relationship between EI and psychological skills application (total sport psychological skills, achievement motivation, goal setting, anxiety control, self-confidence, concentration and mental rehearsal subscales) among South African female field-hockey players.

1.3 Hypotheses

This study is based on the following hypotheses:

- There will be a statistically significant ($p \leq 0.05$) negative relationship between EI and components of competitive state anxiety levels (cognitive anxiety and somatic anxiety)

and a statistically significant ($p \leq 0.05$) positive relationship between EI and self-confidence among female field-hockey players from South Africa.

- There will be a statistically significant ($p \leq 0.05$) positive relationship between EI and coping skill levels (total coping ability, coping with adversity, coachability, concentration, confidence, goal setting and mental preparation, peak under pressure and freedom from worry subscales) among female field-hockey players from South Africa.
- There will be a statistically significant ($p \leq 0.05$) positive relationship between EI and psychological skills application (total sport psychological skills, achievement motivation, goal setting, anxiety control, self-confidence, concentration and mental rehearsal subscales) among South African female field-hockey players.

1.4 Structure of the thesis

The thesis is submitted in article format as approved by the Senate of the North-West University in the following format:

Chapter 1: Introduction – This chapter encompasses the problem statement, the objectives and hypothesis of the study, as well as the structure of the thesis. A list of references has been provided at the end of the chapter in accordance with the guidelines of the North-West University.

Chapter 2: Literature Review – This chapter covers an overview of related literature that is based on the role of psychological constructs in sports performance. A list of references has been provided at the end of the chapter in accordance with the guidelines of the North-West University.

Chapter 3: Article 1 – The relationship between emotional intelligence and components of competitive state anxiety among female field-hockey players from South Africa. This article was submitted for publication in the *South African Journal for Research in Sport, Physical Education and Recreation* (Appendix G). This article and associated list of references is hereby included according to the specific prescriptions of the journal. Although not in accordance with the guidelines of the journal, tables were included in the text to make the article easier to read and understand. Furthermore, the line spacing of the article was set at one-and-a-half lines with justified paragraphs and the first line of a paragraph is not indented to conform to the rest of the thesis' layout. The instructions for authors are included in Appendix D. Results described in

this manuscript was also presented at the Division of Sport and Exercise Psychology (DSEP) Annual Conference held on 2-3 December 2019 in Solihull, United Kingdom.

Chapter 4: Article 2 – Emotional intelligence: An association with coping skills among female field-hockey players from South Africa. This article was submitted for publication in *Journal of Physical Education and Sport* (Appendix H). This article and associated list of references is hereby included according to the specific prescriptions of the journal. Although not in accordance with the author guidelines of the journal, tables were included in the text to make the article easier to read and understand. Furthermore, the line spacing of the article was set at one-and-a-half lines and the first line of a paragraph is not indented to conform to the rest of the thesis' layout. The instructions for authors are included in Appendix E.

Chapter 5: Article 3 - Emotional Intelligence and Psychological Skills Application among Female Field-hockey Players. This article was submitted and accepted for publication in the *Journal of Psychology in Africa*, 30(6). This article and associated list of references is hereby included according to the specific prescriptions of the journal. Although not in accordance with the guidelines of the journal, tables were included in the text to make the article easier to read and understand. Furthermore, the line spacing of the article was set at one-and-a-half lines and the first line of a paragraph is not indented to conform to the rest of the thesis' layout. The instructions for authors are included as Appendix F.

Chapter 6: Summary, conclusions, limitations, and recommendations. A list of references has been provided at the end of the chapter in accordance with the guidelines of the North-West University. Chapter 6 is followed by a list of annexures.

1.5 References

Ajayi, M.A. & Fatokun, A.L. 2008. Effect of a six week emotional intelligence program on the sports performance of amateur athletes in Oyo state of Nigeria. *The World's Leading Sport Resource Center*, 1-5. http://sircretriever.ca/africare-searchaward/documents/Effectof-Six-WeekEmotional.pdf Date of access: 25 Nov. 2018.

April, K., Lifson, D. & Noakes, T. 2012. Emotional intelligence of elite sports leaders and elite business leaders. *International Journal of Business and Commerce*, 1(5):82-115.

Anshel, M.H., Williams, L.R. & Williams, S.M. 2000. Coping style following acute stress in competitive sport. *The Journal of Social Psychology*, 140(6):751-773.

Asadi, A. & Namazizade, M. 2015. The impact of stress on emotional intelligence of successful and unsuccessful karate women's. *Journal of Social Sciences and Technology Management*, 3(3):994-999.

Birwatkar, V.P. 2014. Emotional intelligence: the invisible phenomenon in sports. *European Journal of Sports and Exercise Science*, 3(3):19-31.

Bridges, A. & Knight, B. 2005. The role of cognitive and somatic anxiety in athletic performance. 1-28. http://psyc.hanover.edu/resframe.html Date of access: 20 Nov. 2017.

Darvishi, S.H., Marati, A. & Amirpour, B. 2015. Effectiveness of emotional intelligence on mood profile in female student athletes. *Journal of Research and Health*, 5(1):21-27.

Elferink-Gemser, M.T., Visscher, C., Lemmink, K.A. & Mulder, T.W. 2004. Relation between multidimensional performance characteristics and level of performance in talented youth field hockey players. *Journal of Sports Sciences*, 22(11-12):1053-1063.

Elferink-Gemser, M.T. 2005. Today's talented youth field hockey players, the stars of tomorrow? *The Sports Psychologist* (Provisionally accepted).

Eloff, M., Monyeki, M.A. & Grobbelaar, H.W. 2011. A survey of mental skills training among South African field hockey players at tertiary institutions. *African Journal for Physical, Health Education, Recreation and Dance*, 17(1):37-50.

Fernandez-Berrocal, D.P., Alcaide, R., Extremera, N. & Pizarro, D. 2006. The role of emotional intelligence in anxiety and depression among adolescents. *Individual Differences Research*, 4(1):16-27.

Hoedaya, D. & Anshel, M.H. 2003. Sources of stress and coping strategies among Australian and Indonesian athletes. *Australian Journal of Psychology*, 55(3):159-165.

Holt, N.L. & Dunn, J.G. 2004. Longitudinal idiographic analyses of appraisal and coping responses in sport. *Psychology of Sport and Exercise*, 5:213–222.

Jarvis, M. 2006. *Sport psychology: a student's handbook*. England, London: Routledge.

Jones, G., Hanton, S. & Connaugton, D. 2002. What is this thing called mental toughness? An investigation of 10 elite performers. *Journal of Applied Sport Psychology*, 14(3):205-218.

Kajbafnezhad, H., Ahadi, H., Heidarie, A.R., Askari, P. & Enayati, M. 2011. Differences between team and individual 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.

Kruger, A. 2010. Sport psychological skills that discriminate between successful and less successful female university field hockey players. *African Journal for Physical Health Education, Recreation and Dance*, 16(2):240-250.

Kruger, P. 2005. Psigologiese vaardighede, angs en hantering van Suid-Afrikaanse rugby spelers: 'n kognitiewe perspektief. [Psychological skills, state anxiety and coping of South African rugby players: a cognitive perspective]. Potchefstroom: North-West University. (Unpublished Dissertation - PhD).

Laborde, S., Dosseville, F., Guillén F. & Chávez, E. 2014. Validity of the trait emotional intelligence questionnaire in sports and its links with performance satisfaction. *Psychology of Sport and Exercise*, 15:481–490.

Lane, A.M., Thelwell, R.C., Lowther, J.P. & Devonport, T. 2009a. Relationship between emotional intelligence and psychological skills among athletes. *International Journal of Social Behaviour and Personality*, 37(2):195-202.

Lane, A.M., Meyer, B.B., Devonport, T.J., Davies, K.A., Thelwell, R., Gill, G., … Weston, N. 2009b. Validity of the emotional intelligence scale for use in sport. *Journal of Sports Science and Medicine*, 8:289-295.

Law, C.A. 2004. *Emotional intelligence, sense of coherence and coping behaviour*. Vanderbijl: North-West University. (Dissertation).

Larner, C. 2009. *On making warriors out of worriers: the management of trait anxiety in competitive sports*. Melbourne: Victoria University of Technology. (Thesis - PhD).

Lazarus, R.S. 1999. Stress and emotion: a review syntheses. New York: Springer.

Lazarus, R.S. 2000. How emotions influence performance in competitive sports. *The Sport Psychologist*, 14:229-252.

Leslie, V. 2012. *Physiological and match performance characteristics of field hockey players*. Leicestershire: Loughborough University. (Thesis – PhD).

Litwic-Kaminska, K. & Izdebski, P. 2016. Resiliency against stress among athletes. *Health Psychology Report*, 4(1):79-90. doi:10.5114/hpr.2016.54393

Maughan, R.J. & Gleeson, M. 2004. The games player. In: Maughan, R.J. & Gleeson, M., eds. *The biochemical basis of sports performance*. Oxford University Press, Oxford. pp. 149-169.

Mayer, J.D., Caruso, D.R. & Salovey, P. 2000. Emotional intelligence meets traditional standards for an intelligence. *Intelligence*, 27(4):267-298.

Meyer, B. & Fletcher, T.B. 2007. Emotional intelligence: a theoretical overview and implications for research and professional practice in sport psychology. *Journal of Applied Sport Psychology*, 19:1-15.

Moran, A. 2004. *Sports and Exercise Psychology: a critical introduction*. New York: Routledge.

Najah, A. & Rejeb, R.B. 2015. The psychological profile of youth male soccer players in different playing positions. *Advances in Physical Education*, 5:161-169.

Nicholls, A.R. & Polman, R.C. 2007. Stressors, coping and coping effectiveness among players from the England under-18 union team. *Journal of Sport Behavior*, 30(2):1-16.

Nicholls, A.R., Jones, C.R., Polman, R.C. & Borkoles, E. 2009. Acute sport-related stressors, coping, and emotion among professional rugby union players during training and matches. *Scandinavian Journal of Medicine and Science in Sports*, 19:113-120.

Parveen, N. 2016. Emotional intelligence between male and female hockey players: a psychological study. *International Journal of Physical Education, Sports and Health*, 3(6):60-62.

Stough, C., Clements, M., Wallish, L. & Downey, L. 2009. Emotional intelligence in sport: theoretical linkages and preliminary empirical relationships from basketball. In: Parker, J., Saklofske, D. & Stough, C., eds. *Assessing emotional intelligence*. Boston, MA: Springer.

Soflu, G.H., Esfahani, N. & Asadi, H. 2011. The comparison of emotional intelligence and psychological skills and their relationship with experience among individual and team athletes in superior league. *Social and Behavioral Sciences*, 30:2394-2400.

Weinberg, R.S. & Gould, D. 2019. *Foundations of sport and exercise psychology*. 7th ed. Champaign, IL: Human Kinetics.

CHAPTER 2

LITERATURE REVIEW: THE ROLE OF PSYCHOLOGICAL CONSTRUCTS IN SPORTS PERFORMANCE

2.1 Introduction

Hockey is an intermittent team sport characterised by repeated periods of moderate to high intensity, sprint-related activities interspersed with periods of lower intensity activities varying between complete stops as well as jogging and walking (Leslie, 2012:5; Maughan & Gleeson, 2004:150). Nonetheless, hockey also involves short, intensive bouts of running, which contribute to equal amounts of an aerobic and anaerobic demand of energy (Kusnanik *et al*., 2017:1). During matches, activity patterns are mainly unpredictable, while multiple factors such as the opposition playing level, the referee's decision-making, as well as the tactical approach of teams contribute to the psychological demands placed on players (Leslie, 2012:6). As a result, context-appropriate psychological qualities have been deemed an important aspect of the game for successfully competing and progressing to high levels of performance (Bishop *et al*., 2015:15; Elferink-Gemser *et al*., 2004:1054).

Research identified athletes' self-regulation ability and accurate decision-making as vital factors associated with sports performance (Lythe, 2008:47; Parveen, 2016:60). Therefore, mental aspects play a crucial role in competitive sports (Le Roux & Pienaar, 2001:188; Lyons, 2001:1), with an irrefutable emphasis on the worth of psychological factors and its effect on sports performance and excellence (April *et al*., 2012:83; Morris, 2000:715; Thelwell & Maynard, 2003:378).

During competitions the presence of emotions is inevitable, whereas certain emotions and the way they are dealt with can negatively affect performance (Batinić *et al*., 2014:2; Bull *et al*., 2005:210; Jones *et al*., 2005:68). Emotions as a distinctive part of sports performance have been studied by various researchers (Hanin, 2000:35; Jones, 2003:471; Lazarus, 2000:229) and have highlighted a strong association between decreased performance and emotional volatility among athletes in competitive situations (Bull *et al*., 2005:210).

Emotional intelligence (EI) is a term widely utilised and well-acknowledged within the sporting context (April *et al*., 2012:83; Castero-Sánchez *et al*., 2018:894; Lane *et al*., 2010:388). EI plays a crucial role in fulfilling tasks as an elite athlete (Kritzinger, 2015:5). Athletes need to

learn how to cope effectively with their emotions, to compete successfully and achieve desired levels of performance (Jones *et al*., 2005:68). Research findings revealed that EI is a good predictor of coping and problem-solving, and suggest that more effective coping strategies are demonstrated in individuals with a high EI than in individuals with less developed coping abilities (Law, 2004:25, 26).

Moreover, the psychological make-up of athletes can play a key role in differentiating between successful and less successful athletes competing at high levels (Jarvis, 2006:118; Mehrparvar & Soltani, 2013:627; Najah & Rejeb, 2015:161). However, literature concerning the psychological aspects associated with hockey performance remains sparse. Added to this, literature covering the specific relationship between EI, components of competitive state anxiety and coping skills of female hockey players have not yet been duly documented. Therefore, a significant gap in the current literature has been identified for gaining knowledge in this regard and potentially provides the needed impetus for improving sports performance through EI-related interventions.

The aim of the provided literature overview is to present a background on information about hockey and the determinants of performance including physiological and psychological qualities of the sport, to define and explain emotional intelligence, the role it plays in sports performance, to discuss the concept of anxiety in sports and the relationship between EI and anxiety; as well as coping in sports and the relationship between EI and coping skills in sports; and lastly to elaborate on the different psychological skills that are deemed important in sports and to explore the relationship between sport psychological skills and EI.

A literature search was performed using academic databases such as EBSCO Host, MEDLINE, PsycINFO, PsycARTICLES, PubMed, Sabinet, Science Direct, SPORTDiscus and the search engine Google Scholar with the following keywords (although the searches were not limited to these keywords only): anxiety, coping, emotions, emotional intelligence, hockey, performance and psychological skills. A manual search on the computer catalogue of the library of North-West University was done to find relevant material on the subject. Literature for this review was narrowed down to only include articles from the last 20 years, (2000–2020) with the exception of the following influential studies that contributed to the current state of knowledge on the involved variables (Botteril, 1997; Carver *et al*., 1989; Cox & Yoo, 1995; Crocker & Graham, 1995; Crocker *et al*., 1998; Fazey & Hardy, 1988; Goleman, 1995, 1998; Gould & Krane, 1992; Gould *et al*., 1993; Hanin, 1980, 1986; Hardy & Fazey, 1987; Hardy *et al*., 1996;

Hull, 1943; Humara, 1999; Jackson & Csikszentmihalyi, 1999; Jones, 1995; Jones & Swain, 1992; Jones *et al*., 1991; Kerr, 1997; Lazarus, 1993, 1999; Lazarus & Folkman, 1984; Loehr, 1997; Mahoney *et al*., 1987; Martens *et al*., 1990a; Martens *et al*., 1990b; Mayer & Salovey, 1993, 1997; Salovey & Mayer, 1990; Salovey *et al*., 1999; Schutte *et al*., 1998; Smith & Christensen, 1995; Smith *et al*., 1995; Spielberger, 1966; Yerkes & Dodson, 1908 and Wheaton, 1998). Furthermore, searches focused on research that made use of male and female subjects who were active, recreational, or professional athletes in especially team sports.

The following section will provide a brief background of the development of hockey, the physiological and psychological demands as well as the psychological antecedents of hockey.

2.2 Hockey

2.2.1 The game of hockey

Hockey is a popular Olympic discipline (Demuth *et al.*, 2007:27) played by both male and female athletes in many parts of the world (Elferink-Gemser *et al.*, 2006:340). It is a game played with a ball and uniquely shaped stick, where the objective is to score goals by pushing, hitting or flicking the ball into the opposing team's goal box (Hussain *et al*., 2012:187). This intermittent team sport involves variable periods of rest, low to moderate intensity activities with repetitive bouts of high-intensity activities in between (Leslie, 2012:5; Maughan & Gleeson, 2004:150). International Hockey Federation (IHF) (2017) describes the field of play as rectangular, 91.40 metres (m) long and 55 m wide, with matches consisting of four 15-minute quarters. A team comprises ten field players, divided into three main positions (defenders, midfielders and forwards) each with their own specific tasks, one goalkeeper and five reserve players (Anders, 2008:xvi). Unpredictable activity patterns and variation with regard to these patterns exist between players as well as during matches (Leslie, 2012:5-6). Numerous factors can contribute to the demands placed on players and influence their activities during match play, including the tactical approach and the opposition's level of proficiency (Leslie, 2012:6). For hockey players to be able to compete successfully at progressive levels of performance, they need to possess certain technical, tactical, physiological and psychological characteristics (Elferink-Gemser *et al*., 2004:1054).

2.2.2 Physiological and psychological demands of hockey

In hockey, the duration of and the distance run by players predominantly demand high-intensity aerobic activity (Kusnanik *et al*., 2017:1). Depending on playing positions, players can cover

an average distance of between 8 and 10 kilometres (km) during a match (Konarski *et al*., 2006:147). Gabbett (2010:1323-1324) compared the physiological demands of elite Australian female hockey players (n = 14) during 19 training and 32 league matches by means of global positioning system (GPS) technology. An average distance of 6.6 km was covered by the players, whereby most of the match time consisted of low to moderate intensity activities, with high intensity being the lowest duration during the game. Furthermore, MacLeod *et al*. (2007:2) used video-based match analysis to determine high-intensity activities during games played by elite male and female players. The results showed that players spend between 6-8% of a match involved in 'high-intensity' activities, more specifically, by completing on average 30 sprints over the course of a game.

The IHF (2017) points out that "international athletes are capable of reaching running speeds of 34-35 kilometres per hour (km/h) on the field, which is only 10 km/h slower than the foot-speed record of 44.64 km/h held by the legendary Jamaican sprinter Usain Bolt." Players can cover an average of more than 140 metres per minute (m/m), whereas hockey balls can travel faster than 160 km/h during matches. Over and above this, hockey is also an open-skill sport due to the environment that is constantly changing and players that have to continually adapt accordingly (Arvinen-Barrow *et al*., 2007:94). Moreover, players have to emerge themselves in complex game situations while focussing on the movement of the ball, teammates and opponents while being in motion themselves and often under extreme time pressure (Schwab & Memmert, 2012:625). Hence it is clear that well-developed physiological skills will contribute to success in hockey (Elferink-Gemser *et al*. 2004:1053).

Another component that plays an important role in hockey players' performance is their level of psychological skills (Kruger 2010:243; Parveen, 2016:60). This is not unique to hockey, since early discovery implies that "psychological skills in sport prepares an athlete's body and mind for optimal performance" (Cox & Yoo, 1995:184). Hockey players in particular "are required to perform a range of technical skills such as sprinting and turning" while controlling "the ball, passing the ball from one player to another and scoring goals," amidst the corrective anticipation and split-second decision-making required from them during a game (Elferink-Gemser *et al*., 2004:1054), all while maintaining emotional control (Perlini & Halverson, 2006:117). Furthermore, the awareness of a player during a movement or a play on the field a split-second faster than one's opponent is of paramount importance in ball sports such as hockey, as it may offer the player the decisive advantage (Schwab & Memmert, 2012:624). For example, forward players in hockey need to skilfully perform tasks such as playmaking, ability

to break for openings, dribbling skills during high-speed actions, and fighting for play synchronised with recognising and regulating their own and others' emotions while maintaining effective communication with teammates (Perlini & Halverson, 2006:116). Hence it is often the psychological characteristics that differentiate elite from non-elite athletes (Morris, 2000:715).

The worth of psychological factors in sports performance and excellence has been well-documented in literature (April *et al*., 2012:83; Morris, 2000:715; Thelwell & Maynard, 2003:378) which highlights the vital role of sport psychology in competitions (Le Roux & Pienaar, 2001:188; Lyons, 2001:1). In this regard, researchers agree that various psychological and emotional factors are present in an athlete's life, which plays a crucial role in determining elite or peak performance in several field-sports including hockey (Bali, 2015:92; Carling *et al*., 2009:2; Hackfort, 2006:10; Venter *et al*., 2010:133). For instance, athletes should be able to cope with frustrations during competitions (Gogoi, 2016:18) and pay attention to their emotional experiences (Soflu *et al*., 2011:2394). Furthermore, high levels of emotional reactivity, the ability to overcome adversity and stress tolerance are associated with successful hockey performance (Perlini & Halverson, 2006:111).

More recently, the importance of optimal motivation in hockey have been emphasised by indicating elite hockey players are significantly more motivated than their sub-elite counterparts (Elferink-Gemser *et al*., 2007:484). In addition to optimal levels of motivation, psychological skills encompassing imagery, controlling anxiety, positive self-talk and goal setting, focussing attention and maintaining concentration are all antecedents of peak performance in sports (Williams & Krane, 2006:350). Athletes are using popular coping strategies such as goal setting, breath-control, imagery, positive self-talk, progressive relaxation and biofeedback to help them deal with anxiety (Mandana *et al*., 2012:1175).

Sport psychology can provide opportunities for sports participants to learn essential life skills including leadership, discipline, self-control, co-operation, and maintaining expert performance (Durand-Bush & Salmela, 2002:155; Fraser-Thomas & Côté, 2006:12). In addition, Kruger (2010:243) found that successful student hockey players (21.42±1.36) (players from teams that participated in the A division) are characterised by a specific set of sport psychological skills such as achievement motivation, goal setting, and fear control. Researchers indicated that female sport participants are more goal-oriented with a primary focus on self-reference standards whereas male sport participants tend to be more win-oriented with a primary focus

on interpersonal comparison (Jones *et al*., 1991:1). Male athletes also exhibit higher self-confidence and lower cognitive anxiety than their female counterparts (Gallucci, 2008:387; Katsikas *et al.*, 2009:31). Research findings also indicated that female athletes display higher concentration levels than male athletes, while a higher mental preparation and anxiety control was displayed by the male sport participants (Elferink-Gemser *et al*., 2003:95). Nevertheless, one very important factor associated with sport performance is athletes' mental ability to assume optimal performance states with appropriate perception and decision-making in pressure situations during performance tasks (Ajayi & Fatokun, 2008:1; Baker *et al*., 2003:346; Lythe, 2008:47; Parveen, 2016:60). From the aforementioned, it is clear that hockey requires well-developed physiological and psychological abilities from players to achieve peak performance and maintain success in sports (Cox & Yoo, 1995:184; Elferink-Gemser *et al*., 2004:1053; Parveen, 2016:60). The next section will be devoted to a brief discussion of emotions in sports and the role thereof.

2.3 Emotions in sports

2.3.1 Emotions: Definition and conceptual considerations

Emotions are often referred to as "the missing link in sports performance" (Botterill, 1997:12) as many researchers have discovered that "the central core of mental training is emotional" (Loehr, 1997:S13). Due to the complexity of emotions, it is difficult to give an exact definition thereof (Jones, 2003:471). Emotions can be viewed as the mediators of other psychological processes that occur within an individual such as perception and attention (Barrett, 2006:28). Emotions are defined by Morris (2009:75) as "an alert system, much of which operates on a subconscious level to keep us on the right course for a flourishing existence," whereas West and Turner (2011:217) defined emotion as "the critical internal structure that orients us to, and engages us with, what matters in our lives; our feelings about ourselves and others." Morris (2009:75) furthermore suggested emotions to be a concept with two basic functions: i) they can warrant our survival by pulling us towards people, things and events, but ii) they can also threaten our survival by driving us away from people, things and events. Besides this, when a person interprets a potentially threatening or beneficial situation automatically or with caution, emotions can occur as a response (Moors, 2013:185). In this regard, individuals display different emotional reactions to what they perceive as a stressful situation, and some people may overact easily while others can stay calm and collected (Le Roux, 2006:39). A basic emotion includes certain behavioural patterns such as involuntary facial expressions, changes in bodily posture and/or physiological changes (Wiegman, 2016:2). Levenson (2011:379)

identified joy, excitement (surprise), anger, fear, disgust and sadness as the six basic emotions of human nature, while Ekman and Cordaro (2011:365) added happiness and contempt to the list. Emotions is a multifaceted concept involving subjective feelings, actions and physiological behaviour as well as basic and high-level reasoning; therefore, emotions can not only be seen as positive or negative feeling states (Izard, 2009:5; Levenson, 2011:379). An emotional reaction in an individual may be hastened by a variety of stimuli, for example a visual stimulus, a racing heart, or negative self-talk (Jones, 2003:472). From a competitive point of view, sports can be an emotional experience for athletes (Jones, 2003:471).

2.3.2 The role of emotions in sports performance

Athletes can easily become physically and mentally exhausted due to the stress-nature of sports (Radochoński *et al*., 2011:186). Psychological effort such as the regulation of negative emotions (for example anger and anxiety) is a constant demand that athletes must face (Lane *et al*., 2011:445). Emotions are inevitable in sports, for example; an athlete may feel frustration and anger when an unfair call is made by the referee whereas joy may be experienced when a teammate scores a goal (Tamminen *et al*., 2016:9). Researchers stated that "positive and negative emotions are typically associated with successful and unsuccessful performance respectively, whereas facilitative interpretations of emotions predict more successful performance relative to debilitative interpretations" (Nicholls *et al*., 2012:264). Facilitative emotions are desirable and helpful to enable the athlete to perform, whereas debilitative emotions are undesirable and detrimental to performance (Hanton & Connaughton, 2002:88). Researchers indicated that happiness, vigour, and calmness correlated positively with successful performances; whereas emotions such as confusion, depression and fatigue are associated with poor performance (Lane *et al*., 2009a:289). An athlete often senses sadness after a loss, anxiety before a game, and pride when achieving a challenging goal (Tamminen *et al*., 2016:10). When emotions are measured, it is important to first determine whether each emotion is perceived as facilitating (positive) or debilitating (negative) for performance (Pensgaard & Duda, 2003:262). Sports performance can be positively or negatively affected by positive emotions, depending on emotional responses and accompanying actions athletes may elicit during the sporting task (Hanin, 2000:122). Some emotions may be beneficial for one athlete, and debilitating for another (Pensgaard & Duda, 2003:254). Likewise, any dysfunctional emotions athletes may experience can lead to an inappropriate use of resources, such as task-irrelevant focus during games and competition (Jones, 2003:476). However, a decrement in performance is experienced when participants do not know how to control their

emotions in competitive situations (Bull *et al*., 2005:210). For example, negative, irrelevant and 'out-of-control' thoughts and feelings can lead to increased anxiety, which in turn will lead to a loss of focus and concentration (Knobel, 2010:46), whereas positive emotions are more likely to lead to performance-relevant focus, which is beneficial for accurate concentration and performance in sports (McCarthy *et al*., 2012:1; Vast *et al*., 2009:138). Potentially, this means that an accurate awareness of oneself enables athletes to eliminate negative emotions and take advantage of emotions that are favourable to help them to focus on performance-relevant cues (Karageorghis & Terry, 2011:145) which results in a broader focus of attention (Fredrickson & Branigan, 2005:316). Furthermore, emotions can play an important role in various responses relating to sports, for example decision-making and motor responses (Robazza, 2006:127). When athletes experience specific positive emotions at the wrong time in competition, it may hinder them from reaching peak performance (Hanin, 2000:122). For example, low energy levels that hinder performance may be the cause of athletes being content before a competition. In this regard, related literature suggested that sports organisations should provide athletes with the opportunity to undergo mental skills training to learn skills to regulate their emotions (Tamminen *et al*., 2016:19).

Athletes should learn to cope effectively with their emotions, especially during sports competitions (Jones *et al*., 2005:68). Failure to do so might hinder athletes' performance by them behaving poorly, being ill-disciplined or transgressing the rules of the sport (Jones *et al*., 2005:68; Robazza, 2006:127). In this regard, EI can help athletes to become aware of and control disruptive emotions (Serrat, 2010:2), and also assist them in managing their feelings and emotions in stressful situations resulting in them maximising their performance (Bal *et al*., 2011:50). Therefore, making EI an important component in the sporting arena, might in turn prevent or minimise deleterious behaviour (Knobel, 2010:48). Researchers concluded that EI correlated positively with pleasant emotions and negatively with unpleasant emotions (Lane *et al*., 2009a:289). In addition, psychological effort, such as the regulation of emotions are constantly experienced by athletes in order to reduce negative emotions, for example anxiety and anger (Lane *et al*., 2011:446). When athletes lose control of their emotions, it can negatively affect their performance (Batinić *et al*., 2014:2). From this point of view, the importance of teaching athletes the skill of recognising and internalising the emotions associated with optimal performance are highlighted, namely EI.

2.4 Emotional Intelligence (EI)

2.4.1 Emotional Intelligence: Definition and conceptual considerations

The fields of emotion and intelligence is brought together within the concept of EI, especially when emotions is seen as useful resources of information to help individuals make sense of their social environments (Salovey & Grewal, 2010:281). Moreover, EI refers to "the ability, capacity, skill, or self-perceived ability to identify, assess, and manage the emotions of oneself, of others, and of groups" (Serrat, 2017:330). Moreover, EI includes abilities such as the appraisal and expression of feelings as well as the use and regulation of emotions (Salovey *et al*., 2001:289). Several definitions of EI have been proposed. Commonly used definitions portray EI "as the ability to carry out accurate reasoning about emotions and the ability to use emotions and emotional knowledge to enhance thought" (Mayer *et al*., 2008a:511). It is also regarded as "one's capability to be aware of emotions, the effects emotions have on thoughts and behaviour, and knowing how to regulate emotions" (Lane & Wilson, 2011:359). In summary, EI refers to a person's ability to be attentive to experienced emotions, to understand them as well as to express them in an appropriate manner. The following section will be devoted to a brief discussion of the characteristics of EI.

2.4.2 Characteristics of emotional intelligence

Mayer and Salovey (1997:11) have developed a four-branch model in which EI can be divided into different skills: i) managing emotions to attain specific goals; ii) understanding emotions, emotional language, and the messages conveyed by emotions; iii) using emotions to facilitate thinking, and lastly iv) perceiving emotions accurately in oneself and others. Certain positive characteristics of EI could help individuals solve problems such as emotional awareness and self-confidence, rather than just by focussing on intelligence (Brackett & Geher, 2006:27). Furthermore, EI includes the ability to understand relations between thoughts, feelings, and behaviour, express and control feelings appropriately (emotional control), interpret situations effectively (cognitive awareness), be able to listen to others and express empathy, to communicate effectively, as well as to differentiate between feelings (Le Roux, 2006:11). In this regard, empathy refers to placing oneself in another person's shoes and recognising and understanding emotional states and intentions of others, which is also known as empathic behaviour (Carnicer & Calderón, 2013:132). Empathy also facilitates emotional self-regulation and has been reported that individuals who experience more empathy are also more likely to develop coping strategies in adaptation to their situations (Carnicer & Calderón, 2013:133).

Based on advanced understanding, EI is discerned into five components, namely self-awareness (accurate self-assessment, emotional awareness and self-confidence), self-regulation (trustworthiness, innovativeness, self-control and adaptability), motivation (commitment, achievement drive and initiative), empathy (developing others and service orientation) and social skills (communication, influence, conflict management and leadership) (Serrat, 2017:331-332). Likewise, Schutte *et al*. (1998:167) recognised various components of EI, "namely emotional self-awareness, assertiveness, self-regard, self-actualisation, independence, empathy, interpersonal relationships, social responsibility, problem-solving, reality testing, flexibility, stress tolerance, impulse control, happiness and optimism." Most of these elements are tools that athletes rely on in their on-field performance pursuits (Ros *et al*., 2013:105), especially in team sports such as hockey (Perlini & Halverson, 2006:110). In addition, Lyusin (2004:34) distinguished between the different levels and characteristics of EI which are summarised in the table below (Table 2.1).

Table 2.1: Lyusin's (2004) levels and characteristics of emotional intelligence

Level of EI	**Prevailing components**	**Characterisation**
Lowest level	Emotional reaction is due to learned responses.	Frustration, despair, anger, remorse and low self-control.
Moderate level	Partial efforts and emotional reactions.	High self-regard, self-esteem and self-control.
Highest level	Highest level of psychological functioning.	High responsibility, self-esteem, psychological well-being and inner freedom.

Essentially, a person can fall within three levels of EI (low, moderate and high), with different characterisations within each level (Lyusin, 2004:34). The higher the EI level, the more psychological well-being the person will experience with a positive attitude towards themselves and other people with whom they come into contact (Lyusin, 2004:34). In addition to this, high-level EI in individuals is also more pleasant, resilient and optimistic (Serrat, 2017:330). Likewise, individuals will be more productive and successful at what they do, when they develop their EI (Serrat, 2017:331). To derive a deeper understanding of EI, it is imperative to disseminate whether it is an acquired, inherent trait or state-like quality. The following paragraph offers a brief overview of the trait vs state-like nature of EI.

2.4.3 Emotional intelligence: The trait-state debate / Doing or being?

The question often arises as to whether EI is a form of intelligence as suggested by Salovey and Mayer (1990:185) or whether it is conceptualised as a trait, as argued by Petrides and Furnham (2003:39). In other words, is EI an innate ability or can it be learned? Constructs related to EI as a personal trait include attending to "emotions, assertiveness, emotional expressiveness, emotion-based decision-making, impulse control, motivation, optimism, responsive distress, responsive joy, self-esteem and stress management" (Barchard & Hakstian, 2004:438). Trait EI originally developed due to the study of emotions from a personality point of view (Revelle & Scherer, 2009:21). Furthermore, Petrides and Furnham (2001:425) emphasise the significance of trait as a dimension of personality and not as a cognitive ability. Trait EI refers to "a constellation of behavioural dispositions and self-perceptions, concerning one's ability to recognise, process and utilise emotion-laden information" (Mayer *et al*., 2008b:505). It "encompasses empathy, impulsivity, and assertiveness as well as elements of social intelligence and personal intelligence" (Petrides & Furnham., 2003:53), as opposed to the conceptualisation of EI offered by Salovey and Mayer (1990:189) who initially described EI as the ability to appraise one's own and others' feelings and emotions and to apply this information to help control one's thoughts and actions. According to this aforementioned definition, EI comprises a group of related mental abilities that signify a form of intelligence (Mayer & Salovey, 1993:435). This debate led to mixed models of EI, such as Mikolajczak *et al*.'s (2009:455) tripartite model, which includes three levels of EI, namely knowledge, abilities, and traits. Mikolajczak *et al*. (2009:472) defined these three levels of EI as follows: i) Knowledge refers to emotion information and behaviours, ii) ability levels refers to the application of this knowledge, iii) trait levels refer to when an individual act in a certain manner during emotional situations. Nevertheless, Daus and Ashkanasy (2003:69-70) stated that "these (mixed) models have done more harm than good regarding establishing EI as a legitimate empirical construct with incremental validity potential".

Conversely, Goleman (2001:27) stated that emotional abilities is not merely innate talents, but rather competencies that should be learned and developed to adapt to ever-changing environments and to function optimally. EI abilities can be developed and improved, and, moreover, these improvements are sustainable over time (Bar-On, 2002; Emmerling & Goleman, 2003:23; Le Roux, 2006:9). Furthermore, Goleman (2001:27) suggested that each individual has the potential to learn emotional abilities based on the general EI they are born with. Furthermore, when socials skills, coping skills and management of personal growth is

taught to young adolescents, it can nurture their level of EI (Richardson, 2002:58). In line with this, Bar-On (2000:363) stated that EI may be learned through life experience and that improvements in EI have been noted with maturation. However, without sustained effort and attention, this improvement will not at all be evident. In support of this, Kotsou *et al*. (2011:827) suggested that trait EI can change and these changes are evident after a few weeks of training if maintenance of these changes occur for at least one year. Other studies found trait EI training to be beneficial as a significant decrease in burnout and distress as well as an increase in happiness and quality of life were noted (Nelis *et al*., 2011:354; Vesely *et al*., 2014:81). Also, it will be easier to cope with challenges when EI skills are learnt earlier in one's life (Le Roux, 2006:9).

In conclusion, socio-emotional abilities combined with many personality traits form a model, which are called trait EI (Mayer *et al*., 2008b:505). However, the 'trait' label may be confusing, as a trait can be defined as a "distinguishing quality, or an inherited characteristic," and could, therefore, be applied to any EI model (Mayer *et al*., 2008b:505). It was recommended that research involving personality traits, (including motives such as self-related concepts, social styles, emotional traits and the need for achievement) rather be called what they are, instead of being incorporated into mixed models and naming them EI (Mayer *et al*., 2008b:505). A mixture of both intrapersonal intelligence and interpersonal skills forms part of EI and is described as "emotions using intelligence" (Seal *et al*., 2010:2; Tucker *et al*., 2000:331). Cognition and emotion are extremely interconnected and should be treated as such, whereby EI is not fixed; it can and should be taught (Goldsworthy, 2002:121). Researchers concluded that the original model of Salovey and Mayer (1990) and the revised model (Mayer & Salovey, 1997) tend to be the most cohesive and comprehensive models of EI (Schutte *et al*., 1998:169). This original model of EI was used as a basis for the development of a self-report measure of EI, which provided a solid foundation for assessing current levels of EI (Schutte *et al*., 1998:169). Consequently, a discussion of assessing EI levels in sports will follow in the proceeding paragraphs.

2.4.4 Assessing emotional intelligence in sports

Despite the comprehensive definition of EI, there is little agreement on how to measure EI the best (Salovey *et al*., 2001:289). Self-report scales are a popular assessment method, in which the participant is asked about their feelings, attitudes, beliefs and so on (Salovey *et al*., 2001:289). In general, self-report measures is a less direct way of assessing EI levels. However,

self-report questionnaires have their own benefits including being relatively easy to administer and the respondents can provide their experiences that are otherwise difficult to obtain with performance measures (Mayer *et al*., 2000:290). Several methods for assessing EI exist, namely the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) which was designed to measure the four-branch (perception, facilitation, understanding and managing emotions) model of EI (Mayer *et al*., 2002). Another measure is from Reuven Bar-On, which specifically mix mental abilities with personality concepts and capabilities (Mayer *et al*., 2000:270). Bar-On used a self-report measure, called the Emotional Quotient Inventory (EQ-i), to measure emotionally and socially intelligent behaviour (Hultin, 2011:7). The Emotional Intelligence Scale (EIS), developed by Schutte *et al.* (1998) assesses EI based on self-report responses: "tapping the appraisal and expression of emotions in self and others; regulation of emotions in self and others; and utilisation of emotions in problem solving" (Schutte *et al*., 1998:169). The EIS has been widely used in numerous sport psychology studies as well as in the current study (Lane *et al*., 2009c:195; Thelwell *et al*., 2008:224; Zizzi *et al*., 2003:262). Potential uses of the EIS involves exploring the nature of EI, including the determinants and effects of EI and whether EI can be improved (Schutte *et al*., 1998:176). This scale may also hold value in that it can assess individuals who wish to receive a valid appraisal of their EI (Schutte *et al*., 1998:176). The EIS may be properly used for research purposes as well as assisting individuals who want to self-contemplate their emotional functioning (Schutte *et al*., 1998:176). The EIS consists of 33 items that are based on the conceptual model of Salovey and Mayer (1990:190). The subscales are classified as: "Perception of emotion, Managing one's own emotions, Managing others' emotions and Utilisation of emotions". Appraisal and expression of emotion is measured by thirteen of the items, regulation of emotions is measured by 10 of the items and 10 of the items measure utilisation of emotion respectively (Schutte *et al*., 1998:171). Participants have to indicate the extent to which each item applies to them using a Likert-type scale ranging from strongly agree (1) to strongly disagree (5). In some cases, reverse scoring applies (items 5, 28 and 33). Sample items for each dimension include "I find it hard to understand non-verbal messages of other people" (perception of emotion); "When I experience a positive emotion, I know how to make it last" (managing own emotions); "Other people find it easy to confide in me" (managing others' emotions); "When I am in a positive mood, solving problems is easy for me" (utilisation of emotions) respectively. Scores can range from 33 to 165, with higher scores indicating a high level of EI (Venter, 2003). The following table contains subscale descriptions found in the EIS:

Table 2.2: Emotional Intelligence subscale definitions

Subscales	Description
Perception of emotions	The ability to perceive emotion in faces as well as non-verbal emotion acknowledgement and expression (Salovey & Mayer, 1990; Schutte *et al*., 1998).
Management of own emotions	The ability to recognise and react to own emotions as well as the expression of verbal and non-verbal emotions to others (Salovey & Mayer, 1990).
Management of others' emotions	The ability to develop a connection with a diverse group of people (also known as empathy) (Schutte *et al*., 1998), achieving specific goals while managing emotions (Mayer & Salovey, 1997) and to uphold or increase positive emotions in other people (Ciarrochi *et al*., 2000).
Utilisation of emotions	The ability to remain creative during problem-solving by utilising emotions effectively (Salovey & Mayer, 1990) and to easily accept feedback and critique from the coach (Coetzee *et al*., 2006).

The test-retest reliability of the EIS was found to be 0.78 (Schutte *et al*., 1998:173). An internal consistency analysis revealed a Cronbach's alpha of 0.90 for the 33-item scale, while the mean alpha across samples is 0.87 (Schutte *et al*., 1998:171). Promising reliability, some reported validity, and concise representation of three aspects of EI in just 33 items can be seen as strengths of this scale (Salovey *et al*., 2001:297). However, the scale is limited by the small number of negatively keyed items (3 out of 33) (Salovey *et al*., 2001:297). The EIS has proven to be a valid scale for assessing EI among athletic samples (Hemmatinezhad *et al*., 2012:155; Lane *et al*., 2010:388; Zizzi *et al*., 2003:262). The next section will shed more light on the role that EI plays in sports performance.

2.4.5 The relationship between emotional intelligence and sports performance

EI is increasingly recognised as a key factor in achieving successful performances in sports (Le Roux, 2006:9) and is of paramount importance for athletes to effectively cope with the various

physical and psychological demands (Weinberg & Gould, 2019:28). EI offers athletes the capacity to develop facilitative emotional regulation during high-pressure situations (Ros *et al*., 2013:105). Both individual and team sports can benefit from EI, especially in the functioning of athletes within a team setting (Birwatkar, 2014:19), as well as determining whether or not an athlete achieves successful team performances. It can thus be assumed that EI often 'makes or breaks' a team (Birwatkar, 2014:19).

The importance of EI in sports is highlighted by the view that the ideal combination (facilitative and debilitative) of emotions may assist the athlete in dealing with stress and consequently lead to better performance (Weinberg & Gould, 2019:95). Both pleasant and unpleasant emotions can occur during optimal or dysfunctional states of performance, depending on the athletes' ability, success or failure to convert and utilise their resources (Robazza & Bortoli, 2007:889). It is posited that optimal emotions have a revitalising effect on performance, whereas non-optimal emotions (pleasant and unpleasant) would bring about the opposite effects (Robazza & Bortoli, 2007:889). Moreover, EI may contribute to the players' quality of relationships since "emotions serve communicative and social functions, which convey information about thoughts and intentions," as well as the facilitation of sports performance (Reeves Silent Night, 2015:8). EI can also assist athletes in the management and regulation of their emotional demands (Lane & Wilson, 2011:359). Furthermore, individuals with high EI tend to be more cohesive, possess better leadership qualities and have the ability to cope with pressure (Bal *et al*., 2011:52). What makes EI such a relevant topic in sports is that athletes with heightened levels of EI benefit more from the capacity to deal with their own and others' emotions (Birwatkar, 2014:25). Tolerance for frustration, emotional regulation and restraint and effective stress management are attributes that elite athletes require (Perlini & Halverson, 2006:111). In this regard, Lane *et al*. (2009c:195) found a positive correlation between EI and the frequent use of psychological skills. Also, EI enables athletes to solve problems easier by using their emotions, which ultimately results in a more effective life (Birwatkar, 2014:20). For athletes to be able to achieve their goals, they should be able to manage their emotions and guide them in a goal-oriented direction (Birwatkar, 2014:20). When athletes know how to channel their emotions, it may further help them to be victorious during difficult situations resulting in higher levels of motivation and effort (Birwatkar, 2014:20).

In addition to this, athletes could use their ability to recognise thoughts and feelings during stressful situations (Tamminen *et al*., 2016:25), which will assist them to make more accurate decisions during games (Fletcher & Sarkar, 2012:675), and help to direct attention towards

task-relevant cues (Jones, 2003:476; McCarthy *et al*., 2012:1). An exploratory study by Lane and colleagues (2009b:67) on the relationship between EI and performance-related behavioural features of student athletes suggested that balanced behaviour features (such as displaying motivation and to control debilitative emotions) are qualities which separate more successful from their less successful counterparts in important events. They furthermore found a positive association between EI and performance, as well as between EI and athletes' level of self-efficacy (Lane *et al*., 2009b:69).

Sports may lead to athletes experiencing emotional states, for example where a win can result in joy and happiness, while a loss can result in disappointment and even despair (Jones, 2003:471). In addition, sports demand athletes to possess certain levels of EI due to the required level of control they must exert over fluctuating emotions, especially when under pressure (Crombie *et al*., 2009:210). The emotional state of an athlete may and can affect their sports performance (Jones, 2003:476). It is also possible that some emotions, which influence competitive performance, are generated outside of the sporting world, for example, family life, whereas other emotions are a direct reaction to what is happening in the sports context (Lazarus, 2000:242). Various researchers have been drawn to the important effect of emotions on sports performance while attempting to find techniques to control and regulate emotions (Lane *et al*., 2010:388). EI is suggested to help sustain emotions which have been regulated for optimal performance, if the demands of the task and the achievement motivation of the athlete remains the same (Lane *et al*., 2010:391). A study by Lane *et al*. (2010:390) that measured both emotions experienced before an optimal and dysfunctional performance by using a self-report EI scale, indicated a positive correlation between EI and pleasant emotions in both performances; whereas individuals who reported low on EI seemed to experience extreme unpleasant emotions before dysfunctional performances (Lane *et al*., 2010:390). Furthermore, it was also noted that professional athletes are well-motivated and possess self-confidence in that they control competitive anxiety by utilising their mental skills (such as emotional control and imagery), however, a significant decrease in performance is seen in amateur athletes due to high competition anxiety (Soflu *et al*., 2011:2395). In addition, individuals with higher EI display a stronger ability with regard to emotion control, arousal, identifying feelings of others and regulating associations with others (Goleman, 1995:34). Athletes with higher EI can also control their emotions effectively and apply problem-solving to difficult situations and challenges, resulting in an improved self-efficacy (Ahmadizadeh *et al*., 2013:2556; Goleman, 1998:345).

Moreover, a study that examined the effect of EI on hockey performance, reported that EI is an effective skill that improved self-efficacy and performance of hockey players (Perlini & Halverson, 2006:110). Likewise, athletes with a higher EI also communicate better with their teammates in training sessions and during competition (Birwatkar, 2014:27).

Emotional and mental preparation plays a significant role in decision-making, proper implementation of skills/techniques, increased motivation of athletes and consequently improved team effectiveness (Barkhoff *et al*., 2007:11). Controlling non-effective emotions and negative mood such as poor motivation, tension, depression, and confusion would be useful in any competitive situation (Hemmatinezhad *et al*., 2012:159). Researchers reported that athletes with high EI supposedly experience more positive emotions and less negative emotions (Petrides *et al*., 2007:274). Supporting this, Lane and Wilson (2011:360) investigated emotions and EI among athletes finishing an ultra-marathon over six days, and revealed a positive association between EI and positive emotions such as calmness and happiness together with less negative emotions including anger, depression, confusion and tension. In addition, EI will empower athletes to sensibly deal with competitive events, apply continence and control immediate demands (Birwatkar, 2014:20). More investigation on the relevance of EI in athletic performance indicates that EI has a direct effect on self-regulation and mindset, for example emotionally intelligent athletes have the ability to achieve proper emotional states required for the situation. In other words, emotionally intelligent athletes are able to relax themselves if the situation requires composure and vice versa (Birwatkar, 2014:20).

When athletes learn how to manage their emotions, their self-confidence can be increased (Mowlaie *et al*., 2011:141) and it will allow athletes to counteract negativity by replacing such thoughts with more positive and motivational thoughts (Jones, 2003:481). Over and above this, good social skills and effective communication within a team environment helps athletes to attain desired goals (Savardelavar *et al*., 2017:21), whereas empathy can also have a motivational influence on human interactions while increasing the emotional bond within a group (Singer, 2006:860). When athletes manage their positive and negative emotions, it can help them to achieve intended goals (Salovey & Grewal, 2010:282). It will also be easier for athletes to appropriately adjust to their play during competitions, if they understand emotional dynamics, especially during high-pressure situations (Birwatkar, 2014:24). Any inappropriate emotional reaction can often lead to athletes being penalised or excluded from the match, which stem from the inability to manage emotions appropriately during competitions. Hence, underscoring the importance for athletes to learn how to recognise, express and manage their

emotions effectively (Botterill & Brown, 2002:40). Additionally, sports is inextricably linked to emotional experiences such as anxiety (Singh, 2017:278). In this regard, a direct link between EI and the level of anxiety experienced by athletes has also been reported (Boroujeni *et al*., 2012:1443; Torkfar *et al*., 2011:96). Anxiety is one of the most experienced emotions among athletes and discussed topic in sports and exercise psychology (Gill & Williams, 2008:117). The following section is devoted to a brief discussion with a view to further understand anxiety and the effect thereof on performance and EI.

2.5 Anxiety

2.5.1 Anxiety: Definition and conceptual considerations

Anxiety can be experienced by all performance-level athletes (Ford *et al*., 2017:206). The concept of anxiety has been used interchangeably with both arousal and stress. However, the importance to distinguish between the two concepts have been emphasised by sport and exercise psychologists (Weinberg & Gould, 2019:78). Weinberg and Gould (2019:78) explain that, arousal is a combined physiological and psychological activity within a person. Arousal, elicited by anxiety as well as pleasant or unpleasant events (Weinberg & Gould, 2019:78), also includes "alertness and physiological activation preparing the body for action" (Moran, 2004:81). Stress, on the other hand, is defined as a constant process during which athletes make appraisals of the situations they find themselves in, attempting to cope with any concerns/problems that may arise (Rumbold *et al*., 2012:174). Stress occurs when there is a considerable "imbalance between what we believe is demanded of us and what we perceive our capabilities to be for meeting those demands, for situations in which success is important" (Weinberg & Gould, 2019:82). Anxiety is a negative emotional state characterised by nervousness, worry, and apprehension (hesitation and uneasiness) and associated with activation or arousal of the body (Dominikus *et al*., 2009:651; Weinberg & Gould, 2019:78). Also, anxiety is a reaction to perceived stress concerning performance during pressure situations experienced by athletes participating at all levels of sports (Ford *et al*., 2017:206). Anxiety in sports is widely researched mainly due to the role it plays in performance as well as in the psychological well-being of athletes (Kruger, 2005:26; Van den Heever, 2006:3). It has consequently become a crucial concept for consideration in the sports context (Humara, 1999:1; Torkfar *et al*., 2011:93). Different levels of anxiety before and during a competition is experienced by almost all athletes, which might lead to poor performance if not harnessed effectively or properly (Bookani *et al*., 2015:321; Boroujeni *et al*., 2012:1441). Generally, athletes experience anxiety for various reasons such as the significant value of winning and

losing, or doubt in one's ability to execute task-related skills that have a debilitative effect on performance (Mottaghi *et al*., 2013:68). Anxiety experienced by athletes can be derived from either trait-like or state-like components (Kruger, 2005:26). Trait anxiety refers to a behavioural predisposition that results in a person to perceive various objective circumstances as threatening while state anxiety reflects physiological and psychological components that are directly related to a specific situation (Martens *et al*., 1990b:6). According to Spielberger (1966:17) "state anxiety is a temporary, ever-changing emotional state of subjective, consciously perceived feelings of apprehension and tension, associated with activation of the autonomic nervous system." Trait anxiety forms part of personality, a learned disposition that can influence behaviour (Weinberg & Gould, 2019:78).

Furthermore, anxiety can be experienced at a cognitive and/or somatic level (Cox, 2007:201). Cognitive anxiety refers to the mental state that is associated with feelings of fear, apprehension and worry (Cox, 2007:201). This is characterised by negative expectations and worries about oneself and the potential consequences of a certain situation (Robazza & Bortoli, 2007:876), as well as the inability to concentrate, and disrupted attention (Kais & Raudsepp, 2005:13). In other words, individuals are constantly thinking the worst, considering negative outcomes, and anticipating failure (Singh & Dubey, 2015:512). These feelings of negativity tend to be debilitative to performance (Parnabas, 2015:32). Somatic anxiety on the other hand refers to one's physiological response to perceived threatening situations in the form of physical reactions such as tensed muscles, sweaty palms, shortness of breath, butterflies in the stomach and an increased heart rate, to name but a few (Cox, 2007:201; Martens *et al*., 1990b:6; Robazza & Bortoli, 2007:876). Thus, cognitive anxiety concerns the level of worry and negative thoughts, whereas somatic anxiety concerns the physical manifestation changes one has to deal with (Weinberg & Gould, 2019:78). Both components of anxiety can result in a decrease in competition performance of athletes (Parnabas, 2015:37).

The conceptualisation of anxiety can be tied to an individual's self-confidence (Robazza & Bortoli, 2007:876). When an athlete believes he/she can perform a specific action successfully, he/she possesses self-confidence (Robazza & Bortoli, 2007:876). Self-confidence (a separate cognitive component) comprises the athlete's universal perceptions of confidence (Craft *et al*., 2003:45). However, self-confidence was not initially seen as a subcomponent of anxiety, researchers have included self-confidence in their study of the anxiety/performance relationship and suggested that a positive linear relationship exists between self-confidence and anxiety (Martens *et al*., 1990a:193). Self-confidence can be seen as an important variable related to

sports performance (Robazza & Bortoli, 2007:876) and it increases one's perceived ability to manage emotions and provides athletes with the possibility of controlling negative emotions more effectively (Besharat & Pourbohlool, 2011:760). Several researchers have shown that high levels of self-confidence and low levels of somatic and cognitive anxiety were part of the characteristics of athletes who interpreted their anxiety as being facilitative and recommends that this ideal state among athletes should be an important objective for sport psychologists (Bahrololoum *et al*., 2012:128; Hanton *et al*., 2004:179; Humara, 1999:6). Anxiety is very common in sports (Khan *et al*., 2017:1), while research demonstrated that the way an athlete controls their anxiety levels, can result in competition success or failure (Humara, 1999:1). With this in mind, the following section will be devoted to a discussion of relevant literature to further explore the relationship between anxiety and sports performance.

2.5.2 The relationship between anxiety and sports performance

Anxiety is a negative emotional response to competition stressors, but it is possible for athletes to interpret their anxiety symptoms as helpful to their upcoming performances (Mellalieu *et al*., 2006:30). The elements of anxiety can influence an athlete's performance, whether at a conscious or unconscious level (Dominikus *et al*., 2009:652). However, athletes are more susceptible to anxiety when subjected to win at all cost expectations along with other strenuous demands that underscore consistent performances (Khan & Zafar, 2014:37). The influence of anxiety on performance can also differ from one athlete to another; some may perform at their best level in the presence of anxiety, while others' performance may be compromised (Le Roux, 2006:52). Added to this, anxiety can be used to delay exhaustion, maintain focus and alertness as well as generate energy, if it is interpreted as facilitative (Robazza & Bortoli, 2007:889). The manner in which athletes cope with their experienced anxiety, can ultimately distinguish between elite and average sports performances (Jarvis, 2006:113; Moran, 2004:67). Athletes are going to need to learn how to deal appropriately with the anxiety they experience before and during competitions so that they can cope effectively (Kruger, 2005:27). Likewise, the success of an athlete is dependent on how they handle their anxiety (Khan & Zafar, 2014:37). Also, another study concluded that optimal sports performance could be achieved by athletes who effectively deal with their competitive anxiety (Parnabas, 2015:39).

If athletes use coping strategies to deal with anxiety, it can improve their overall performance (Parnabas, 2015:39). Elite athletes experience fewer performance disruptions because they cope more effectively with their anxiety (Larner, 2009:35). Conversely, decreased anxiety may lead

to an athlete experiencing a reduced activation state as well as a reduced mental and physical preparedness to endure the confrontational nature of sports (Neil *et al*., 2006:420). A heightened state of anxiety may facilitate performance in low-trait anxious athletes, whereas heightened state anxiety may harm performance in high-trait anxious athletes (Hardy *et al*., 1996:158). When athletes view their competitive anxiety symptoms as facilitating, it is usually athletes who see themselves as in control, able to cope with their anxiety, and who are achieving their goals (Jones, 1995:449). In contrast, athletes who perceive themselves as not being in control, having negative expectations of goal attainment, are predicted to interpret symptoms as debilitative (Jones, 1995:449). Moreover, Hanton and co-workers (2004:179) indicated that the manner in which athletes interpret their symptoms of anxiety prior to competition as either negative or positive, will remain stable and will not fluctuate during competition. Concentration interruptions might be a subsequent effect of athletes who struggle to deal with anxiety (Dominikus *et al*., 2009:652). Furthermore, a negative performance result may be associated with high levels of anxiety symptoms (Robazza & Bortoli, 2007:876). Factors that can contribute to anxiety include the expectations that athletes create for themselves, as well as the expectations of coaches and team members (Mottaghi *et al*., 2013:72; Robazza & Bortoli, 2007:879). In support of this, Woodman and Hardy (2003:452) found that cognitive anxiety had a negative effect on sports performance. In this regard, Parnabas *et al*. (2015:29) indicated in a sample (n = 67) of national, state, district and university hockey players, that higher levels of cognitive anxiety resulted in lower levels of performance.

In addition to the negative effect on performance, another study has shown that heightened cognitive anxiety has a negative impact on well-being as well as life satisfaction among university students (Paschali & Tsitsas, 2010:S96). Thus, dealing with anxiety remains a demanding challenge for athletes as the associated negative effects on concentration, memory and other behavioural responses may alter task requirements related to their performance (Dominikus *et al*., 2009:652). However, anxiety per se "is not a maladaptive state that needs to be removed in order to perform optimally" (Osborne *et al*., 2014:4). On the contrary, when an athlete's skill level is the same as the performance demands of the situation, then a moderate level of anxiety can be beneficial to performance (Jackson & Csikszentmihalyi, 1999:20). Supporting this, researchers stated that a moderate level of anxiety leads to better sports performances compared to high or low levels of anxiety, which are associated with a decrement in performance (Bookani *et al*., 2015:322).

However, Smith (as quoted by Gould *et al*., 1993) and Kruger (2005:77) have suggested that athletes who cannot productively cope with the acute effects of anxiety associated with competition, would experience energy reduction, dysfunctional cognitive processing such as concentration, as well as a decrement in performance and other deleterious effects. Furthermore, when anxiety is not interpreted correctly, athletes lose control and poor performance is inevitable (Shilpi *et al*., 2015:61). Hence it is recommended that when athletes stop paying attention to negative, irrelevant thoughts and/or feelings, they will be better able to guard against the loss of concentration (Knobel, 2010:45). Conversely, for athletes to achieve peak performance in sports, they also need to meet the demands of competition as well as to perform well under pressure (Craft *et al*., 2003:44).

Overall, it can be concluded that anxiety is something everyone experiences every time they are confronted with a perceived dangerous, stressful, or embarrassing situation (Herrero *et al*., 2006:151). Whenever these situations occur, a low level of anxiety can be helpful to manage these events effectively, while high levels of anxiety may have the opposite effect such as negatively impacting social and personal relationships and may even cause subsequent physical and emotional difficulties (Herrero *et al*., 2006:151).

Various theories such as the Inverted-U hypothesis (Yerkes & Dodson, 1908) the Drive theory (Hull, 1943) and Reversal Theory (Kerr, 1997) have been documented in sport psychology literature to explain the anxiety-induced arousal-performance relationship in sports (Larner, 2009:19). The following section will outline the most common theories in this regard.

2.5.2.1 Inverted-U Theory

Research exploring the relationship between anxiety in sports and performance was originally based on the Inverted-U hypothesis developed by Yerkes and Dodson (1908) (Craft *et al*., 2003:45). This theory proposes a "curvilinear relationship" between physiological arousal and performance (Lundqvist, 2006:25). This theory suggests "that for every type of behaviour there exists an optimal level of arousal, usually of moderate intensity, that produces maximum performance" (Larner, 2009:20). In other words, as arousal increases so does performance up to a specific point. Inferior performances are predicted with levels of arousal above or below the athlete's optimum level (Larner, 2009:20). Gould and Krane (1992:121) substantiated that moderate levels of arousal were generally associated with better performance, whereas arousal levels that were too high or too low led to poorer performance. For example, athletes who experience a very low state of arousal may be too lethargic to perform, or on the contrary,

athletes experiencing a very high state of arousal, might experience a sudden and dramatic drop in performance also known as 'choking' in sport (Bridges & Knight, 2005:6). According to this theory, one can assume that the arousal needed for optimal performance will decrease as the complexity of a task increases (Larner, 2009:20). In other words, this hypothesis simply states that as arousal increases, performance would increase simultaneously but, if arousal became too high, performance would deteriorate gradually (Humara, 1999:2). However, this theory lacks scientific support as it does not distinguish between level of performance (such as novice and expert), and nature of the skill performed (such as fine and cross-motor activity).

2.5.2.2 Multidimensional Anxiety Theory (MAT)

The Multidimensional Anxiety Theory (MAT) (Martens *et al*., 1990b) focus specifically on the distinction between the two components of anxiety: cognitive anxiety and somatic anxiety. According to this theory, both components of anxiety influence performance (Parnabas, 2015:32). The MAT also describes "the relationship between specific components of the competitive state anxiety response and performance" (Mellalieu *et al*., 2006:24). Cognitive anxiety is suggested to exhibit a negative linear relationship with performance, while somatic anxiety exhibit an inverted-U shaped relationship, whereas self-confidence is predicted to exhibit a positive linear association with performance (Robazza & Bortoli, 2007:876). Lower as well as higher levels of somatic anxiety can be harmful to performance (Martens *et al*., 1990b:124). At the commencement of competition, somatic anxiety may reach its highest level and may dissipate once the competition begins (Martens *et al*., 1990b:124). Therefore, cognitive anxiety has a higher effect on performance than somatic anxiety (Martens *et al*., 1990b:124).

Researchers concluded that "although MAT provides some indication of the positive influence that somatic anxiety (up to moderate levels) and self-confidence can have upon performance, it hypothesizes that elevated levels of cognitive anxiety will invariably be negative and detrimental, with no positive consequences" (Mellalieu *et al*., 2006:24). In contrast, some researchers have stated that cognitive anxiety can have either a facilitative or a debilitative effect on performance (Jones, 1995:449), which points out the potential interactive effects between cognitive anxiety and the other subcomponents. The three subcomponents of competitive state anxiety also showed to be intercorrelated on average (Craft *et al*., 2003:61). Likewise, a weak to moderate relationship was found between cognitive and somatic anxiety and performance (Craft *et al*., 2003:57; Woodman & Hardy, 2003:452), which suggest both

theoretical and methodological shortcomings of the MAT (Jones, 1995:449). Subsequently it was stated that the MAT is of little use within a practical context (Weinberg & Gould, 2019:89). Although this theory integrates many elements of anxiety, it still treats each element as a distinct entity (Humara, 1999:3), as opposed to the interactive effect of the subcomponents on performance (Mellalieu *et al*., 2006:24). Also, a recommendation for consideration is that a three-dimensional approach is needed that will incorporate both subcomponents simultaneously (McNally, 2002:16). Nonetheless the MAT has expanded the concept of anxiety research in sports settings, specifically to identify and establish two distinct components of competitive state anxiety (Larner, 2009:31; McNally, 2002:16).

2.5.2.3 The Individual Zones of Optimal Functioning (IZOF)

According to the Individual Zones of Optimal Functioning, frequently referred to as the IZOF (Hanin, 1980), peak performance results from each individual having an optimal zone or level of pre-performance anxiety (Humara, 1999:3). Hanin (1986:45) contends that if this pre-performance anxiety is either too high or too low, performance will most likely decline or will be less optimal. This model goes further by providing a specific method for determining athletes' optimal anxiety levels by observing state anxiety and performance of the athletes (Larner, 2009:58). Nevertheless, the foundation of this model lies in the fact that facilitative or debilitative emotions are perceived differently by athletes, which would essentially determine the effects thereof on their performance (Robazza & Bortoli, 2007:889). Furthermore, both pleasant and unpleasant emotions can be included in optimal or dysfunctional state of performance, which will reflect athletes' ability to employ the use of mental skills (Robazza & Bortoli, 2007:889). However, Larner (2009:58) identified a shortcoming of this model stating that its approach is "based on a unidimensional conceptualisation of anxiety, which limits its association with more recent approaches and measures." This model also did not address the possibility that cognitive and somatic anxiety may not affect performance in the same way (Weinberg & Gould, 2019:86). However, literature confirmed that somatic and cognitive anxiety affect athletes differently, implicating this model from a practical perspective (Weinberg & Gould, 2019:86). In this regard, coaches must now ascertain the ideal positive and negative emotions that each individual athlete needs for optimal performances (Weinberg & Gould, 2019:86). In addition, this model received good support in other sport-related research (Davis & Cox, 2002:43; Hanin, 2007:31; Robazza *et al*., 2008:1033).

2.5.2.4 The Catastrophe Model of Anxiety

The Catastrophe Model of Anxiety as proposed by Fazey and Hardy (1987) is based on the specific relationship between cognitive anxiety, physiological arousal and performance. A decrease in performance will be seen when cognitive anxiety is high and physiological arousal increases and this combination will hinder the return to optimal performance levels (Larner, 2009:58). Furthermore, "when cognitive anxiety is at a low level, changes in physiological arousal have little effect on performance" (Hardy *et al*., 1996:145). The interpretation of physiological symptoms an individual experiences can influence performance (Humara, 1999:3). Physiological arousal levels that are too high will lead to a sharp drop in performance and can then only be overturned when physiological arousal decreases (Hardy *et al*., 1996:145). As with the Inverted-U theory, the Catastrophe theory (Hardy & Fazey, 1987) predicts that increases in arousal would be associated with performance gains up to a point (Larner, 2009:58). However, the Catastrophe theory specifically argues that performance would not drop in a uniform and orderly manner (such as proposed by the Inverted U-theory), but would decline instantaneously and dramatically (Larner, 2009:58). Unlike the general MAT, this approach focused on the interactive effects of the two modes of anxiety and how that related to performance (Larner, 2009:58). However, this model fails to include a self-confidence variable (Humara, 1999:4). The advent of the various theories of anxiety has encouraged considerable research into the anxiety construct in the sports context, which has led to the development of different assessment instruments used. Researchers suggested that to better understand anxiety responses over time, the amount of time athletes attend to anxiety symptoms before and during competition should be assessed by means of a frequency dimension that is typically found in the Competitive State Anxiety Inventory-2 (CSAI-2) (Jones & Swain, 1992:469). In this regard, different physical and psychological measures exist for assessing anxiety (Martens *et al*., 1990b; Norton *et al*., 2004; Smith *et al*., 2007). The following section will be devoted to a discussion of assessing anxiety in sports.

2.5.3 Assessing anxiety in sports

For purposes of this discussion, only the measures adopted in the present study will be elaborated on. To assess the multidimensional aspects of anxiety, Martens *et al*. (1990b) developed the CSAI-2. The CSAI-2 is a sport-specific, self-report inventory that assesses athletes' tendency to experience anxiety in a competitive setting (Larner, 2009:96). The CSAI-2 was specifically developed to account for sport-related anxiety (Lundqvist, 2006:24). The

CSAI-2 inventory was "employed as a measure of cognitive and somatic anxiety in participants and their perceived self-confidence in sport-related competition situations" (Radochoński *et al*., 2011:183). The CSAI-2 (Martens *et al*., 1990b) comprises three subscales, namely Cognitive Anxiety, Somatic Anxiety, and Self-confidence, with nine items in each subscale. Cognitive anxiety includes the perception of possible failure, while somatic anxiety includes the perception of physical symptoms, whereas self-confidence is the involvement of cognitions about the task at hand and whether one is able to perform at his best (Boroujeni *et al*., 2012:1442). Athletes are asked to indicate "how you feel right now" before an important competitive event for each item on a 4-point Likert-type scale ranging from 1 (not at all) to 4 (very much so). Examples from the cognitive anxiety items include "I am concerned about this competition," and "I am concerned about choking under pressure" while the items from the somatic anxiety include statements such as "I feel nervous" or "My body feels tight." The self-confidence subscale includes items such as "I feel at ease," and "I am confident I can meet the challenge." Each item's scores are added together to reflect the level of intensity of each subscale of anxiety experienced by the athlete, and for self-confidence about performing (Craft *et al*., 2003:46). The potential scores range from 9 (the lowest) to 36 (the highest) for each anxiety component and the self-confidence construct, whereas all items are positively stated, except item 14 (somatic anxiety) which is scored reversely in the analysis of the results (Radochoński *et al*., 2011:183). In addition to the anxiety (intensity) scale, a bipolar 7-point Likert direction scale ranging from -3 to +3 (Jones & Swain, 1992) was added for each item to enable the participant to rate the degree to which the experienced intensity of each symptom was either facilitative (positive) (+3) or debilitative (negative) (-3) to subsequent performance, where a score of zero indicated unimportant or neutral effects. For example, if the "I feel nervous" option was chosen on the intensity scale, the participant may interpret the answer as debilitative or facilitative to their performance (Dominikus *et al*., 2009:653). The direction subscale scores ranged from -21 to +21 (worry) and from -27 to +27 (somatic) (Neil *et al*., 2006:418). Davis and Cox (2002:45) made a minor modification to the directionality scale to range from 1 (highly debilitative) to 7 (highly facilitative) for each subscale item to avoid using negative scores and to simplify data interpretation. Thus, a positive score represents a perceived facilitative impact of anxiety on performance, whereas a negative score represents a perceived debilitative impact (Robazza & Bortoli, 2007:881). Martens *et al*. (1990b) reported that overall subscale perception/direction scores range from 9 to 63, where a score of 9-27 denotes a state of debilitation and a score of 45-63 facilitation. A score ranging from 28-44 is considered as neutral with neither a debilitative nor facilitative impression. Consequently, self-confidence

prior to and during competitions usually indicates low competition anxiety and is often associated with higher performance levels (Stoeber *et al*., 2006:959).

Initial psychometric tests confirmed solid internal consistency for all the subscales, with alpha reliability coefficients ranging from 0.79 to 0.90 (Martens *et al*., 1990b). The initial concurrent validity research on the CSAI-2 demonstrated reasonably consistent relationships with eight previously validated state and trait inventories (Martens *et al*., 1990b). Cronbach's alpha coefficients for internal reliability, averaged over 11 different match measures, were 0.87 for both the cognitive and somatic anxieties (Kais & Raudsepp, 2005:15). This inventory has been used by numerous researchers in sport-related samples (Boroujeni *et al*., 2012:1442; Kruger, 2005:71; Radoshoński *et al*., 2011:188). A brief discussion will follow to further understand the relationship between anxiety and EI.

2.5.4 The relationship between anxiety and emotional intelligence

Research showed that emotions are strongly linked to anxiety, and if emotions are facilitated in an accurate manner, negative factors such as anxiety will decrease considerably (Hashempour & Mehrad, 2014:118). In this regard, a higher EI was positively associated with lowered levels of anxiety in female basketball players (Boroujeni *et al*., 2012:1443), semi-professional football and paddle players (Castro-Sánchez *et al*., 2018:10), intercollegiate track and field athletes (Lu *et al*., 2010:333), swimming, badminton, soccer and volleyball student-athletes (Torkfar *et al*., 2011:98). Consequently, the notion suggesting a positive relationship between higher EI and lowered levels of anxiety in sports is duly supported (Fernandez-Berrocal *et al*., 2005:91; Salovey, 2001:168). Williams and co-workers (2010:870) added to this notion revealing that participants with lower EI and higher cognitive anxiety viewed competition tougher compared to what those with a higher EI viewed it to be (Williams *et al*., 2010:870). In addition, Nourian *et al*. (2011:472) concluded that teaching athletes EI can assist them in coping with anxiety more effectively. It has also been revealed that the manner in which athletes cope with the anxiety they experience, can be a distinguishing factor between elite and average sports performance (Jarvis, 2006:113; Moran, 2004:67). Moreover, individuals with an ability to regulate and manage their own as well as others' emotions can solve emotional problems, which requires less cognitive effort (Mayer, 2004:8). It also helps to organise thoughts and can assist in (re)focussing, which potentially eliminates debilitative emotions and decreases cognitive anxiety (Bahrololoum *et al*., 2012:128). This might be beneficial to team-sport players as it may lead to experiencing fewer negative thoughts and self-doubt, which can result in a decrease in

cognitive anxiety (Juuso, 2011:8). In this regard, athletes that learn how to manage their emotions can also increase their self-confidence (Mowlaie *et al*., 2011:141; Rajeshwari & Raj, 2017:98), where self-confidence can act as a buffer between negative and debilitating feelings elicited by anxiety (Bahrololoum *et al*., 2012:128).

In addition to this, Fernandez-Berrocal *et al*. (2006:23) found that adolescents reporting a higher EI (such as the ability to distinguish clearly among feelings and to regulate emotional states) showed less anxiety. Essentially self-reported EI was negatively related to levels of anxiety and depression (Fernandez-Berrocal *et al*., 2006:23). These findings are supported by more recent investigation which reported a significant negative relationship between EI and trait anxiety among a sample of adolescents (Shahzad *et al*., 2014:51). Furthermore, researchers revealed a positive association with EI and precompetitive emotions which optimise performance and lower levels of precompetitive anxiety (Lane *et al*., 2010:390; Lu *et al*., 2010:333). Contradicting results have also been reported. Kamaei *et al*. (2015:327) found no significant relationship between EI and sports anxiety in athletes. However, it was suggested that coaches should select athletes with high EI and low trait/state anxiety, since the weaker team within the referred study displayed lower levels of EI that led to unsatisfactory performances (Boroujeni *et al*., 2012:1444). Based on the detrimental effect of anxiety on performance in sports, athletes need to know how to manage their anxiety and emotions, especially by applying various psychological techniques and skills (Khan *et al*., 2017:2). Following, is a brief discussion on coping skills most used in sports and the relationship between EI and coping skills.

2.6 Coping skills

2.6.1 Coping skills: Definition and conceptual considerations

The management of internal and/or external stressors depends on a person's cognitive, affective and behavioural capacity, which is personified by the concept of coping (Holt & Dunn, 2004:214). Coping skills are defined as "the ability of an athlete to reveal his/her coping ability, demonstrate composure, acceptance, activation control, and adaptability" (Fourie & Potgieter, 2001:67). Coping ability is characterised by a person's effort to minimize or tolerate a stimulus that is perceived as threatening. (Hoedaya & Anshel, 2003:159). Two approaches of coping have been used in research, namely coping process, and coping style (Lazarus, 1993:8). Coping process refers to the "process of constantly changing cognitive and behavioural efforts to manage specific external and/or internal demands or conflicts appraised as taxing or exceeding one's resources" (Lazarus & Folkman, 1984:141). In contrast, coping style is perceived as "the

preferred set of coping strategies that remain relatively fixed across time and circumstances" (Carver *et al*., 1989:270). Another term used, include coping strategies, which is described as the "thoughts and behaviours that are used to manage or cope with stressful situations, to reduce or tolerate the stress" (Barnett, 2011:12).

Coping is divided into three dimensions, namely problem-focused coping, emotion-focused coping and avoidance coping (Allen *et al*., 2012:494). Problem-focused coping can be seen as task-oriented coping where one would try to cope with failure by focussing on gathering information regarding a stressor (Sager *et al*., 2009:74), and changes the person-environment relationship by changing either the person, the situation, or both (Crocker & Graham, 1995:326). These strategies may include increasing effort, planning and problem-solving (Crocker & Graham, 1995:326). Emotion-focus coping in contrast entails decreasing or managing emotional distress associated with stressful situations (Downey, 2010:61) and can reduce distress by "diverting attention away from the situation or by changing the meaning of the situation through cognitive reappraisal" (Crocker & Graham, 1995:334). In other words, emotional distress that stems from a stressful situation, is reduced by applying emotion-focused coping (Tibbert, 2013:36). This type of coping includes emotional arousal and distress regulation strategies (Crocker & Graham, 1995:326). Strategies to address this dimension may include wishful thinking, behavioural withdrawal, venting of emotion and denial (Crocker & Graham, 1995:326). Avoidance-focused coping involves pushing away, or avoiding the situation to protect oneself, including task-oriented strategies such as where one engages in distraction by focusing on another task (Haglind, 2004:7). Applying problem-focused coping strategies during high-competitive levels, can help athletes to change or manage a demanding environment, which can facilitate an athlete's performance (Crocker & Graham, 1995:332).

Over and above this, applying problem-focused strategies is related to positive affect, whereas emotion-focused strategies are positively associated with negative affect (Crocker & Graham, 1995:334). Moreover, appraisal can influence the method of coping being followed, for example problem-focused coping is used if something can be done to change the situation. If appraisal indicates that nothing can be done, emotion-focused coping dominates (Lazarus, 1993:9). It can, therefore, be said that by influencing the relationship between a person and their environment as well as the way in which this relationship is appraised, will shape emotion (Lazarus, 1993:16). The ability to adapt effectively to competition situations has been identified anecdotally as a major component to successful sporting performances (Downey, 2010:80).

Given the important role of coping in sports, the following section will briefly highlight the assessment of coping skills in sports.

2.6.2 Assessing coping skills in sports

A number of measures have been developed for sports contexts for measuring athletes' coping responses (Crocker *et al*., 1998; Mahoney *et al*., 1987; Smith *et al*., 1995). The Athletic Coping Skills Inventory-28 (ACSI-28) of Smith *et al*. (1995) has been successfully used in research involving team sports in a South African context (Coetzee *et al*., 2006:387; Grobbelaar & Eloff, 2011:47; Harrison, 2013:22; Van den Heever *et al*., 2007:113), which justifies its use in the present study. The ACSI-28 provides a measure of psychological coping skills suggested to be beneficial to the improvement of sporting performance (Van den Heever, 2006:25). The participants are requested to read the statements on the ACSI-28 that describe experiences of other athletes and to recall how they relate to the same experience (Van den Heever, 2006:26). It is calculated to a total Personal Coping Resource score that is assumed to reflect a multi-faceted psychological skill construct reflecting an athlete's overall coping ability. The ACSI-28 consists of seven subscales and has a total of 28 items. Subscales consist of coping with adversity, peaking under pressure, goal setting/mental preparation, concentration, freedom from worry, confidence and achievement motivation, as well as coachability. The following table consists of the subscale descriptions found in the Athletic Coping Skills Inventory-28 (ASCI-28) used in sports settings (Smith & Christensen, 1995).

Table 2.3: Subscale terms and definitions of ACSI-28 psychological coping skills:

Subscales	**Description**
Coping with adversity	To stay positive and calm, even in challenging and / or difficult times. (Items 5, 17, 21, and 24).
Peaking under pressure	Can perform well under pressure and sees challenges as opportunities. (Items 6, 18, 22, and 28).
Goal setting/mental preparation	The use of clear and specific performance goals and plans. (Items 1, 8, 13, and 20).

Concentration	Focused on the current task and situation and is not easily distracted, not even by adverse and / or unexpected situations. (Items 4, 11, 16, and 25).
Freedom from worry	The absence of performance concerns. (Items 7, 12, 19, and 23 - reverse scoring applies to all).
Confidence and achievement motivation	Is hardworking, confident, and motivated and places a lot of emphasis on improving skills. (Items 2, 9, 14, and 26).
Coachability	Attach value to constructive criticism and accept instruction and feedback without becoming upset. (Items 3, 10, 15, and 27 – reverse scoring applies to items 3 and 10).

In some cases, reverse scoring applies (questions 3, 7, 10, 12, 19 and 23). The seven subscales each consist of four items measured on a 4-point Likert scale ranging from 0 (almost never) to 3 (almost always). Each of the subscales can therefore range from 0 to 12. The results are converted to a percentage score with higher values reflecting better skill levels. Sample items include "I maintain emotional control regardless of how things are going for me" (coping with adversity), "I tend to play better under pressure because I think more clearly" (peaking under pressure), "I tend to do lots of planning about how to reach my goals" (goal setting/mental preparation). The test-retest of the ACSI-28 produced a mean correlation coefficient of 0.84 (Smith *et al*., 1995). The internal consistency reliability (Cronbach's alpha values) ranges from 0.55 to 0.80 for the seven subscales indicating acceptable reliability for use in the South African context (Grobbelaar & Eloff, 2011:48). The ACSI-28 was found to be a better predictor of athletic success in baseball players than the assessment of physical skills (Smith & Christensen, 1995:399). Next is a brief discussion of the relationship between coping skills and performance in sports.

2.6.3 The relationship between coping skills and sports performance

Sports require athletes to employ effective coping so as to reach optimal performances and be satisfied with their sports experience (Kim & Duda, 2003:198). "Coping is regarded as a crucial component in sport, where the athlete must learn how to deal with strong and counterproductive action tendencies which are a consequence of any emotion" (Lazarus, 2000:241). When athletes

fail to cope constructively during competition, it could lead to negative performance effects, such as debilitating outcomes (Kruger, 2005:19). In addition, an athlete has reduced resources available to cope with subsequent situations when negative emotions such as frustration are experienced due to interruptions in their immediate goals (Thatcher *et al*., 2012:6-7). Research stated that individuals can alter their circumstances, or the way in which they are interpreted – to make them appear more favourable – which is referred to as coping (Lazarus, 1993:8). An adequate use of copings skills will enable athletes to adapt better to stressful situations (Carnicer & Calderón, 2013:133). However, Lazarus (1999:37) stated that "coping is only one part of an athlete's overall emotional regulation repertoire and is a process of conscious efforts to manage demands that are appraised as taxing or exceeding an individual's resources." Positive functioning and well-being can be promoted in every level of sport, when effective coping is applied (Tamminen *et al*., 2016:26).

Team-sports athletes are known to record high scores on concentration, confidence, achievement motivation and peaking under pressure and lower scores on coping with adversity, goal setting/mental preparation, freedom from worry and coachability (Bognár *et al*., 2009:5). In support of the previous findings, another study reported that confidence and achievement motivation as well as goal setting, was most frequently used by team sports athletes (Belem *et al*., 2014:450). However, Belem *et al*. (2014:450) pointed out that athletes that were classified as more resilient, more frequently used coping strategies related to coping with adversity, confidence, and achievement motivation and coachability, followed by peaking under pressure. The findings of Yi *et al*. (2005:260) also identified coping with adversity as the coping strategy most frequently used by elite Australian swimmers. In addition to this, the findings of Jooste (2012:151) on different playing-level cricket players (first-class senior provincial level, premier league club/senior academy and youth academy) showed similar scores on coping with adversity, coachability, and goal setting/mental preparation in all three groups. Coachability as well as confidence and achievement motivation were most frequently used by all respondents, while freedom from worry and goal setting/mental preparation recorded the lowest scores among respondents (Jooste, 2012:151). Positional differences in netball players were found by Grobbelaar and Eloff (2011:49-50), revealing that goal shooters recorded the lowest coping with adversity and peaking under pressure scores, while the wing defence players recorded higher coping with adversity and concentration scores than the players in the rest of the positions. Furthermore, poor confidence and achievement motivation scores were reported for all the positional groups (Grobbelaar & Eloff, 2011:53). A study conducted on successful and

less-successful netball players indicated better (not significantly so) coping with adversity, freedom from worry, goal setting/mental preparation scores by the less successful group than the successful group (Van den Heever *et al*., 2007:117). Contradictory findings among long-distance runners reported that the talented group recorded significantly higher mean scores for all the coping subscales (coping with adversity, peaking under pressure, goal setting/mental preparation, concentration, freedom from worry, confidence and achievement motivation and coachability) than the less talented group (Kruger *et al*., 2012:417). Similarly, higher coping with adversity scores were reported in the talented rugby players group than in the less talented groups (Andrew *et al*., 2007:10). In this regard, elite-level rugby players reported significantly better scores regarding concentration, freedom from worry, peaking under pressure and coachability scores, than their club-rugby counterparts (Kruger, 2005:48-49). Choosing and applying effective coping strategies can help reduce athletes' negative emotions associated with stress in sports (Kim & Duda, 2003:420).

From the aforementioned it becomes clear that effective coping skills can distinguish between more successful and less successful athletes during competition. In other words, better coping skills lead to better performances. Following, is a brief discussion of the relationship between coping skills and EI.

2.6.4 The relationship between coping skills and emotional intelligence

Emotions experienced by athletes can result in a coping response, especially negative emotions caused by certain events (Law, 2004:9). In addition, people in control of their emotions can cope confidently with any situation that may arise (Le Roux, 2006:106). In addition, adaptive coping is also considered to be "EI in action, supporting mastery of emotions, emotional growth, and both cognitive and emotional differentiation," which allows individuals to "evolve in an ever-changing world" (Matthews & Zeidner, 2000:460). EI can play a significant role in the coping process by influencing the responses to emotional arousal (Salovey *et al*., 1999:141). Furthermore, numerous studies indicated a positive association between EI and coping ability in sports (Darvishi *et al*., 2015:25; Downey *et al*., 2010:27; Law, 2004:26). Supportive research emphasised how EI increases stress tolerance in professional female student-athletes and reinforces cognitive capacities for more adaptive coping during competition (Darvishi *et al*., 2015:25). Also, Pensgaard and Duda (2003:263) found that the coping effectiveness reported by Olympic athletes (n = 61) was significantly and positively related to experiencing positive emotions. In addition, Law (2004:25) suggested that EI is a good predictor of coping and

problem-solving, and concluded that more effective coping strategies was associated with individuals with a high EI compared to those with a less developed EI (Law, 2004:26). Likewise, researchers have revealed that a high level of EI will assist team-sports athletes in coping with conflict during high-pressure situations in competition (Bahrololoum *et al*., 2012:127). From this perspective, evidence shows that players with a high level of EI are more able to stay optimistic in the face of adversity (Goleman, 1998:318), while enhancing decision-making and effectively applying problem-solving skills during games (Abdallat, 2016:290; Hess & Bacigalupo, 2011:719). Furthermore, research reported that individuals that display empathy (a construct embedded in the management of others' emotions subscale of EI) are more likely to select appropriate coping strategies (Noda *et al*., 2018:179) and will be more able to use those coping strategies as empathy facilitates emotional and behavioural regulation (Carnicer & Calderón, 2013:132). In addition, players who are more aware of their emotions are inclined to demonstrate a higher level of coachability (i.e. would be more open and susceptible to feedback and critique of the coaches to improve) (Coetzee *et al*., 2006:395). A study involving a sample of Spanish university students (n = 90) indicated that the students who were more able to recognise their own emotions and understand the emotional state and intentions of others, were more likely to be capable of better minimising or tolerating stress (Carnicer & Calderón, 2013:140). Supporting findings reported that adolescents with a stronger ability to manage and control emotions used less non-productive coping strategies (Downey *et al*., 2010:27). Nicholls *et al*. (2009:118) determined the association between emotional intensity and coping effectiveness, and results indicated that higher emotional intensity was associated with lower coping effectiveness and vice versa. In this regard, it is stated that an athlete's psychological make-up and characteristics will influence how each situation is viewed and controlled (Jarvis, 2006:118). Consequently, a well-developed EI can help athletes with effective coping skills so that they can get accustomed to remaining calm and optimistic, especially in the face of adversity and/or during high-pressure situations. Following, is a brief discussion on psychological skills most used in sports and the relationship thereof with EI in sports.

2.7 Psychological skills

2.7.1 Psychological skills: Definition and conceptual considerations

Psychological skills comprise of learned behaviours and can be described as mind tools (such as self-talk, goal setting, concentration, anxiety control, confidence, and mental rehearsal etc.) that athletes use to achieve the most productive mindset in their efforts to manage stressors and

facilitate performance in sports (Kremer & Moran, 2008:20; Kruger, 2005:4). In addition, psychological skills can help athletes excel in practice and competition and will also help athletes to keep their concentration under pressure (Kornspan, 2009:41). Some authors differentiate between psychological skills as the desired outcome (e.g. increased self-confidence and enhanced attentional focus) and psychological skills (e.g. imagery and self-talk) as a means to promote the desired outcomes by systematically applying these skills (Vealey, 2007:343). During competition, hockey players can experience psychological stress similar to that experienced in other sports (Noblet & Gifford, 2002:11). These stressors include concerns about performing poorly, problems related to balancing personal and sport commitment, as well as the continuous pressure to perform at a high standard (Noblet & Gifford, 2002:11). Due to physical, mental and chemical responses in the body during certain events, anxiety can lead to feelings of fear, excitement, danger or even anger (Hashemzade *et al*., 2000:55). Anxiety can be elicited by the performance-worries (McKay *et al*., 2008:144), unrealistic goal setting (Wieser & Thiel, 2014:17), vigorous training sessions combined with insufficient rest (Cresswell & Eklund, 2006:229), and ongoing media pressure (Noblet & Gifford, 2002:10). For athletes to attain a higher level of performance during practice and competition, psychological skills need to be developed to enable them to interpret their anxiety as being facilitative to performance (Fletcher & Hanton, 2001:98); and to cope with performance-related demands (Kim & Duda, 2003:420). In this regard, various approaches and tools were developed to assess psychological skills (Wheaton, 1998:13). The Psychological Skills Inventory (PSI) was developed by Wheaton (1998) to assess the psychological skills of athletes. The following section will be devoted to a brief discussion with a view to understand the assessment of psychological skills in sports.

2.7.2 Assessing psychological skills in sports

Psychological skills are assessed in various ways and a frequently utilised measure used in investigations that involve South African sports samples is the PSI (Wheaton, 1998), which makes it a reliable and valid measure in the present study. The PSI consists of 60 questions and measures six subscales which include achievement motivation, goal setting, anxiety control, maintaining confidence, concentration and mental rehearsal from which an average psychological skill score is derived. Athletes respond to statements by means of a 5-point Likert scale ranging from 0 (never) to 4 (always). Reverse scoring applies in some cases (questions 3, 9, 10, 13, 17, 18, 22, 23, 29, 34, 35, 39, 40, 46, 47, 51, 52, 57, 59). Sample items include “I can persevere at my sport, even when I am very tired” (achievement motivation); “I set realistic,

but challenging goals for my sport" (goal setting); "If I lose confidence during a competition I know how to recover it" (maintaining confidence); "During a competition I continue to concentrate well even after making a mistake" (concentration). The subscale scores are expressed as percentages. Higher values reflect better sport psychological skill levels. The test-retest reliability on the PSI was found to range from 0.84 to 0.97 (Wheaton, 1998) and is currently prescribed by the South African Sports Confederation and Olympic Committee in their High-Performance Programme to assess the psychological skills of athletes. By assessing athletes' psychological skills can provide crucial information concerning factors that can interfere with optimal performance (Wheaton, 1998:2), since various researchers have reported that psychological skills can distinguish between successful and less successful athletes (Andrew *et al*., 2007:12; Coetzee *et al*., 2006:400; Elferink-Gemser *et al*., 2008:95). Consequently, a discussion on psychological skills and sports performance is provided below.

2.7.3 The relationship between psychological skills and sports performance

Psychological skills application such as positive self-talk, goal setting and imagery in sports plays a vital role in achieving optimal performance (Sajjan, 2018:160). It is stated that elite athletes use psychological skills in order to enhance their self-confidence, which protects them against the potential debilitating effects of stressful situations, enables them to cope better with symptoms of anxiety (Neil *et al*., 2006:416, 421) and to perform more consistently (Fletcher & Hanton, 2001:90). This notion is justified by findings revealing the positive association between psychological skill levels and the facilitative perceptions of cognitive anxiety and heightened self-confidence among successful netball players (Van den Heever *et al*. 2007:117), and decreased state anxiety among non-elite swimmers (Fletcher & Hanton, 2001:99). In this regard, Kruger (2005:77) reported rugby players with high levels of psychological skills to have experienced higher levels of self-confidence and interpreted their self-confidence as being more facilitative to performance. According to Crust and Azadi (2010:48), mentally tough athletes are committed to seek alternative ways (beyond their physical training) such as emotional control, goal setting and mental imagery in training and competitions to improve their performance. However, the psychological skills of athletes vary depending on the requirements of each specific sport (Mehrparvar & Soltani, 2013:627).

Psychological skills training refers to "the systematic and consistent practice of mental or psychological skills for the purpose of enhancing performance, increasing enjoyment, or achieving greater sport and physical activity self-satisfaction" (Weinberg & Gould, 2019:262).

The use of various psychological skills enhanced the confidence of cricket players, more specifically the use of goal setting (Thelwell & Maynard, 2002:247). The researchers conceded that goal setting in turn tends to underpin enhanced perceptions and feelings of control in addition to providing focus on relevant aspects of tasks (Thelwell & Maynard, 2003:379). Also, the usage of psychological skills in practice, such as goal setting, self-talk, activation, relaxation, emotional control, and attentional control had a significant effect on the recovery state of athletes (Kuan & Kueh, 2015:127). Moreover, it was concluded that psychological skills lead to lower stress state levels and higher recovery rates during practice and competition (Kuan & Kueh, 2015:128). Athletes who apply mental skills such as imagery, relaxation, and emotional control in their exercise sessions perform better during competitions (Crust & Azadi, 2010:43). The ability to mitigate negative emotions and control situations during a match assist athletes in having control over the game and enables them to put into action their skills for more desirable consequences (Gyambrah *et al*., 2013:146).

In this regard, psychological skills play an important part in athletes' ability to cope in competitive situations (Kruger, 2005:65). The level of performance in sports is influenced by several psychological factors such as anxiety, coping strategies and personality traits, to name only a few (Mytskan *et al*., 2006:123). Additionally, psychological skills include various aspects such as concentration, motivation, anxiety, and coping with stress (Miçooğullari & Ekmekçi, 2017:2312). However, due to the utilisation of the PSI in the present investigation, the following psychological skills will be discussed in more detail: achievement motivation, goal setting, anxiety control, maintaining confidence, concentration, and mental preparation (imagery). These psychological skills are important features needed by athletes to be successful in sports environments (Kruger, 2005:17). Moreover, Coetzee *et al*. (2006:400) reported achievement motivation, goal setting, anxiety control, concentration, mental rehearsal and, peaking under pressure to effectively discriminate between more and less successful soccer players. In addition, Andrew *et al*. (2007:12) noted that more successful rugby players have significantly better self-confidence, cope better with adversity, have better anxiety control as well as achievement motivation levels compared to those of their less successful counterparts. Likewise, certain psychological skills (i.e., motivation, self-confidence, anxiety control, mental preparation, concentration and goal setting) can often differentiate more successful hockey players from the less successful ones (Elferink-Gemser *et al*., 2008:95). Sport psychological skills furthermore contributed to athletes' sporting performance and had a positive effect on their overall psychological well-being (Edwards & Steyn, 2008:15). However, athletes'

application of psychological skills can be linked to the development and maintenance of expert performance in sports (Durand-Bush & Salmela, 2002:154). The difference between good and great athletes at elite level is often ascribed to their level of psychological and physiological preparation and how well they can apply their skills in high-pressure situations (George, 2017:155). The development of the ability to cope with the psychological stress that accompanies elite sports participation is an important part of psychological preparation (Kruger, 2005:39). Supporting evidence proves that athletes need to possess specific mental attributes to obtain sufficient high performances (Najah & Rejeb, 2015:161). Grobbelaar (2007:37) reported that South African provincial netball coaches perceive psychological skills training to be very important and an effective sports performance enhancement technique. Also, Wheaton (1998:36) consulted a large amount of sport psychological literature to determine the most generally identified psychological skills. Consequently, a discussion of the most common sport psychological skills demonstrated by successful sport participants, according to the PSI, will follow.

2.7.3.1 Achievement motivation

Motivation can inspire and empower individuals to accomplish and achieve greatness (Jiteshwor *et al*., 2013:23). Singh (2011:162) simplifies motivation as "the drive to achieve aims and the process to maintain the drive." Sport psychology perspectives discern motivation from several specific vantage points, including achievement motivation, a strive to display choice, effort and persistence related to physical activity participation (Jiteshwor *et al*., 2013:24). Achievement motivation can be defined as "a subjective, internal, and psychological drive, enabling individuals to pursue work they perceive to be valuable and eventually achieve their goals" (Singh, 2011:163). Motivation can, therefore, be conceived as the principal reason for a certain action or behaviour in order to reach a specific goal. The outcome along with the psychological path to achieving the outcome is included in the process of achievement motivation (Wheaton, 1998:36). Moreover, achievement motivation includes the way in which a person can achieve certain tasks by overcoming difficulties, performing better than an opponent, physical talent and achieving excellence (Weinberg & Gould, 2019:62). Highlighting the importance of optimal motivational levels, elite hockey players proved to be significantly more motivated than their sub-elite counterparts (Elferink-Gemser *et al*., 2007:484). An athlete's competitiveness and achievement motivation influence a wide variety of thoughts, feelings, and behaviours, such as the effort and intensity of effort when pursuing goals and persistence in the face of adversity (Weinberg & Gould, 2019:63).

2.7.3.2 Goal setting

According to Lunenberg (2011:2), a goal can be defined as an objective an individual is intentionally trying to achieve. Similarly, Locke and Latham (2002:705) defined a goal to be a specific type of skill accomplished within a specific time. The basic assumption of goal setting is that task performance is regulated directly by the conscious goals that athletes are trying to achieve, making goals an immediate regulator of behaviour (Wheaton, 1998:44). Motivation can also be increased because of setting goals, whereby strategies are being developed to assist an individual in performing at a required level (Lunenberg, 2011:2). The effective use of goal setting can increase performance (Weinberg & Gould, 2019:364). Goal setting is one of the most recognised techniques used by sport psychologists to enhance athletes' performance (Gould, 2006:240). A variety of positive outcomes have resulted from the application of goal setting such as enhanced positive affect (McCarthy *et al*., 2010:164); increased team cohesion and team work (Senécal *et al*., 2008:186); improved performance and cognitions (Brobst & Ward, 2002:247), and improved self-confidence and motivation (Vidic & Burton, 2010:427). Athletes' motivation to achieve success on the hockey field can also help steer their goals in the right direction (Kruger, 2010:244). Also, research on goal setting in sports and exercise environments has highlighted the following factors to be most consistently associated with goal setting efficacy: goals of moderate difficulty, both short- and long-term goals, specificity of goals, public acknowledgement of goals, goal attainment feedback and commitment, participants' involvement during the goal setting process, and the use of a variety of goals (Weinberg & Gould, 2019:364). In addition, the types of goals that athletes set are important factors for the development of motivation (Kruger, 2005:17). A balance should exist between the three types of goals, namely outcome-oriented goals, performance goals and process goals (Blakeslee & Goff, 2007:294). These different types of goals are defined by Burton and Raedeke (2008:53) as follows: i) Outcome goals highlight outperforming other competitors, for example defeating an opponent, of which the athlete has little control over, ii) Performance goals include overall personal performance, such as aiming for an 85% success rate shooting score during the match, and iii) Process goals focus on improving form, technique and strategy during the execution of a task or skill in competition, for example, successfully executing the slap pass to a teammate during a hockey match. With regard to goal setting and performance in sports, research findings showed that successful athletes are significantly better in goal setting than their less successful counterparts (Guelmami *et al*., 2014:8; Katsikas *et al*., 2009:35). In

this regard, Kruger (2010:244) indicated that more successful hockey players reported significantly better mean goal setting scores than the less successful group.

2.7.3.3 Anxiety control

As mentioned earlier, an athletes' arousal level can be elicited by anxiety (Weinberg & Gould, 2019:78) and should be controlled effectively to avoid poor sports performances (Bookani *et al*., 2015:321; Boroujeni *et al*., 2012:1441). The level of arousal usually refers to athletes that need to be energised to perform at their best during training and competition (Cox, 2007:263). The level of arousal also depends on experience level or ability of the athlete and the nature of the task performed (Wheaton, 1998:57). The relationship between arousal and performance can be a complex process, where athletes in sports need to learn to control their arousal – they should be able to decrease it when they are too nervous or excited and to increase it when they feel sluggish and drained (Weinberg & Gould, 2019:287). Every athlete can minimise the frequency and the intensity of anxiety by learning mental and physical strategies (Wheaton, 1998:56). Physical strategies such as progressive muscular relaxation, or mental strategies such as emotive imagery, and listening to specific types of music have been suggested to help regulate physiological arousal and to improve emotional control (Jones, 2003:482). The key is for individuals to find their optimal levels of arousal without losing intensity and focus (Weinberg & Gould, 2019:287). However, choosing what strategy to use, must be carefully considered because they may reduce the intensity of emotions that may be conducive to success (Jones, 2003:482). Likewise, effective anxiety control has been reported to be a distinguishing psychological skill between more and less successful hockey players (Elferink-Gemser *et al*., 2007:484).

2.7.3.4 Maintaining confidence

Self-confidence is defined as "the belief that one has the internal resources and particular abilities to achieve success" (Vealey & Chase, 2008:66). Self-confidence is considered by many to be the key factor in successful performance and as a result, one of the most frequently cited sport psychological factors related to sports performance (Covassin & Pero, 2005:200). Similarly, researchers indicated that more successful hockey players reported higher levels of self-confidence than their less successful counterparts (Elferink-Gemser *et al*., 2007:484). Moreover, self-confident athletes believe in their own ability to succeed; therefore, they are more likely to remain calm under pressure (Kruger, 2005:18). The positive relationship between self-confidence and performance is one of the most consistent findings in research relating to

peak performance across various sports (Andrew *et al.*, 2007:9; Butt *et al*., 2003:237; Cox *et al*., 2010:140; Craft *et al*., 2003:59). Furthermore, self-belief of an athlete can boost his/her performance due to the response it has on positive emotional thoughts and behaviours that contribute to successful performance (Tod *et al.,* 2010:104). Self-confidence assists athletes in coping with failures more effectively (Le Roux 2006:30), control and overcome their fears when striving to reach their desired performance, and also assists them in achieving their goals – especially when "the odds are against them" (Edwards, 2007:50).

2.7.3.5 Concentration

Moran (2004:103) stated that "concentration refers to a person's ability to exert deliberate mental effort on what is most important in any given situation." Concentration involves being able to attend to what is going on, to maintain focus on relevant cues, to eliminate irrelevant cues, and how long one can continue to attend to what is going on around oneself (Weinberg & Gould, 2019:382; Wheaton, 1998:76). Concentration is an important psychological skill where a slight decrement can cause a significant disruption in skill execution and performance (Dosil, 2006:275; Karageorghis & Terry, 2011:144). Another important concept is selective attention, which is the ability to choose to attend to task-relevant cues and to ignore task-irrelevant cues (Weinberg & Gould, 2019:384). A good athlete must learn to be fully aware of what is going on and pay attention and respond to relevant cues on time without being distracted (Wheaton, 1998:77). Researchers stated that when the environment changes rapidly, attentional focus must change accordingly to enhance effective decision-making, by reducing multiple task-irrelevant cues (Monsma *et al*., 2017:52). When athletes attend to irrelevant cues at the wrong moment during a game, it can have a negative effect on their performance (Monsma *et al*., 2017:52). The type of concentration or attentional style athletes need for them to compete successfully, will differ between sports, time frames, plays and positions within the same sports (Kruger, 2005:18). Expert athletes have the ability to anticipate better and make decisions faster than novices because they pay more attention to advanced information during competitions (Kruger, 2005:18). In addition, peak performance occurs when one voluntarily concentrates on the cues in the environment and perceives them to demand an action that is within one's ability to execute (Wheaton, 1998:77). Furthermore, emphasising the importance of optimal concentration levels, more successful hockey players proved to display higher concentration levels than their less successful counterparts (Elferink-Gemser *et al*., 2007:484).

2.7.3.6 Mental preparation/Imagery

Imagery is defined by Vealey and Greenleaf (2010:268) as "using one's senses to re-create or create an experience in the mind," while Weinberg and Gould (2019:310) viewed it as "the process that involves recalling from memory, pieces of information stored from experience and shaping these pieces into meaningful images." Therefore, mental imagery essentially entails the practising of a visual image of an athletic technique, or event in one's mind (Wheaton, 1998:81).

Imagery gives the athlete the opportunity to practice physical and psychological skills, without being on the field or in the real environment during practice and competition (Vealey & Greenleaf, 2010:268). Research performed by Thelwell and Maynard (2000:657) found that most participants in ball sports rank mental preparation as an important contributor to optimal performance. Moreover, certain factors such as self-confidence can be influenced by the type of imagery as well as the way imagery is applied by an athlete (Kruger, 2005:19). In this regard, imagery can also lead to a positive interpretation of an upcoming situation, resulting in a more positive emotional state (Jones, 2003:478) and can influence emotions by worsening negative emotional states (Holmes *et al*., 2008:31). Researchers indicated that imagery can also be applied to control negative thoughts by replacing them as far as possible with positive ones (Smith *et al*., 2007:82). For example, it is possible for athletes to "imagine past situations where they lost control over their emotions or 'choked', and instead picture themselves dealing with the situation in a positive manner" (Kruger, 2010:247). Hence imagery can be a useful skill to help control one's emotions. Imagery is another psychological skill that can differentiate between successful and less successful athletes (Callow & Hardy, 2001:1; Cumming & Hall, 2002:137). Moreover, results showed that professional hockey players used imagery more often than those at college and high school levels (Short *et al*., 2012:13). Similarly, Kruger (2010:245) indicated that imagery significantly discriminates between more successful and less successful female hockey players. From this perspective, the PETTLEP-model (Holmes & Collins, 2001:69) suggests that key elements of the imagined event (i.e. **P**hysical involvement, **E**nvironmental information, **T**ask, **T**iming, **L**evel of learning, **E**motion and **P**erspective) should be considered when performing imagery to enhance the similarity between the imagined and the real experience (Ramsey *et al*., 2010:4). The main function of the PETTLEP-model is skill enhancement. Self-confidence and motivation should be increased when the focus is on positive emotions (Smith *et al*., 2007:82). With this in mind, various researchers have indicated a positive relationship between psychological skills and EI in sports (Bahrololoum *et al*., 2012:127; Lane *et al*., 2009c:198; Soflu *et al*., 2011:2398). The following section includes a

brief discussion with a view to better understand the relationship between psychological skills and EI.

2.7.4 The relationship between psychological skills and emotional intelligence

Athletes require specific mental attributes to achieve high performances (Najah & Rejeb, 2015:161). There has been a growing body of knowledge on the psychological factors that influence athletic performance (Moradi *et al*., 2013:438) and the understanding of thoughts, feelings, and behaviours related to sports participation continues to evolve (George, 2017:156). Differences in psychological factors are found within athletes, for example motivation, arousal, activation, concentration, and attitude of the players, to name only a few (Singh & Mili, 2015:1101). It is suggested that psychological variables such as self-esteem, emotional maturity, and achievement motivation have an impact on the progress of athletes in their sports more than physiological factors (George, 2017:156). Confirming this, researchers have concluded that it is the psychological factors that are important for success, especially when the physical fitness of athletes has reached its optimal level (Mehrparvar & Soltani, 2013:627).

Higher EI has been found to be correlated to lower psychological distress (Austin *et al*., 2005:547). Similarly, high EI has been mildly related to lower levels of anger, fear, shame sadness and jealousy (Mikolajczak *et al*., 2008:1356) and strongly related to lower general health (Schutte *et al*., 2007:921). As a result, individuals with high EI are being more able to resist general and mental health problems (Farrahi *et al*., 2015:e1582). Furthermore, researchers have indicated that EI has a positive relationship with optimal performance and self-efficacy of elite athletes that separates the performance of these athletes from those of others in important events (Andrew, 2006:10). Controlling negative emotions in a proper manner forms part of these elite athletes' psychological characteristics (Andrew, 2006:10). In support of this, Schutte *et al*. (1998:176) stated that athletes who reported frequent use of psychological skills also reported high scores on the self-report EI scale. Moreover, a positive correlation between EI scores and frequency in the use of psychological skills (especially self-talk, imagery and activation) has been reported during both competition and practice in student athletes from team sports including soccer, rugby and hockey (Lane *et al*., 2009c:198) as well as in volleyball, football and basketball (Soflu *et al*., 2011:2398). Likewise, goal setting, relaxation, maintaining confidence, and concentration were all significantly positively associated with EI among elite male volleyball players (Bahrololoum *et al*., 2012:127). The utilisation of psychological skills to cope with symptoms of anxiety during competitions can distinguish between elite and non-

elite athletes (Neil *et al*., 2006:421). Athletes can apply certain relaxation techniques such as breath control and progressive muscle relaxation, to help them cope with somatic anxiety, whereas autogenic training can be used to reduce cognitive anxiety (Pineschi & Di Pietro, 2013:183-184). Using mental skills generates relaxation for anxious athletes and plays a significant role in displaying positive performances, as revealed by Murphy *et al*. (2008:297) in a study involving Olympic athletes. It was proposed that if athletes use psychological skills, it should enhance training, strategic plans and decision-making (Birrer & Morgan, 2010:85). In addition, the use of psychological skills could potentially lead to athletes experiencing higher levels of coping skills (Kuan & Kueh, 2015:123). Athletes who possess the psychological edge will cope better with the many demands associated with sports (competition, training, lifestyle) and, specifically, be more consistent and better in remaining focused, confident, determined, and in control under pressure (Jones *et al*., 2002:213). Performances can be enhanced when athletes believe in themselves, due to the effect it has on their positive emotional thoughts and behaviours that contribute to successful performances (Tod *et al*., 2011:681).

The knowledge of the psychological edge of an athlete can be used to better understand him or her, to improve communication and training effectiveness, and to encourage the athlete to be more committed towards skill and performance development (Rutkowska & Bergier, 2015:286). However, a greater understanding of the psychological demands placed on athletes is needed, which in turn will enhance their overall development (Gyambrah *et al*., 2013:148). Despite the latter findings, more research is needed in various sport contexts on the role of EI as a predictor of athletes' levels of psychological skills in order to suggest alternative or refine current psychological interventions in sports. To conclude, performers who are likely to utilise psychological skills could raise their EI because they recognise the value of such practice (Lane *et al*., 2009c:198), and could potentially cope better with performance demands (Jones *et al*., 2002:213).

2.8 Conclusion

From the above-mentioned literature review, it is clear that EI plays an important role in successful sports performance, while the use of psychological skills significantly increased athletes' performance in several sports studies. Furthermore, psychological factors can distinguish successful athletes from their less successful counterparts. In this regard, researchers agree that hockey demands not only physical factors, but also psychological and emotional factors such as EI, components of competitive anxiety and coping, which determine high-level

performance. Research on EI, components of competitive anxiety, coping ability and psychological skills in sports has been conducted on numerous occasions. However, literature covering the specific interrelationship between all the relevant factors and hockey is lacking.

Hockey uses a combination of aerobic and anaerobic activity, whereas physiological, technical, tactical and psychological characteristics are important for hockey players to compete successfully. In this regard, hockey players are required to make immediate decisions during a game, focus attention, maintain concentration, control anxiety and be able to effectively cope with competition demands and situations. Players should also learn to cope efficiently with their emotions, especially during a match.

The presence of positive and negative emotions can be expected in sports. Players need to understand that some emotions can be facilitative and others debilitative; thus, the need to identify, assess, manage and control their emotions. Failure to do so, may lead to a decline in performance. In this regard, EI assists athletes in managing these emotions effectively to maximise athletic performance. EI is not a stable component and can progressively develop with age or specific training. EI ultimately represents a person's ability to be attentive to experienced emotions, to understand them as well as to express them in an appropriate manner. A positive relationship exists between EI and performance, such as an improvement in self-efficacy, better communication with teammates, and enhancement of leadership, team cohesion, problem-solving and coping with pressure. Moreover, EI associates positively with lower levels of anxiety and has positively impacted the overall well-being of athletes.

Anxiety is very common in sports. Different levels of anxiety are experienced by athletes before and during competition, which may lead to poor performances if not managed effectively. If athletes manage anxiety effectively, it can be used to sustain and maintain focus, alertness and effort, delay fatigue, as well as to generate energy. During competitive situations, a low level of anxiety can be helpful to manage these events effectively, while a high level of anxiety may have the reversed effect. However, research reported that a moderate level of anxiety enhances performance when the athlete's skill level is appropriate for the competition demand. This highlights the need for athletes to know how to cope with their anxiety and emotions during competition.

In this regard, the ability to cope adaptively within competition situations has been identified as a major component to successful sporting performances. Coping is an on-going conscious effort to manage demands that are appraised as exhausting or exceeding an individual's

resources. Also, coping effectiveness relates to positive emotions. Likewise, individuals with a higher EI develop more effective coping strategies than individuals who do not have well-developed EI. Current findings do suggest that EI, anxiety control, coping abilities and the utilisation of psychological skills have a significantly better effect on sports performance and overall well-being in athletes.

Psychological skills can be used by athletes to manage daily stressors as well as to facilitate performance and play an important part in athletes' ability to cope in competitive situations. Athletes with high levels of psychological skills will almost always perform more consistently and experience lower levels of anxiety than those that possess low levels of psychological skills. Achievement motivation, goal setting, anxiety control, self-confidence, concentration and mental preparation are considered to be important psychological skills that athletes need to be successful in team sports such as hockey. Furthermore, athletes who use psychological skills more frequently, also reported higher self-reported scores in EI.

The overview of literature presented in this chapter offers knowledge for professionals working in the field of applied sports psychology, including hockey. Furthermore, information can be derived from this literature review for comprehending and addressing the relationship between emotional intelligence, components of competitive anxiety, coping skills, and psychological skill levels in sports performance and participation, especially in female sports such as female hockey.

The following three chapters will consist of independent research articles which will integrate the information from the reviewed literature in the respective problem statements. The aim of Article 1 in Chapter 3 is to determine the relationship between emotional intelligence and components of competitive state anxiety levels among female field-hockey players from South Africa. Chapter 4 (Article 2) determines the relationship between emotional intelligence and coping skill levels among female field-hockey players from South Africa. The aim of Article 3 in Chapter 5 is to determine the relationship between emotional intelligence and psychological skills application among South African female field-hockey players.

2.9 References

Abdallat, S. 2016. Emotional intelligence and its relationship to problem-solving ability among Al Isra University students in light of the students' gender and specialization variables. *Global Journal of Educational Foundation*, 4(5):282-295.

Ahmadizadeh, Z., Taheri, A. & Heydarinejad, S. 2013. Comparison of self-efficacy and emotional intelligence of active and inactive students. *International Research Journal of Applied and Basic Sciences*, 4(9):2553-2556.

Ajayi, M.A. & Fatokun, A.L. 2008. Effect of a six week emotional intelligence program on the sports performance of amateur athletes in Oyo state of Nigeria. *The World's Leading Sport Resource Center*, 1-5. http://sircretriever.ca/africare-searchaward/documents/Effectof-Six-WeekEmotional.pdf Date of access: 25 Nov. 2018.

Allen, M.S., Frings, D. & Hunter, S. 2012. Personality, coping, and challenge and threat states in athletes. *International Journal of Sport and Exercise Psychology*, 10:493-498. http://www.tandfonline.com/doi/abs/10.1080/1612197X.2012.682375

Anders, E. 2008. *Field hockey: steps to success*. 2nd ed. Champaign, IL: Human Kinetics.

Andrew, M. 2006. Sport psychological skills that distinguish between u/19 club rugby players of different participation levels and positional groups. Potchefstroom: North-West University. (Unpublished dissertation - MSc.).

Andrew, M., Grobbelaar, H.W. & Potgieter, J.C. 2007. Sport psychological skill levels and related psychological factors that distinguish between rugby union players of different participation levels. *South African Journal of Research in Sport, Physical Education and Recreation*, 29(1):1-14.

April, K., Lifson, D. & Noakes, T. 2012. Emotional intelligence of elite sports leaders and elite business leaders. *International Journal of Business and Commerce*, 1(5):82-115.

Arvinen-Barrow, M., Weigand, D.A., Thomas, S., Hemmings, B. & Walley, M. 2007. Elite and novice athletes' imagery use in open and closed sports. *Journal of Applied Sport Psychology*, 19:93-104. doi:10.1080/10413200601102912

Austin, E.J., Saklofske, D.H. & Egan, V. 2005. Personality, well-being and health correlates of trait emotional intelligence. *Personality and Individual Differences,* 38(3):547–558.

Bahrololoum, H., Hassani, A., Bandeli, M. & Akbari, A. 2012. The relationship between the emotional intelligence and mental skills in Iranian elite male volleyball players (case study Semnan province). *International Journal of Academic Research in Business and Social Sciences,* 2(7):123-130.

Baker, J., Côté, J. & Abernethy, B. 2003. Learning from the experts: practice activities of expert decision makers in sport. *Research Quarterly for Exercise and Sport*, 74:342-347.

Bal, B.S., Singh, K., Sood, M. & Kumar, S. 2011. Emotional intelligence and sporting performance: a comparison between open- and closed-skill athletes. *Journal of Physical Education and Sports Management*, 2(5):48-52.

Bali, A. 2015. Psychological factors affecting sports performance. *International Journal of Physical Education, Sports and Health,* 1(6):92-95.

Barchard, K.A. & Hakstian, R.A. 2004. The nature and measurement of emotional intelligence abilities: basic dimensions and their relationships with other cognitive ability and personality variables. *Educational and Psychological Measurement,* 64(3):437-462.

Barnett, J.R. 2011. Coping style as a mediator to the influence of emotional intelligence on self-esteem and anxiety for juvenile delinquent males. Oklahoma: South-Western Oklahoma State University. (Thesis – PhD).

Bar-On, R. 2000. Emotional and social intelligence: insights from the emotional quotient inventory (EQ-i). In: Bar-On, R. & Parker, J.D.A., eds. *Handbook of emotional intelligence*. San Francisco: Jossey-Bass. pp. 363-388.

Bar-On, R. 2002. *Bar-On emotional quotient inventory: technical manual*. Toronto, Canada: Multi-Health Systems.

Barkhoff, H., Pagano, I. & Heiby, E. 2007. Longitudinal analyses of the effects of mood on performance as a function of practice versus competition conditions: a season long study of artistic roller skaters. *The Journal of the American Board of Sport Psychology*, 1:1-14.

Barrett, L.F. 2006. Are emotions natural kinds. *Perspectives on Psychology Science*, 1:28-58.

Batinić, T.S., Švaić, V. & Babić, J. 2014. Differences in emotional competence between individual and team sports athletes. http://bib.irb.hr/datoteka/699811 Date of access: 16 Nov. 2017.

Belem, I.C., Caruzzo, N.M., Junior, J.R, Vieira, J.L. & Vieira, L.F. 2014. Impact of coping strategies on resilience of elite beach volleyball athletes. *Revista Brasileira de Cineantropometria Desempenho Humano*, 16(4):447-455.

Besharat, M.A. & Pourbohlool, S. 2011. Moderating effects of self-confidence and sport self-efficacy on the relationship between competitive anxiety and sport performance. *Psychology*, 2(7):760-765.

Birrer, D. & Morgan, G. 2010. Psychological skills training as a way to enhance an athlete's performance in high-intensity sports. *Scandinavian Journal of Medicine Sciences in Sport*, 20(2):78-87.

Bishop, C., Brazier, J., Cree, J. & Turner, A. 2015. A needs analysis and testing battery for field hockey. *Professional Strength and Conditioning*, 36:15-26.

Birwatkar, V.P. 2014. Emotional Intelligence: the invisible phenomenon in sports. *European Journal of Sports and Exercise Science*, 3(3):19-31.

Blakeslee, M.L. & Goff, D.M. 2007. The effects of a mental skills training package on equestrians. *The Sport Psychologist*, 21(3):288-301.

Bognár, J., Géczi, G., Vincze, G. & Szabo, A. 2009. Coping skills, motivational profiles, and perceived motivational climate in young elite ice hockey and soccer players. *International Quarterly of Sport Science*, 1:1-11.

Bookani, A.N., Sadeghi, O., Alipour, K., Zarga, K. & Aghdam, L.B. 2015. Analyzing effects of anxiety and self-confidence on athletic performance. *Indian Journal of Fundamental and Applied Life Sciences*, 5(S1):319-323.

Boroujeni, S.T., Mirheydari, S.B., Kaviri, Z. & Shahhosseini, S. 2012. The survey of relationship and comparison: emotional intelligence, competitive anxiety and mental toughness female super league basketball players. *Social and Behavioral Sciences*, 46:1440-1444.

Botterill, C. 1997. The role of emotion in sport performance: the missing link? *Journal of Applied Sport Psychology*, 9:12.

Botterill, C. & Brown, M. 2002. Emotion and perspective in sport. *International Journal of Sport Psychology*, 33:38-60.

Brackett, M. A. & Geher, G. 2006. Measuring emotional intelligence: paradigmatic shifts and common ground. In: Ciarrochi, J., Forgas, J.P. & Mayer, J.D., eds. *Emotional intelligence and everyday life*. 2nd ed. New York, NY: Psychology Press. pp. 27-50.

Bridges, A. & Knight, B. 2005. The role of cognitive and somatic anxiety in athletic performance. 1-28. http://psyc.hanover.edu/resframe.html Date of access: 22 Oct. 2018.

Brobst, B. & Ward, P. 2002. Effects of public posting, goal setting, and oral feedback on the skills of female soccer players. *Journal of Applied Behaviour Analysis*, 35(3):247-257.

Bull, S., Shambrook, C., James, W. & Brookes, J. 2005. Towards an understanding of mental toughness in elite English cricketers. *Journal of Applied Sport Psychology*, 17:209-227.

Burton, D. & Raedeke, T.D. 2008. *Sport psychology for coaches*. Human Kinetics.

Butt, J., Weinberg, R. & Horn, T.S. 2003. The intensity and directional interpretation of anxiety: fluctuations throughout competition and the relationship to performance. *The Sport Psychologist*, 17(1), 237-248.

Callow, N. & Hardy, L. 2001. Types of imagery associated with sport confidence in netball players of varying skills. *Journal of Applied Sport Psychology*, 13:1-17.

Carling, C., Reilly, T. & Williams, A. 2009. *Performance assessment for field sports*. London: Routledge.

Carnicer, J. & Calderón, C. 2013. Empathy and coping strategies are predictors of well-being in Spanish university students. *Electronic Journal of Research in Educational Psychology*, 12(1):129-146.

Carver, C.S., Scheier, M.F. & Weintraub, J.K. 1989. Assessing coping strategies: a theoretically based approach. *Journal of Personality and Social Psychology*, 56:267-283.

Castero-Sánchez, M., Zurita-Ortega, F., Chaćon-Cuberos, R., López-Guriérrez, C. & Zafra-Santos, E. 2018. Emotional intelligence, motivational climate and levels of anxiety in athletes from different categories of sport: analysis through structural equations. *International Journal of Environmental Research and Public Health*, 15:894.

Ciarrochi, J., Deane, F. & Anderson, S. 2000. Emotional intelligence moderates the relationship between stress and mental health. *Personality and Individual Differences*, 32:197-209.

Coetzee, B., Grobbelaar, H.W. & Gird, C.C. 2006. Sport psychological skills that distinguish successful from less successful soccer teams. *Journal of Human Movement Studies*, 51:383-401.

Covassin, T. & Pero, S. 2005. The relationship between self-confidence, mood state, and anxiety among collegiate tennis players. *Journal of Sport Behavior*, 27(3):200-239.

Cox, R.H. 2007. *Sport psychology: concepts and applications*. 6th ed. McGraw-hill.

Cox, R.H. & Yoo, H.S. 1995. Playing position and psychological skills in American football. *Journal of Sport Behavior*, 18(3):183-195.

Cox, R.H., Shannon, J.K., McGuire, R.T. & McBride, A. 2010. Predicting subjective athletic performance from psychological skills after controlling for sex and sport. *Journal of Sport Behavior*, 33(2):129-145.

Craft, L.L., Magyar, T.M., Becker, B.J. & Feltz, D.L. 2003. The relationship between the competitive state anxiety inventory-2 and sport performance: a meta-analysis. *Journal of Sport and Exercise Psychology*, 25:44-65.

Cresswell, S.L. & Eklund, R.C. 2006. The nature of player burnout in rugby: key characteristics and attributions. *Journal of Applied Sport Psychology*, 18:219-239.

Crocker, P.R. & Graham, T.R. 1995. Coping by competitive athletes with performance stress: gender differences and relationships with affect. *The Sports Psychologist*, 9:325-338.

Crocker, P.R., Kowalski, K.C. & Graham, T.R. 1998. Measurement of coping strategies in sport. In: Duda, J.L. ed. *Advances in sport and exercise psychology measurement*. Morgantown, WV: Fitness Information Technology. pp. 149-161.

Crombie, D., Lombard, C. & Noakes, T. 2009. Emotional intelligence scores predict team sports performance in a national cricket competition. *International Journal of Sport Science and Coaching*, 4(2):209-224.

Crust, L. & Azadi, K. 2010. Mental toughness and athletes' use of psychological strategies. *European Journal of Sport Science*, 10:43-51. doi:10.1080/17461390903049972

Cumming, J. & Hall, C. 2002. Deliberate imagery practice: the development of imagery skills in competitive athletes. *Journal of Sports Sciences*, 20:137-145.

Darvishi, S., Marati, A. & Amirpour, B. 2015. Effectiveness of emotional intelligence on mood profile in female student athletes. *Journal of Research and Health*, 5(1):21-27.

Daus, C.S. & Ashkanasy, N.M. 2003. Will the real emotional intelligence please stand up? On deconstructing the emotional intelligence “debate”. *The Industrial-Organizational Psychologist*, 41:69-72.

Davis, J.E. & Cox, R.H. 2002. Interpreting direction of anxiety within Hanin’s Individual Zone of Optimal Functioning. *Journal of Applied Sport Psychology*, 14:43-52.

Demuth, A., Czerniak, U., Krzykata, M., Wielinski, D. & Ziotkowska-Laip, E. 2007. Somatic characteristics of players from chosen national teams of field hockey. *Journal of Human Movement Studies*, 8(1):27-31.

Dosil, J. 2006. *The sport psychologist's handbook: a guide for sport-specific performance enhancement*. Hoboken, NJ: Wiley.

Downey, L.A. 2010. *The psychological determinants of rugby union player performance*. Melbourne: Swinburne University. (Thesis – PhD).

Downey, L.A., Johnston, P.J., Hansen, K., Birney, J. & Stough, C. 2010. Investigating the mediating effects of emotional intelligence and coping on problem behaviours in adolescents. *Australian Journal of Psychology*, 62(1):20-29.

Dominikus, F., Omar-Fauzee, M., Abdullah, M., Meesin, C. & Choosakul, C. 2009. Relationship between mental skills and anxiety interpretation in secondary school hockey athletes. *European Journal of Social Sciences*, 9(4):651-658.

Durand-Bush, N. & Salmela, J.H. 2002. The development and maintenance of expert athletic performance: perceptions of World and Olympic Champions. *Journal of Applied Sport Psychology*, 14:154-171.

Edwards, D.J. 2007. *Sport psychological skills training and psychological well being in youth athletes*. Pretoria: University of Pretoria. (Thesis).

Edwards, D.J. & Steyn, B.J. 2008. Sport psychological skills training and psychological well-being. *South African Journal for Research in Sport, Physical Education and Recreation*, 30(1):15-28.

Ekman, P. & Cordaro, D. 2011. What is meant by calling emotions basic. *Emotion review*, 3:364-370.

Elferink-Gemser, M.T., Visscher, C. & Lemmink, K.A. 2003. Psychological characteristics of talented youth athletes in field hockey, basketball, volleyball, speed skating, and swimming. *The Sport Psychologist*, 1:88-97.

Elferink-Gemser, M.T., Visscher, C., Lemmink, K.A. & Mulder, T.W. 2004. Relationship between multidimensional performance characteristics and level of performance in talented youth field hockey players. *Journal of Sports Sciences,* 22(11/12):1053-1063.

Elferink-Gemser, M.T., Visscher, C., Van Duijin, M.A. & Lemmink, K.A. 2006. Development of the interval endurance capacity in elite and sub-elite youth field hockey players. *British Journal of Sports Medicine*, 40(4):340-345.

Elferink-Gemser, M.T., Visscher, C., Lemmink, K.A. & Mulder, T.W. 2007 Multidimensional performance characteristics and standard of performance in talented youth field hockey players: a longitudinal study. *Journal of Sport Sciences*, 25(4):481-489.

Elferink-Gemser, M., Visscher, C. & Lemmink, K.A 2008. Differences in psychological skills between elite and sub-elite youth athletes. *Journal of Physical Education and Sport Sciences*, 4:95-105.

Emmerling, R.J. & Goleman, D. 2003. Emotional intelligence: issues and common misunderstandings. *The Consortium for Research on Emotional Intelligence in Organizations*, 1-32.

Farrahi, H., Kafi, S.M., Karimi, T. & Delazar, R. 2015. Emotional intelligence and its relationship with general health among the students of University of Guilan, Iran. *Iranian Journal of Psychiatry and Behavioural Sciences,* 9(3):e1582.

Fazey, J.A. & Hardy, L. 1988. *The inverted-U hypothesis: a catastrophe for sport psychology*. British Association of Sports Sciences Monograph 1. Leeds: The National Coaching Foundation.

Fernández-Berrocal, P., Salovey, P., Vera, A., Extremera, N. & Ramos, N. 2005. Cultural influences on the relation between perceived emotional intelligence and depression. *International Review of Social Psychology,* 18:91-107.

Fernandez-Berrocal, P., Alcaide, R. & Extremera, N. 2006. The role of emotional intelligence in anxiety and depression among adolescents. *Individual Differences Research,* 4(1):16-27.

Fletcher, D. & Hanton, S. 2001. The relationship between psychological skills usage and competitive anxiety responses. *Psychological of Sport and Exercise,* 2(2):89-101.

Fletcher, D. & Sarkar, M. 2012. A grounded theory of psychological resilience in Olympic champions. *Psychology of Sport and Exercise,* 13:669-678.

Ford, J.L., Illdefonso, K., Jones, M.L. & Arvinen-Barrow, M. 2017. Sport-related anxiety: current insights. *Open Access Journal of Sports Medicine,* 8:205-212.

Fourie, S. & Potgieter, J. 2001. The nature of mental toughness in sport. *South African Journal of Research in Sport Physical Education and Recreation,* 23(2):63-72.

Fraser-Thomas, J. & Côté, J. 2006. Youth sports: implementing findings and moving forward in research. *The Online Journal of Sport Psychology,* 8(3):12-27.

Fredrickson, B. & Branigan, C. 2005. Positive emotions broaden the scope of attention and thought-action repertoires. *Cognition and Emotion,* 19(3):313-332.

Gabbett, T.J. 2010. GPS analysis of elite woman's field hockey training and competition. *Journal of Strength and Conditioning Research,* 24(5):1321-1324.

Gallucci, N.T. 2008. *Sport psychology*. London: Psychology Press.

George, T. 2017. Analysis of physiological & psychological variables and playing ability among different levels of selected handball players. *International Journal of Advanced Research and Development,* 2(6):155-161.

Gill, D.L. & Williams, L. 2008. *Psychological dynamics of sport and exercise*. 3rd ed. Champaign, IL: Human Kinetics.

Gogoi, D. 2016. Comparison of emotional intelligence among selected team games. *International Journal of Applied Research,* 2(2):18-19.

Goldsworthy, R. 2002. Supporting the development of emotional intelligence through technology. *Computers in the Schools,* 19(1/2):119-148.

Goleman, D. 1995. *Emotional intelligence*. New York: Bantam.

Goleman, D. 1998. *Working with emotional intelligence*. New York: Bantam.

Goleman, D. 2001. An EI-based theory of performance. In: Cherniss, C. & Goleman, D., eds. *The emotionally intelligent workplace,* San Francisco, CA: Jossey-Bass. pp. 27-44.

Gould, D. 2006. Goal setting for peak performance. In: Williams, J.M., ed. *Applied sport psychology: personal growth for peak performance*. 5th ed. New York: McGraw-Hill. pp. 240-259.

Gould, D. & Krane, V. 1992. The arousal–athletic performance relationship: current status and future directions. In: Horn, T.S., ed. *Advances in Sport Psychology*. Champaign, IL: Human Kinetics. pp. 119-142.

Gould, D., Eklund, R.C. & Jackson, S.A. 1993. Coping strategies used by U.S Olympic wrestlers. *Research Quarterly for Exercise and Sport,* 64:83-93.

Grobbelaar, H.W. 2007. A survey of South African provincial netball coaches' opinions, abilities and limitations regarding mental skills training. *South African Journal for Research in Sport, Physical Education and Recreation,* 29(2):27-39.

Grobbelaar, H.W. & Eloff, M. 2011. Psychological skills of provincial netball players in different playing positions. *South African Journal for Research in Sport, Physical Education and Recreation,* 33(2):45-58.

Guelmami, N., Hamrouni, S. & Agrébi, B. 2014. Psychological profiles of talented male youth athletes in team sports games. *Journal of Physical Education and Sports Management*, 5(1):5-10.

Gyambrah, M., Amponsah, M.O. & Sackey, N.A. 2013. Psychological profile assessment of mental toughness among senior high school football players in Ghana. *European Journal of Educational Sciences*, 1(3):136-151.

Hackfort, D. 2006. A conceptual framework and fundamental issues for investigating the development of peak performance in sports. In: Hackfort, D. & Tenenbaum, G., eds. *Essential processes for attaining peak performance: perspectives on sport and exercise psychology*. Oxford: Meyer & Meyer Sport. pp. 10-25.

Haglind, D. 2004. *Coping with success and failure – among Swedish and Portuguese track and field athletes and coaches*. Sweden: Halmstad University. (Dissertation - MA).

Hanin, Y.L. 1980. A cognitive model of anxiety in sports. In: Straub, W. ed. *Sport psychology: an analysis of athlete behaviour*. Ithaca, NY: Movement. pp. 236-249.

Hanin, Y.L. 1986. State-trait anxiety research on sports in the USSR. In: Spielberger, C.D. & Diaz-Guerrero, R., eds. *Cross cultural anxiety*. Washington: Hemisphere. pp. 45-64.

Hanin, Y.L. 2000. *Emotions in sport*. Champaign, IL: Human Kinetics.

Hanin, Y.L. 2007. Emotions in sport: current issues and perspectives. In: Tenenbaum, G. & Eklund, R.C., eds. *Handbook of sport psychology*. 3rd ed. Hoboken, NJ: Wiley. pp. 31-58.

Hanton, S. & Connaughton, D. 2002. Perceived control of anxiety and its relationship to self-confidence and performance. *Research Quarterly for Exercise and Sport*, 73:87-97.

Hanton, S., Thomas, O. & Maynard, I. 2004. Competitive anxiety responses in the week leading up to competition: the role of intensity, direction and frequency dimensions. *Psychology of Sport and Exercise*, 5(2):169-181.

Hardy, L. & Fazey, J. 1987. The inverted-U hypothesis: a catastrophe for sport psychology. Paper presented at the NASPSPA annual conference, Vancouver, Canada.

Hardy, L., Jones, G. & Gould, D. 1996. *Understanding psychological preparation for sport: theory and practice of elite performers*. Chichester, UK: Wiley.

Harrison, G. 2013. *Psychological skills, coaching, and performance of cyclo-cross athletes*. Madison: University of Wisconsin. (Thesis)

Hashempour, S. & Mehrad, A. 2014. The effect of anxiety and emotional intelligence on students' learning process. *Journal of Education and Social Policy*, 1(2):115-122.

Hashemzade, I., Orangi, M. & Bahredar, M.J. 2000. Job stress and its relation to mental health of the employees working in hospitals of Shiraz city. *Thought and Behaviour*, 6(2):55-62.

Hemmatinezhad, M.A., Ramazaninezhad, R., Ghezelsefloo, H. & Hemmatinezhad, M. 2012. Relationship between emotional intelligence and athlete's mood with team efficiency and performance in elite-handball players. *International Journal of Sport Studies*, 2(3):155-162.

Herrero, A.I., Sandi, C. & Venero, C. 2006. Individual differences in anxiety trait are related to spatial learning abilities and hippocampal expression of mineralocorticoid receptors. *Neurobiology of Learning and Memory*, 86(2):150-159.

Hess, J. & Bacigalupo, A. 2011. Enhancing decisions and decision-making processes through the application of emotional intelligence skills. *Management Decisions*, 49(5):710-721.

Hoedaya, D. & Anshel, M.H. 2003. Sources of stress and coping strategies among Australian and Indonesian athletes. *Australian Journal of Psychology*, 55(3):159-165.

Holmes, E., Geddes, J., Colom, F. & Goodwin, G. 2008. Mental imagery as an emotional amplifier: application to bipolar disorder. *Behaviour Research and Therapy*, 46(12):1251-1258.

Holmes, P. & Collins, D. 2001. The PETTLEP approach to motor imagery: a functional equivalence model for sport psychologists. *Journal of Applied Sport Psychology*, 13:60-83.

Holt, N.L. & Dunn, J.G. 2004. Longitudinal idiographic analyses of appraisal and coping responses in sport. *Psychology of Sport and Exercise*, 5:213-222.

Hull, C.L. 1943. *Principles of behavior*. New York: Appleton-Century.

Hultin, M. 2011. *Emotional intelligence: the three major theories in the field*. Skövde: University of Skövde. (Bachelor Degree Project).

Humara, M. 1999. The relationship between anxiety and performance: a cognitive-behavioral perspective. *The Online Journal of Sport Psychology*, 1(2):1-14.

Hussein, I., Ahmed, S. & Khan, S. 2012. Biomechanical study on drag flick in field hockey. *International Journal of Behavioral, Social and Movement Sciences*, 1(3):186-193.

IHF (International Hockey Federation). 2017. http://www.fih.ch/?redirect=internal Date of access: 15 Jan. 2018.

Izard, C.E. 2009. Emotion theory and research: highlights, unanswered questions, and emerging issues. *Annual Review of Psychology*, 60(1):1-25.

Jackson, S.A. & Csikszentmihalyi, M. 1999. *Flow in sports: the keys to optimal experiences and performances*. Champaign, IL: Human Kinetics.

Jarvis, M. 2006. *Sport psychology: a student's handbook*. London: Routledge.

Jiteshwor, P., Sunderlal, N., Singh, S.R., Zandi, H.G. & Singh, N.J. 2013. Comparative study of the sports achievement motivation between male and female school basketball players. *Journal of Humanities and Social Science*, 7(2):23-26.

Jones, G. 1995. Competitive anxiety in sport. *European Perspectives on Exercise and Sport Psychology*, 128-153.

Jones, M.V. 2003. Controlling emotions in sport. *The Sport Psychologist*, 17:471-486.

Jones, G., Hanton, S. & Connaugton, D. 2002. What is this thing called mental toughness? An investigation of 10 elite performers. *Journal of Applied Sport Psychology*, 14(3):205-218.

Jones, G. & Swain, A.B. 1992. Intensity and direction dimensions of competitive state anxiety and relationships with competitiveness. *Perceptual and Motor Skills*, 74:467-472.

Jones, G., Swain, A.B. & Cale, A. 1991. Gender differences in pre-competition temporal patterning and antecedents of anxiety and self confidence. *Journal of Sport and Exercise Psychology*, 13(1):1-5.

Jones, M.V., Taylor, J., Tanaka-Oulevey, M. & Daubert, M.G. 2005. Emotions. In: Taylor, J. & Wilson, G.S., eds. *Applying sport psychology: four perspectives*. Champaign, IL: Human Kinetics. pp. 65-81.

Jooste, J. 2012. The relationship between mental skills and level of cricket participation. Pretoria: University of Pretoria. (Dissertation).

Juuso, M. 2011. *Self-esteem, anxiety and motivation – the effect of psychological factors on sport performance*. Helsinki: Haaga-Helia University of Applied Sciences. (Bachelor's Thesis).

Kais, K. & Raudsepp, L. 2005. Intensity and direction of competitive state anxiety, self-confidence and athletic performance. *Kinesiology*, 37(1):13-20.

Kamaei, A., Makvandi, B. & Mobaraki, Z.B. 2015. Investigation the relation between personality types, emotional intelligence and self-efficacy with sport anxiety of Ramhormoz city athletes. *International Journal of Psychology and Behavioural Research*, 4(3):323-329.

Karageorghis, C. & Terry, P. 2011. *Inside sport psychology.* Champaign, IL: Human Kinetics.

Katsikas, C., Argeitaki, P. & Smirniotou, A.S. 2009. Performance strategies of Greek track and field athletes: gender and level differences. *Biology of Exercise*, 5(1):29-38.

Kerr, J.H. 1997. *Motivation and emotion in sport: reversal theory*. Hove: Psychology Press.

Khan, M.K; Khan, A., Khan, S.U. & Khan, S. 2017. Effects of anxiety on athletic performance. *Research and Investigations in Sports Medicine*, 1(1):1-5. doi:10.31031/RISM.2017.01.000508

Khan, M.T. & Zafar, M. 2014. State anxiety between university and national level field hockey players: a comparative study. *Journal of Sports and Physical Education*, 1(7):37-38.

Kim, M. & Duda, J.L. 2003. The coping process: cognitive appraisals of stress, coping strategies, and coping effectiveness. *The Sport Psychologist*, 17(4):406-425.

Knobel, D.P. 2010. *Emotional intelligence in sport: a predictor of rugby performance*. Pretoria: University of South Africa. (Dissertation – MA).

Konarski, J., Matuszynski, M. & Strzelczyk, R. 2006. Different team defense tactics and heart rate during a field hockey match. *Studies in Physical Culture and Tourism*, 13:145-147.

Kornspan, A.S. 2009. *Fundamentals of sport and exercise psychology*. Champaign, IL: Human Kinetics.

Kotsou, I., Nelis, D., Gregorie, J. & Mikolajczak, M. 2011. Emotional plasticity: conditions and effects of improving emotional competence in adulthood. *Journal of Applied Psychology*, 96:827-839.

Kremer, J. & Moran, A.P. 2008. *Pure sport: practical sport psychology*. London: Routledge.

Kritzinger, J.D. 2015. *The role of emotional intelligence in the health impairment process of professional athletes.* Potchefstroom: North-West University. (Mini-dissertation - MA).

Kruger, A. 2010. Sport psychological skills that discriminate between successful and less successful female university field hockey players. *African Journal for Physical, Health Education, Recreation and Dance,* 16:239-250.

Kruger, P. 2005. Psigologiese vaardighede, angs en hantering van Suid-Afrikaanse rugby spelers: ‘n kognitiewe perspektief. [Psychological skills, state anxiety and coping of South African rugby players: a cognitive perspective]. Potchefstroom: North-West University. (Unpublished Thesis - PhD).

Kruger, A., Pienaar, A.E., Du Plessis, E. & Janse van Rensburg, L. 2012. The importance of psychological characteristics in potentially talented adolescent long distance runners. *African Journal for Physical, Health Education, Recreation and Dance,* 18(2):413-422.

Kuan, G. & Kueh, Y.C. 2015. Psychological skills during training and competition on recovery-stress state among adolescent state athletes. *Journal of Sports Research*, 2(4):122-130.

Kusnanik, N.W., Rahayu, Y.S. & Rattray, B. 2017. Physiological demands of playing field hockey game at sub elite players. *IOP Conference series: Materials Science and Engineering*, 288:1-5.

Lane, A.M., Beedie, C.J., Devonport, T.J. & Stanley, D.M. 2011. Instrumental emotion regulation in sport: relationships between beliefs about emotion and emotion regulation strategies used by athletes. *Scandinavian Journal of Medicine and Science in Sports*, 21(6), 445–451. doi:10.1111/j.1600-0838.2011.01364.x

Lane, A.M., Devonport, T.J., Soos, I., Karsai, I., Leibinger, E. & Hamar, P.J. 2010. Emotional intelligence and emotions associated with optimal and dysfunctional athletic performance. *Journal of Sports Science and Medicine*, 9:388-392.

Lane, A.M., Meyer, B.B., Devonport, T.J., Davies, K.A., Thelwell, R., Gill, G.S., … Weston, N. 2009a. Validity of the emotional intelligence scale for use in sport. *Journal of Sports Science and Medicine,* 8:289-295.

Lane, A.M., Thelwell, R.C. & Devonport, T.J. 2009b. Emotional intelligence and mood states associated with optimal performance. *Electronic Journal of Applied Psychology*, 5(1):67-73.

Lane, A.M., Thelwell, R.C., Lowther, J.P. & Devonport, T.J. 2009c. Relationship between emotional intelligence and psychological skills among athletes. *Social Behaviour and Personality: An International Journal*, 37:195-202.

Lane, A.M. & Wilson, M. 2011. Emotions and trait emotional intelligence among ultra-endurance runners. *Journal of Science and Medicine in Sport*, 14(4):358-362.

Larner, C. 2009. *On making warriors out of worriers: the management of trait anxiety in competitive sports*. Melbourne: Victoria University of Technology. (Thesis - PhD).

Law, C.A. 2004. *Emotional intelligence, sense of coherence and coping behaviour*. Vanderbijl: North-West University. (Dissertation - MA).

Lazarus, R.S. 1993. From psychological stress to the emotions: a history of changing outlooks. *Annual Review of Psychology*, 44:1-21.

Lazarus, R.S. 1999. *Stress and emotion: a review syntheses*. New York: Springer.

Lazarus, R.S. 2000. How emotions influence performance in competitive sports. *The Sport Psychologist*, 14:229-252.

Lazarus, R.S. & Folkman, S. 1984. *Stress, appraisal, and coping*. New York: Springer.

Le Roux, R. 2006. *Verbeter jou sport prestasie deur emosionele intelligensie*. [Improve your sport performance through emotional intelligence]. Cape Town: Tafelberg.

Le Roux, J.G. & Pienaar, G.E. 2001. Sport psychology as component of the training programme for subject teachers. *Educare*, 30:185-207.

Leslie, V. 2012. *Physiological and match performance characteristics of field hockey players*. Leicestershire: Loughborough University. (Thesis – PhD).

Levenson, R.W. 2011. Basic emotion questions. *Emotion review*, 3:379-386.

Locke, E.A. & Latham, G.P. 2002. Building a practically useful theory of goal setting and task motivation: a 35-year odyssey. *American Psychologist*, 57(9):705-717.

Loehr, J. 1997. The role of emotion in sport performance: emotions run the show. *Journal of Applied Sport Psychology*, 9:S13.

Lundqvist, C. 2006. *Competing under pressure: state anxiety, sports performance and assessment*. Sweden: Stockhölm University. (Thesis).

Lunenberg, F.C. 2011. Goal-setting theory of motivation. *International Journal of Management, Business, and Administration*, 15(1):1-6.

Lu, F.J., Hsu, E.Y., Li, G.S. & Williams, L. 2010. Relationship between athletes' emotional intelligence and precompetitive anxiety. *Perceptual and Motor Skills*, 110(1):323-338.

Lyons, M. 2001. In support of a written curriculum based on sport psychology for high school sports teams. *Athletic Insight: The Online Journal of Sport Psychology*. http://lw.athleticinsight.mNo13Iss2/Commentary.html Date of access: 20 Mar. 2017.

Lythe, J. 2008. *The physical demands of elite men's field hockey and the effects of differing substitution methods on the physical and technical outputs of strikers during match play*. Auckland: University of Technology. (Thesis – MA).

Lyusin, D.V. 2004. Current views on emotional intelligence. Social Intelligence: theory, measurement, research. Moscow: Manoilova. (Dissertation – MA). http://deti.akademiki.biz/testi_po_EQ/manoilova_marina_alekseevna_avtorskaia_metodika_diagnostiks_ei/ Date of access: 3 Mar. 2018.

MacLeod, H., Bussell, C. & Sunderland, C. 2007. Time-motion analysis of elite women's field hockey, with particular reference to maximum intensity movement patterns. *International Journal of Performance Analysis in Sport*, 7(2):1-12.

Mahoney, M.J., Gabriel, T.J. & Perkins, T.S. 1987. Psychological skills and exceptional athletic performance. *The Sport Psychologist*, 1:181-199.

Mandana, S., Farnoosh, F., Forouzan, F. & Masrour. 2012. Relation between mental skill and competitive anxiety in female national football players. *World Applied Sciences Journal*, 20(8):1175-1178.

Martens, R., Vealy, R.S. & Burton, D. 1990a. *Successful Coaching*. 2nd edition. Champaign IL: Human Kinetics.

Martens, R., Vealy, R.S. & Burton, D. 1990b. *Competitive anxiety in sport*. Champaign, IL: Human Kinetics.

Matthews, G. & Zeidner, M. 2000. Emotional intelligence, adaptation to stressful encounters, and health outcomes. In Bar-On, R. & Parker, J.M. (eds.), *Handbook of emotional intelligence*. NY: Jossey-Bass. pp. 459-489.

Maughan, R.J. & Gleeson, M. 2004. The games player. In: Maughan, R.J. & Gleeson, M., eds. *The biochemical basis of sports performance*. Oxford: Oxford University Press. pp. 149-169.

Mayer, J.D. 2004. What is emotional intelligence? *UNH Personality Lab*. 8. https://scholars.unh.edu/personality_lab/8 Date of access: 28 Sept. 2020.

Mayer, J.D. & Salovey, P. 1993. The intelligence of emotional intelligence. *Intelligence*, 17:433-442.

Mayer, J.D. & Salovey, P. 1997. What is emotional intelligence? In: Salovey, P. & Sluyter, D.J., eds. *Emotional development and emotional intelligence: educational implications*. New York: Basic Books. pp. 3-31.

Mayer, J.D., Caruso, D.R. & Salovey, P. 2000. Emotional intelligence meets traditional standards for an intelligence. *Intelligence*, 27(4):267-298.

Mayer, J.D., Roberts, R.D. & Barsade, S.G. 2008a. Human abilities: emotional intelligence. *Annual Review of Psychology*, 59:507-536. doi:10.1146/annurev.psych.59.103006.093646

Mayer, J.D., Salovey, P. & Caruso, D.R. 2008b. Emotional intelligence: new ability or eclectic traits? *American Psychologist*, 63(6):503-517. doi:10.1037/0003-066X.63.6.503

Mayer, J.D., Salovey, P. & Caruso, D. 2002. *Mayer-Salovey-Caruso emotional intelligence test user's manual*. Toronto, CA: Multi-Health Systems.

McCarthy, P.J., Jones, M.V., Harwood, C.G. & Olivier, S. 2010. What do young athletes implicitly understand about psychological skills? *Journal of Clinical Sport Psychology*, 4(2):158-172.

McCarthy, P., Allen, M. & Jones, M. 2012. Emotions, cognitive interference, and concentration disruption in youth sport. *Journal of Sports Sciences*, 31(5):1-11.

McKay, J., Lavallee, D., Niven, A.G. & White, A. 2008. Sources of strain among elite UK track athletes. *The Sport Psychologist*, 22(2):143-163.

McNally, I.M. 2002. Contrasting concepts of competitive state anxiety in sport: Multidimensional anxiety and catastrophe theories. *Athletic Insight. The Online Journal of Sport Psychology*, 4(2):10-22.

Mehrparvar, A. & Soltani, M.K. 2013. A comparison of psychological hardiness in male athletes and non-athlete students. *European Journal of Experimental Biology*, 3(1):627-630.

Mellalieu, S.D., Hanton, S. & Fletcher, D. 2006. A competitive anxiety review: recent directions in sport psychology research. In Hanton, S and Mellalieu, S.D. (eds.), *Literature reviews in sport psychology*. Hauppage, NY: Nova Science. pp. 1-45.

Miçooğullari, B.O. & Ekmekçi, R. 2017. Evaluation of a psychological skill training program on mental toughness and psychological wellbeing for professional soccer players. *Universal Journal of Educational Research*, 5(12):2312-2319.

Mikolajczak, M., Nelis, D., Quoidbach, J. & Hansenne, M. 2008. If you can regulate sadness, you can probably regulate shame: impact of emotional intelligence on emotions regulation and coping efficiency across discrete emotions. *Personality and Individual Differences*, 44:1356-1368. doi:10.1016/j.paid.2007.12.004

Mikolajczak, M., Petrides, K.V., Coumans, N. & Luminet, O. 2009. The moderating effect of trait emotional intelligence on mood deterioration following laboratory-induced stress. *International Journal of Clinical and Health Psychology,* 9:455-477.

Monsma, E., Perrault, M. & Doan, R. 2017. Focus! Keys to developing concentration skills in open-skills sports. *Journal of Physical Education, Recreation and Dance*, 88(7):51-55. doi:10.1080/07303084.2017.1340207

Moors, A. 2013. Appraisal is transactional, not all-inclusive, and cognitive in a broad sense. *Emotion Review,* 5:185-186.

Moradi, J., Mousavi, M.V. & Amirtash, A.M. 2013. The role of mental toughness in acquisition and retention of a sport skill. *European Journal of Experimental Biology*, 3(6):438-442.

Moran, A. 2004. *Sports and exercise psychology: a critical introduction*. New York, NY: Routledge.

Morris, T. 2000. Psychological characteristics and talent identification in soccer. *Journal of Sports Sciences*, 18(9):715-726.

Morris, I. 2009. *Teaching happiness and well-being in schools*. Glasgow, IE: Bell & Bain.

Mottaghi, M., Atarodi, A. & Rohani, Z. 2013. The relationship between coaches' and athletes' competitive anxiety and their performance. *Iranian Journal of Psychiatry and Behavioural Sciences*, 7(2):68-76.

Mowlaie, M., Besharat, M., Pourbohlool, S. & Azizi, L. 2011. The mediation effects of self-confidence and sport self-efficacy on the relationship between dimensions of anger control with sport performance. *Social and Behavioral Sciences*, 30:138-142.

Murphy, S.M., Nordin, S.M. & Cumming, J. 2008. Imagery in sport, exercise and dance. In: Horn, T. ed. *Advances in sport psychology*. 3rd ed. pp. 297-324.

Mytskan, B., Kurylyuk, S. & Fotujma, O. 2006. Psychic qualities and their role in the system of psychological training of judoists. *Movement for Culture*, 6:123-130.

Najah, A. & Rejeb, R.B. 2015. The psychological profile of youth male soccer players in different playing positions. *Advances in Physical Education,* 5:161-169.

Nelis, D., Kotsou, I., Quoidbach, J., Hansenne, M., Weytens, F., Dupuis, P. & Mikolajczak, M. 2011. Increasing emotional competence improves psychological and physical well-being, social relationships, and employability. *Emotion*, 11:354-366.

Nicholls, A.R., Jones, C.R., Polman, R.C. & Borkoles, E. 2009. Acute sport-related stressors, coping, and emotion among professional rugby union players during training and matches. *Scandinavian Journal of Medicine and Science in Sports*, 19:113-120.

Nicholls, A.R., Polman, R.C. & Levy, A.R. 2012. A path analysis of stress appraisals, emotions, coping, and performance satisfaction among athletes. *Psychology of Sport and Exercise*, 13(3):263-270.

Noblet, A.J. & Gifford, S.M. 2002. The sources of stress experienced by professional Australian footballers. *Journal of Applied Sport Psychology,* 14:1-13.

Noda, T., Takahashi, Y. & Murai, T. 2018. Coping mediates the association between empathy and psychological distress among Japanese workers. *Personality and Individual Differences*, 124:178-183.

Norton, P.J., Hope, D.A. & Weeks, J.W. 2004. The physical activity and sport anxiety scale (PASAS): scale development and psychometric analysis. *Anxiety, Stress & Coping*, 17(4):363-382. doi:10.1080/10615800512331328786

Nourian, K., Gasparyan, K., Sharif, F., Zulaldl, M., Moghimi, M. & Hosseini, N. 2011. The effect of teaching the components of emotional intelligence to the doctors and nurses working in intensive care units on their stress and anxiety. *Armaghan Danesh*, 16(5):472-479.

Osborne, M.S., Greene, D.J. & Immel, D.T. 2014. Managing performance anxiety and improving mental skills in conservatoire students through performance psychology training: a pilot study. *Psychology of Well-being*, 4(1):1-18.

Parnabas, V. 2015. The level of competitive state anxiety and sport performance among hockey players. *The International Journal of Indian Psychology*, 2:32-41.

Parnabas, V., Parnabas, J. & Parnabas, A.M. 2015. The influence of cognitive anxiety on sport performances among hockey players. *The International Journal of Indian Psychology*, 2:24-31.

Parveen, N. 2016. Emotional intelligence between male and female hockey players: a psychological study. *International Journal of Physical Education, Sports and Health*, 3(6):60-62.

Paschali, A. & Tsitsas, G. 2010. Stress and life satisfaction among university students – a pilot study. *Annals of General Psychiatry*, 9(1):S96.

Pensgaard, A.M. & Duda, J. 2003. Sydney 2000: the interplay between emotions, coping, and the performance of Olympic level athletes. *The Sport Psychologist*, 17:253-267.

Perlini, H. & Halverson, R.T. 2006. Emotional intelligence in the national hockey league. *Canadian Journal of Behavioural Science*, 38(2):109-119.

Petrides, K.V. & Furnham, A. 2001. Trait emotional intelligence: psychometric investigation with reference to established trait taxonomies. *European Journal of Personality*, 15:425-448.

Petrides, K.V. & Furnham, A. 2003. Trait emotional intelligence: behavioural validation in two studies of emotion recognition and reactivity to mood. *European Journal of Personality*, 17(1):39-57.

Petrides, K.V., Pita, R. & Kokkinaki, F. 2007. The location of trait emotional intelligence in personality factor space. *British Journal of Psychology*, 98(2):273-289.

Pineschi, G. & Di Pietro, A. 2013. Anxiety management through psychophysiological techniques: relaxation and psyching-up in sport. *Journal of Sport Psychology in Action*, 4(3):181-190. doi:10.1080/21520704.2013.820247

Radochoński, M., Cynarski, W., Perenc, L. & Siorek-Maslanka, L. 2011. Competitive anxiety and coping strategies in young martial arts and track and field athletes. *Journal of Human Kinetics*, 27(1):180-189.

Ramsey, R., Cumming, J., Edwards, M.G., Williams, S. & Brunning, C. 2010. Examining the emotion aspect of PETTLEP-based imagery with penalty taking in soccer. *Journal of Sport Behavior*, 33(3):295-310.

Reeves Silent Night, J. 2015. Analysis of emotional intelligence among hockey players in relation to their positional play. *Research Journal of Physical Education Sciences*, 3(7):8-11.

Revelle, W. & Scherer, K.R. 2009. Personality and emotion. In: Sander, D. & Scherer, K.R., eds. *Oxford companion to emotion and the affective sciences*. Oxford, UK: Oxford University Press. pp. 21-28.

Richardson, T.L. 2002. The importance of emotional intelligence during transition into middle school. *Middle School Journal*, 33(3):55-58.

Robazza, C. 2006. Emotion in sport: an IZOF perspective. In: Hanton, S. & Mellalieu, S.D. (eds.). *Literature reviews in sport psychology*. New York, NY: Nova Science. pp. 127-158.

Robazza, C. & Bortoli, L. 2007. Perceived impact of anger and anxiety on performance in rugby players. *Psychology of Sport and Exercise*, 8:875-890.

Robazza, C., Pellizzari, B. & Hanin, Y. 2008. Functional impact of emotions on athletic performance: comparing IZOF model and the directional perception approach. *Journal of Sport Sciences*, 26 (10), 1033-1047. doi:10.1080/02640410802027352

Ros, A., Moya-Faz, F. & Garcés de los Fayos, E. 2013. Emotional intelligence and sport: current state of research. *Cuodernos de Psicologia del Deporte*, 105-112.

Rumbold, J., Fletcher, D. & Daniels, K. 2012. A systematic review of stress management interventions with sport performers. *Sport, Exercise, and Performance Psychology*, 1(3):172-193.

Rutkowska, K. & Bergier, J. 2015. Psychological gender and emotional intelligence in youth female soccer players. *Behavioural Sciences in Sport*, 4:285-291.

Sagar, S., Lavallee, D. & Spray, C.M. 2009. Coping with the effect of fear of failure: a preliminary investigation of young elite athletes. *Journal of Clinical Sports Psychology*, 3:73-98.

Sajjan, M. 2018. Mental toughness among athletes: a comparative study. *International Journal of Applied Research*, 4(2):157-161.

Salovey, P. 2001. Applied emotional intelligence: regulating emotions to become healthy, wealthy, and wise. In: Ciarrochi, J., Forgas, J.P. & Mayer, J.D., eds. *Emotional intelligence and everyday life*. New York: Psychology Press. pp. 168-184.

Salovey, P., Bedell, B.T., Detweiler, J.B. & Mayer, J.D. 1999. Coping intelligently: emotional intelligence and the coping process. In: Snyder, C.R. ed. *Coping: the psychology of what works*. NY: Oxford University Press.

Salovey, P. & Grewal, D. 2010. The science of emotional intelligence. *Current Directions in Psychological Science*, 14(6):281-285.

Salovey, P. & Mayer, J.D. 1990. Emotional intelligence. *Imagination, Cognition and Personality*, 9(3):185-211.

Salovey, P., Woolery, A. & Mayer, J.D. 2001. Emotional intelligence: conceptualization and measurement. In: Fletcher, G.J. & Clark, M.S., eds. *Blackwell handbook of social psychology: interpersonal processes*. Malden, MA: Blackwell Publishers. pp. 279-307.

Savardelavar, M., Kuan, G. & Chin, N. 2017. Making effective communication with athletes. *Coaching Journal*, 19-21.

Schutte, N.S., Malouff, J.M., Hall, L.E., Haggerty, D.J., Cooper, J.T., Golden, C.J. & Dornheim, L. 1998. Development and validation of a measure of emotional intelligence. *Personality and Individual Differences*, 25:167-177.

Schutte, N.S., Malouff, J.M., Thorsteinsson, E.B., Bhullar, N. & Rooke, S.E. 2007. A meta-analytic investigation of the relationship between emotional intelligence and health. *Personality and Individual Differences*, 42:921-933.

Schwab, S. & Memmert, D. 2012. The impact of a sports vision training program in youth field hockey players. *Journal of Sports Science and Medicine,* 11:624-631.

Seal, C.R., Stefanie, E.N., Amy, N.S. & Royce-Davis, J. 2010. Social emotional development: a new model of student learning in higher education. *Research in Higher Education Journal*, 1-3.

Senécal, J., Loughead, T.M. & Bloom, G.A. 2008. A season-long team-building intervention: examining the effect of team goal setting on cohesion. *Journal of Sport and Exercise Psychology*, 30:186-199.

Serrat, O. 2010. *Understanding and developing emotional intelligence*. Washington, DC: Asian development bank.

Serrat, O. 2017. Understanding and developing emotional intelligence. In *Knowledge Solutions*. Singapore: Springer. pp. 329-339.

Shahzad, S., Begum, N. & Khan, A.M. 2014. Trait emotional intelligence as determinant of self concept in interpersonal relationships in adolescents. *Bahria Journal of Professional Psychology*, 1(13):44-63.

Shilpi, J., Singh, P.W. & Kumar, P. 2015. Interactive effect of mental skills training and anxiety on Indian athlete's performance. *International Journal of Physical Education, Sports and Health*, 1(4):60-63.

Short, S.E., Zostautas, N. & Monsma, E.V. 2012. The use of imagery by successful hockey players: a comparison among skill levels. *Journal of Imagery Research in Sport and Physical Activity*, 7(1), art. 6.

Singh, K. 2011. Study of achievement motivation in relation to academic achievement of students. *International Journal of Educational Planning and Administration*, 1(2):161-171.

Singh, R. 2017. Stress role in sports performance of athletes. *International Journal of Physical Education, Sports and Health*, 4(3):278-280.

Singh, M.K. & Dubey, S. 2015. A comparative study of sports aggression and sports competition anxiety between basketballs and handball players. *International Journal of Applied Research*, 1(9):511-513.

Singh, K.R. & Mili, A. 2015. Study of emotional intelligence among players of individual, dual and team sports. *International Journal of Science and Research*, 5(12):1101-1106.

Singer, T. 2006. The neuronal basis and ontogeny of empathy and mind reading: review of literature and implications for future research. *Neuroscience and Biobehavioral Reviews*, 30:855-863.

Smith, R.E. & Christensen, D.S. 1995. Psychology skills as predictors of performance and survival in professional baseball. *Journal of Sport and Exercise Psychology*, 17:399-415.

Smith, R.E., Schutz, R.W., Smoll, F.L. & Ptacek, J.T. 1995. Development and validation of a multidimensional measure of sport-specific psychological skills: the athletic coping skills inventory–28. *Journal of Sport and Exercise Psychology*, 17:379-398.

Smith, D., Wright, C., Allsopp, A. & Westhead, A. 2007. It's all in the mind: PETTLEP-based imagery and sports performance. *Journal of Applied Sport Psychology*, 19(1):80-92.

Soflu, G.H., Esfahani, N. & Asadi, H. 2011. The comparison of emotional intelligence and psychological skills and their relationship with experience among individual and team athletes in superior league. *Social and Behavioural Sciences*, 30:2394-2400.

Spielberger, C.D. 1966. Theory and research on anxiety. In: Spielberger, C.D., ed. *Anxiety and behavior*. New York: Academic Press.

Stoeber, J., Otto, K., Pescheck, E., Becker, C. & Stoll, O. 2006. Perfectionism and competitive anxiety in athletes: differentiating striving for perfection and negative reactions to imperfection. *Personality and Individual Differences*, 42:959-969.

Tamminen, K.A., Crocker, P.R. & McEwen, C.E. 2016. Emotional experiences and coping in sport: How to promote positive adaptational outcomes. In: Gomez, R., Resende, R. & Alberquerque, A., eds. *Positive human functioning from a multidimensional perspective*. New York: Nova Science. pp. 143-162.

Thatcher, J., Jones, M. & Lavallee, D. 2012. *Coping and emotion in sport (2nd Ed.).* London: Routledge.

Thelwell, R.C. & Maynard, I.W. 2000. Professional cricketers' perception of the importance of antecedent influencing repeatable good performance. *Perceptual and Motor Skills*, 90(2):649-658. doi:10.2466/pms.2000.90.2.649

Thelwell, R.C. & Maynard, I.W. 2002. A triangulation of findings of three studies investigating repeatable good performance in professional cricketers. *International Journal of Sport Psychology*, 33:247-268.

Thelwell, R.C. & Maynard, I.W. 2003. The effects of a mental skills package on 'repeatable good performance' in cricketers. *Psychology of Sport and Exercise*, 4:377-396. doi:10.1016/S1469-0292(02)00036-5

Thelwell, R., Lane, A.M., Weston, N.J. & Greenlees, I.A. 2008. Examining relationships between emotional intelligence and coaching efficacy. *International Journal of Sport and Exercise Psychology*, 6:224-235.

Tibbert, S.J. 2013. *Mental toughness and overtraining behaviours*. Melbourne: Victoria University. (Thesis - PhD).

Tod, D., Thatcher, J. & Rahman, R. 2010. *Sport psychology*. Palgrave Macmillan.

Tod, D., Hardy, J. & Oliver, E. 2011. Effects of self-talk: a systematic review. *Journal of Sport and Exercise Psychology*, 33:666-687.

Torkfar, A., Abbariki, Z., Rostami, A.G. & Karamiyan, E. 2011. Reviewing relationship between emotional intelligence and competitive anxiety in athlete students, in individual and group fields. *World Applied Sciences Journal*, 15(1):92-99.

Tucker, M.L., Sojka, Z.J., Barone, F.J. & McCarthy, A.M. 2000. Training tomorrow's leaders: enhancing the emotional intelligence of business graduates. *Journal of Education for Business*, 75(6):331-337.

Van den Heever, Z. 2006. *Sport psychological skills training of South African provincial netball players*. Potchefstroom: North-West University. (Dissertation – Honours).

Van den Heever, Z., Grobbleaar, H.W. & Potgieter, J.C. 2007. Sport psychological skills and netball performance. *Journal of Human Movement Studies*, 52:109-124.

Vast, R.L., Young, R.L. & Thomas, P.R. 2009. Emotions in sport: perceived effects on attention, concentration, and performance. *Australian Psychologist*, 45(2):132-140.

Vealey, S.R. 2007. Mental skills training in sport. In: Tenenbaum, G., Eklund, R. & Singer, R., eds. *Handbook of sport psychology*. New Jersey: Wiley.

Vealey, R.S. & Chase, M.A. 2008. Self-confidence in sport. In: Horn, T.S. ed. *Advances in sport psychology*. 3rd ed. Champaign, IL: Human Kinetics. pp. 66-97.

Vealey, R.S. & Greanleaf, C.A. 2010. Seeing is believing: understanding and using imagery in sport. In: Williams, J.M. ed. *Applied sport psychology*. 6th ed. New York: McGraw Hill Publishers. pp. 267-299.

Venter, M. 2003. Die verwantskap tussen koherensies en emosionele intelligensie. [The relationship between coherencies and emotional intelligence]. Johannesburg: Randse Afrikaanse Universiteit. (Unpublished dissertation – MA).

Venter, R.E., Potgieter, J.R. & Barnard, J.G. 2010. The usage of recovery modalities by elite South African team athletes. *South African Journal for Research in Sport, Physical Education and Recreation*, 32(1):133-145.

Vesely, A.K., Saklofske, D.H. & Nordstokke, D.W. 2014. EI training and pre-service teacher wellbeing. *Personality and Individual Differences*, 65:81-85.

Vidic, Z. & Burton, D. 2010. The Roadmap: examining the impact of a systematic goal-setting program for collegiate women's tennis players. *The Sport Psychologist*, 24:427-447.

Yerkes, R.M. & Dodson, J.D. 1908. The relation of strength of stimulus to rapidity of habit formation. *Journal of Comparative Neurology of Psychology*, 18:459-482.

West, R. & Turner, L.H. 2011. *Understanding interpersonal communication: making choices in changing times*. Boston: Wadsworth.

Weinberg, R.S. & Gould, D. 2019. *Foundations of sport and exercise psychology*. 7th ed. Champaign, IL: Human Kinetics.

Wheaton, K.A. 1998. A psychological skills inventory for sport. Stellenbosh: University of Stellenbosch (Unpublished dissertation - MA).

Wiegman, I. 2016. What basic emotions really are: encapsulated or integrated. http://philsci-archive.pitt.edu/id/eprint/12495 Date of access: 18 Nov. 2018.

Wieser, R. & Thiel, H. 2014. A survey of 'mental hardiness' and 'mental toughness' in professional male football players. *Chiropractic and Manual Therapies*, 22(1):17-22.

Williams, C., Daley, D., Burnside, E. & Hammond-Rowley, S. 2010. Does item overlap account for the relationship between trait emotional intelligence and psychopathology in preadolescents? *Personality and Individual Differences*, 48(8):867-871.

Williams, J.M. & Krane, V. 2006. Psychological characteristics of peak performance. In: Williams, J.M. ed. *Applied sport psychology: personal growth to peak* performance. 5th ed. New York, NY: McGraw-Hill. pp. 350-430.

Woodman, T. & Hardy, L. 2003. The relative impact of cognitive anxiety and self-confidence upon sport performance: a meta-analysis. *Journal of Sports Sciences,* 21:443-457.

Yi, J.P., Smith, R.E. & Vitaliano, P.P. 2005. Stress-resilience, illness, and coping: a person-focused investigation of young women athletes. *Journal of Behavioral Medicine,* 28(3):257-265.

Zizzi, S.J., Deaner, H.R. & Hirschhorn, D.K. 2003. The relationship between emotional intelligence and performance among college basketball players. *Journal of Applied Sport Psychology,* 15:262-269.

CHAPTER 3

THE RELATIONSHIP BETWEEN EMOTIONAL INTELLIGENCE AND COMPONENTS OF COMPETITIVE STATE ANXIETY AMONG FEMALE FIELD-HOCKEY PLAYERS FROM SOUTH AFRICA

This article was submitted for publication in the *South African Journal for Research in Sport, Physical Education and Recreation*.

Nicola Tinkler[1] (Corresponding author)

[1]Physical Activity, Sport and Recreation Research Focus Area (PhASRec) of North-West University, Potchefstroom, South Africa.

Email: nicolatinkler7@gmail.com

Telephone: +2727139117, Fax: +27 562151153

Postal address: Internal Box 494, Private Bag X6001, North-West University, Potchefstroom, 2520, South Africa

Ankebé Kruger[1]

Email: Ankebe.Kruger@nwu.ac.za

Telephone: +27182991793, Fax: +27182992022

Postal address: Internal Box 494, Private Bag X6001, North-West University, Potchefstroom, 2520, South Africa

Julius Jooste[2]

Psychology, Northumbria University, United Kingdom.

Email: julius.jooste@northumbria.ac.uk

Telephone: +44(0)191 2274157

Postal address: Northumberland Building, Northumbria University, Newcastle upon Tyne, NE1 8ST, United Kingdom

The relationship between emotional intelligence and components of competitive state anxiety among female field-hockey players from South Africa

N. Tinkler[1], A. Kruger[1] and J. Jooste[2]

[1] Physical Activity, Sport and Recreation Research Focus Area (PhASREc) of the North-West University, Potchefstroom, South Africa; [2]Department of Psychology, Northumbria University, United Kingdom.

Abstract

Emotional awareness and regulation are often associated with improved performance in sports, which raises the question as to the role of emotional intelligence in athletes' optimal performance states. This study determined the relationship between emotional intelligence and components of competitive state anxiety levels among a sample of senior-level female field-hockey players from South Africa (n = 60, *M* age = 21.57, *SD* = 3.65). The Emotional Intelligence Scale and the Competitive State Anxiety Inventory-2 were used to collect the data. Descriptive analyses revealed an above-average emotional intelligence and a low somatic/cognitive anxiety, with self-confidence being low to moderate, among players. Direction of cognitive and somatic anxiety was perceived as neutral, while self-confidence levels were perceived to be facilitative to performance. Pearson's correlation analyses revealed positive associations between players' management of their own and others' emotions, and self-confidence as well as a negative association with cognitive anxiety. A positive association between total emotional intelligence and self-confidence was also revealed with results from the simple linear regression analyses confirming the significant influence emotional intelligence has on players' competitive state anxiety experiences. Essentially, the utility of emotional intelligence intervention in aid of controlling cognitive anxiety and improving and maintaining self-confidence is advocated in coaching and sport psychology practice.

Keywords: Emotions; Hockey; Psychological Demands; Self-confidence; Sports Performance

Introduction

Emotional intelligence (EI) is associated with enhanced levels of emotional awareness and control (Serrat, 2010). EI refers to a person's ability to accurately label felt emotions, understand the associative effect on one's thoughts and behaviour, as well as appropriately regulate emotional states (Lane & Wilson, 2011). Serrat (2010:2) described EI as the "ability, capacity, skill, or self-perceived ability to identify, assess, and manage the emotions of oneself, of others, and of groups." Moreover, EI is viewed as an enriching capacity that can be developed to facilitate emotional regulation during demanding situations such as in sports competitions (Ros *et al*., 2013).

In sports, EI is paramount for athletes to effectively cope with the various physical and psychological demands (Weinberg & Gould, 2019) in the pursuit of peak performance (Reeves Silent Night, 2015). Field-hockey (here-after referred to as hockey) is a popular Olympic discipline (Demuth *et al*., 2007) played by both male and female athletes (Elferink-Gemser & Visscher, 2006). Hockey demands an array of technical skills (i.e., the ability to control the ball during consecutive bouts of sprinting, turning, and passing), tactical qualities (i.e., precision, accuracy, anticipation, decision-making, problem-solving, and resilience), as well as self-control of emotions in the quest of scoring goals (Elferink-Gemser *et al*., 2004; Perlini & Halverson, 2006). A player's awareness of a movement or a play on the pitch a split second faster than one's opponent is vital in ball sports such as hockey, as it may offer players a decisive advantage (Schwab & Memmert, 2012). For example, forward players in hockey need to skilfully perform tasks (i.e., playmaking, ability to break for openings, dribbling skills during high-speed actions, and fighting for play) concurrent with recognising and regulating their own and others' emotions whilst maintaining effective communication with teammates (Perlini & Halverson, 2006). Emotional preparedness, a part of mental preparedness, plays a significant role in athletes' decision-making, performance, morale and motivation as well as the overall efficacy of the team (Covassin & Pero, 2004). However, competitive sports is inextricably linked to emotional experiences such as stress and anxiety (Singh, 2017). How athletes respond to and manage their anxiety during competition often dictate their performance (Batinić *et al*., 2014; Jones *et al*., 2005).

The win at all cost expectations associated with sports, along with the strenuous demands placed on players to consistently perform, make players more susceptible to anxiety (Khan & Zafar, 2014; Singh, 1982). Anxiety is a typical emotional state experienced by athletes participating

at all levels of sports (Ford *et al*., 2017; Gill & Williams, 2008). Anxiety refers to "an unpleasant psychological state in reaction to perceived stress concerning the performance of a task under pressure" (Ford *et al*., 2017:206) with manifestations experienced cognitively (i.e., worry, feeling of fear and apprehension) and/or somatically (i.e. increased heart rate, blood pressure, muscle tension, sweating) (Cox, 2007). Both cognitive and somatic anxiety impact sports performance (Ampofo-Boateng, 2009) as either variation of too low or too high levels of anxiety might be detrimental to an athlete's performance (Jones, 1995). Researchers concluded that performance would decrease when competitive anxiety (cognitive and/or somatic) increase beyond optimal levels (Aufenanger, 2005; Mellalieu *et al*., 2004; Parnabas, 2015). In this regard, researchers have indicated that higher levels of cognitive anxiety result in lower performance levels in a sample of 67 national, state, district and university hockey players (Parnabas *et al*., 2015). It is generally accepted that a positive interpretation of anxiety could increase athletes' performance, whereas a negative interpretation could be detrimental to performance (Lu *et al*., 2010). Hence Nourian *et al*. (2011) concluded that the development of psychological factors such as EI could control anxiety states and improve performance in athletes. Notwithstanding, dealing with anxiety remains a pressing challenge for athletes at all levels as the associated negative effects on concentration, memory and other behavioural responses may alter task requirements related to sports performance (Dominikus *et al*., 2009).

Successful hockey performances are associated with high levels of emotional reactivity, stress tolerance, hardiness (e.g. the ability to overcome adversity), and low levels of anxiety (Karp, 2000; MacDougall *et al*., 2003). In this regard, researchers have pointed out that by coping effectively with anxiety, athletes will be better able to control their feelings, achieve their goals, sustain effort and focus, and display higher levels of self-confidence (Humara, 1999; Jones, 1995; Robazza & Bortoli, 2007). If athletes can master a situation in line with their goals and facilitate a beneficial outcome, it may be deemed that those athletes have regulated their emotions in an 'emotionally intelligent' manner (Salovey & Mayer, 1990). In sports, EI is thus a useful ability/skill to regulate emotions which could essentially promote emotional and intellectual growth and ultimately performance in sports (Salovey & Mayer, 1990).

Individuals with a higher EI, appraised stressful situations as more of a challenge than as a threat, which results in lower cognitive anxiety and better coping abilities (Mikolajczak & Luminet, 2008). Furthermore, EI is positively associated with precompetitive emotions which optimise performance (Lane *et al*., 2010) and decreasing levels of precompetitive anxiety (Lu *et al*., 2010). In this regard, higher levels of EI were positively associated with lowered levels

of anxiety in intercollegiate track and field athletes (Lu *et al*., 2010), female basketball players (Boroujeni *et al*., 2012), semi-professional football and paddle players (Castro-Sánchez *et al*., 2018), swimming, badminton, soccer and volleyball student-athletes (Torkfar *et al*., 2011).

Purpose of the study

Despite the propositions made to increase athletes' EI to lower their anxiety levels (Fernández-Berrocal *et al*., 2006; Salovey, 2001), understanding the specific relationship between EI and anxiety levels among hockey players remains unknown. It is against this background, that the following research question is formulated: What is the relationship between EI and the components of competitive state anxiety levels among female field-hockey players from South Africa? We hypothesise that dimensions of EI will negatively associate with anxiety (both somatic and cognitive) and positively with self-confidence.

Findings from this study may provide valuable knowledge and understanding of the relevance of EI in hockey. The role, awareness, understanding, labelling, and communication of a player's own and others' emotions in hockey to control individual performance anxiety may offer a fresh perspective on current coaching and behaviour modification programmes employed in hockey and similar contexts. Insight gathered from this study would explicate EI interventions as potential performance aids for coaches, athletes, and sports psychologists in the ever-demanding quest for solutions to dealing with athletes' fluctuating anxiety levels in sports. Moreover, evidence of links between EI and anxiety may also provide the impetus to further assess the role of EI in learning and improving skills at a developmental level in sports.

Methodology

Research Design

The present investigation adopted a descriptive correlational research design with EI treated as the independent variable and the components of competitive state anxiety as the dependent variables.

Participants

A convenient sample of sixty senior-level (N = 60, mean age = 21.57, *SD* = 3.65) female field-hockey players from South Africa, participated in this study. The competitive hockey-playing experience of these players varied between 4 and 22 years. The group consisted of forwards, midfielders, backs and goalkeepers.

Instruments

Emotional Intelligence Scale (EIS)

The EIS (Schutte *et al*., 1998) consists of 33 items and assesses EI based on self-report responses tapping the appraisal and expression of emotions in self and others among the following dimensions: perception of emotion, managing own emotions, managing others' emotions and utilisation of emotions. In some cases, reverse scoring applies (items 5, 28 and 33) and participants respond by indicating their agreement to each of the 33 statements using a 5-point Likert-type scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). A higher score reflects a higher level of EI (Venter, 2003). An overall Cronbach alpha of 0.90 for the 33-item scale was reported, while the mean alpha across samples was 0.87 (Schutte *et al*., 1998). Cronbach's alpha values of the scale's four dimensions ranged from 0.58 to 0.75 in the present study.

The Competitive State Anxiety Inventory-2 (CSAI-2)

The CSAI-2 (Martens *et al*., 1990) is a self-report questionnaire which comprises 27 items, with nine items in each of the three subscales, namely Cognitive Anxiety, Somatic Anxiety, and Self-confidence. Individual items are rated on a 4-point Likert-type scale ranging from 1 (not at all) to 4 (very much so). Subscale scoring is additive, although one somatic anxiety item has reversed scoring, yielding subscale totals ranging from 9 to 36, with 9 indicating a low anxiety/confidence and 36 indicating a high anxiety/confidence. According to Martens *et al*. (1990), the reliability for the CSAI-2 was reported as 0.81 for cognitive anxiety, 0.82 for somatic anxiety and 0.88 for self-confidence. Cronbach's alpha values of the scale ranged from 0.81 to 0.85 in the present study. Concurrent validity assessment on the CSAI-2 demonstrated reasonably consistent relationships with eight previously validated state and trait inventories (Martens *et al*., 1990). Also, a direction scale (Jones & Swain, 1992) was included for the subscale items to enable the participant to rate the degree to which the experienced intensity of each symptom was either facilitative (+3) or debilitative (-3) to subsequent performance. To avoid using negative scores in the current investigation, the directionality scale was modified to range from 1 (highly debilitative) to 7 (highly facilitative) for each subscale item (Davis & Cox, 2002). Overall subscale perception/direction scores range from 9 to 63, where a score of 9-27 denotes a state of debilitation and a score of 45-63 facilitation. A score ranging from 28-44 is considered as neutral with neither a debilitative nor facilitative impression.

Data collection procedure

The managers, coaches and players of the respective teams were informed about the nature of the study while all potential risks and associated benefits were explained. During an information session, players were requested to provide written informed consent before they were allowed to participate in the study. Furthermore, players completed a pencil-and-paper version of the Emotional Intelligence Scale (EIS) (Schutte *et al*., 1998) and the Competitive State Anxiety Inventory-2 (CSAI-2) (Martens *et al*., 1990), which took approximately 30 minutes. The assessments took place in a quiet, comfortable room while the privacy of all the players was ensured.

Ethical clearance

Approval for the research was granted by the Health Research Ethics Committee (HREC) of North-West University (Ethical number: XXX-00069-18-S1).

Analysis of data

The Statistical Package for Social Sciences (SPSS) software programme (Version 26) was used to analyse the data. Prior to formal analyses, the data was checked for normality (using histograms, QQ plots & Shapiro-Wilk < 0.05), which has satisfied the assumption of a normal distribution. Descriptive statistics (minimum, maximum, means and standard deviations) was used to describe the data were after reliability of the employed measures was determined using Cronbach's alpha coefficient. Pearson's product-moment correlation was used to assess the relationship between the variables. Correlation coefficients was generated for the variables and effect sizes interpreted as small ($r \geq 0.10$), medium ($r \geq 0.30$) and large ($r \geq 0.50$) (Pallant, 2007). To further assess the relationship between EI and components of competitive state anxiety, a series of simple linear regression analyses were performed with EI entered as the predictor variable and cognitive, somatic anxiety and self-confidence as dependent variables. All the assumptions for the latter analyses were met. However, a composite total EI score was used as the independent (predictor) variable to increase power (account for the relatively small sample) and avoid violation of the assumption for multicollinearity.

Results

Table 1 presents the descriptive statistics (minimum, maximum, means and standard deviations) for the variables assessed in the present study and Cronbach's alpha values of the employed measures. The measures revealed satisfactory to relatively high reliability scores (Taber, 2018)

with subscale values that ranged between 0.58 and 0.85. Players revealed high perception of emotions (36.63±4.97) followed by the management of their own emotions (36.20±3.42) and management of others' emotions (30.75±4.35). The players demonstrated low utilisation of emotions (24.50±2.76), with an above-average mean total EI score (128.08±11.02) (Schutte *et al*., 2008). When compared to norm scores generated from large athlete samples (Martens *et al*., 1990), the players' revealed a low to moderate level of self-confidence (25.03±4.30), and a low intensity of cognitive (22.88±5.69) and somatic (21.65±4.70) anxiety. In this regard, the participants held a fairly neutral view of their cognitive (36.23±8.90) and somatic anxiety levels (40.80±7.41) revealing to be perceived as neither facilitative nor debilitative, whereby their self-confidence levels (45.02±9.18) were perceived as facilitative.

Table 1. **CRONBACH'S ALPHA VALUES AND DESCRIPTIVE STATISTICS OF FEMALE FIELD-HOCKEY PLAYERS**

Subscales	**Minimum**	**Maximum**	**Mean**	**SD**	**α**
Age	17.00	29.00	21.57	3.65	
Emotional Intelligence Scale (EIS)					
Perception of emotion	24.00	47.00	36.63	4.97	0.75
Managing own emotions	28.00	44.00	36.20	3.42	0.64
Managing others' emotions	17.00	40.00	30.75	4.35	0.71
Utilisation of emotions	19.00	30.00	24.50	2.76	0.58
Total EIS score	105.00	157.00	128.08	11.02	0.67
Competitive State Anxiety Inventory-2 (CSAI-2)					
Cognitive anxiety intensity	12.00	33.00	22.88	5.69	0.85
Somatic anxiety intensity	12.00	32.00	21.65	4.70	0.85
Self-confidence intensity	15.00	34.00	25.03	4.30	0.82
Cognitive anxiety direction	19.00	58.00	36.23	8.90	
Somatic anxiety direction	18.00	55.00	40.80	7.41	
Self-confidence Direction	21.00	60.00	45.02	9.18	

α = Cronbach's alpha; *SD* = standard deviation

The Pearson product-moment correlation coefficient (see Table 2) revealed a significant negative association between players' management of their own emotions and cognitive anxiety (r = -0.26, p = 0.04) and a significant positive correlation with players' self-confidence (r = 0.33, p = 0.01). Similarly, significant negative correlations were noted between players' management of others' emotions and cognitive anxiety (r = -0.28, p = 0.03) with significantly positive associations with self-confidence (r = 0.34, p = 0.01). Furthermore, a significant positive association between players' total EI and self-confidence scores (r = 0.27, p = 0.04) was revealed. Effect sizes for all noted significant correlations ranged from low to moderate.

***Table 2*. PEARSON'S PRODUCT-MOMENT CORRELATIONS BETWEEN EMOTIONAL INTELLIGENCE AND COMPETITIVE STATE ANXIETY INVENTORY SUBSCALES**

EIS		CSAI-2		
		Cognitive anxiety	**Somatic anxiety**	**Self-confidence**
Perception of emotion	Coefficient	-0.18	0.07	-0.01
	Sig. (2-tailed)	0.18	0.62	0.94
Managing own emotions	Coefficient	-0.26#	0.06	0.33#
	Sig. (2-tailed)	0.04*	0.64	0.01*
Managing others' emotions	Coefficient	-0.28#	-0.13	0.34##
	Sig. (2-tailed)	0.03*	0.33	0.01*
Utilisation of emotions	Coefficient	0.22	0.20	0.13
	Sig. (2-tailed)	0.10	0.12	0.33
Total emotional intelligence score	Coefficient	-0.22	0.05	0.27#
	Sig. (2-tailed)	0.10	0.71	0.04*

* $p \leq 0.05$; ** $p < 0.01$ # Small effect size; ##Medium effect size

The series of simple linear regression analyses (Table 3) exposed EI to be a significant predictor [$F(1, 58) = 4.36$, $p < 0.05$] of players' self-confidence (B = 0.10, $p < 0.05$) and essentially accounted for 7% of the variance in this variable. Although not significant, EI revealed to exert a negative influence [$F(1, 58) = 2.87$, $p = 0.10$] on players' approximations of cognitive anxiety (B = -0.11, $p = 0.10$) explaining 5% of the variance in this variable. No noticeable influence was noted on players' somatic anxiety [$F(1, 58) = 0.14$, $p = 0.71$].

***Table 3.* SUMMARY OF LINEAR REGRESSION ANALYSES FOR THE IMPACT OF EMOTIONAL INTELLIGENCE ON ANXIETY AND SELF-CONFIDENCE**

Variable	R^2	R	Std. error	B	Sig.
Cognitive anxiety	0.05	0.22	0.07	-0.22	0.10
Somatic anxiety	0.00	0.05	0.06	0.05	0.71
Self-confidence	0.07	0.27	0.05	0.27	0.04*

*Statistically significant at $p < 0.05$; **Statistically significant at $p < 0.01$; β = Beta of standardised coefficients

Discussion

The ability to accurately facilitate emotions, has been emphasised by researchers to decrease negative factors such as anxiety (Hashempour & Mehrad, 2014). Therefore, this study set out

to determine the relationship between EI and components of competitive state anxiety levels among female field-hockey players from South Africa. Results reveal that being more proficient in managing own and others' emotions will lead to lower levels of cognitive anxiety among players. This finding gives credence to the work of Mayer (2004) who stated that individuals with an ability to regulate their own as well as others' emotions can solve emotional problems, which requires less cognitive effort. When able to solve emotional problems, players might experience fewer negative thoughts and self-doubt, which decreases experiences of cognitive anxiety (Juuso, 2011), especially in a team sport as found in the present study. If athletes regulate emotions in a facilitating manner, negative emotions such as anxiety (cognitive and somatic) will decrease significantly (Hashempour & Mehrad, 2014). Additionally, the ability to manage emotions helps to organise one's thoughts and memory, which assists an individual in (re)focussing that potentially eliminates debilitative emotions and decrease cognitive anxiety (Bahrololoum *et al*., 2012). Furthermore, managing others' emotions refers to actions that would tend to maintain or improve other people's positive moods (Ciarrochi *et al*., 2000) as well as the ability to display empathy (Schutte *et al*., 1998). From an empathy perspective, Singer (2006) indicated empathic understanding of others to have a motivational influence on human interactions that supresses threatening behaviour and enhances the emotional bond within a group. Based on this notion, it can be concluded that hockey players who experiences strong emotional connections (empathetic understanding of each other) within the team, are therefore more likely to experience less apprehension, fear and worry (cognitive anxiety).

As expected, a positive association between total EI and self-confidence was revealed with further findings identifying players' ability to manage their own emotions and the emotions of others to be a significant predictor of their level of self-confidence. Similarly, other researchers agree that if players learn how to manage their own emotions, their self-confidence can be increased (Mowlaie *et al*., 2011; Rajeshwari & Raj, 2017). Likewise, Bahrololoum *et al*. (2012) stated that self-confidence protects athletes from negative and debilitative feelings elicited by anxiety. As mentioned previously, the management of others' emotions includes actions that would tend to maintain or improve other people's positive moods (Ciarrochi *et al*., 2000). In this regard, supporting evidence reported that spending time with positive and supportive people will increase self-confidence (Challis, 2019). In turn, if an individual is positive and supportive, s/he is more likely to get a positive response from others, which will further enhance self-confidence in the task at hand (Challis, 2019). Therefore, players who can regulate and

manage their emotions effectively during performance are more likely to be confident in mastering their performance tasks.

With regards to the participants' interpretation/perception of competition-state anxiety, cognitive and somatic anxiety symptoms were viewed as neutral (neither facilitative nor debilitative) and self-confidence levels were perceived as having a facilitative effect on performance. Research indicated that high levels of self-confidence protect players against the debilitating interpretation of competitive anxiety (Hanton *et al*., 2004). Likewise, when self-confidence levels were high, increases in anxiety were reported to lead to positive perceptions of control and facilitative interpretations (Hanton *et al*., 2008). Supporting researchers concluded that self-confidence is an essential quality for elite athletes to possess to protect them against potentially debilitating thoughts and feelings experienced in competitive situations (Hanton *et al*., 2004). Similarly, by using specific interventions through increasing EI, will inadvertently also increase self-confidence (as seen in the present study), which will result in players not experiencing their competitive state anxiety as debilitative to their performances. In addition, players can rationalise their thoughts and feelings, allowing them to cope more competently by altering the direction of their interpretations (Hanton *et al*., 2008).

Practical application/recommendation

Overall, the results emphasise the value of EI in relation to anxiety. Specifically, regulation of emotions (managing own and others' emotions) is inversely related to cognitive anxiety and key to enhancing self-confidence.

Despite the results contributing to current research in sport, the generalisability to other sports is cautioned due to the small sample size and homogeneity of participants. However, the purpose of this research was not to generalise results to hockey in general or other female sports, but rather to test the hypothesis that implies a relationship between EI and anxiety/self-confidence levels of players. We propose that future research investigate the effect of EI on the perception/interpretation of competition-state anxiety and determine whether a difference exists between male and female, amateur and professional athletes. Also, results are based on participants' self-reported data at a specific time of the competitive season and not measured at various intervals throughout the season. By exploring athletes' anxiety levels concerning different seasons (pre-season, competition season, and post-season) would better inform practitioners on the impact of EI on players' anxiety/self-confidence levels. Also, future research should examine the relationship between EI and anxiety with players' on-field

performance at different stages throughout the season (Petrides, 2011). The current study did not include a direct measurement of performance on the hockey field. However, it is further acknowledged that this could have made a unique contribution and should be included in future research. The current study also did not account for age and playing experience. It also did not take players' previous exposure to mental skills training into account. However, we acknowledge that it may influence the results. Lastly, the effect of EI interventions aimed at enhancing players' level of EI and overall team performance should also be investigated.

Despite these limitations, findings from this study provide sport psychologists, coaches, sport scientists and hockey players with some clarity regarding the role EI plays in anxiety and self-confidence among hockey players. This study will be valuable for comprehending and addressing the role of emotional intelligence in terms of anxiety levels and self-confidence of female hockey players. It is, therefore, suggested that athletes and coaches reinforce and practise EI as an additional means to combat the debilitative effect of heightened anxiety within hockey players. Consequently, for athletes to perceive their self-confidence as facilitative to performance, emphasis should be placed on developing and strengthening EI development within their training programs. Also, tactical hockey skills such as precision, anticipation, decision-making, problem-solving, and self-control of emotions may also be improved by decreasing anxiety and enhancing self-confidence.

Conclusion

The results of the present study indicate a significant influence of emotional intelligence on players' competitive state anxiety experiences. Based on this preliminary evidence, athletes and coaches may consider EI interventions as an additional means to combat the debilitative effect of heightened anxiety and as a resource for enhancing self-confidence among female field-hockey players.

Acknowledgements

The authors would like to thank the players and coaching staff of the respective teams for their co-operation in obtaining data sampling for this study.

References

AMPOFO-BOATENG, K. (2009). *Understanding sport psychology.* Malaysia: University Publication Centre.

AUFENANGER, S. (2005). *Relationship between mental skill and competitive anxiety interpretation in open skill and close skill athletes.* Ohio: Miami University Oxford.

BAHROLOLOUM, H., HASSANI, A., BANDELI, M. & AKBARI, A. (2012). The relationship between the emotional intelligence and mental skills in Iranian elite male volleyball players (case study Semnan province). *International Journal of Academic Research in Business and Social Sciences,* 2(7): 123-130.

BATINIĆ, T., ŠVAIĆ, V. & BABIĆ, J. (2014). Differences in emotional competence between individual and team sports athletes. *Proceedings of the 7th international scientific conference on kinesiology: fundamental and applied kinesiology - steps forward* (pp. 552-555). Zagreb, Croatia: University of Zagreb.

BOROUJENI, S., MIRHEYDARI, S., KAVIRI, Z. & SHAHHOSSEINI, S. (2012). The survey of relationship and comparison: Emotional intelligence, competitive anxiety and mental toughness female super league basketball players. *Social and Behavioral Sciences,* 46: 1440-1444.

CASTRO-SÁNCHEZ, M., ZURITA-ORTEGA, F., CHAĆON-CUBEROS, R., LÓPEZ-GUTIÉRREZ, C. & ZAFRA-SANTOS, E. (2018). Emotional intelligence, motivational climate and levels of anxiety in athletes from different categories of sport: Analysis through structural equations. *International Journal of Environmental Research and Public Health,* 15: 894.

CHALLIS, S. (2019, August 20). *Mind - National Association for Mental Health.* Retrieved from Mind.org.uk: https://www.mind.org.uk/media/715750/how-to-increase-your-self-esteem-2013.pdf. Retrieved on 25 November 2019.

CIARROCHI, J., DEANE, F. & ANDERSON, S. (2000). Emotional intelligence moderates the relationship between stress and mental health. *Personality and Individual Differences,* 32: 197-209.

COVASSIN, T. & PERO, S. (2004). The relationship between self-confidence, mood state, and anxiety among collegiate tennis players. *Journal of Sport Behavior,* 27(3): 230-242.

COX, R. (2007). *Sport psychology: Concepts and applications 6th ed.* McGraw-Hill International.

DAVIS, J. & COX, R. (2002). Interpreting direction of anxiety within Hanin's individual zone of optimal functioning. *Journal of Applied Sport Psychology*, 14: 43-52.

DEMUTH, A., CZERNICK, U., KRZYKATA, M., WIELINSKI, D. & ZIOTKOWSKA-LIAP, E. (2007). Somatic characteristics of players from chosen national teams of field hockey. *Journal of Human Movement Studies,* 8(1): 27-31.

DOMINIKUS, F., OMAR-FAUZEE, M., ABDULLAH, M., MEESIN, C. & CHOOSAKUL, C. (2009). Relationship between mental skills and anxiety interpretation in secondary school hockey athletes. *European Journal of Social Sciences*, 9(4): 651-658.

ELFERINK-GEMSER, M. & VISSCHER, C. (2006). The relative age effect in Dutch field hockey. *Journal of the Coimbra Network of Exercise Sciences,* 3: 77-80.

ELFERINK-GEMSER, M., VISSCHER, C., LEMMINK, K. & MULDER, T. (2004). Relationship between multidimensional performance characteristics and level of performance in talented youth field hockey players. *Journal of Sports Sciences*, 22(11): 1053-1063.

FERNÁNDEZ-BERROCAL, P., ALCAIDE, R., EXTREMERA, N. & PIZARRO, D. (2006). The role of emotional intelligence in anxiety and depression among adolescents. *Individual Differences in Research,* 4(1): 16-27.

FORD, J., ILDEFONSO, K., JONES, M. & ARVINEN-BARROW, M. (2017). Sport-related anxiety: Current insights. *Journal of Sports Medicine,* 8(10): 205-212.

GILL, D. & WILLIAMS, L. (2008). *Psychological Dynamics of Sport and Exercise (3rd ed.).* Champaign, IL: Human Kinetics.

HANTON, S., NEIL, R. & MELLALIEU, S. (2008). Recent developments in competitive anxiety direction and competition stress research. *International Review of Sport and Exercise Psychology,* 1(1): 45-57.

HANTON, S., THOMAS, O. & MAYNARD, I. (2004). Competitive anxiety responses in the week leading up to competition: The role of intensity, direction and frequency dimensions. *Psychology of Sport and Exercise,* 5: 169-181.

HASHEMPOUR, S. & MEHRAD, A. (2014). The effect of anxiety and emotional intelligence on students' learning process. *Journal of Education and Social Policy*, 115-122.

HUMARA, M. (1999). The relationship between anxiety and performance: A cognitive-behavioral perspective. *The Online Journal of Sport Psychology,* 1(2): 1-14.

JONES, G. (1995). Competitive anxiety in sport. *European Perspectives on Exercise and Sport Psychology*, 128-163.

JONES, G. & SWAIN, A. (1992). Intensity and direction dimensions of competitive state anxiety and relationship with competitiveness. *Perceptual and Motor Skills*, 74: 467-472.

JONES, M., TAYLOR, J., TANAKA-OULEVEY, M. & DAUBERT, M. (2005). Emotions. In J. Taylor & G. Wilson (Eds.), *Applying Sport Psychology: Four Perspectives* (pp. 65-81). IL: Human Kinetics.

JUUSO, M. (2011). *Self-esteem, anxiety and motivation - the effect of psychological factors on sport performance (Doctoral dissertation).* Finland: University of Applied Sciences.

KARP, P. (2000). *Personality assessment and the prediction of success and achievement in professional hockey (Unpublished doctoral dissertation).* NY: St. John's University.

KHAN, M. & ZAFAR, M. (2014). State anxiety between university and national level field hockey players: A comparative study. *Journal of Sports and Physical Education,* 1(7): 37-38.

LANE, A. & WILSON, M. (2011). Emotions and trait emotional intelligence among ultra-endurance runners. *Journal of Science and Medicine in Sport,* 14(4): 358-362.

LANE, A., DEVONPORT, T., SOOS, I., KARSAI, I., LEIBINGER, E. & HAMAR, P. (2010). Emotional intelligence and emotions associated with optimal and dysfunctional athletic performance. *Journal of Sports Science and Medicine,* 9: 388-392.

LU, F., LI, G., HSU, E. & WILLIAMS, L. (2010). Relationship between athletes' emotional intelligence and precompetitive anxiety. *Perceptual and Motor skills,* 110(1): 323-338.

MACDOUGALL, M., LEVINS, N., SOMMERS, K. & SCOTT, D. (2003). Psychological characteristics of elite hockey players. *Skating into the future: Hockey in the new millennium conference.* NB: Fredericton.

MARTENS, R., VEALEY, R. & BURTON, D. (1990). *Competitive anxiety in sport.* Champaign, IL: Human Kinetics.

MAYER, J. (2004). *What is emotional intelligence?* New Hampshire: UNH Personality Lab 8.

MELLALIEU, S., HANTON, S. & O'BRIAN, M. (2004). Intensity and direction of competitive state anxiety as a function of sport type and experience. *Scandinavian Journal of Medicine and Science in Sports,* 14(5): 326-334.

MIKOLAJCZAK, M. & LUMINET, O. (2008). Trait emotional intelligence and the cognitive appraisal of stressful events: An exploratory study. *Personality and Individual Differences*, 44: 1445-1453.

MOWLAIE, M., BESHARAT, M., POURBOHLOOL, S. & AZIZI, L. (2011). The mediation effects of self-confidence and sport self-efficacy on the relationship between dimensions of anger control with sport performance. *Social and Behavioral Sciences,* 30: 138-142.

NOURIAN, K., GASPARYAN, K., SHARIF, F., ZULALDL, M., MOGHIMI, M. & HOSSEINI, N. (2011). The effect of teaching the components of emotional intelligence to the doctors and nurses working in intensive care units on their stress and anxiety. *Armaghan Danesh,* 16(5): 472-479.

PALLANT, J. (2007). *SPSS survival manual: A step by step guide to data analysis using SPSS for Windows (3rd ed.).* NY: Open university press.

PARNABAS, V. (2015). The level of competitive state anxiety and sport performance among hockey players. *The International Journal of Indian Psychology,* 2: 32-41.

PARNABAS, V., PARNABAS, J. & PARNABAS, A. (2015). The influence of cognitive anxiety on sports performances among hockey players. *The International Journal of Indian Psychology,* 2: 24-31.

PERLINI, A. & HALVERSON, T. (2006). Emotional intelligence in the National Hockey League. *Canadian Journal of Behavioural Science,* 38(2): 109-119.

PETRIDES, K. (2011). Ability and trait emotional intelligence. In T. Chamorro-Premuzic & S.V. Stumm (Eds.), *The Wiley-Blackwell handbook of individual differences* (pp. 656-678). NY: John Wiley.

RAJESHWARI, R. & RAJ, S. (2017). A study on relationship between emotional maturity, stress and self-confidence among managing students. *Asia Pacific Journal of Research,* 1(LVI): 95-99.

REEVES SILENT NIGHT, J. (2015). Analysis of emotional intelligence among hockey players in relation to their positional play. *Research Journal of Physical Education Sciences,* 3(7): 8-11.

ROBAZZA, C. & BORTOLI, L. (2007). Perceived impact of anger and anxiety on performance in rugby players. *Psychology of Sport and Exercise,* 8: 875-890.

ROS, A., MOYA-FAZ, F. & GARCÉS DE LOS FAYOS, E. (2013). Emotional intelligence and sport: Current state of the research situation. *Cuadernos de Psicologia del Deporte,* 13: 105-112.

SALOVEY, P. (2001). Applied emotional intelligence: Regulating emotions to become healthy, wealthy, and wise. In J. Ciarrochi & J. Forgas (Eds.), *Emotional intelligence and everyday life* (pp. 168-184). NY: Psychology Press.

SALOVEY, P. & MAYER, J. (1990). Emotional intelligence. *Imagination, Cognition and Personality,* 9(3): 185-211.

SCHUTTE, N., MALOUFF, J. & BHULLAR, N. (2008). Assessing emotions scale. In C. Stough, D. Saklofske & J. Parker (Eds.), *The Springer series on human exceptionality. Assessing emotional intelligence: Theory, research, and applications* (pp. 119 - 134). Springer Science and Business Media.

SCHUTTE, N., MALOUFF, J., HALL, L., HAGGERTY, D., COOPER, J., GOLDEN, C. & DORNHEIM, L. (1998). Development and validation of a measure of emotional intelligence. *Personality and Individual Differences,* 25: 167-177.

SCHWAB, S. & MEMMERT, D. (2012). The impact of a sports vision training program in youth field hockey players. *Journal of Sports Science and Medicine,* 11: 624-631.

SERRAT, O. (2010). *Understanding and developing emotional intelligence.* Washington, DC: Asian Development Bank.

SINGER, T. (2006). The neuronal basis and ontogeny of empathy and mind reading: Review of literature and implications for future research. *Neuroscience and Biobehavioral Reviews,* 30: 855-863.

SINGH, A. (1982). Competition anxiety in sports. *Snipes Journal,* 5(7): 41.

SINGH, R. (2017). Stress role in sports performance of athletes. *International Journal of Physical Education, Sports and Health,* 4(3): 278-280.

TABER, K. (2018). The use of Cronbach's Alpha when developing and reporting research instruments in science education. *Research in Science Education,* 48: 1273-1296.

TORKFAR, A., ABBARIKI, Z., ROSTAMI, A. & KARAMIYAN, E. (2011). Reviewing relationship between emotional intelligence and competitive anxiety in athlete students, in individual and group fields. *World Applied Sciences Journal,* 15(1): 92-99.

VENTER, M. (2003). *Die verwantskap tussen koherensies in emosionele intelligensie (Meestersverhandeling).* (The relationship between coherences in emotional intelligence). Johannesburg: Randse Afrikaanse Universiteit.

WEINBERG, R. & GOULD, D. (2019). *Foundations of Sport and Exercise Psychology.* 7th ed. Champaign, IL: Human Kinetics.

CHAPTER 4

EMOTIONAL INTELLIGENCE: AN ASSOCIATION WITH COPING SKILLS AMONG FEMALE FIELD-HOCKEY PLAYERS FROM SOUTH AFRICA

This article was submitted for publication in the *Journal of Physical Education and Sport* (Appendix H).

Nicola Tinkler[1] (Corresponding author)

[1]Physical Activity, Sport and Recreation Research Focus Area (PhASRec) of North-West University, Potchefstroom, South Africa.

Email: nicolatinkler7@gmail.com

Telephone: +2727139117, Fax: +27 562151153

Postal address: Internal Box 494, Private Bag X6001, North-West University, Potchefstroom, 2520, South Africa

Ankebé Kruger[1]

Email: Ankebe.Kruger@nwu.ac.za

Telephone: +27182991793, Fax: +27182992022

Postal address: Internal Box 494, Private Bag X6001, North-West University, Potchefstroom, 2520, South Africa

Julius Jooste[2]

Psychology, Northumbria University, United Kingdom.

Email: julius.jooste@northumbria.ac.uk

Telephone: +44(0)191 2274157

Postal address: Northumberland Building, Northumbria University, Newcastle upon Tyne, NE1 8ST, United Kingdom

Emotional intelligence: An association with coping skills among female field-hockey players from South Africa

N. Tinkler[1], A. Kruger[1] and J. Jooste[2]

[1] Physical Activity, Sport and Recreation Research Focus Area (PhASRec) of the North-West University, Potchefstroom, South Africa; [2]Department of Psychology, Northumbria University, United Kingdom.

Abstract

Problem Statement: Research has suggested that coping under pressure could be rooted in the ability to identify and manage one's emotions. The purpose of this study was to determine the relationship between emotional intelligence and coping skill levels among senior-level field-hockey players from South Africa.

Approach: A descriptive correlational research design was adopted where the Emotional Intelligence Scale and Athletic Coping Skills Inventory-28 were used to collect the data (n = 60, M age = 21.57, SD = 3.65).

Results: Descriptive results exposed players to yield higher than average levels of total emotional intelligence and coping ability in their sport. Pearson's correlation analyses revealed positive associations between players' perception of emotion and their ability to cope with adversity, as well as their concentration levels. Management of own emotions positively associated with players' level of confidence and achievement motivation, and negatively with coachability. Managing others' emotions was positively associated with confidence and achievement motivation, as well as total coping skill scores, while utilisation of emotions positively associated with coachability. Significant associations were also identified between total emotional intelligence scores and several coping skills, with findings from the simple linear regression analyses essentially uncovering emotional intelligence to be a strong predictor of coping ability.

Conclusions: The findings suggested that emotional intelligence is deemed a worthy contributor to the psychological profiling of players, and a plausible intervention mapping tool in sport psychology practice for enhancing the coping ability of field-hockey players.

Key Words*:* coping ability; emotions; emotional intelligence; field-hockey; psychological demands; sport performance

Introduction

Emotional experiences during sport participation are inevitable with studies reporting the eminent challenges athletes face in their attempts to control unconducive variations in mental states and the deteriorating impact it has on performance (Batinić, Švaić, & Babić, 2014; Jones, Taylor, Tanaka-Oulevey, & Daubert, 2005). The ability to control debilitating emotions in sport forms a crucial part of any athlete's preparation programme (Soflu, Esfahani, & Asadi, 2011) due to the direct association between decreased performance and emotional unpredictability among athletes in competitive situations (Bull, Shambrook, James, & Brookes, 2005). Also, athletes who can cope effectively with their emotions are more capable of competing successfully and achieving optimal levels of performance (Jones et al., 2005). As a result, researchers are urged to further scrutinise the role of emotional intelligence (EI) in sport. Emotional intelligence refers to a person's "ability, capacity, skill, or self-perceived ability to identify, assess, and manage the emotions of one's self, of others, and groups" (Serrat, 2017, p. 330). A high degree of EI is not only indicative of one's discernment of the 'self' and the emotions of others, but also suggestive of other complimenting attributes such as a person's sense of resilience, optimism and geniality (Serrat, 2017). Researchers addressed five elements of EI, namely self-awareness (emotional awareness, accurate self-assessment and self-confidence), self-regulation (self-control, trustworthiness, adaptability and innovativeness), motivation (achievement drive, commitment and initiative), empathy (service orientation and developing others) and social skills (influence, communication, leadership and conflict management) (Goleman, 2004; Serrat, 2017). Most of these elements are tools that athletes rely on in their on-field performance pursuits (Ros, Moya-Faz, & Garcés de los Fayos, 2013) and are of utmost importance in co-acting team sport such as hockey where success is judged on collective team performances (Perlini & Halverson, 2006).

Hockey players are required to perform a range of technical skills such as sprinting and turning while controlling and passing the ball from one player to another in an attempt to score goals, amidst corrective anticipation, precision, split-second decision-making, and maintaining emotional control during a game (Elferink-Gemser, Visscher, Lemmink, & Mulder, 2004; Perlini & Halverson, 2006). Also, the consistent performance of the above-mentioned demands is key in predicting career longevity at a professional level (Khan & Zafar, 2014). In this regard, high levels of emotional reactivity, stress tolerance and the ability to overcome adversity are associated with high levels of hockey performance (MacDougall, Levins, Sommers, & Scott, 2003; Perlini & Halverson, 2006). An athlete who experiences a negative emotion, such as

frustration due to interruptions in their immediate goals, has reduced resources available to cope with subsequent situations (Thatcher, Jones, & Lavallee, 2012). Having limited coping resources could result in increased use of maladaptive coping strategies (i.e., distancing or disengagement), that often result in a detrimental effect on athletes' self-rated performance (Nicholls, Polman, & Levy, 2012). Conversely, positive emotions elicit adaptive task-oriented coping strategies such as effort expenditure, which results in a facilitative effect on self-rated performance (Nicholls et al., 2012). This notion was supported, as investigative endeavours highlighted how EI increases stress tolerance in professional female student-athletes and reinforces cognitive capacities for more adaptive coping during competition (Darvishi, Marati, & Amirpour, 2015). Similarly, researchers reported a moderate negative association between a higher emotional intensity and lower coping effectiveness in rugby players (Nicholls, Jones, Polman, & Borkoles, 2009). In this regard, players perceived to possess a psychological edge, such as a higher EI, cope better with the many demands they encounter during competition and training while displaying higher and more consistent levels of determination, focus, confidence, and control under pressure (Jones, Hanton, & Connaughton, 2002).

Coping ability is an important psychological component associated with high-level sport participation and is viewed as the conscious cognitions and behaviours athletes adopt to manage the perceived demands associated with the performance environment (Holt & Dunn, 2004). Coping skills signifies athletes' ability to demonstrate composure, adaptability and activation control in their sport environments (Fourie & Potgieter, 2001). Apparent associations between EI and coping ability in sport were noted by Pensgaard and Duda (2003), especially the worth of EI in coping with unwanted emotions in sport (Jones et al., 2005; Nicholls & Polman, 2007). Pensgaard and Duda (2003) reported a significant, positive relationship between coping effectiveness and positive emotions in Olympic athletes. Law (2004) also indicated a strong relationship between individuals with high levels of EI and the use of effective coping strategies to which the author concluded that individuals with a high degree of EI develop more effective coping strategies than individuals who do not have well-developed emotional abilities. Other researchers suggested that, when athletes do not know how to effectively control their emotions during a competition, their behaviour may lead to poor performance, ill-discipline or transgression of the rules (Jones et al., 2005). Furthermore, the inability to cope may increase the risk of developing injuries, dissatisfaction, and possible withdrawal from the sport (Nicholls & Polman, 2007). Researchers proposed that athletes would benefit from assessment of coping strategies and constructs that assess emotion processes in line with performance measures

(Nicholls et al., 2009). Further still, the need arises to further explore the impact of EI on coping ability in unexplored sport settings such as hockey, to pave the way for supplementary intervention practices that might enhance players' on-field performance (Reeves Silent Night, 2015). Researchers have indicated that a high level of EI will assist team sport athletes to manage their emotions effectively during high-pressure situations, while increasing motivation, self-confidence, focus, commitment, empathy for others as well as the ability to cope with conflict during competition (Bahrololoum, Hassani, Bandeli, & Akbari, 2012; Dalal, 2018). Moreover, when players possess a high level of EI, they are believed to be able to stay optimistic in the face of adversity (Goleman, 1998), while effectively applying problem-solving skills and enhancing decision-making during games (Abdallat, 2016; Hess & Bacigalupo, 2011). In light of the scientific evidence of the positive association between EI and coping skills as well as the limited literature in female hockey players, this study sets out to answer the following research question: Is there a relationship between EI and coping skill levels among South African female field-hockey players? Based on existent literature, it is hypothesised that EI and its associated subscales will be positively and significantly related to players' level of coping skills.

Findings from this study may offer worthy insight into the potential influence of EI on field-hockey players' coping ability and provide the necessary impetus for further investigation assessing the utility of EI intervention in the quest for coping skills development in sport. Essentially, verification of the relationship between hockey players' EI and coping ability would appeal to coaches and sport psychology consultants to consider EI as an essential psychological skill that players should possess, and thus include EI training in the adaptation of current sport psychological interventions and practices.

Method

Research design

A descriptive correlational research design with a convenient sampling method was used in the present investigation.

Participants

Sixty senior-level female field-hockey players (mean age = 21.57, SD = 3.65) from South Africa participated in the study. The players' competitive hockey-playing experience ranged from four to 22 years and player positions varied between forwards, midfielders, backs and goalkeepers.

Measuring Instruments

Emotional Intelligence Scale (EIS)

The Emotional Intelligence Scale (EIS) (Schutte et al., 1998) was employed in the present study. The EIS is a self-report measure consisting of 33 items (where items are rated on a 5-point Likert scale anchored by 1 = strongly agree to 5 = strongly disagree) and is divided into four subscales: perception of emotion, managing own emotions, managing others' emotions and utilisation of emotions. In some cases, reverse scoring applies (items 5, 28 and 33). A higher score reflects a higher level of EI (Venter, 2003). An overall Cronbach's alpha of 0.90 for the 33-item scale was reported, while the mean alpha across samples was 0.87 (Schutte et al., 1998). The Cronbach alpha coefficient was 0.60 for the perception of emotion, 0.61 for managing own emotions and managing others' emotions as well as for utilisation of emotions (Schutte et al., 1998). Cronbach's alpha values of the scale's four dimensions ranged from 0.58 to 0.75 in the present study.

The Athletic Coping Skills Inventory (ACSI-28)

The Athletic Coping Skills Inventory-28 (ACSI-28) of (Smith, Schutz, Smoll, & Ptacek, 1995) was applied to assess the coping skills of the hockey players, calculated to a total Personal Coping Resource score. The ACSI-28 reflects a multi-faceted psychological skill construct signifying an athlete's overall coping ability. This questionnaire provides a trait-like measure of coping skills used in sport, which is supposed to be beneficial to the improvement of performance. The ACSI-28 comprises seven subscales consisting of four items each. Subscales consist of coping with adversity, peaking under pressure, goal setting/mental preparation, concentration, freedom from worry, confidence, and achievement motivation, as well as coachability. In some cases, reverse scoring applies (questions 3, 7, 10, 12, 19 and 23). The items are measured on a 4-point Likert scale ranging from 0 (almost never) to 3 (almost always). The test-retest reliability of the ACSI-28 produced a mean correlation coefficient of 0.84 (Smith et al., 1995). The internal consistency reliability (Cronbach's alpha values) ranges from 0.55 to 0.80 for the seven subscales indicating acceptable reliability for use in the South African context (Grobbelaar & Eloff, 2011). The ACSI-28 has extensively been used to measure athletes' coping ability within the South African context (Coetzee, Grobbelaar, & Gird, 2006; Grobbelaar & Eloff, 2011).

Procedure

The managers, coaches and players were informed about the aim of the study, while all potential risks and associating benefits were explained before the evaluation. Players were requested to provide written informed consent for participation in the study. The present investigation forms part of a larger study where the involved measures (EIS; Schutte et al., 1998 and ACSI-28; Smith et al., 1995) were completed with additional measures in a once-off evaluation session which lasted approximately 30 minutes. The testing took place in a quiet room where the privacy of all players was ensured. Permission for the study was granted by the Health Research Ethics Committee (Ethics number: XXX-00069-18-S1) of the institution where the research was conducted.

Statistical Analysis

Descriptive statistics (minimum, maximum, mean and standard deviations) were calculated for each tested variable using the Statistical Package for Social Sciences (SPSS) software programme (Version 26). Cronbach's alpha coefficient was used to determine the inter-reliability of items that contribute to each subscale (Table 1). The assumptions of normality were evaluated (the data revealed to be normally distributed). Thereafter Pearson's product-moment correlation was applied to determine the relationship between the variables. Effect sizes greater than 0.50 were interpreted as large, greater than 0.30 as moderate, and more or less 0.10 as small (Pallant, 2007). To determine the influence of EI on the group's coping skills, a series of simple linear regressions were conducted. To adhere to the assumption of multicollinearity, the total EI score was used as the predictor variable instead of its four associated subscales. Using a compounded EI skills score also allowed for more power in the regression (e.g. 1 predictor variable with a sample size of 60).

Results

Table 1 presents the descriptive statistics and Cronbach's alpha values for the variables used in the present study. The reliability (Cronbach's alpha) of each subscale ranged between 0.58 and 0.79, indicating satisfactory to relatively high values (Taber, 2018). The group obtained the highest score in perception of emotion (36.63±4.97) followed by management of own emotions (36.20±3.42) and management of others' emotions (30.75±4.35). Utilisation of emotions was the EI subscale with the lowest score (24.50±2.76). The players' mean total EI score was 128.08 (SD = 11.02) out of a maximum of 165, indicating higher than average level of EI (Schutte, Malouff, & Bhullar, 2008). When compared with norm values of athletes' coping ability scores

(Smith et al., 1995), the players revealed above-average values for coping with adversity (58.61±19.16), concentration (65.14±18.57), confidence and achievement motivation (70.97±15.98), goal setting and mental preparation (52.08±22.11), peaking under pressure (69.44±19.20) and total coping ability score (61.03±11.75). Coachability (65.56±23.79) and freedom from worry (45.42±22.26) revealed below-average values.

Table I: Descriptive statistics for the group of female field-hockey players (N = 60) and Cronbach's Alpha values for each subscale

Subscales	Min	Max	M	SD	α
Age	17.00	29.00	21.57	3.65	
Emotional Intelligence Scale (EIS)					
Perception of emotion	24.00	47.00	36.63	4.97	0.75
Managing own emotions	28.00	44.00	36.20	3.42	0.64
Managing others' emotions	17.00	40.00	30.75	4.35	0.71
Utilisation of emotions	19.00	30.00	24.50	2.76	0.58
Total EIS score	105.00	157.00	128.08	11.02	0.67
Athletic Coping Skills Inventory (ACSI-28)					
Coping with adversity	8.33	100.00	58.61	19.16	0.68
Coachability	25.00	100.00	65.56	23.79	0.68
Concentration	25.00	100.00	65.14	18.57	0.66
Confidence and achievement motivation	33.33	100.00	70.97	15.98	0.56
Goal setting and mental preparation	8.33	100.00	52.08	22.11	0.74
Peaking under pressure	33.33	100.00	69.44	19.20	0.79
Freedom from worry	0.00	91.66	45.42	22.26	0.71
Total coping skills	35.71	84.52	61.03	11.75	0.69

Min = minimum; Max = maximum; M = mean; SD = standard deviation; α = Cronbach's alpha

A significant positive association was revealed between the EIS's perception of emotion and coping with adversity ($r = 0.33$, $p < 0.01$) as well as with concentration ($r = 0.27$, $p = 0.03$) (Table 2). Positively significant associations were also revealed between managing one's own emotions and confidence and achievement motivation ($r = 0.41$, $p < 0.01$) and a negative correlation with coachability ($r = -0.25$, $p = 0.04$). Managing others' emotions was positively and significantly associated with confidence and achievement motivation ($r = 0.28$, $p = 0.02$) as well as total coping ($r = 0.27$, $p = 0.03$). Furthermore, a significant positive association between utilisation of emotions and coachability of players ($r = 0.31$, $p = 0.01$) was revealed. Lastly, a positive correlation was observed between players' total EI and their coping with adversity ($r = 0.35$, $p < 0.01$), concentration ($r = 0.27$, $p = 0.03$), confidence and achievement

motivation (r = 0.29, p = 0.02) and total coping (r = 0.29, p = 0.02). However, all the noted significant correlations had an effect size ranging from low to moderate

Table II: Pearson Product-moment Correlations Between EI and ASCI-28 subscales

Emotional intelligence subscales		Coping skill subscales							
		Coping with Adversity	Peaking under pressure	Goal setting/ Mental preparation	Con-centration	Freedom from worry	Confidence and achievement motivation	Coach-ability	Total coping
Perception of emotion	Coefficient	0.34##	0.19	-0.00	0.27#	-0.00	0.07	0.01	0.20
	Sig. (2-tailed)	0.01**	0.16	0.99	0.04*	0.99	0.61	0.95	0.13
Managing own emotions	Coefficient	0.20	0.14	0.13	0.14	-0.07	0.42##	-0.26#	0.13
	Sig. (2-tailed)	0.14	0.27	0.33	0.29	0.60	0.00**	0.05*	0.31
Managing others' emotions	Coefficient	0.24	0.09	0.15	0.14	0.05	0.29#	0.19	0.27#
	Sig. (2-tailed)	0.07	0.50	0.25	0.29	0.72	0.03*	0.14	0.04*
Utilisation of emotions	Coefficient	0.19	0.03	0.19	0.20	-0.10	0.08	0.31#	0.23
	Sig. (2-tailed)	0.14	0.82	0.14	0.12	0.44	0.55	0.02*	0.08
Total emotional intelligence score	Coefficient	0.36##	0.17	0.15	0.27#	-0.03	0.29#	0.08	0.30#
	Sig. (2-tailed)	0.01**	0.19	0.26	0.04*	0.83	0.02*	0.56	0.02*

* $p \leq 0.05$, ** $p < 0.01$; #Small effect size, ##Medium effect size

A series of linear regression analyses (Table 3) revealed total EI to be a significant predictor [F(1, 58) = 8.38, $p < 0.05$] of players' coping with adversity (B = 0.62, $p < 0.05$) and accounted for 13% of the variance in this variable. Total EI score also revealed to be a significant predictor of players' concentration ability [F(1, 58) = 4.61, $p < 0.04$] (B = 0.46, $p < 0.05$) and confidence and achievement motivation [F(1, 58) = 5.42, $p < 0.02$] (B = 0.42, $p < 0.05$). Furthermore, EI accounted for 8% of the variance in total coping skills score and emerged to be a significant predictor [F(1, 58) = 5.53, $p < 0.05$] of players' overall coping skills score (B = 0.32, $p < 0.05$).

Table III: Summary of Linear Regression Analyses for the Impact of EI on Coping Skills

Variable	R^2	R	Std. error	β	Sig.
Coping with adversity	0.13	0.36	0.21	0.36	0.01*
Coachability	0.01	0.08	0.28	0.08	0.56
Concentration	0.07	0.27	0.21	0.27	0.04*
Confidence and achievement motivation	0.09	0.29	0.18	0.29	0.02*
Goal setting and mental preparation	0.02	0.15	0.26	0.15	0.26
Peaking under pressure	0.03	0.17	0.23	0.17	0.19
Freedom from worry	0.00	0.03	0.26	-0.03	0.83
Total Coping Skills Score	0.09	0.30	0.13	0.30	0.02*

*Statistically significant at $p < 0.05$; **Statistically significant at $p < 0.01$; β = Beta of standardised coefficients

Discussion

The aim of this study was to determine the relationship between EI and coping skill levels among female field-hockey players from South Africa. The results of the study revealed a moderately positive correlation between the players' perception of emotion and coping with adversity as well as the ability to concentrate. Perception of emotion refers to the non-verbal recognition and expression of emotions (Schutte et al., 1998). The ability to recognise thoughts and feelings could be used when athletes face a challenging situation (Tamminen, Crocker, & McEwan, 2016), enabling them to make more accurate decisions during stressful and adverse on-field situations (Fletcher & Sarkar, 2012). Also, identifying one's own thoughts and feelings assists in directing attention towards task relevant cues (McCarthy, Allen, & Jones, 2012), which is confirmed by the results of the present study. Furthermore, it is possible for players to perceive difficult situations

as a learning phase while recognising and using their emotions to focus on the constructive components during adversity (Galli & Vealey, 2008). Regarding concentration, studies corroborated that positive emotions such as amusement, contentment and serenity can help athletes to direct attentional resources when most needed during competitive sport (McCarthy et al., 2012). These emotions are also reported to associate with a broader focus of attention (Fredrickson & Branigan, 2005). Unpleasant emotions such as anxiety may cause interfering thoughts that divert attention from task-relevant cues and unnecessarily consume cognitive resources (McCarthy et al., 2012). Also, emotions serve to prepare the individual (physiologically and cognitively) to respond to problems or opportunities that might arise within social interactions (Friesen, 2013). It is mostly recommended that athletes focus on relevant cues in the competitive environment only, while eliminating distractions to increase their performance during games (Wilson, Peper, & Schmid, 2006). A broader focus of attention assists athletes in making split-second decisions and in displaying an optimal sensitivity and readiness for action during games (Wilson et al., 2006). Therefore, when athletes discover, perceive and express positive emotions, their coping with adversity and concentration might be increased.

Furthermore, the players' management of their own emotions was moderately and positively associated with their levels of confidence and achievement motivation. This finding lends support to previous findings which state that players' self-confidence levels can be increased when they learn how to manage their own emotions (Mowlaie, Besharat, Pourbohlool, & Azizi, 2011; Rajeshwari & Raj, 2017). Likewise, Serrat (2017) pointed out that self-awareness and self-motivation are subsidiary domains of EI, which explains the acknowledgement of one's strengths and striving tendency to improve or meet a standard of excellence that is associated with a high degree of EI. From this perspective, the ability to manage own emotions allows athletes to be more conscious of their thoughts and to counteract negativity by replacing such thoughts with more positive and motivational thoughts (Jones, 2003). Consequently it is believed that the players in the present study demonstrated increased levels of self-confidence and achievement motivation by merely being self-aware and in control of their own emotional states, which proves to be essential for meeting one's desired standard of achievement.

Interestingly, a significant negative relationship between managing own emotions and coachability was revealed. Managing their own emotions allows athletes to quickly perceive and respond to

their own emotions and better express those emotions to others (Salovey & Mayer, 1990). In contrast, Favor (2011) reported that more coachable female college softball athletes were perceived by their head coaches as being emotionally more stable and agreeable than their less coachable teammates (Favor, 2011). The primary role of a coach's feedback is to provide solutions and problem-solving skills so that the athlete can achieve a desired result (Nash, Sproule, & Horton, 2017). However, researchers emphasise that female communication styles seek feelings more than solutions; conversations are often an end in themselves where expressing emotions is more important than seeking solutions (Merchant, 2012). Hence it appears, in this sample of female athletes, that how feedback makes them feel is more important than what is being said, which could influence the way feedback is perceived. It is possible that in our sample of female athletes, the inclination to be coachable and open to instruction and feedback becomes less as the players' proficiency in managing their emotions increases based on the belief that females seek coaching more for an emotional rather than instructional purpose. In other words, the more emotionally in control they are, the less reliant they appear to be on the coaches' instructions.

Mayer and Salovey (1997) indicated that the ability to manage others' emotions includes the ability to manage emotions to attain specific goals. It also refers to actions that would tend to maintain or improve other people's positive moods (Ciarrochi, Deane, & Anderson, 2000) and includes the ability to develop a connection with a diverse group of people, which is also referred to as empathy (Schutte et al., 1998). The findings of our study revealed a positive relationship between players' ability to manage others' emotions, and their confidence and achievement motivation, as well as their overall coping skill levels. In support of our findings, researchers proved that good social skills and effective communication within a team environment assists athletes in attaining desired goals while enhancing their motivation (Savardelavar, Kuan, & Chin, 2017). Also, a positive relationship between empathy and confidence was found within student-athletes (Dobersek & Arellano, 2017). This essentially echoes another study that revealed empathy to have a motivational influence on human interactions while suppressing threatening behaviour and increasing the emotional bond within a group (Singer, 2006). In other words, when players display empathy as a component of managing others' emotions, their social behaviour in a group can be positively adjusted, which may result in higher levels of confidence and achievement motivation among the players.

As mentioned above, empathy is a construct embedded in the ability to manage others' emotions (Schutte et al., 1998). Empathy refers to recognising, understanding, and responding adaptively to others' emotions, which permits emotional communication, and promotes prosocial behaviour (Spreng, McKinnon, Mar, & Levine, 2009). A strong association between empathy and coping strategies, especially in the perceived psychological well-being of students, has been reported (Carnicer & Calderón, 2014). Carnicer and Calderón (2014) explain that individuals that display empathy will be more able to apply coping strategies, as empathy facilitates emotional self-regulation and enhances the regulation of emotional behaviours. From this point of view, it is no surprise that a positive relationship was found between managing others' emotions and total coping skills of the players. A study among Spanish adolescents supports the present findings revealing a positive association between empathy and active coping, such as support-seeking and problem-solving (Carlo, Mestre, Samper, Tur, & Sandman, 2012). Other findings also indicated that individuals with stronger empathy are more likely to select appropriate coping strategies (Noda, Takahashi, & Murai, 2018). It therefore is possible that in a team set-up such as in hockey, players who are able to display higher empathy are more likely to cope due to the restorative influence imparted on fellow teammates' moods, making them more dependable dealing with the situation at hand.

Findings also revealed a positive relationship between the utilisation of emotions and the coachability of players. Coachability refers to an athlete's openness and susceptibility towards the feedback and critique of the coach (Coetzee et al., 2006), while utilisation of emotions includes being able to apply an awareness of emotions to remain flexible and creative and direct behaviour positively, especially during the act of problem-solving (Salovey & Mayer, 1990). This comes as no surprise, as it is expected that players who are more aware of their own emotions are inclined to remain flexible during problem-solving and are more open and susceptible to feedback and critique of the coaches so as to improve. Hence it is believed that hockey players who are more skilled at utilising their emotions would have a more positive interpretation of their coach's feedback for the sake of their development. Other researchers agree that coaching provides for the development of essential critical thinking skills in the athlete receiving coaching and usually includes the skills leading to self-reflection, problem-solving and reasoning (Nash et al., 2017).

Finally, the positive associations discovered in the present study between the players' total EI scores and the dimensions of coping with adversity, concentration, confidence and achievement motivation, and overall coping ability resonates with earlier research that reported a strong relationship between high levels of EI and the use of effective coping strategies (Law, 2004). The present findings are also buttressed by Bahrololoum et al. (2012) and Dalal (2018) who indicated that a high EI level was associated with higher levels of self-confidence, motivation, and focus in team-sport players. It can thus be argued that EI is counterpart to adaptive qualities in sport and a potential catapult for coping skills relied on in hockey. The noted positive impact EI had on the players' coping abilities (i.e. coping with adversity, concentration, confidence and achievement motivation and total coping ability) further affirms how athletes could take advantage of his or her varying moods to best fit the task at hand (Salovey & Grewal, 2010). This finding essentially affirms that emotional intelligent athletes can effectively regulate emotions to promote beneficial effects (Gross & Thompson, 2007) including coping under pressure (Laborde, Brull, Weber, & Anders, 2011).

Conclusion

The results support the proposed hypothesis, implying that a significant relationship exists between EI and coping skill levels within female hockey players. The evidence from this study points towards the idea of improving EI to enhance the overall coping skill levels of hockey players. Specifically, the ability to manage, perceive and utilise one's own and others' emotions is essential in enhancing coping skills, especially coping with adversity, coachability, concentration levels, confidence and achievement motivation within players.

Despite the evidence suggesting the significance of EI in the coping skills of female field-hockey players, several potential limitations need to be considered. First, the generalisation of the results to participants of other team sports is limited due to the small homogenous sample included in the present study. However, the purpose of this research was not to generalise the results to the broader sporting community, but rather to test the hypothesis that implies the significant contribution of EI on hockey players' coping skill levels. Future studies should include a larger sample from various team and individual sports which is also representative of male participants. We also did not take players' previous exposure to mental skills training into account. Future studies should account for the participants' previous exposure to mental skills training as they could have influenced their

responses in this study. Future studies could also account for age and level of play among a group of players. Furthermore, the results are based on once-off self-reported data and were not measured at various intervals throughout the season. By exploring athletes' stress levels with respect to different seasons (pre-season, competition season, and post-season) would better inform practitioners on the impact of EI on players' ability to cope. Researching the effect of EI interventions aimed at enhancing players' coping ability and overall team/individual performance is also encouraged.

Despite these limitations, findings from this study underline the positive influence EI has on female hockey players' coping-skill levels. Coaches and sport psychology consultants should consider developing and strengthening EI as an additional means of conventional psychological skills training for enhancing coping skill levels. Incorporating aspects of EI with the pre-season screening as a supplementary forecasting tool in the assessment of athletes' inclination to deal with stressful demands and to suffer resultant negative consequences could be considered. Furthermore, the development of EI with a view to improve athletes' coping skill levels is considered a form of proactive behaviour, which may provide athletes with an added buffer against future adversity and difficulty.

References

Abdallat, S. (2016). Emotional intelligence and its relationship to problem-solving ability among Al Isra University students in light of the students' gender and specialization variables. *Global Journal of Educational Foundation, 4*(5), 2852-295.

Bahrololoum, H., Hassani, A., Bandeli, M., & Akbari, A. (2012). The relationship between the emotional intelligence and mental skills in Iranian elite male volleyball players (case study Semnan province). *International Journal of Academic Research in Business and Social Sciences, 2*(7), 123-130.

Batinić, T., Švaić, V., & Babić, J. (2014). Differences in emotional competence between individual and team sports athletes. *Proceedings of the 7th international scientific conference on kinesiology: fundamental and applied kinesiology - steps forward* (pp. 552-555). Zagreb, Croatia: University of Zagreb.

Bull, S., Shambrook, C., James, W., & Brookes, J. (2005). Towards an understanding of mental toughness in elite English cricketers. *Journal of Applied Sport Psychology, 17*, 209-227.

Carlo, G., Mestre, M. M., Samper, P., Tur, A., & Sandman, D. (2012). The interplay of emotional instability, empathy, and coping on prosocial and aggressive behaviors. *Personality and Individual Differences, 53*(5), 675-680.

Carnicer, J., & Calderón, C. (2014). Empathy and coping strategies are predictors of well-being in Spanish university students. *Electronic Journal of Research in Educational Psychology, 12*(1), 129-146.

Ciarrochi, J., Deane, F., & Anderson, S. (2000). Emotional intelligence moderates the relationship between stress and mental health. *Personality and Individual Differences, 32*, 197-209.

Coetzee, B., Grobbelaar, H., & Gird, C. (2006). Sport psychological skills that distinguish successful from less successful soccer teams. *Journal of Human Movement Studies, 51*, 383-401.

Dalal, M. (2018). A study of emotional intelligence of team players at different level of participation in Haryana. *Academic Sports Scholars, 7*(2), 1-3.

Darvishi, S., Marati, A., & Amirpour, B. (2015). Effectiveness of emotional intelligence on mood profile in female student athletes. *Journal of Research and Health, 5*(1), 21-27.

Dobersek, U., & Arellano, D. (2017). Investigating the relationship between emotional intelligence, involvement in collegiate sport, and academic performance. *The Sport Journal*, 1-17.

Elferink-Gemser, M., Visscher, C., Lemmink, K., & Mulder, T. (2004). Relationship between multidimensional performance characteristics and level of performance in talented youth field hockey players. *Journal of Sports Sciences, 22*(11), 1053-1063.

Favor, J. (2011). The relationship between personality traits and coachability in NCAA Divisions I and II female softball athletes. *International Journal of Sports Science and Coaching, 6*(2), 301-314.

Fletcher, D., & Sarkar, M. (2012). A grounded theory of psychological resilience in Olympic champions. *Psychology of Sport and Exercise, 13*, 669-678.

Fourie, S., & Potgieter, J. (2001). The nature of mental toughness in sport. *South African Journal of Research in Sport, Physical Education and Recreation, 23*(2), 63-72.

Fredrickson, B., & Branigan, C. (2005). Positive emotions broaden the scope of attention and thought-action repertoires. *Cognition and Emotion, 19*(3), 313-332.

Friesen, A. (2013). *"Catching" emotions: Emotion regulation in sport dyads (Thesis).* Staffordshire, England: University of Wolverhampton.

Galli, N., & Vealey, R. (2008). "Bouncing back" from adversity: Athletes' experiences of resilience. *The Sport Psychologist, 22*, 316-335.

Goleman, D. (1998). *Working with emotional intelligence.* New York: Bantam Books.

Goleman, D. (2004). What makes a leader? *Harvard Business Review, 1*, 1-10.

Grobbelaar, H., & Eloff, M. (2011). Psychological skills of provincial netball players in different playing positions. *South African Journal of Research in Sport, Physical Education and Recreation, 33*(2), 45-58.

Gross, J., & Thompson, R. (2007). Emotion regulation: Conceptual foundations. In J. G. (Ed.), *Handbook of emotion regulation* (pp. 3-24). New York, US: The Guilford Press.

Hess, J., & Bacigalupo, A. (2011). Enhancing decisions and decision-making processes through the application of emotional intelligence skills. *Management Decisions, 49*(5), 710-721.

Holt, N., & Dunn, J. (2004). Longitudinal idiographic analyses of appraisal and coping responses in sport. *Psychology of Sport and Exercise, 5*, 213-222.

Jones, G., Hanton, S., & Connaughton, D. (2002). What is this thing called mental toughness? An investigation of 10 elite performers. *Journal of Applied Sport Psychology, 14*(3), 205-218.

Jones, M. (2003). Controlling emotions in sport. *The Sport Psychologist, 17*(4), 471-486.

Jones, M., Taylor, J., Tanaka-Oulevey, M., & Daubert, M. (2005). Emotions. In J. Taylor, & G. Wilson, *Applying Sport Psychology: Four Perspectives* (pp. 65-81). IL: Human Kinetics.

Khan, M., & Zafar, M. (2014). State anxiety between university and national level field hockey players: A comparative study. *Journal of Sports and Physical Education, 1*(7), 37-38.

Laborde, S., Brull, A., Weber, J., & Anders, L. (2011). Trait emotional intelligence in sports: A protective role against stress through heart rate variability. *Personality and Individual Differences, 51*, 23-27.

Law, C. (2004). *Emotional intelligence, sense of coherence and coping behaviour (Dissertation).* Vanderbijl, South Africa: North-West University.

MacDougall, M., Levins, N., Sommers, K., & Scott, D. (2003). Psychological characteristics of elite hockey players. *Skating into the future: Hockey in the new millennium conference.* NB: Fredericton.

Mayer, J., & Salovey, P. (1997). What is emotional intelligence? In P. Salovey, & D. Sluyter, *Emotional development and emotional intelligence: Educational implications* (pp. 3 - 31). New York: Basic Books.

McCarthy, P., Allen, M., & Jones, M. (2012). Emotions, cognitive interference, and concentration disruption in youth sport. *Journal of Sports Sciences, 31*(5), 1-11.

Merchant, K. (2012). *How men and woman differ: Gender differences in communication styles, influence tactics, and leadership styles (Thesis).* Claremont: Scholarship Claremont.

Mowlaie, M., Besharat, M., Pourbohlool, S., & Azizi, L. (2011). The mediation effects of self-confidence and sport self-efficacy on the relationship between dimensions of anger control with sport performance. *Social and Behavioral Sciences, 30,* 138-142.

Nash, C., Sproule, J., & Horton, P. (2017). Feedback for coaches: Who coaches the coach? *International Journal of Sports Science and Coaching, 12*(1), 92-102.

Nicholls, A., & Polman, R. (2007). Stressors, coping and coping effectiveness among players from the England under-18 union team. *Journal of Sport Behavior, 30*(2), 1-16.

Nicholls, A., Jones, C., Polman, R., & Borkoles, E. (2009). Acute sport-related stressors, coping, and emotion among professional rugby union players during training and matches. *Scandinavian Journal for Medicine and Science in Sports, 19*, 113-120.

Nicholls, A., Polman, R., & Levy, A. (2012). A path analysis of stress appraisals, emotions, coping, and performance satisfaction among athletes. *Psychology of Sport and Exercise, 13*(3), 263-270.

Noda, T., Takahashi, Y., & Murai, T. (2018). Coping mediates the association between empathy and psychological distress among Japanese workers. *Personality and Individual Differences, 124*, 178-183.

Pallant, J. (2007). *SPSS survival manual: A step by step guide to data analysis using SPSS for Windows (3rd ed.).* New York: Open University press.

Pensgaard, A., & Duda, J. (2003). Sydney 2000: The interplay between emotions, coping, and the performance of Olympic-level athletes. *The Sport Psychologist, 17*, 253-267.

Perlini, A., & Halverson, T. (2006). Emotional intelligence in the National Hockey League. *Canadian Journal of Behavioural Science, 38*(2), 109-119.

Rajeshwari, R., & Raj, S. (2017). A study on relationship between emotional maturity, stress and self-confidence among managing students. *Asia Pacific Journal of Research, 1*(LVI), 95-99.

Reeves Silent Night, J. (2015). Analysis of emotional intelligence among hockey players in relation to their positional play. *Research Journal of Physical Education Sciences, 3*(7), 8-11.

Ros, A., Moya-Faz, F., & Garcés de los Fayos, E. (2013). Emotional intelligence and sport: current state of research. *Cuodernos de Psicologia del Deporte*, 105-112.

Salovey, P., & Grewal, D. (2010). The science of emotional intelligence. *Current Directions in Psychological Science, 14*(6), 2852-285.

Salovey, P., & Mayer, J. (1990). Emotional intelligence. *Imagination, Cognition and Personality, 9*(3), 185-211.

Savardelavar, M., Kuan, G., & Chin, N. (2017). Making effective communication with athletes. *Coaching Journal*, 19-21.

Schutte, N., Malouff, J., & Bhullar, N. (2008). Assessing emotions scale. In C. Stough, D. Saklofske, & J. Parker, *The Springer series on human exceptionality. Assessing emotional intelligence: Theory, research, and applications* (pp. 119 - 134). Springer Science and Business Media.

Schutte, N., Malouff, J., Hall, L., Haggerty, D., Cooper, J., Golden, C., & Dornheim, L. (1998). Development and validation of a measure of emotional intelligence. *Personality and Individual Differences, 25*, 167-177.

Serrat, O. (2017). Understanding and developing emotional intelligence. In *Knowledge Solutions* (pp. 329-339). Singapore: Springer.

Singer, T. (2006). The neuronal basis and ontogeny of empathy and mind reading: review of literature and implications for future research. *Neuroscience and Biobehavioral Reviews, 30*, 855-863.

Smith, R., Schutz, R., Smoll, F., & Ptacek, J. (1995). Development and validation of a multidimensional measure of sport-specific psychological skills: The athletic coping skills inventory-28. *Journal of Sport and Exercise Psychology, 17*, 379-398.

Soflu, G., Esfahani, N., & Asadi, H. (2011). The comparison of emotional intelligence and psychological skills and their relationship with experience among individual and team athletes in superior league. *Social and Behavioral Sciences, 30*, 2394-2400.

Spreng, R., McKinnon, M., Mar, R., & Levine, B. (2009). The Toronto Empathy Questionnaire: Scale development and initial validation of a factor-analytic solution to multiple empathy measures. *Journal of Personality Assessment, 91*(1), 62-71.

Taber, K. (2018). The use of Cronbach's Alpha when developing and reporting research instruments in science education. *Research in Science Education, 48*, 1273-1296.

Tamminen, K., Crocker, P., & McEwan, C. (2016). Emotional experiences and coping in sport: How to promote positive adaptational outcomes in sport. In R. Gomez, R. Resende, & A. A. (Eds.), *Positive human functioning from a multidimensional perspective* (pp. 143-162). New York: Nova Science.

Thatcher, J., Jones, M., & Lavallee, D. (2012). *Coping and emotion in sport (2nd Ed.).* London: Routledge.

Venter, M. (2003). *Die verwantskap tussen koherensies in emosionele intelligensie (Meestersverhandeling).* [The relationship between coherences in emotional intelligence]. (Masters dissertation). Johannesburg: Randse Afrikaanse Universiteit.

Wilson, V., Peper, E., & Schmid, A. (2006). Training strategies for concentration. In J. Williams, *Applied Sport Psychology: Personal growth to peak performance, 5th edition* (pp. 404-422). Boston: McGraw Hill.

CHAPTER 5

EMOTIONAL INTELLIGENCE AND PSYCHOLOGICAL SKILLS APPLICATION AMONG FEMALE FIELD-HOCKEY PLAYERS

This article was submitted and accepted for publication in the *Journal of Psychology in Africa* (Appendix I).

Nicola Tinkler[1] (Corresponding author)

[1]Physical Activity, Sport and Recreation Research Focus Area (PhASRec) of North-West University, Potchefstroom, Republic of South Africa.

Email: nicolatinkler7@gmail.com

Telephone: +2727139117, Fax: +27 562151153

Postal address: Internal Box 494, Private Bag X6001, North-West University, Potchefstroom, 2520, South Africa

Ankebé Kruger[1]

Email: Ankebe.Kruger@nwu.ac.za

Telephone: +27182991793, Fax: +27182992022

Postal address: Internal Box 494, Private Bag X6001, North-West University, Potchefstroom, 2520, South Africa

Julius Jooste[2]

Psychology, Northumbria University, United Kingdom.

Email: julius.jooste@northumbria.ac.uk

Telephone: +44(0)191 2274157

Postal address: Northumberland Building, Northumbria University, Newcastle upon Tyne, NE1 8ST, United Kingdom

Emotional Intelligence and Psychological Skills Application among Female Field-hockey Players

N. Tinkler[1], J. Jooste[2] and A. Kruger[1]

[1] Physical Activity, Sport and Recreation Research Focus Area of the North-West University, Potchefstroom, South Africa;[2]Department of Psychology, Northumbria University, United Kingdom.

Abstract

Emotional intelligence is often associated with higher psychological functioning leading to an increase in the awareness of psychological skills application in sports. This investigation examined the relationship between emotional intelligence and psychological skills application among senior-level South African female field-hockey players (N = 60). Participants completed the Emotional Intelligence Scale (EIS) and the Psychological Skills Inventory (PSI). We computed bivariate correlations to assess the relationship between variables and linear regression to predict players' level of psychological skills application from emotional intelligence scores. Results indicated several significant correlations between the dimensions of emotional intelligence and players' psychological skills with emotional intelligence revealing to be a significant predictor of mental rehearsal and total psychological skill scores. Emotional intelligence is deemed a potential facilitator of psychological skills application in high level field-hockey participation and performance.

Keywords: emotions, hockey, mental skills, psychological demands, psychological skills, sports

Introduction

Psychological skills application (e.g. positive self-talk, goal setting, imagery and self-talk) in sports plays a vital role in achieving optimal performance (Sajjan, 2018). An athlete with an unwavering mindset during competition frequently emerges as the winner, especially when competing against equally skilled athletes (Parveen, 2016). Conversely, athletes with sporadic or fluctuating thoughts and emotions before or during competition often report reduced levels of performance (Sajjan, 2018).

Successful performances in team sports presumes the ability to accurately perceive and anticipate one's own and other players' actions and emotions. Emotional intelligence (EI) refers to the ability to accurately identify own and others' emotions, differentiate among them, and apply the information to steer one's thinking and actions (Salovey & Mayer, 1990). EI, therefore, consists of five distinct features namely self-awareness, self-regulation, motivation, empathy, and social skills (Goleman, 2004; Serrat, 2017). In hockey, players need to recognise and regulate their own emotions whilst maintaining effective communication with teammates and make fast decisions based on opponents' offensive/defensive play (Perlini & Halverson, 2006). In support of this notion, research suggest that successful hockey players are often characterised by their psychological qualities such as demonstrating high motivation, self-confidence, effective anxiety control, quality mental preparation, concentration ability and goal setting (Elferink-Gemser, Visscher, & Lemmink, 2008; Kruger, 2010). Despite adequate literature on the psychological qualities associated with skilled hockey performances, we are not aware of any research that has examined the extent to which EI predicted psychological skills among hockey players, especially in the South African context. Therefore, we aimed for the present study to address this gap in knowledge.

The link between EI and psychological skills in sports

Advancement in the understanding of athletes' cognitions, emotions and behaviours in high-pressure situations has suggested strong parallels between EI and psychological skills application (Lane, Thelwell, Lowther & Devonport, 2009; Soflu et al., 2011). For example, Lane et al. (2009) identified a significant positive relationship between EI and psychological skills among a sample of male student-athletes who competed in team sports (soccer, field-hockey and rugby). Correspondingly, goal setting, relaxation ability, maintaining confidence and concentration

associated significantly with EI among elite male volleyball players (Bahrololoum, Hassani, Bandeli, & Akbari, 2012). In principle, EI may be inadvertently augmented with psychological skills training in sports (Lane et al., 2009). This notion is based on the belief that psychological skills application during practice and competition are specifically recommended to prime athletes' cognitions, emotions and behaviours in high-pressure situations.

Measures of EI and Psychological Skills

Several measurements of EI have been developed over the years such as the Emotional Intelligence Scale (EIS) (Schutte et al., 1998) and Mayer-Salovey-Caruso EI Test (MSCEIT) (Mayer, Salovey, & Caruso, 2002) among several other. However, the more inclusive measures of EI such as the EIS acknowledges distinct categories of adaptive abilities namely appraisal and expression of emotion (perception of emotions); regulation of emotion (managing own and others' emotions) and utilisation of emotions in solving problems (utilisation of emotions) (Salovey & Mayer, 1990). In a team-sport setting, perception of emotion would imply athletes' ability to recognise their team members' and opponents' thoughts and feelings prior and/or during competition (Tamminen, Crocker, & McEwan, 2016). Managing one's own emotions refers to the ability to quickly perceive and respond to felt emotions and effectively express those emotions to others (Salovey & Mayer, 1990). Utilisation of emotions refers to being able to utilise emotions to remain flexible and creative, especially during problem-solving (Salovey & Mayer, 1990). With EI being a rather novel topic of inquiry in sport psychology research and practice, psychological qualities (i.e. achievement motivation, goal setting, anxiety control, maintaining confidence, concentration and mental rehearsal) have been broadly substantiated to be important components in the ideal psychological make-up of successful athletes. This has led to the development and validation of several psychological skill measures in sports such as Bull's Mental Skills Questionnaire (Bull et al., 2005) and the Psychological Skills Inventory in Sport (Wheaton, 1998) to facilitate the measurement and psychological profiling of athletes.

Gender, EI and Psychological Skills

Regardless of the incremental nature of EI (Goleman, 2001), gender comparison studies have noted that females tend to demonstrate a higher degree of EI compared to males (Joseph & Newman, 2010; Patel, 2017). In comparison, females are also likely to score higher in self-awareness, interpersonal relationship skills, self-regard and appear to be more emotionally aware and

empathetic than males (Meshkat & Nejati, 2017; Palmer et al., 2003). In sports, it is also discovered that female youth athletes are likely to outscore their male counterparts in psychological skills such as goal setting and concentration (Von Guenthner & Hammermeister, 2007). However, Elferink-Gemser (2005) reported higher levels of self-confidence, anxiety control and mental preparation among youth male athletes in an earlier investigation, which underscore the confounding role gender plays in the psychological make-up of athletes.

Aim of the study

This investigation sought to address the following research question: What is the relationship between EI and psychological skills application in female field-hockey players? Findings would have the potential to inform interventions that aim to improve hockey players' EI, which could optimise psychological skills utilisation and application. Moreover, players, sport psychologists, and coaches could benefit from the dissemination of the findings on how emotional awareness and control influence the concurrent application of psychological skills in sports.

Method

Participants and setting

Participants were a convenient sample of senior-level South African female field-hockey players (n = 60, mean age = 21.57 year, *SD* = 3.65). The playing experience of these players varied from 4 to 22 years and the group consisted of forwards, midfielders, backs, and goalkeepers.

Measures

Participants completed the Emotional Intelligence Scale (EIS - Schutte et al., 1998) and the Psychological Skills Inventory (PSI - Wheaton, 1998). They also self-reported their demographics such as their age, playing position and years of playing experience.

Emotional Intelligence Scale (EIS)

The EIS comprises 33 items to measure four dimensions namely perception of emotion, managing own emotions, managing others' emotions, and utilisation of emotions. Sample items for each dimension include "I find it hard to understand non-verbal messages of other people", "When I experience a positive emotion, I know how to make it last", "Other people find it easy to confide in me", "When I am in a positive mood, solving problems is easy for me" respectively. Items are

rated on a five-point Likert scale that ranges from 1 (strongly agree) to 5 (strongly disagree) (with reverse scoring that applies to items 5, 28 and 33), which are essentially summated for a total EI score. Schutte et al. (1998) reported an overall Cronbach's alpha of 0.90 for the 33-item scale while the mean alpha across samples was 0.87. Cronbach's alpha values of the scale's four dimensions ranged from 0.58 to 0.75 in the present study.

Psychological Skills Inventory (PSI)

The PSI comprises 60 questions to measure six psychological skill dimensions namely achievement motivation, goal setting, anxiety control, maintaining confidence, concentration, and mental rehearsal. Each skill consists of ten items that are measured on a 5-point Likert scale ranging from 0 (never) to 4 (always) with reverse scoring that applies to questions 3, 9, 10, 13, 17, 18, 22, 23, 29, 34, 35, 39, 40, 46, 47, 51, 52, 57, 59. Sample items include "I can persevere at my sport, even when I am very tired" (achievement motivation), "I set realistic, but challenging goals for my sport" (goal setting), "If I lose confidence during a competition I know how to recover it" (maintaining confidence), "During a competition I continue to concentrate well even after making a mistake" (concentration). Good test-retest reliability was reported for the PSI (Wheaton, 1998), with alpha values for the various sub-scales ranging from 0.75 to 0.88 in the present study.

Procedure

Approval for the research was granted by the Health Research Ethics Committee (HREC) of North-West University (Ethical number: XXX-00069-18-S1). The players voluntarily and individually consented to the study. We informed the players about the study aims and procedures. In addition, we explained the potential risks and associated benefits of participation where after the players completed the surveys in a single sitting that lasted between 15-20 minutes.

Statistical Analysis

We analysed the data utilising the Statistical Processing Package for Social Sciences (SPSS) software programme (Version 26). The obtained data was checked for normality and satisfied the assumption of a normal distribution. The relationship between variables was investigated by applying Pearson's product-moment correlation coefficient. The guidelines proposed by Pallant (2007) were followed for reporting effect sizes (ES) with scores of around 0.1, 0.3 and 0.5 considered as small, medium, and large respectively. To predict psychological skills from EI, a

simple linear regression was carried out with total EI entered as the predictor variable (independent) and the psychological skill subscales as the dependent variables. Prior to performing the latter analysis, tests were carried out to ensure no violation of the assumptions of normality, linearity, collinearity, and homoscedasticity.

Results

Table 1 presents the descriptive statistics for the variables. For EI, the players scored the highest in the perception of emotion subscale (M = 36.63, SD = 4.97) followed by management of own emotions (M = 36.20, SD = 3.42), management of others' emotions (M = 30.75, SD = 4.35), and utilisation of emotions (M = 24.50, SD = 2.76). Achievement motivation was the highest reported among players' psychological skills (M = 80.58, SD = 9.81) followed by goal setting (M = 71.63, SD = 17.20), and anxiety control (M = 62.33, SD = 10.95). The maintenance of confidence (M = 57.63, SD = 17.47) and the application of mental rehearsal (M = 57.38, SD = 17.47) were similarly scored, with the ability to concentrate recording the lowest score (M = 54.13, SD = 13.91).

Table 1

Cronbach's Alpha and Descriptive Statistics of Female Field-hockey Players (N = 60)

Subscales	Min	Max	*M*	*SD*	α
Age	17.00	29.00	21.57	3.65	
Emotional Intelligence Scale (EIS)					
Perception of emotion	24.00	47.00	36.63	4.97	.75
Managing own emotions	28.00	44.00	36.20	3.42	.64
Managing other's emotions	17.00	40.00	30.75	4.35	.71
Utilisation of emotions	19.00	30.00	24.50	2.76	.58
Total Emotional Intelligence score	105.00	157.00	128.08	11.02	.67
Psychological skills inventory (PSI)					
Achievement motivation	57.50	100.00	80.58	9.81	.80
Goal setting	27.50	100.00	71.63	17.20	.80
Anxiety control	35.00	82.50	62.33	10.95	.81
Maintaining confidence	32.50	75.00	57.63	17.47	.81
Concentration	30.00	87.50	54.13	13.91	.80
Mental rehearsal	5.00	92.50	57.38	17.47	.88
Total Psychological Skills score	43.75	87.92	63.94	8.35	.75

Min = minimum; Max = maximum; *M* = mean; *SD* = standard deviation; α = Cronbach's alpha

Table 2 presents the Pearson's correlation coefficient analyses of the data. A medium and significant positive correlation between the perception of emotion and concentration (r = .35, p = .01) subscales was observed. Similarly, medium and significant positive correlations were noted between managing one's own emotions and the achievement motivation (r = .39, p = .00), maintaining confidence (r = .29, p = .03), and concentration (r = .37, p = .00) subscales of the PSI. Managing one's own emotions also correlated significantly with the players' total PSI (r = .33, p = .01) scores. We also observed a significant positive correlation between managing others' emotions and goal setting (r = .26, p = .05), as well as between utilisation of emotions and mental rehearsal (r = .30, p = .02). Total EI scores also proved to be significantly and positively associated with mental rehearsal (r = .33, p = .01) and total PSI (r = .34, p = .01) with a medium effect size.

Table 2

Pearson Product-moment Correlations Between Emotional Intelligence and Psychological Skill subscales

Emotional Intelligence subscales		Psychological Skills						
		Achievement motivation	Goal setting	Anxiety control	Maintaining confidence	Concentration	Mental rehearsal	Total PSI
Perception of emotion	Coefficient	.05	.11	.09	-.04	.35##	.22	.23
	Sig. (2-tailed)	.72	.41	.51	.76	.01	.09	.08
Managing own emotions	Coefficient	.39##	.08	.04	.29#	.37##	.18	.33##
	Sig. (2-tailed)	.00	.53	.75	.03	.00	.16	.01
Managing others' emotions	Coefficient	.06	.26#	.23	-.19	.06	.24	.22
	Sig. (2-tailed)	.64	.05	.07	.16	.67	.06	.09
Utilisation of emotions	Coefficient	-.03	.22	.24	-.05	-.18	.30##	.17
	Sig. (2-tailed)	.82	.10	.06	.72	.18	.02	.20
Total Emotional intelligence score	Coefficient	.16	.23	.21	-.02	.25	.33##	.34##
	Sig. (2-tailed)	.22	.08	.12	.91	.05	.01	.01

* $p \leq .05$); ** $p < .01$; # Small effect size; ## Medium effect size

Emotional Intelligence accounted for 11% of the variance in total psychological skills score [F (1, 58) = 7.39, $p < .05$] and emerged to be a significant predictor of players' overall psychological skills (B = .26, $p < .01$) (Table 3). The series of linear regressions also revealed EI to be a significant predictor [F (1, 58) = 6.98, $p < .05$] of players' use of mental rehearsal (B = .52, $p < .05$). Although not significant, EI exerted a moderate influence on players' approximations of goal setting and concentration ability accounting for 5% and 6% of the variance in these skills respectively.

Table 3

Summary of Simple Linear Regression Analyses for the Impact of Emotional intelligence on Psychological Skills

Variable	R^2	R	Std. error of B	B	Sig.
Achievement motivation	.03	.16	.12	.16	.22
Goal setting	.05	.23	.20	.23	.08
Anxiety control	.04	.21	.13	.21	.17
Maintaining confidence	.00	.02	.11	-.02	.91
Concentration	.06	.25	.16	.25	.05
Mental rehearsal	.11	.33	.20	.33	.01*
Total Psychological Skills Score	.11	.34	.09	.34	.01**

*Statistically significant at $p < .05$; **Statistically significant at $p < .01$; B = Beta of unstandardized coefficients; β = Beta of standardized coefficients

Discussion

This study sought to examine the relationship between EI and psychological skills application among female field-hockey players. The players' perception of emotion and managing own emotions strongly associated with their concentration ability. Our finding is consistent with that by Bahrololoum et al. (2012) who concluded that when athletes recognise and manage their own emotions, the proficiency to organise thoughts and focus on the task at hand automatically improves. Accurate awareness of oneself could enable athletes to eliminate negative emotions and capitalise on thoughts that translate or promote adequate focus on task relevant cues (Karageorghis

& Terry, 2011). The importance of managing emotions effectively during sport participation has been underscored in earlier investigations (Mowlaie, Besharat, Pourbohlool, & Azizi, 2011; Pedditzi & Spigno, 2019) and corroborates the positive correlation found between the players ability to manage their emotions and their levels of achievement motivation, confidence and total psychological skills scores. Relevant to our findings, Tod, Hardy and Oliver (2011) conceded that athletes who engender positive views about their situation and abilities are more likely to attain successful performances in their sport. In addition, psychological strategies can be used to enhance emotional control in athletes (Jones, 2003). Hence, players that display the ability to control and facilitate their own emotions may inadvertently increase their application of psychological skills during games. Furthermore, the findings revealed a significant interaction between management of others' emotions and the players' ability to set effective goals. Evidence supporting our finding indicates that engaging in team goal setting is an effective tool to harness a connection and inspire mutual feelings among team members (Senécal, Loughead, & Bloom, 2008).

The current study also revealed that utilisation of emotions and total EI predicted players' mental rehearsal ability. This finding lends support to previous research that have highlighted the value that emotional response play during imagery use to re-create real-life states (Holmes & Collins, 2001) that could effectively promote skill learning and self-efficacy during participation (Ramsey, Cumming, Edwards, Williams, & Brunning, 2010). This finding would be explained by the fact that athletes may generate emotional responses during imagery, appropriate to the level of arousal typically experienced during the actual performance (Holmes & Collins, 2001). This finding essentially implies that athletes who are adequate in the utilisation of emotions will be more skilled in using mental rehearsal to create mental strategies dealing with future scenarios.

Lastly, the players total EI levels revealed to be a significant predictor of their overall psychological skills scores. This finding is consistent with that by Bahrololoum et al. (2012) and Lane et al. (2009) who reported a higher level of EI in relation to the utilisation of psychological skills in sports. It is believed that emotionally intelligent athletes are attuned to fleeting thoughts and emotions associated with task performance that demand regulation if necessary (Lane et al., 2009). Therefore, it could be that hockey players with higher levels of emotional intelligence are more likely to effectively apply psychological skills in training and competition.

Implications for research and practice

This study offers a novel outlook on the potential role EI plays in the approximation of psychological skills application among female hockey players, specifically within the South African context. This preliminary evidence suggests that sport psychology practitioners may consider EI interventions as an additional means to enhance psychological skills application in the quest to optimise participation and performance. Coaches my also consider including EI as a potential pre-season screening tool to identify player profiles that could be used as charter for guiding athlete-centred training and development goals.

Limitations of the study and suggestions for further research

Despite the results that warrant strong support for further investigation into the relevance of EI in athletes' involuntary engagement of psychological skills application in sports, certain limitations such as the small sample size should be kept in mind. However, the purpose of this research was not to generalise results to other related team sports, but rather to test the hypothesis that implies a direct relationship between EI and psychological skills application among female hockey players. The current study paves the way for future studies to consider using a larger heterogeneous sample with a particular focus on playing positions and individual sporting codes. Future studies could also account for age and the level of expertise among a group of players. Also, athletes only answered the questionnaires at a single point in time and should be borne in mind when interpreting the results. It is also difficult to measure changes in the participants unless questionnaires are completed at different stages during the competition season. Therefore, it is further recommended that future research should include evaluations at different times of the season (e.g. pre- or mid-season, end-of-season) to account for the effect of state-like behaviours of athletes. Lastly, the effect of EI interventions aimed at enhancing players' overall team performance should also be investigated to gain a comprehensive understanding of the relevance of EI in sports.

Conclusion

The results of the present study suggest that EI is essential in enhancing psychological skills application in high level hockey participation. The psychological skills of achievement motivation, concentration, maintaining confidence, goal setting and mental rehearsal may be inadvertently modifiable with EI training. Based on this preliminary evidence, athletes and coaches may consider

EI interventions as a resource for enhancing psychological skills application among female hockey players.

Author contribution

We confirm that the manuscript has been read and approved by all named authors. There are no other persons who satisfied the criteria for authorship that are not listed. We further confirm that the order of authors listed in the manuscript has been approved by all authors.

Acknowledgements

The authors would like to thank the players and coaching staff of the respective teams for their participation in this study.

References

Bahrololoum, H., Hassani, A., Bandeli, M., & Akbari, A. (2012). The relationship between the emotional intelligence and mental skills in Iranian elite male volleyball players (case study Semnan province). *International Journal of Academic Research in Business and Social Sciences, 2*(7), 123-130.

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*, 209-227.

Elferink-Gemser, M. (2005). Today's talented youth field hockey players, the stars of tomorrow? a study. s.n.

Elferink-Gemser, M., Visscher, C., & Lemmink, K. (2008). Differences in psychological skills between elite and sub-elite youth athletes. *Journal of Physical Education and Sport Sciences, 4*, 95-105.

Goleman, D. (2001). An EI-based theory of performance. In: Cherniss, C. & Goleman, D., eds. *The emotionally intelligent workplace*, San Francisco, CA: Jossey-Bass. pp. 27-44.

Goleman, D. (2004). What makes a leader? *Harvard Business Review, 1*, 1-10.

Holmes, P., & Collins, D. (2001). The PETTLEP approach to motor imagery: A functional equivalence model for sport psychologists. *Journal of Applied Sport Psychology, 13*, 60-83.

Jones, M. (2003). Controlling emotions in sport. *The Sport Psychologist, 17*(4), 471-486.

Joseph, D. & Newman, D. (2010). Emotional intelligence: An integrative meta-analysis and cascading model. *Journal of Applied Psychology, 95*, 54-78.

Karageorghis, C., & Terry, P. (2011). *Inside sport psychology.* Champaign, IL: Human Kinetics Publishers.

Kruger, A. (2010). Sport psychological skills that discriminate between successful and less successful female university field hockey players. *African Journal for Physical Health Education, Recreation and Dance, 16*(2), 240-250.

Lane, A., Thelwell, R., Lowther, J., & Devonport, T. (2009). Relationship between emotional intelligence and psychological skills among athletes. *International Journal of Social Behaviour and Personality, 37*(2), 195-202.

Mayer, J. D., Salovey, P., & Caruso, D. R. (2002). Mayer-Salovey-Caruso emotional intelligence test (MSCEIT) item booklet.

Meshkat, M & Nejati, R. (2017). Does emotional intelligence depend on gender? A study on undergraduate English majors of three Iranian universities. *SAGE Open*, 1-8.

Mowlaie, M., Besharat, M., Pourbohlool, S., & Azizi, L. (2011). The mediation effects of self-confidence and sport self-efficacy on the relationship between dimensions of anger control with sport performance. *Social and Behavioral Sciences, 30*, 138-142.

Pallant, J. (2007). *SPSS survival manual: A step by step guide to data analysis using SPSS for Windows (3rd ed.).* New York: Open University press.

Palmer, B., Gardner, L & Stough, C. (2003). The relationship between emotional intelligence, personality and effective leadership. *5th Australian Industrial and Organizational Psychology Conference*, Melbourne.

Parveen, N. (2016). Emotional intelligence between male and female hockey players: A psychological study. *International Journal of Physical Education, Sports and Health, 3*(6), 60-62.

Patel, S. (2017). Emotional intelligence of college level students in relation to their gender. *The International Journal of Indian Psychology, 4*, 2349-3429.

Pedditzi, M., & Spigno, M. (2019). Achievement motivation and regulatory emotional self-efficacy in university students. *International Conference on Education and Educational Psychology* (pp. 503-573). The European Proceedings of Social and Behavioural Sciences.

Perlini, A., & Halverson, T. (2006). Emotional intelligence in the National Hockey League. *Canadian Journal of Behavioural Science, 38*(2), 109-119.

Ramsey, R., Cumming, J., Edwards, M., Williams, S., & Brunning, C. (2010). Examining the emotion aspect of PETTLEP-based imagery with penalty taking in soccer. *Journal of Sport Behavior, 33*(3), 295-314.

Sajjan, M. (2018). Mental toughness among athletes: A comparative study. *International Journal of Applied Research, 4*(2), 157-161.

Salovey, P., & Mayer, J. (1990). Emotional intelligence. *Imagination, Cognition and Personality, 9*(3), 185-211.

Schutte, N., Malouff, J., Hall, L., Haggerty, D., Cooper, J., Golden, C., & Dornheim, L. (1998). Development and validation of a measure of emotional intelligence. *Personality and Individual Differences, 25*, 167-177.

Senécal, J., Loughead, T., & Bloom, G. (2008). A season-on team-building intervention: examining the effect of team goal setting on cohesion. *Journal of Sport and Exercise Psychology, 30*, 186-199.

Serrat, O. (2017). Understanding and developing emotional intelligence. In *Knowledge Solutions* (pp. 329-339). Singapore: Springer.

Soflu, G., Esfahani, N., & Asadi, H. (2011). The comparison of emotional intelligence and psychological skills and their relationship with experience among individual and team athletes in superior league. *Social and Behavioral Sciences, 30*, 2394-2400.

Tamminen, K., Crocker, P., & McEwan, C. (2016). Emotional experiences and coping in sport: how to promote positive adaptational outcomes in sport. In R. Gomez, R. Resende, & A. A. (Eds.), *Positive human functioning from a multidimensional perspective* (pp. 143-162). New York: Nova Science.

Tod, D., Hardy, J., & Oliver, E. (2011). Effects of self-talk: a systematic review. *Journal of Sport and Exercise Psychology, 33*, 666-687.

Von Guenther, S & Hammermeister, J. (2007). Exploring relations of wellness and athletic coping skills of collegiate sport participants: Implications for sport performance. *Psychological Reports, 10*, 1043-1049.

Wheaton, K. (1998). *A psychological skills inventory for sport. Unpublished Masters Dissertation.* Stellenbosch: University of Stellenbosch.

CHAPTER 6

CONCLUSION, LIMITATIONS AND RECOMMENDATIONS

6.1 Summary

In conclusion, a brief summary will be given, after which the most important conclusions and limitations will be highlighted along with the recommendations that stemmed from this study. To conclude this chapter, the contribution of this study will be highlighted.

Chapter 1 provided a brief summary of the problem statement underlying the research questions, the objectives and the hypotheses of the study, as well as the structure of the thesis. The aims of this study were to firstly determine the relationship between emotional intelligence and components of competitive state anxiety levels among female field-hockey players from South Africa. The second aim was to determine the relationship between emotional intelligence and coping skill levels among female field-hockey players from South Africa. The third and last aim was to determine the relationship between emotional intelligence and psychological skills application among female field-hockey players. The overall sample for the study included a total of 60 senior-level female field-hockey players (mean age = 21.57, SD = 3.65).

Chapter 2 contained a literature review titled “The role of psychological constructs in sports performance.” The aim of this review was to provide information regarding the game and demands of hockey, the significance of emotional intelligence on sports performance, the relationship between anxiety and emotional intelligence in sport, the importance of sport coping skills and its relationship to emotional intelligence and to highlight the relationship between psychological skills and emotional intelligence in sports. Hockey displays certain psychological demands and it is essential for players to manage, control and cope with their emotions during training and competition so as to emerge and remain successful. It was indicated that psychological factors distinguish successful athletes from their less successful counterparts. Furthermore, a higher EI generally leads to lower anxiety levels within athletes. In addition, players might benefit from well-developed emotional intelligence and high sport psychological skills application. It became clear that a positive relationship exists between EI and coping skills, as well as psychological skills application. It was further emphasised that EI, anxiety control, coping abilities and the application

of psychological skills have a significantly better effect on sports performance and overall well-being in athletes.

Chapter 3 contained article one, which was compiled in accordance with the guidelines of the *South African Journal for Research in Sport, Physical Education and Recreation* and titled: "The relationship between emotional intelligence and components of competitive state anxiety among female field-hockey players from South Africa." The aim of this chapter was to determine the relationship between emotional intelligence and components of competitive state anxiety levels among female field-hockey players from South Africa. The convenient sample consisted of sixty senior-level female field-hockey players (mean age = 21.57, SD = 3.65). Data were obtained by means of pen-and-paper questionnaires that prompted demographic information and athletes' responses to the Emotional Intelligence Scale, and the Competitive State Anxiety Inventory-2. Descriptive statistics (minimum, maximum, means and standard deviations) were reported for all the test variables. The reliability of the employed measures was determined using Cronbach's alpha coefficient. The significance of the differences between variables was also determined using effect sizes of around 0.1, 0.3 and 0.5 and were interpreted as small, medium and large respectively. The relationship between the variables was also measured using Pearson's product-moment correlation. Lastly, a series of simple linear regression analyses was performed to further assess the relationship between EI and components of competitive state anxiety. The total EI score was used as the predictor variable to increase the power of the regression model, account for the relatively small sample, and to avoid violating the assumption of multicollinearity. The players reported above-average EI levels, a low somatic/cognitive anxiety and a low to moderate self-confidence levels according to norm values. Regarding the interpretation of the different subscales, players perceived their somatic and cognitive anxiety as neutral, while they perceived their self-confidence as facilitative to performance. Furthermore, significant positive correlations existed between management of own and others' emotions, total EI and self-confidence. A negative correlation was found between players' ability to manage their own and others' emotions and levels of cognitive anxiety. Furthermore, total EI resulted in being a significant predictor of self-confidence. Overall, the results in this article provide a strong basis for exploring emotional intelligence interventions in sport to combat uncontrollable competitive state anxiety, and improving and maintaining self-confidence in hockey.

In Chapter 4 (Article 2) the relationship between players' emotional intelligence and coping skill levels were presented. This article was compiled in accordance with the *Journal of Physical Education and Sport* and titled: "Emotional intelligence: An association with coping skills among female field-hockey players from South Africa." A group of 60 senior-level female field-hockey players (mean age = 21.57, SD = 3.65) completed the Emotional Intelligence Scale and the Athletic Coping Skills Inventory-28 to determine their emotional intelligence and coping skills respectively. Descriptive statistics (minimum, maximum, means and standard deviations) were reported for all the test variables by using the SPSS software programme (Version 26). The assumptions of normality were also evaluated which revealed normally distributed data. The reliability of the employed measures was determined by using Cronbach's alpha coefficient and revealed players to display higher than average levels of total EI and coping ability. Pearson's product-moment correlation was used to determine the relationship between the variables, while effect sizes were interpreted as large (> 0.50), medium (> 0.30) and small (< 0.10). The correlations revealed numerous positive significant associations between EI (perception of emotions, managing own emotions, managing others' emotions and utilisation of emotions) and coping skill scores (coping with adversity, concentration, confidence and achievement motivation). Lastly, a series of simple linear regression analyses were applied to determine the influence of EI on the group's coping skills. A composite total EI score was used as the independent variable to increase power in the regression and to avoid violation of the assumption of multicollinearity. The simple linear regression analyses indicated that EI is a strong predictor of several coping skills and a worthy contributor in psychological profiling of players and for enhancing overall coping ability of hockey players.

Chapter 5 contained the third article, which was compiled in accordance with the guidelines of *The Journal of Psychology in Africa* and titled: "Emotional intelligence and psychological skills application among female field-hockey players." The aim of this article was to determine the relationship between EI and the psychological skills application among South African female field-hockey players. Sixty senior-level players (mean age = 21.57, SD = 3.65) participated in this study. Data was obtained by means of questionnaires that prompted demographic information and athletes' responses to the Emotional Intelligence Scale, and the Psychological Skills Inventory. Descriptive statistics (minimum, maximum, means and standard deviations) were reported for all the test variables, where after Cronbach's alpha was employed to determine the reliability. The

relationship between the variables was also measured by using Pearson's product-moment correlation coefficient. The practical significance of the differences between variables was also determined using effect sizes of around 0.1, 0.3 and 0.5, which were interpreted as small, medium and large respectively. Lastly, a series of simple linear regression analyses was employed to further investigate the relationship between EI and psychological skills application. To avoid violation of the assumptions of normality, linearity, collinearity and homoscedasticity, preliminary analyses were employed. The independent variable was EI, and psychological skill subscales were entered as the dependent variables. Descriptive results indicated above average levels for total EI and psychological skills. Results furthermore revealed significant positive correlations between the perception of emotions, management of own emotions and players' concentration ability, management of others' emotions and goal setting, utilisation of emotions, total EI and mental rehearsal; in addition to this, also between total EI and total psychological skills, which was further supported by the linear regression analyses. Furthermore, the management of own emotions also showed a positive correlation with confidence and achievement motivation and total psychological skills. Overall, the results in this article provide a strong basis for exploring emotional intelligence interventions as a resource for enhancing psychological skills application.

6.2 Conclusions

The conclusions drawn from this study are presented in accordance with the set hypotheses:

Hypothesis 1: *There will be a statistically significant ($p \leq 0.05$) negative relationship between EI (perception of emotion, managing own emotion, managing others' emotions, and utilisation of emotion subscales) and anxiety levels (cognitive anxiety and somatic anxiety) and a statistically significant ($p \leq 0.05$) positive relationship between EI (perception of emotion, managing of own emotion, managing others' emotions and utilisation of emotion subscales) and self-confidence among female field-hockey players from South Africa.*

Hypothesis 1 is partially accepted, since the results of this study showed that the two EI dimensions, namely managing own emotion, and managing others' emotions, correlated significantly and negatively with cognitive anxiety. Managing own emotions, managing others' emotions, and total EI also correlated positively with self-confidence.

Hypothesis 2: *There will be a statistically significant ($p \leq 0.05$) positive relationship between EI (perception of emotion, managing own emotions, managing others' emotions and utilisation of emotion subscales) and coping skills (total coping ability, coping with adversity, coachability, concentration, confidence, goal setting and mental preparation, peak under pressure and freedom from worry subscales) among female field-hockey players from South Africa.*

The results of this study revealed that the EI dimensions of perception of emotions, managing own emotions and managing others' emotions correlated positively with the coping with adversity, concentration, confidence and achievement motivation dimensions of the ACSI-28. Utilisation of emotions also correlated significantly and positively with coachability. Therefore hypothesis 2 is partially accepted because managing own emotions had a significant negative correlation with coachability.

Hypothesis 3: *There will be a statistically significant ($p \leq 0.05$) positive relationship between EI (perception of emotion, managing of own emotion, managing others' emotion and utilisation of emotions subscales) and psychological skills application (total sport psychological skills, achievement motivation, goal setting, anxiety control, self-confidence, concentration and mental rehearsal subscales) among South African female field-hockey players.*

Hypothesis 3 is accepted due to the fact that the results revealed that the EI dimensions of perception of emotions, managing own emotions, managing others' emotions and utilisation of emotions correlated positively with concentration, achievement motivation, maintaining confidence, goal setting and mental rehearsal dimensions of psychological skills application.

6.3 Limitations

From the results of this study it is evident that EI plays an important role in the management of anxiety and in the development of coping ability and psychological skills application in female hockey players. The following shortcomings were recognised and should be addressed with a view to improve further studies in this regard:

- A small sample of participants was used for final data analysis, which limits the generalisation of findings. However, the findings are still useful in elaborating the role and

relevance of EI in coping with anxiety and promoting optimal psychological states in hockey participation.

- The use of a cross-sectional design (once-off self-reported data) that lacks continuous monitoring of variables across the competition season.
- The current study did not include an objective or self-rated measurement of performance for the current season. However, it is further acknowledged that this could have made a unique contribution.
- The current study did not take age and playing experience into account. However, it is further acknowledged that there may also be other confounding factors such as gender, individual differences in external stressors not related to training and tolerance to stress, that may play a role. Players' previous exposure to psychological skills training was also not considered. This may have influenced the responses in this study.

6.4 Recommendations

From the outlined limitations in the current study, it is recommended that future research should focus on:

- Including a larger sample for team and individual sports, male participants, and different participation levels/playing positions and sporting codes.
- Conducting a longitudinal study including evaluations at different times of the season by exploring the difference between university and professional athletes' stress levels with respect to different seasons (pre-season, competition season, and post-season) would better inform practitioners on the impact of EI on players' anxiety levels, ability to cope and psychological skills application.
- Including objective and/or self-rated measurements of hockey performance for the involved season.
- Lastly, including history and exposure to psychological skills training within their participants and the effect thereof on results. Furthermore, the effect of EI interventions aimed at enhancing players' level of EI and overall team performance should also be investigated to gain a comprehensive understanding of the relevance of EI in sports.

Despite all these shortcomings, this study provides a supporting basis for further research on the utility of EI intervention in sports, where other researchers can plan and conduct similar studies of this nature.

6.5 Contribution of study

Findings from this study provide sport psychologists, coaches, sport scientists and hockey players with some clarity regarding the role EI plays in hockey. This understanding could facilitate sports psychology service delivery (in terms of augmenting contemporary cognitive behaviour modification interventions) as well as broaden the dimension of coaching practices. Also, a strength of this study is the inclusion of national team players which is a unique sample and make the assessment of EI in high-level hockey performance very relevant and useful.

This study will be considerably valuable for comprehending and addressing the relationship between emotional intelligence, components of competitive state anxiety, coping skills, and psychological skill levels of female hockey players – specifically within the South African context. The results of this investigation on hockey players in South Africa will be of great value to professionals working in the field of applied sports psychology. This study provided valuable information in aid of helping athletes to manage their anxiety levels, maintain self-confidence levels, cope with pressure by enhancing their coping ability, as well as to increase psychological skills application by means of a well-developed EI during sports psychology consulting and coaching. Including EI interventions in conventional psychological skills training or as an additional screening tool in hockey-player evaluation/selection could be a valuable contributor in the effective training and development of players. It is further emphasised that coaches should consider developing and strengthening EI development within their training programs as it may help improve tactical hockey skills such as precision, anticipation, decision-making, problem-solving and self-control of emotions.

ANNEXURES

APPENDIX A: ETHICAL APPROVAL

NWU®
NORTH-WEST UNIVERSITY
NOORDWES-UNIVERSITEIT
YUNIBESITI YA BOKONE-BOPHIRIMA

Private Bag X6001, Potchefstroom
South Africa 2520

Tel: 018 299-1111/2222
Web: http://www.nwu.ac.za

Health Sciences Ethics Office for Research, Training and Support

Health Research Ethics Committee (HREC)
Tel: 018-285 2291
Email: Wayne.Towers@nwu.ac.za

Prof A Kruger
Sport Science
PhASRec

14 August 2018

Dear Prof Kruger

APPROVAL OF YOUR APPLICATION BY THE HEALTH RESEARCH ETHICS COMMITTEE (HREC) OF THE FACULTY OF HEALTH SCIENCES

Ethics number: NWU-00069-18-S1

Kindly use the ethics reference number provided above in all future correspondence or documents submitted to the administrative assistant of the Health Research Ethics Committee (HREC) secretariat.

Study title: The relationship between emotional intelligence, anxiety, coping skills and psychological skill levels in South African female field-hockey players

Study leader: Prof A Kruger

Student: N Tinkler-21619476

Application-type: Single study

Risk level: Minimal (monitoring report required annually)

Expiry date: 31 August 2019 (monitoring report due at the end of August annually until completion)

You are kindly informed that after review by the HREC, Faculty of Health Sciences, North-West University, your ethics approval application has been successful and was determined to fulfil all requirements for approval. Your study is approved for a year and may commence from 14/08/2018. Continuation of the study is dependent on receipt of the annual (or as otherwise stipulated) monitoring report and the concomitant issuing of a letter of continuation. A monitoring report should be submitted two months prior to the reporting dates as indicated i.e. annually for minimal risk studies, six-monthly for medium risk studies and three-monthly for high risk studies, to ensure timely renewal of the study. A final report must be provided at completion of the study or the HREC, Faculty of Health Sciences must be notified if the study is temporarily suspended or terminated. The monitoring report template is obtainable from the Faculty of Health Sciences Ethics Office for Research, Training and Support at Ethics-HRECMonitoring@nwu.ac.za. Annually, a number of studies may be randomly selected for an internal audit.

The HREC, Faculty of Health Sciences requires immediate reporting of any aspects that warrants a change of ethical approval. Any amendments, extensions or other modifications to the proposal or other associated documentation must be submitted to the HREC, Faculty of Health Sciences prior to implementing these changes. These requests should be submitted to Ethics-HRECApply@nwu.ac.za with a cover letter with a specific subject title indicating, "Amendment request: NWU-XXXXX-XX-XX". The letter should include the title of the approved study, the names of the researchers involved, the nature of the amendment/s being made (indicating what changes have been made as well as where they have been made), which documents have been attached and any further explanation to clarify the amendment request being submitted. The amendments made should be indicated in yellow highlight in the amended documents. The *e-mail*, to which you attach the documents that you send, should have a *specific subject line* indicating that it is an amendment request e.g. "Amendment request: NWU-XXXXX-XX-XX". This e-mail should indicate the nature of the amendment. This submission will be handled via the expedited process.

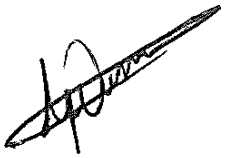
Any adverse/unexpected/unforeseen events or incidents must be reported on either an adverse event report form or incident report form to Ethics-HRECIncident-SAE@nwu.ac.za. The *e-mail*, to which you attach the documents that you send, should have a specific subject line indicating that it is a notification of a serious adverse event or incident in a specific project e.g.

"SAE/Incident notification: NWU-XXXXX-XX-XX". Please note that the HREC, Faculty of Health Sciences has the prerogative and authority to ask further questions, seek additional information, require further modification or monitor the conduct of your research or the informed consent process.

The HREC, Faculty of Health Sciences complies with the South African National Health Act 61 (2003), the Regulations on Research with Human Participants (2014), the Ethics in Health Research: Principles, Structures and Processes (2015), the Belmont Report and the Declaration of Helsinki (2013).

We wish you the best as you conduct your research. If you have any questions or need further assistance, please contact the Faculty of Health Sciences Ethics Office for Research, Training and Support at Ethics- HRECApply@nwu.ac.za.

Yours sincerely



Prof Wayne Towers
HREC Chairperson

Prof Minrie Greeff
Ethics Office Head

Current details: (23239522) G:\My Drive\9. Research and Postgraduate Education\9.1.5 Ethics\NWU-00069-18-S1\9.1.5.4.1_AL_NWU-00069-18-S1_14-08-2018.docm 14 August 2018

File reference: 9.1.5.4.1

APPENDIX B: INFORMED CONSENT FORM

HREC STAMP

NORTH-WEST UNIVERSITY
YUNIBESITI YA BOKONE-BOPHIRIMA
NOORDWES-UNIVERSITEIT
POTCHEFSTROOM CAMPUS

PARTICIPANT INFORMED CONSENT FORM FOR A SERVICE DELIVERY PROJECT AND POSSIBLE FURTHER RESEARCH FOR FEMALE HOCKEY PLAYERS

SERVICE PROVIDER: PROF. ANKEBé KRUGER

ADDRESS: BUILDING K21, HIGH PERFORMANCE INSTITUTE, CNR OF THABO MBEKI & MEYER STR, POTCHEFSTROOM

CONTACT NUMBER: 018 299 1793

You are being invited to take part in a service delivery project that could also be included in possible further research. The service delivery project will be delivered to the South African Hockey Association and you are invited to participate as a member of the South African Women's Hockey team. Please take some time to read the information presented here, which will explain the details of this project. Please ask the service provider any questions about any part of this project that you do not fully understand. It is very important that you are fully satisfied that you clearly understand what this project entails and how you could be involved. The service provided during this project is free of cost. Also, your participation is **entirely voluntary,** and you are free to decline to participate. You can also choose just to participate in the service delivery project but that the data not to be used for possible further research. For this purpose tick the applicable choice in the box provided at the end of the form. If you say no, this will not affect you negatively in any way

whatsoever. You are also free to withdraw from the project and the possible further research at any point, even if you do agree to take part.

What will be the outcomes and objectives of the service delivery aspect?

- *To determine your sport psychological profile and level of cognitive functioning to be used by the team Psychologist to plan appropriate intervention programs.*
- *To determine your personality profile and to discuss the results with the coaching team and fellow players in order to understand each other's functioning with the aim of increasing group cohesion.*

What will the outcomes and objectives of the possible further research be?

- *To determine the sport psychological profile and cognitive functioning according to player position of South African female hockey players, thus developing a player profile for each position describe the different sport psychological constructs.*
- *To determine the relationship between sport psychological constructs and hockey performance of female hockey players, thus determining whether your hockey performance will be influenced by your level of sport psychological skills and cognitive functioning.*
- *To determine the relationship between level of cognitive functioning and hockey performance of female hockey players, thus determining whether your hockey performance will be influenced by your level of sport psychological skills and cognitive functioning.*

What will your responsibilities be?

- *You will be expected to:*
  - *Complete the informed consent form before the first day of assessment. Informed consent will be obtained by an independent person not directly involved with the project.*
  - *After completion of the informed consent form, you will be expected to complete a computer-based assessment that will take approximately one hour. This assessment will be done in groups of 8-10 players in the computer laboratory of the Psychology Department of the North-West University's Potchefstroom campus.*
  - *After completion of the computer-based assessment, you will be expected to complete a battery of seven pencil and paper-based questionnaires that will take approximately one hour with a break in-between.*

Are there risks involved in your taking part in this project? If so what will be done as precautionary measures?

- *The project should pose no foreseeable risk to you, since the questions in the test batteries are not of a sensitive nature. Irrespective of the low risk of the study, the project leader will still do her utmost best to minimize any potential risks.*
- *All the assessments will take place in a quiet, comfortable room. The project leader will at all times be present to assist if the need arises.*
- *The risks to you in this study might include amongst others psychological fatigue, boredom, headache, frustration, anxiety and fear but will be limited by including a break between the*

assessments in order to give you enough time to recuperate after the completion of each assessment.

What will you benefit if you choose to part in this project?

- *The direct benefits for you as participant will be that each player will get a comprehensive report explaining her results. You can expect the report within six to eight weeks after completion of the assessments. You will also have the opportunity to ask the project leader any questions you may have regarding your results.*
- *The indirect benefits will be a broadening of specialist sport psychological knowledge with regards to female hockey, which can be transferred to the larger hockey community. By compiling a sport psychological profile of elite hockey players, we can compare the profiles of players of different level and thus we can start to intervene in hockey players of lower levels (school/university level) if necessary to optimize their psychological functioning by means of sport psychological training programs and in the process improve their performance in sport.*

Who will have access to the data?

- *As this is a service delivery project, data will be made available to the coaching staff. The results will however be explained by a registered psychologist for the coaching staff to understand the context. You will also have access to your own data, but not other participants.*
- *If you also consent to your data being available for research purposes confidentiality will be ensured by assigning a code to you only known by the researcher/s. In the final dataset there will be no risk for you to be identified. Reporting of findings will be anonymous and confidential by not using any individual identifiers in any publications resulting from this study. Only the researcher/s involved in this study will have access to the data obtained. Before any data is used for research the principal investigator will first obtain ethical approval from the Health Research Ethics committee at the North-West University (HREC). Thereafter data will be made available for analysis.*
- *This service delivery project will be an ongoing project for the next three years. The assessment will be a once-off activity. The project leader will obtain new consent at the beginning of each season. You are however free to withdraw from the project at any time.*

Is there anything else that you should know or do?

- You can contact Prof. Ankebé Kruger at 018 299 1793 if you have any further queries or encounter any problems.
- You can contact the Health Research Ethics Committee via Mrs Carolien van Zyl at 018 299 2089; carolien.vanzyl@nwu.ac.za if you have any concerns or complaints that have not been adequately addressed by the researcher.
- You will receive a copy of this information and consent form for your own records.

Declaration by participant

By signing below, I ……..……. agree to take part in this **service delivery** project.

I declare that:

- I have read this information and consent form and it is written in a language with which I am fluent and comfortable.
- I have had a chance to ask questions to both the person obtaining consent, as well as the service provider and all my questions have been adequately answered.
- I understand that taking part in this project is **voluntary** and I have not been pressurised to take part.
- I may choose to leave the project at any time and will not be penalised or prejudiced in any way.
- I may be asked to leave the project before it has finished, if the researcher feels it is in my best interests, or if I do not follow the project plan, as agreed to.
- That the data collected during this project may be used for possible future research purposes (as indicated by the objectives) as long as anonymity is ensured

Yes		No	

Signed at (*place*) .....…..…….. on (*date*) ……...……. 20....

....

Signature of participant **Signature of witness**

Declaration by person obtaining consent

I *(name)* ……..…… declare that:

- I explained the information in this document to ……..
- I encouraged him/her to ask questions and took adequate time to answer them.
- I am satisfied that he/she adequately understands all aspects of the project, as discussed above
- I did/did not use an interpreter.

Signed at (*place*) .....…..…….. on (*date*) ……...……. 20....

....

Signature of person obtaining consent **Signature of witness**

APPENDIX C: LANGUAGE EDITING CERTIFICATE

2 October 2020

I, **Ms Cecilia van der Walt,** hereby declare that I took care of the **editing** of the **thesis** of **Ms Nicola Tinkler** titled ***The relationship between emotional intelligence, anxiety, coping skills, and psychological skill levels in South African female field-hockey players.***

MS CECILIA VAN DER WALT

BA (*Cum Laude*)
THED (*Cum Laude*),
Plus Language editing and translation at Honours level (*Cum Laude*),
Plus Accreditation with SATI for Afrikaans and translation
Registration number with SATI: 1000228

Email address: ceciliavdw@lantic.net
Mobile: 072 616 4943

APPENDIX D: JOURNAL GUIDELINES: SOUTH AFRICAN JOURNAL FOR RESEARCH IN SPORT, PHYSICAL EDUCATION AND RECREATION

INFORMATION FOR AUTHORS

The *South African Journal for Research in Sport, Physical Education and Recreation* is published by the North-West University, Potchefstroom. Contributions from the fields of Sport Science, Physical Education, Recreation/Leisure Studies, Exercise Science and Dance Studies will be considered for publication. The articles submitted will be administered by the appropriate Subject Review Editor and evaluated by two or more referees. The decision as to whether a particular article is to be published or not, rests with the Editorial Board.

SUBMISSION

Manuscripts that do not comply with the following requirements regarding process, style and format will not be handled.

Manuscripts should be typed with ***SINGLE spacing*** in 10-point Times New Roman letter size for the text. All the text in *tables* and *figures* should be in 10-point Times New Roman font size and single spacing. Please do not use *Calibri*. The original manuscript can be submitted by Email. The length may not exceed 20 pages (tables, figures, references, etc. included). The **page setup** (cm) must be in the following format:

MARGINS		**PAPER SIZE**	
Top:	3.56 cm	*Width*:	17.5 cm
Bottom:	1.78 cm	*Height*:	24.5 cm
Left:	2.11 cm		
Right:	2.11 cm		
Gutter:	0.00 cm		
Header:	2.03 cm		
Footer:	0.89 cm		

Original manuscripts may be submitted in English and should be sent to:

The Editor (Prof. Hanlie Moss)	**Editorial Office**
South African Journal for Research in Sport, Physical Education and Recreation	Tel.: +27 (0)18-299 1821
Physical Activity, Sport and Recreation Research Unit North-West University, POTCHEFSTROOM Republic of South Africa	E-mail: sajrsper@nwu.ac.za

CONDITIONS

Each manuscript must be accompanied by a ***covering letter*** in which the following is declared: (1) that the manuscript contains original research; (2) that the manuscript or parts of the manuscript has not been published elsewhere previously; (3) that the manuscript is not currently being presented elsewhere for publication; and (4) that all the authors have read and approved the manuscript. This signed declaration regarding the originality must accompany each manuscript. The cover letter must contain a rationale for how the manuscript is novel, why it is relevant to the journal, and how the research contributes to the field or advances the evidence base.

Authors are also requested to name three/3 potential referees, of which one/1 must be an *international* referee (the Journal is not bound to use these referees). These must be from a different institution to the first author and not have published with any member of the writing group in the previous 3 years. Complete information regarding the referees (name, surname, e-mail address and telephone numbers) must be provided in the cover letter.

We discourage the practice of parts of the same study submitted for other issues of this Journal. Authors who submit a manuscript from a study of which some data have been or will be published elsewhere, must provide a strong justification in the accompanying letter to the Editor. The justification for not publishing all the data together in one paper must also be motivated in the covering letter.

The author should also ensure that the ***language*** of the manuscript has been ***edited*** thoroughly (English [UK]) by the time of submission. The name, address and telephone number of the person who did the language editing must be provided. Any expenses incurred by the Journal dealing with language editing will be added to the author's page fees.

The manuscript must have an ***ethical clearance number*** that was supplied by the authentic ethical committee of a specific institution. The process that was followed to obtain ethical clearance must be described in the manuscript under the heading, 'Ethical clearance'. No manuscript can be published without this declaration. Review, theoretic or philosophical articles do not require ethical clearance.

Any uncertainty regarding the ***statistical procedures*** that arise during the assessment of the manuscript will be referred to a local statistician. Any expenses incurred by the Journal dealing with statistical procedures will be added to the author's page fees.

All studies testing the effect of an intervention have to be registered with a trials registry to be eligible for peer review. We STRONGLY recommend prospective registration but will consider retrospectively registered trials with appropriate justification.

For completed randomised controlled trials, *SAJRSPER* requires the submission of a populated CONSORT checklist and flow diagram. The flow diagram should be included in the main body of the text and the checklist should be provided as an additional file. Both the flow diagram and the checklist should be referenced in the text. Submissions received without these elements will be returned to the authors as incomplete. A Word file of the checklist and flow diagram can be downloaded here.

For all intervention components, authors are required to use the TIDieR Checklist, which should be provided as an additional file. The TIDieR Checklist is available to download as a PDF and a Word file.

For observational studies, *SAJRSPER* requires the submission of a populated STROBE checklist (http://strobe-statement.org/index.php?id=available-checklists) along with the manuscript. For observational studies that focus on nutrition, the checklist should be modified to reflect the revised STROBE-nut guidelines

(http://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1002036). The completed checklist should be provided as an additional file.

For systematic reviews and Meta-analyses, the PRISMA checklist and flow diagram (http://www.equator-network.org/reporting-guidelines/prisma/) should be completed. The

Checklist should be uploaded as an additional file and the flow diagram included in the manuscript. The PRISMA Checklist as a Word file and flow diagram word file as can be downloaded here.

For the reporting of therapeutic exercise interventions in rehabilitation, the CERT guidelines should be followed and the checklist uploaded as an additional file

PREPARATION OF MANUSCRIPT

Manuscripts must be presented in a format that is compatible with *Microsoft Word for Windows* (PC). Tables, all figures (illustrations, diagrams, etc.) and graphs are regarded as text and must be presented in a format that is compatible with ***Word*** and figures should be ***accessible*** to make any text corrections. Photographs must be presented in *jpg* format.

Original manuscripts must contain the following sections in the following sequence: Title page, Abstract, Introduction, Purpose of Research, Methodology, Results, Discussion, Practical application/Recommendations, Conclusions, Acknowledgements (if applicable) and References (not all applicable to review/theoretical/philosophical articles). Appendices are acceptable but must be succinct.

Title page

The first page of each manuscript should indicate the *title* in English, the *names* (title, first name in full and other initials, surname) of the author(s), the *telephone* numbers (work & home [& *mobile* for local authors]), *facsimile* number, *Email* address and the *field of study*. The ***complete mailing address*** and ***telephone numbers*** of the corresponding author and the institution (department, faculty, university, city, country) where the work was conducted should be provided in full. When more than one author and/or authors from various departments and institutions are involved, the **[1]*author*(s)** must be numbered according to their **[1]*department*(s)**. If any of the above-mentioned information should change during the review process, please inform the Subject Editor. A ***short title*** of not more than ***45 characters*** (including spaces), should be provided for use as a running heading.

Abstract

Each manuscript must be accompanied by an abstract of approximately 150-200 words in *English*

and should be set on a *separate page* as a SINGLE paragraph (single spacing). A list of three to seven ***keywords*** in *English* is required for indexing purposes and should be typed below the abstract in alphabetical order.

Text

Start the text on a new page with the title of the article (centred and *without* the names of the authors). Follow the style of the most recent issue of the Journal regarding the use of headings and subheadings. Use only ***one line space*** after a paragraph. Only make use of ***section breaks*** and not ***page breaks***. The text, as well as the tables and figures, may not be in any other format than ***normal***. Thus, ***no style sheets*** may be used, also in the case of the list of references.

Tables and figures

Tables and figures should be numbered with *Arabic* numerals (1, 2, etc.). Tables require the heading at the *top*, while figures have the legend *below* and both must **not** be included in the cells of the table/figure. ***Note:*** Use the decimal POINT (**not** the decimal comma). The site where the table or figure should be placed in the text must be indicated clearly in the manuscript. All tables and figures are to be placed *after the reference list* with each on a ***separate page***, always ending with a ***section break***. Any preference for the use of *colour* in the case of figures or photographs must be noted and will be at an *additional cost* to the page tariff.

It is essential that tables/figures should be *contained/fit within the page setup* described earlier for this Journal. Portrait layout is preferred for all tables/figures. Tables must use separate rows/columns (do not merge cells) for each item. Figures must be in ***Word*** and *accessible to make corrections* or changes within the figure where deemed necessary. Please ensure that especially the figures are of high quality for printing purposes. Any preference for the use of *colour* in the case of figures or photographs must be noted and will be at an *additional cost* to the page tariff.

References

In the *text*, the Harvard method must be adopted by providing the author's surname and the date placed in parentheses. *For example:* Daly (1970); King and Loathes (1985); (Botha & Sonn, 2002); McGuines *et al.* (1986) or (Daly, 1970:80) where Daly is not part of the sentence and page number is added for a direct quotation. More than one reference must be arranged ***chronologically*** (Daly,

1970; King & Loathes, 1985). Note that *et al.* (italics) is used in the body of the text from the beginning when there are ***more than two authors***, but never in the list of references, where all authors must be provided.

List of references

Only the references cited in the text should be listed alphabetically according to surname (last name) of authors (uppercase) after the body of text under the heading, **REFERENCES** (uppercase) starting on a new page. In the case where the TITLE of an article, book, etc., is in any other language than English, the author must also provide an ***English translation*** of the title in parentheses (this applies to Afrikaans titles as well).

In the case of articles published in ***JOURNALS***, references listed should include the surnames and initials (upper case and with full-stop and without spaces between initials) of ***all*** authors, the date of the publication in parentheses, the full title of the article, the full title of the journal (italics and no abbreviations), the volume number, the series/issue number in parentheses (if the said journal does not use issue numbers, the month of publication should be used), followed by a colon and a space with the first and last page numbers separated by a hyphen. In the case of online journals, use "online" if page numbers are not provided. The use of the correct punctuation is of importance.

If the reference is a ***BOOK***, the surname (last name, upper case) and initials (with full-stop and without spaces) of the author or editor (Ed.) must be provided, followed by the date of publication in parentheses followed by a full-stop, the title of the book (italics) as given on the title page, the number of the edition (ed.) in parentheses, the city (and abbreviation for the state in the case of the USA OR the country) where published, followed by a colon, a space and the name of the publisher.

For a ***CHAPTER*** in a book, the page numbers of the chapter cited must be provided in parentheses (not italics) after the title of the book (pp. 20-29). For further details, authors should consult the most recent publication of this Journal for other examples.

If the reference is a ***THESIS*** (master's level) or ***DISSERTATION*** (doctoral level), italics is **not** used in the title as it is an unpublished work. Provide the name of the city, state/country, colon, university and department/faculty.

For ***ELECTRONIC SOURCES,*** all references start with the same information that would be

provided for a printed source (if available). The web page information follows the reference style. It will usually contain the name of the author(s) (if known), year of publication or last revision, title of complete work in *inverted commas*, title of web page, Uniform Resource Locater (URL) or access path in square text brackets (do not end the path statement with a full stop), full stop after the closing bracket and date of access (Retrieved on 10 December 2015].

See "How to cite information from the Internet and the Worldwide Web" at [http://www.apa.org/journals/webref.html] for specific examples. When citing a Web site in the text, merely give the author and date. When reference is made to a specific statement (quotation) in the article/document and no page number can be provided, the word 'online' is used for citing in the text (Van der Merwe, 2010:online).

When referencing an article in a ***NEWSPAPER,*** the key word of the newspaper is typed in capitals, as this is how it will appear in the ***alphabetical listing*** of references, namely ~~*The*~~ *CAPE ARGUS* (*The*) will appear under "C" or *BURGER* (*Die*) will appear under "B".

In the case of a paper presented in conference ***PROCEEDINGS***, the editors and the title of the proceedings, the page numbers of the article being referred to and the details of the congress (when and where it was held) and by whom (city, state, publisher) the proceedings was published should be provided.

Examples of style of formulations for different references

Journal

ZHENG, N.; BARRENTINE, S.W.; FLEISIG, G.S. & ANDREWS, J.R. (2008). Kinematic analysis of swing in pro and amateur golfer. *International Journal of Sports Medicine*, 29(6): 487-493.

Book

WEINBERG, R.S. & GOULD, D. (2011). *Foundations of sport and exercise psychology* (5th ed.). Champaign, IL: Human Kinetics.

Chapter in book

SCHNECK, C.M. (2010). Visual perception. In J. Case-Smith & J.C. O'Brian (Eds.), *Occupational therapy for children* (6th ed.) (pp. 373-403). Maryland Heights, MO: Mosby.

Thesis/Dissertation

SURUJLAL, J. (2004). Human resources management of professional sports coaches in South Africa. Unpublished doctoral dissertation. Johannesburg, South Africa: Rand Afrikaans University.

Proceedings of a conference

HARDMAN, K. & MARSHALL, J. (2001). Worldwide survey on the state and status of physical education in schools. In G. Doll-Tepper & D. Scoretz (Eds.), *World summit on physical education* (pp. 15-37). Proceedings of the "World Summit on Physical Education", 3-5 November 1999. Berlin, Germany: International Council of Sport Science and Physical Education (ICSSPE).

Personal communication/correspondence/interview

BOUKES, P.B. (2015). Personal communication from the Acting Director of Sport at the Nelson Mandela Metropolitan University, Port Elizabeth on 27 February 2015.

JACOBS, L. (2015). Personal interview with the Spokesperson of UNICEF, 25 August, Pretoria.

Newspaper

CAPE ARGUS (*The*) (1997). 25 March, p. 5.

Electronic source

DINOFFER, J. (2011). "Activities to build balance". *Prevent child obesity 101*. Hyperlink: [http:// www.preventchildobesity101.com/Activities/BalanceActivities.php]. Retrieved on 20 November 2012.

ADMINISTRATION

If authors honour the rules and specifications for the submission of manuscripts, unnecessary delays would be avoided. Requesting 'copyright', concerning figures or photographs, is the responsibility of the authors and should be indicated. A manuscript that does not meet the requirements, as set out above, will be returned to the author without being evaluated. A subject specialist Editor administers and coordinates the assessment of the referees and provides the final recommendation.

The corresponding author will receive a complimentary copy of the Journal and five reprints of the article that could be shared with the co-authors. The original manuscripts and illustrations will be discarded one month after publication unless a request is received to return the original to the corresponding author. A page fee of South African **R300** per page is payable on receipt of a statement issued by the Editor.

APPENDIX E: JOURNAL GUIDELINES: JOURNAL OF PHYSICAL EDUCATION AND SPORT

The Journal of Physical Education and Sport (JPES) promotes OPEN ACCES - OPEN PEER REVIEW SYSTEM and selects the best manuscripts for publication. (total transparency and collaboration between author and reviewer, if there are non-compliant elements. The final decision is taken by the editor based on discussions and clarifications author -reviewer, and based on the final report on the manuscript)

Editor-mediated review

- Editorial pre-selection of articles- final decision. The editor decides whether the article should be accepted and formulates change requirements for the authors. The editorial staff requires that all manuscripts that are sent for publication to be evaluated.

A reviewed manuscript will be subject to one of four possible outcomes regarding publication in JPES.

1. Initial rejection of the manuscript by the editing committee without further review (due to severe deficiencies in writing/content, theme)

2. Acceptance without modifications

3. Acceptance with minor modifications

4. Acceptance only after major modifications

The decision will be communicated to the respective author(s) in a strictly anonymous form. During the peer-review process, the reviewers will evaluate elements from the Evaluation Protocol that is provided below, which makes direct reference to having published a manuscript that is considered an original article.

1.Originality of the investigation	20 points
2.Scientific topicality	15 points
3.Applicability to current practice	15 points
4.Design quality of the study	10 points

5.Quality of the disclosed results	10 points
6.Clarity and depth of the discussions	10 points
7.Clarity of the conclusions	10 points
8.Accuracy of timely quotes and the bibliography	5 points
9.General language quality of the manuscript	5 points

On the basis of these considerations from the Evaluation Protocol, all manuscripts will be given a maximum number of points: < 50 points will result in rejection, >70 will result in publication, and 50-70 points will require some punctual modifications to the article before acceptance/rejection is decided.

Please write the article according to the template model.

The JPES article template can be downloaded below. Below are specific points to follow:

- Page set-up: A4 format; margins: top, bottom, left, right=2.5 cm

- Font: Times New Roman, size=10, (one row, for text); size=10, Title 13

- Full first and last name of all of the authors, which should be accompanied by their affiliations to a certain institution

- Corresponding author's email address

- Abstract of 200 – 300 words maximum, preferably structured with the following headings: Problem Statement, Approach, Purpose, Results, and Conclusions

- Keywords (4-6, font size=10, bold)

- The main text should be structured in the following manner: Introduction, Materials and Methods, Results, Discussion and Conclusions.

- Tables - Tables should be numbered consecutively in order of appearance and using roman numerals. JPES recommends that authors reduce the number of tables to a minimum. All tables must have a title placed immediately above it. All tables must be mentioned at least once in the text (e.g., "as described in Table 1"). Tables should be placed horizontally, be centred and cannot exceed a width of 150 mm. The table data should be written with a TNR, 10 pt. font.

- Figures - All illustrations (graphics, schemes, diagrams, figures, pictures, etc.) must be sequentially numbered in order of appearance and be numbered using roman numerals. All figures must have a title (caption) that is placed immediately under the figure. All figures must be mentioned at least once in the text (e.g., "as shown in Figure 1"). Figures cannot be drawn directly in the Word document. Figures must be imported either as image files (jpg, bmp, tiff, etc.), or as objects (ppt). Black and white images should be provided only in high contrast, and colour images should be provided in high resolution.

JPES's reference style

This journal follows the APA reference style.

The authors take full responsibility for the content of the articles sent for publication by signing a commitment declaration.

ETHICS OF PUBLICATION: The JPES policy regarding suspected scientific misconduct, including plagiarism, fabrication of data, and falsification, is based on the "Committee on Publication Ethics (COPE)", which can be found at www.publicationethics.org.uk.

Cover letter: All submitted articles must to be accompanied by a cover letter with an original signature that includes the copyright agreement. Proofs will be sent via email and returned within 48 hours. All questions from the reviewers must be resolved and answered and represent the final corrections and printing permission.

Clinical research or experimental studies involving human subjects. If a clinical research or experimental study involves human subjects, the study must conform to the directive of the Helsinki Declaration, and the study must have the ethical approval of the relevant institution with signatures from the ethics committee. For experiments conducted within the field of Physical Education and Sport, the author(s) must have the approval of the institution to publish the experimental data. The participants must be anonymous, both in pictures and in the text.

Editing rights: The publication of the article is conditioned on the authors' acceptance that the editor has the right to correct the text with the purpose of improving the clarity and linguistic style and/or to bring the publication to accepted standards. Editing process and acceptance for publication: The authors will be informed upon the receipt of every manuscript. All manuscripts

are peer-reviewed. The publishing decision will be provided within a maximum of 2 months from the manuscript's submission date. The editor will provide the specific journal edition in which the manuscript is likely to appear.

Online evaluation process: To maintain a transparent evaluation process on the JPES website, a list of manuscripts under evaluation, received for each issue are posted with the authors' names and institutional affiliations. The order of publication of the articles depends on the evaluation process and the maximum number of items that can be published in each issue of the journal (www.efsupit.ro).

English Language Consultation (editing and other manuscript assistance) Non-native English speakers will be asked to seek help in preparing their manuscript from specialized services that provide scientific editing and proofreading. The Journal of Physical Education and Sport recommends:

Falcon Scientific Editing, url: www.falconediting.com with free abstract editing and a 15% discount for all JPES customers. Please mention coupon codeJPES15%OFF.

All the costs will be paid by the authors for these services, and this does not guarantee acceptance for publication.

SUBMIT ARTICLES ONLINE (recommended):

OR SEND your manuscript to the Editorial office via E-mail: marian.cretu@efsupit.ro

For publication, - All authors who have accepted articles will be notified and will receive details regarding the completion of the publication process

APPENDIX F: JOURNAL GUIDELINES: JOURNAL OF PSYCHOLOGY IN AFRICA

COVID-19 impact on peer review

As a result of the significant disruption that is being caused by the COVID-19 pandemic we understand that many authors and peer reviewers will be making adjustments to their professional and personal lives. As a result they may have difficulty in meeting the timelines associated with our peer review process. Please let the journal editorial office know if you need additional time. Our systems will continue to remind you of the original timelines, but we intend to be flexible.

Thank you for choosing to submit your paper to us. These instructions will ensure we have everything required so your paper can move through peer review, production and publication smoothly. Please take the time to read and follow them as closely as possible, as doing so will ensure your paper matches the journal's requirements.

For general guidance on every stage of the publication process, please visit our Author Services website. For editing support, including translation and language polishing, explore our Editing Services website. This journal uses Editorial Manager to peer review manuscript submissions. Please read the guide for Editorial Manager Authors before making a submission. Complete guidelines for preparing and submitting your manuscript to this journal are provided below.

Editorial policy

Submission of a manuscript implies that the material has not previously been published, nor is it being considered for publication elsewhere. Submission of a manuscript will be taken to imply transfer of copyright of the material to the owners, Africa Scholarship Development Enterprize. Contributions are accepted on the understanding that the authors have the authority for publication. Material accepted for publication in this journal may not be reprinted or published without due copyright permissions. The Journal has a policy of anonymous peer review. Papers will be scrutinised and commented on by at least two independent expert referees or consulting editors as well as by an editor. A multi-layered manuscript review process is implemented to result in high quality publications: a peer review and developmental review. The peer review process addresses the prima-face merits of the manuscript's scientific contribution subject to the Editor's

discretionary decision. The developmental review by the Editorial office advises the scientific writing presentation qualities of the manuscript.

The Editor reserves the right to revise the final draft of the manuscript to conform to editorial requirements. A manuscript development support charge of US$ 1575 is levied on all accepted manuscripts and payable to the journal's US Bank account. Instructions for remitting the publication levy are provided to lead or corresponding authors by the Editorial Office. Authors will receive 50 complimentary e-prints of their published article to distribute to their colleagues and promote their work.

Publishing ethics

By submitting to the Journal of Psychology in Africa for publication review, the author(s) agree to any originality checks during the peer review and production processes. A manuscript is accepted for publication review on the understanding that it contains nothing that is abusive, defamatory, fraudulent, illegal, libellous, or obscene. During manuscript submission, authors should declare any competing and/or relevant financial interest which might be potential sources of bias or constitute conflict of interest. The author who submits the manuscript accepts responsibility for notifying all co-authors and must provide contact information on the co-authors. The Editor-in-Chief will collaborate with Taylor and Francis using the guidelines of the Committee on Publication Ethics [http://publicationethics.org] in cases of allegations of research errors; authorship complaints; multiple or concurrent (simultaneous) submission; plagiarism complaints; research results misappropriation; reviewer bias; and undisclosed conflicts of interest.

Open Access

You have the option to publish open access in this journal via our Open Select publishing program. Publishing open access means that your article will be free to access online immediately on publication, increasing the visibility, readership and impact of your research. Articles published Open Select with Taylor & Francis typically receive 32% more citations* and over 6 times as many downloads** compared to those that are not published Open Select. Your research funder or your institution may require you to publish your article open access. Visit our Author Services website to find out more about open access policies and how you can comply with these. You will be asked

to pay an article publishing charge (APC) to make your article open access and this cost can often be covered by your institution or funder. Use our APC finder to view the APC for this journal.

Corresponding authors from sub-Saharan Africa may qualify for a discounted regional open access rate. Please contact apc@tandf.co.uk to find out if you are eligible.

Please visit our Author Services website or contact openaccess@tandf.co.uk if you would like more information about our Open Select Program.

*Citations received up to Jan 31st, 2020 for articles published in 2015-2019 in journals listed in Web of Science®. **Usage in 2017-2019 for articles published in 2015-2019.

Manuscripts

Manuscripts should be written in English and conform to the publication guidelines of the latest edition of the American Psychological Association (APA) publication manual of instructions for authors. Manuscripts can be a maximum of 7 000 words.

Submission

Manuscripts should be prepared in MSWord, double spaced with wide margins and submitted via the journal's Editorial Manager system. Before submitting a manuscript, authors should peruse and consult a recent issue of the Journal of Psychology in Africa for general layout and style.

Manuscript format

All pages must be numbered consecutively, including those containing the references, tables and figures. The typescript of a manuscript should be arranged as follows:

• Title: this should be brief, sufficiently informative for retrieval by automatic searching techniques and should contain important keywords (preferably <13).

• Author(s) and Affiliation(s) of author(s): The corresponding author must be indicated. The author's respective affiliation where the work was done must be indicated. An e-mail address for the corresponding author must be provided.

• Abstract: Articles and abstracts must be in English. Submission of abstracts translated to French, Portuguese and/ or Spanish is encouraged. For data-based contributions, the abstract should be structured as follows: Objective – the primary purpose of the paper, Method – data source, participants, design, measures, data analysis, Results – key findings, implications, future directions and Conclusions – in relation to the research questions and theory development. For all other contributions (except editorials, book reviews, special announcements) the abstract must be a concise statement of the content of the paper. Abstracts must not exceed 150 words. The statement of the abstract should summarise the information presented in the paper but should not include references.

• Text: (1) Per APA guidelines, only one space should follow any punctuation; (2) Do not insert spaces at the beginning or end of paragraphs; (3) Do not use colour in text; and (4) Do not align references using spaces or tabs, use a hanging indent.

• Tables and figures: These should contain only information directly relevant to the content of the paper. Each table and figure must include a full, stand-alone caption, and each must be sequentially mentioned in the text. Collect tables and figures together at the end of the manuscript or supply as separate files. Indicate the correct placement in the text in this form <insert Table 1 here>. Figures must conform to the journals style. Pay particular attention to line thickness, font and figure proportions, taking into account the journal's printed page size – plan around one column (82 mm) or two column width (170 mm). For digital photographs or scanned images the resolution should be at least 300 dpi for colour or greyscale artwork and a minimum of 600 dpi for black line drawings. These files can be saved (in order of preference) in PSD, PDF or JPEG format. Graphs, charts or maps can be saved in AI, PDF or EPS format. MS Office files (Word, PowerPoint, Excel) are also acceptable but DO NOT EMBED Excel graphs or PowerPoint slides in a MS Word document.

Referencing

Referencing style should follow latest edition of the APA manual of instructions for authors.

• References in text: References in running text should be quoted as follows: (Louw & Mkize, 2012), or (Louw, 2011), or Louw (2000, 2004a, 2004b). All surnames should be cited the first time the reference occurs, e.g., Louw, Mkize, and Naidoo (2009) or (Louw, Mkize, & Naidoo,

2010). Subsequent citations should use et al., e.g. Louw et al. (2004) or (Louw et al., 2004). 'Unpublished observations' and 'personal communications' may be cited in the text, but not in the reference list. Manuscripts submitted but not yet published can be included as references followed by 'in press'.

• Reference list: Full references should be given at the end of the article in alphabetical order, using double spacing. References to journals should include the author's surnames and initials, the full title of the paper, the full name of the journal, the year of publication, the volume number, and inclusive page numbers. Titles of journals must not be abbreviated. References to books should include the authors' surnames and initials, the year of publication, full title of the book, the place of publication, and the publisher's name. References should be cited as per the examples below:

Journal article

Peltzer, K. (2001). Factors at follow-up associated with adherence with adherence with directly observed therapy (DOT) for tuberculosis patients in South Africa. Journal of Psychology in Africa, 11(2), 165–185.

Book

Gore, A. (2006). An inconvenient truth: The planetary emergency of global warming and what we can do about it. Emmaus, PA: Rodale.

Edited book

Galley. K. E. (Ed.). (2004). Global climate change and wildlife in North America. Bethesda, MD: Wildlife Society.

Chapter in a book

Cook, D. A., & Wiley, C. Y. (2000). Psychotherapy with members of the African American churches and spiritual traditions. In P. S. Richards & A. E. Bergin (Ed.), Handbook of psychotherapy and religiosity diversity (pp 369–396). Washington, DC: American Psychological Association.

Magazine article

Begley, S., & Murr, A. (2007, July 2). Which of these is not causing global warming? A. Sport utility vehicles; B. Rice fields; C. Increased solar output. Newsweek, 150 (2), 48–50.

Newspaper article (signed)

Landler, M. (2007, June 2). Bush's Greenhouse Gas Plan Throws Europe Off Guard. New York Times, p. A7.

Unpublished thesis

Appoh, L. (1995). The effects of parental attitudes, beliefs and values on the nutritional status of their children in two communities in Ghana (Unpublished master's thesis). University of Trondheim, Norway.

Conference paper

Sternberg, R. J. (2001, June). Cultural approaches to intellectual and social competencies. Paper presented at the Annual Convention of the American Psychological Society, Toronto, Canada

Data Sharing Policy

This journal applies the Taylor & Francis share upon reasonable request data sharing policy. Authors agree to make data and materials supporting the results or analyses presented in their paper available upon reasonable request. It is up to the author to determine whether a request is reasonable. Authors are required to **Error! Hyperlink reference not valid.** in the article and provide a Data Availability Statement. Please note that data should only be shared if it is ethically correct to do so, where this does not violate the protection of human subjects, or other valid ethical, privacy, or security concerns.

At the point of submission, you will be asked if there is a data set associated with the paper. If you reply yes, you will be required to provide the DOI, pre-registered DOI, hyperlink, or other persistent identifier associated with the data set(s). If you have selected to provide a pre-registered DOI, please be prepared to share the reviewer URL associated with your data deposit, upon request by reviewers.

Where one or multiple data sets are associated with a manuscript, these are not formally peer reviewed as a part of the journal submission process. It is the author's responsibility to ensure the soundness of data. Any errors in the data rest solely with the producers of the data set(s).

- **Data availability statement.** Authors are required to provide a data availability statement, detailing where data associated with a paper can be found and how it can be accessed. If data cannot be made open, authors should state why in the data availability statement. The DAS should include the hyperlink, DOI or other persistent identifier associated with the data set(s), or information on how the data can be requested from the authors. Templates are also available to support authors.

- **Data deposition.** If you choose to share or make the data underlying the study open, please deposit your data in a recognized data repository prior to or at the time of submission. You will be asked to provide the DOI, pre-reserved DOI, or other persistent identifier for the data set.

Contact us

If you have any queries, please contact us via our Author Services website here.

Should you wish to contact the editor directly, you can do so at the following address:
Elias.Mpofu@unt.edu

APPENDIX G: PROOF OF ACCEPTANCE/SUBMISSION (ARTICLE 1)

Manuscript for consideration of publication

Nicola Tinkler <nicolatinkler7@gmail.com> Oct 6, 2020, 8:51 PM (2 days ago)
to sajrsper

Dear Professor Moss,

We wish to submit an original research article entitled "The relationship between emotional intelligence and components of competitive state anxiety levels among South African female field-hockey players" for consideration of publication by the *South African Journal for Research in Sport, Physical Education and Recreation*.

We sincerely hope this manuscript may be of interest to you. Thank you for your valuable time, and for your consideration of this manuscript.

If possible, please confirm receipt of this email and submitted manuscript.

Thank you in advance.

Kind regards,
Nicola Tinkler
(Corresponding Author)

APPENDIX H: PROOF OF ACCEPTANCE/SUBMISSION (ARTICLE 2)

June 27, 15:00 PM

Journal of Physical Education and Sport
ISSN: online ISSN: 2247 - 806X, p-ISSN: 2247 - 8051, ISSN - L = 2247 - 8051
JOURNAL OF PHYSICAL EDUCATION AND SPORT Is a peer-reviewed scientific journal.
The journal provides open access to its content with Frequency of 6 issues per year

Main Menu

- HOME
- MISSION AND SCOPE
- ABSTRACTING & INDEXING
- EDITORIAL BOARD
- INSTRUCTIONS FOR AUTHORS
- ARCHIVE
- SUBSCRIPTIONS
- FOR REVIEWERS
- **SUBMIT ARTICLE**

We received your manuscript and thank you for choosing to publish in JPES. I will send this article to the reviewers team and then I will notify the selected authors about the acceptance decision.

Due to the large volume of correspondence we will not be able to answer everyone and we apologize for this.

Other details of the publication process will be sent ONLY to these selected authors.

Thank you

APPENDIX I: PROOF OF ACCEPTANCE/SUBMISSION (ARTICLE 3)

Manuscript for consideration of publication Inbox x

Nicola Tinkler <nicolatinkler7@gmail.com> Fri, May 15, 12:43 PM

to elias.mpofu

Dear Professor Mpofu,

We wish to submit an original research article entitled "Emotional Intelligence: A Predictor of Psychological Skills Application in Female Field-hockey Players" for consideration of publication by the *Journal of Psychology in Africa*.

We sincerely hope this manuscript may be of interest to you. Thank you for your valuable time, and for your consideration of this manuscript.

Sincerely,

Nicola Tinkler (Corresponding Author)

acceptance and apc Inbox x

Elias Mpofu Mon, Sep 21, 12:12 AM

to me

Dear Nicola:

Your revised manuscript is accepted for publication in the JPA 30 (6) December 2020
Issue, with minor edits. (note that you cannot claim a catalyst effect when this was not an intervention study).

Congratulations !!

Please find attached copy of copy acceptance letter and manuscript processing levy invoice. Kindly arrange for payment by due date and forward me proof of payment asap after.

Expect proofs from the publisher within 8 weeks.

Let me know if with questions. Thank you for choosing to publish your research with the JPA.
All my regards,
Prof. Elias Mpofu
Editor: JPA

Africa Scholarship Development Enterprize

http://www.africascholarshipdevelopmententerprize.com/

Journal of Psychology In Africa
South of the Sahara, the Caribbean and Afro-Latin America

TAX INVOICE # 2020068

September 21, 2020

Nicola Tinkler,
Physical Activity, Sport and Recreation Research Focus Area,
North-West University, Potchefstroom Campus,
Potchefstroom, 2520, South Africa

Dear Nicola Tinkler

Congratulations on the publication acceptance of your manuscript this September as follows:
Emotional Intelligence and Psychological Skills Application among Female Field-hockey Players

Your manuscript is scheduled to publish in **Volume 30 (6)** of the JPA this **December 2020**. Your Manuscript Processing Charge is invoiced. **Please pay by October 10, 2020.**

Let me know if you prefer by credit card so I can link you to the journal's accounts office for assistance with that.

When you wire the money please make sure that your bank places your name, not just the university affiliation, on the wire transfer so that we can match the payment invoice we receive with your wire transfer. Instruct your institution/payor to provide you with confirmation of payment to forward to me as proof of payment.

Thank you,
Professor Elias Mpofu, PhD, DEd Editor

Editor in Chief: Professor Elias Mpofu, College of Health and Public Services, University of North Texas, Denton, TX 76205

The Journal of Psychology in Africa is accredited by the International Bibliography of the Social Sciences (IBSS) and ISI. It is abstracted by Psychological Abstracts and Sociological Abstracts.

APPENDIX J: QUESTIONNAIRE: THE EMOTIONAL INTELLIGENCE SCALE (EIS)

EMOTIONAL INTELLIGENCE SCALE [EIS]					
Directions: Each of the following items asks you about your emotions or reactions associated with emotions. After deciding whether a statement is generally true for you, use the 5-point scale to respond to the statements.					
	Strongly disagree	**Somewhat disagree**	**Neither agree nor**	**Somewhat agree**	**Strongly agree**
1. I know when to speak about my personal problems to others.	**1**	**2**	**3**	**4**	**5**
2. When I am faced with obstacles, I remember times I faced similar obstacles and overcame them.	**1**	**2**	**3**	**4**	**5**
3. I expect that I will do well on most things I try.	**1**	**2**	**3**	**4**	**5**
4. Other people find it easy to confide in me.	**1**	**2**	**3**	**4**	**5**
5. I find it hard to understand the non-verbal messages of other people.	**1**	**2**	**3**	**4**	**5**
6. Some of the major events of my life have led me to re-evaluate what is important and not important.	**1**	**2**	**3**	**4**	**5**
7. When my mood changes, I see new possibilities.	**1**	**2**	**3**	**4**	**5**
8. Emotions are one of the things that make my life worth living.	**1**	**2**	**3**	**4**	**5**
9. I am aware of my emotions as I experience them.	**1**	**2**	**3**	**4**	**5**
10. I expect good things to happen.	**1**	**2**	**3**	**4**	**5**
11. I like to share my emotions with others.	**1**	**2**	**3**	**4**	**5**
12. When I experience a positive emotion, I know how to make it last.	**1**	**2**	**3**	**4**	**5**
13. I arrange events others enjoy.	**1**	**2**	**3**	**4**	**5**

14. I seek out activities that make me happy.	**1**	**2**	**3**	**4**	**5**
15. I am aware of the non-verbal messages I send to others.	**1**	**2**	**3**	**4**	**5**
16. I present myself in a way that makes a good impression on others.	**1**	**2**	**3**	**4**	**5**

END

APPENDIX K: QUESTIONNAIRE: THE COMPETITIVE STATE ANXIETY INVENTORY-2 (CSAI-2)

COMPETITIVE STATE ANXIETY INVENTORY-2 [CSAI-2]

DIRECTIONS: A number of statements that sport competitors have used to describe their feelings before competitions, are given below. The Questionnaire is divided into two sections. Read each statement and then circle the appropriate number to the right of the statement on the scale from 1 to 4 to indicate **how you felt 5 minutes before the most important competition you have ever competed in.** Then, for each statement, circle an appropriate number on a scale from 1 to 7 to signify how facilitative [positive] or debilitative [negative] you perceive your response to be. There are no right or wrong answers. Do not spend too much time on any one statement.

	Not at all	**Somewhat**	**Moderately so**	**Very much so**	**Very Debilitativ**						**Very Facilitativ**
1. I am concerned about this competition	1	2	3	4	1	2	3	4	5	6	7
2. I feel nervous	1	2	3	4	1	2	3	4	5	6	7
3. I feel at ease	1	2	3	4	1	2	3	4	5	6	7
4. I have self-doubts	1	2	3	4	1	2	3	4	5	6	7
5. I feel jittery	1	2	3	4	1	2	3	4	5	6	7
6. I feel comfortable	1	2	3	4	1	2	3	4	5	6	7
7. I am concerned that I may not do as well in this competition as I could	1	2	3	4	1	2	3	4	5	6	7
8. My body feels tense	1	2	3	4	1	2	3	4	5	6	7
9. I feel self-confident	1	2	3	4	1	2	3	4	5	6	7
10. I am concerned about losing	1	2	3	4	1	2	3	4	5	6	7
11. I feel tense in my stomach	1	2	3	4	1	2	3	4	5	6	7
12. I feel secure	1	2	3	4	1	2	3	4	5	6	7
13. I am concerned about choking under pressure	1	2	3	4	1	2	3	4	5	6	7
14. My body feels relaxed	1	2	3	4	1	2	3	4	5	6	7
15. I am confident I can meet the challenge	1	2	3	4	1	2	3	4	5	6	7

16. I'm concerned about performing poorly	1	2	3	4	1	2	3	4	5	6	7
17. My heart is racing	1	2	3	4	1	2	3	4	5	6	7
18. I am confident about performing well	1	2	3	4	1	2	3	4	5	6	7
19. I am worried about reaching my goal.	1	2	3	4	1	2	3	4	5	6	7
20. I feel my stomach sinking	1	2	3	4	1	2	3	4	5	6	7
21. I feel mentally relaxed	1	2	3	4	1	2	3	4	5	6	7
22. I'm concerned that others will be disappointed with my performance	1	2	3	4	1	2	3	4	5	6	7
23. My hands are clammy	1	2	3	4	1	2	3	4	5	6	7
24. I feel confident, because I mentally picture myself reaching my goal	1	2	3	4	1	2	3	4	5	6	7
25. I'm concerned I won't be able to concentrate	1	2	3	4	1	2	3	4	5	6	7
26. My body feels tight	1	2	3	4	1	2	3	4	5	6	7
27. I'm confident of coming through under pressure	1	2	3	4	1	2	3	4	5	6	7
28. I am concerned about this competition	1	2	3	4	1	2	3	4	5	6	7
29. I feel nervous	1	2	3	4	1	2	3	4	5	6	7
30. I feel at ease	1	2	3	4	1	2	3	4	5	6	7
31. I have self-doubts	1	2	3	4	1	2	3	4	5	6	7
32. I feel jittery	1	2	3	4	1	2	3	4	5	6	7
33. I feel comfortable	1	2	3	4	1	2	3	4	5	6	7
34. I am concerned that I may not do as well in this competition as I could	1	2	3	4	1	2	3	4	5	6	7
35. My body feels tense	1	2	3	4	1	2	3	4	5	6	7
36. I feel self-confident	1	2	3	4	1	2	3	4	5	6	7
37. I am concerned about losing	1	2	3	4	1	2	3	4	5	6	7
38. I feel tense in my stomach	1	2	3	4	1	2	3	4	5	6	7
39. I feel secure	1	2	3	4	1	2	3	4	5	6	7
40. I am concerned about choking under pressure	1	2	3	4	1	2	3	4	5	6	7
41. My body feels relaxed	1	2	3	4	1	2	3	4	5	6	7

42. I am confident I can meet the challenge	1	2	3	4	1	2	3	4	5	6	7
43. I'm concerned about performing poorly	1	2	3	4	1	2	3	4	5	6	7
44. My heart is racing	1	2	3	4	1	2	3	4	5	6	7
45. I am confident about performing well	1	2	3	4	1	2	3	4	5	6	7
46. I am worried about reaching my goal	1	2	3	4	1	2	3	4	5	6	7
47. I feel my stomach sinking	1	2	3	4	1	2	3	4	5	6	7
48. I feel mentally relaxed	1	2	3	4	1	2	3	4	5	6	7
49. I'm concerned that others will be disappointed with my performance	1	2	3	4	1	2	3	4	5	6	7
50. My hands are clammy	1	2	3	4	1	2	3	4	5	6	7
51. I feel confident, because I mentally picture myself reaching my goal	1	2	3	4	1	2	3	4	5	6	7
52. I'm concerned I won't be able to concentrate	1	2	3	4	1	2	3	4	5	6	7
53. My body feels tight	1	2	3	4	1	2	3	4	5	6	7
54. I'm confident of coming through under pressure	1	2	3	4	1	2	3	4	5	6	7

END

APPENDIX L: QUESTIONNAIRE: THE ATHLETIC COPING SKILLS INVENTORY-28 (ACSI-28)

ATHLETIC COPING SKILLS INVENTORY-28

Name & Surname: _____ **Date:** _____
Current position: _____

INSTRUCTIONS

A number of statements that athletes use to describe their sports related experiences are given below. Please read each statement carefully and then recall as accurately as possible how often you experience the specific statement. Do not try to portray a positive or negative image of yourself. There are no right or wrong answers. Do not spend too much time on any statement. Answer every statement with only one response and make sure you answer all 28 statements. Participation in this assessment is voluntary.

	Statements	Almost Never	Sometimes	Often	Almost Always
1	On a daily or weekly basis I set very specific goals to guide what I do.	0	1	2	3
2	I get the most out of my talent and skill.	0	1	2	3
3	When a coach or manager tells me how to correct a mistake I've made, I tend to take it personally and feel upset.	3	2	1	0
4	When I'm playing sports I can focus my attention and block out distractions.	0	1	2	3
5	I remain positive and enthusiastic during competition, no matter how badly things are going.	0	1	2	3
6	I tend to play better under pressure because I think more clearly.	0	1	2	3
7	I worry quite a bit about what others think of my performance.	3	2	1	0
8	I tend to do lots of planning about how to reach my goals.	0	1	2	3
9	I feel confident that I will play well.	0	1	2	3

10	When a coach or a manager criticises me I become upset rather than feel helped.	3	2	1	0
11	It is easy for me to keep distracting thoughts from interfering with something I am watching or listening to.	0	1	2	3
12	I put a lot of pressure on myself by worrying about how I will perform.	3	2	1	0
13	I set my own performance goals for each practice.	0	1	2	3
14	I don't have to be pushed to practice or play hard, I give 100%.	0	1	2	3
15	If a coach criticises or yells at me I correct the mistake without getting upset about it.	0	1	2	3
16	I handle unexpected situations in my sport very well.	0	1	2	3
17	When things are going badly I tell myself to keep calm and this works for me.	0	1	2	3
18	The more pressure there is during a game the more I enjoy it.	0	1	2	3
19	While competing, I worry about making mistakes or failing to come through.	3	2	1	0
20	I have my own game plan worked out in my head long before the game begins.	0	1	2	3
21	When I feel myself getting too tense I can quickly relax my body and calm myself.	0	1	2	3
22	To me, pressure situations are challenges that I welcome.	0	1	2	3
23	I think about and imagine what will happen if I fail or screw up.	3	2	1	0
24	I maintain emotional control regardless of how things are going for me.	0	1	2	3
25	It is easy for me to direct my attention and focus on a single object or person.	0	1	2	3
26	When I fail to reach my goals it makes me try even harder.	0	1	2	3
27	I improve my skills by listening carefully to advice and instructions from coaches and managers.	0	1	2	3
28	I make fewer mistakes when the pressure is on because I concentrate better.	0	1	2	3

END

APPENDIX M: QUESTIONNAIRE: THE PSYCHOLOGICAL SKILLS INVENTORY (PSI)

PSYCHOLOGICAL SKILLS INVENTORY (PSI)					
In order for you to get some use from this questionnaire it is important that you respond to the statements as **honestly** as possible. Information provided by you is confidential and will not be available to any person other than yourself and the sport psychologist. This questionnaire consists of a number of statements about the experience of competitive sport. Read each statement carefully then indicate how it applies to you when you compete in important competitions. There are no correct or incorrect answers. All you are required to do is to consider each statement in terms of your own sporting experience.					
1.	I can persevere at my sport, even when I am very tired.				
	□ Never	□ Rarely	□ Sometimes	□ Often	□ Always
2.	I set goals for my sport.				
	□ Never	□ Rarely	□ Sometimes	□ Often	□ Always
3.	Before I compete in important competitions I worry about not performing well.				
	□ Never	□ Rarely	□ Sometimes	□ Often	□ Always
4.	If I lose confidence during a competition I know how to recover it.				
	□ Never	□ Rarely	□ Sometimes	□ Often	□ Always
5.	I use fixed routines of rituals before competitions.				
	□ Never	□ Rarely	□ Sometimes	□ Often	□ Always
6.	I set aside specific times to practise my sport in my imagination (visualisation/imagery).				
	□ Never	□ Rarely	□ Sometimes	□ Often	□ Always
7.	If the odds are against winning, I am still able to produce my best effort.				
	□ Never	□ Rarely	□ Sometimes	□ Often	□ Always
8.	On a daily or weekly basis I set very specific goals for myself that guide what I do.				
	□ Never	□ Rarely	□ Sometimes	□ Often	□ Always
9.	I worry about making mistakes in important competitions.				
	□ Never	□ Rarely	□ Sometimes	□ Often	□ Always
10.	I feel threatened by important competitions.				
	□ Never	□ Rarely	□ Sometimes	□ Often	□ Always

11.	During a competition I continue to concentrate well even after making a mistake.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
12.	I can clearly visualise my future sport performances in my imagination.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
13.	If I get behind in a competition, I feel that winning is impossible.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
14.	I set realistic, but challenging goals for my sport.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
15.	The more important the competition, the more enjoyable it is for me.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
16.	Before important competitions I am confident that I can handle the pressure.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
17.	I have trouble concentrating during important competitions				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
18.	I find it difficult to visualise clear mental pictures of my sport in my imagination.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
19.	I am able to bounce back quickly after a disappointing performance.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
20.	I write down my goals for my sport.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
21.	I enjoy the challenges of important competitions.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
22.	I experience thoughts of failure during important competitions.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
23.	When unexpected things happen during important competitions it disrupts my concentration.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
24.	I visualise my sport in my imagination during practice sessions.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
25.	I strive for better performances.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
26.	I monitor the progress towards my goals.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always

27.	I can control my nervousness before important competitions.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
28.	Before important competitions I am confident that I can meet the challenges.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
29.	My concentration lets me down during important competitions.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
30.	I visualise my sport in my imagination during competitions.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
31.	I am good at motivating myself.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
32.	I set specific goals for each practice session.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
33.	I can handle the unexpected stress during important competitions.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
34.	I have doubts about my ability in sport.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
35.	My thoughts interfere with my performance during important competitions.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
36.	I visualise my sport in my imagination just before going into important competitions.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
37.	I am motivated to excel in my sport.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
38.	I set specific goals for every competition.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
39.	I worry about failing in important competitions.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
40.	My confidence tends to drop as an important competition draws nearer.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
41.	I can effectively block out negative thoughts during important competitions.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
42.	I visualise dealing with setbacks and coping with difficult situations in my sport.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always

43.	I look forward to important competitions.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
44.	My specific goals are structured to lead me to my eventual long-term goal.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
45.	I know how to make myself relax in difficult situations.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
46.	When I begin to perform poorly, my confidence drops quickly.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
47.	Negative remarks by other people (such as spectators or opponents) upset me during important competitions.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
48.	I use visualisation in the period just before the beginning of a competition.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
49.	I am a tough competitor.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
50.	My goals all have deadlines attached to them.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
51.	When I make a mistake during important competitions I become nervous.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
52.	Before an important competition I am concerned that I may not do as well as I could.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
53.	I can quickly refocus my concentration after becoming distracted during important competitions.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
54.	When I mentally practise my performance, I try to imagine what it will feel like in my muscles.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
55.	I am enthusiastic at practise sessions.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
56.	I, myself, set my goals for my sport.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
57.	I am concerned that others will be disappointed with my performance in important competitions.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
58.	Before important competitions I am confident that I will perform well.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always

59.	When a competition is not going well my concentration is easily distracted.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
60.	I can clearly visualise my previous sport performances in my imagination.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
61.	I enjoy training with others.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
62.	I worry about the rest of the team to such an extent that it affects my performance.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
63.	I have enough time to function efficiently in all areas of my life (sport, studies, work, social life, etc.).				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always
64.	My family and friends support me in my sport.				
	☐ Never	☐ Rarely	☐ Sometimes	☐ Often	☐ Always

END