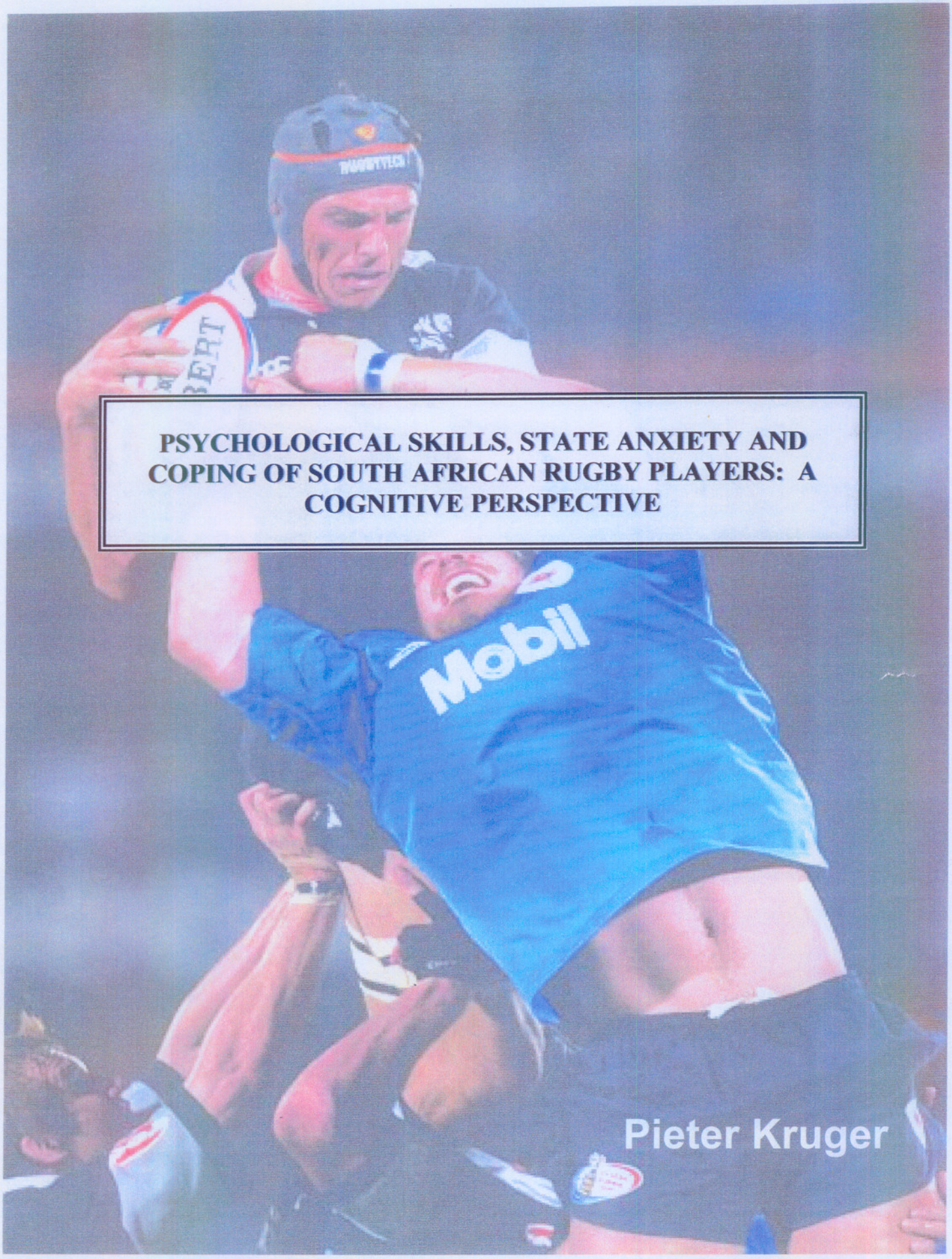


# PSYCHOLOGICAL SKILLS, STATE ANXIETY AND COPING OF SOUTH AFRICAN RUGBY PLAYERS: A COGNITIVE PERSPECTIVE

Pieter Kruger

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**PIETER KRUGER**
**(B.A., B.A. Hons., M.A. Clinical Psychology)**

Thesis submitted for the degree Doctor of Philosophy (Department of Psychology) at the North-West University

Promoter: Dr. J.C. Potgieter
Co-promoter: Prof. D.D.J. Malan

Potchefstroom Campus
South Africa
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YUNIBESITI YA BOKONE-BOPHIRIMA
NORTH-WEST UNIVERSITY
NOORDWES-UNIVERSITEIT

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# TITLE

## PSYCHOLOGICAL SKILLS, STATE ANXIETY AND COPING OF SOUTH AFRICAN RUGBY PLAYERS: A COGNITIVE PERSPECTIVE

## SUMMARY

**Objectives:** The main objective of the research in this thesis was to investigate the psychological skills, state anxiety and coping of senior rugby players in South Africa.

**Methodology:** The first manuscript (Chapter 2) was a literature review that investigated whether the coping model suggested by Moos and Shaefer (1993) could be applied to investigate the interaction between various psychological factors involved in the coping process, within a sports context. The model was evaluated by examining the relevant factors, including the environmental system, personal factors, life crises and transitions, cognitive appraisals and coping responses, as well as the general health and well-being of individuals.

The manuscripts presented in Chapters 3, 4 and 5 made use of a cross-sectional design to assess the constructs central to the stated aims of the study. The participants in this research project were from the following teams during the 2003 and 2004 seasons: South African Super 12 teams (Stormers, Bulls, Cats and Sharks); South African provincial teams (Free State Cheetahs, Gauteng Lions, North-West Leopards and the Falcons); South African club rugby teams (North-West University 1st team, Tswane University of Technology 1st team, Kimberley Combined Forces and the Leopards amateur club team). The players were psychometrically evaluated in the week leading up to an important game (usually 2-3 days before the game). The number of players included in this study was 139 Super 12 rugby players, 106 provincial rugby players and 95 club rugby players, resulting in a cumulative total of 340 senior rugby players. The Athletic Coping Skills Inventory-28 (ACSI-28) was used to evaluate the players' psychological skills

(manuscripts 2, 3 and 4). The Competitive State Anxiety Inventory-2 (CSAI-2) was used to ascertain the state anxiety of the rugby players (manuscript 3) and a biographical questionnaire (compiled by the researcher) was used to gather demographical and biographical information of the players (manuscript 4).

**Results and conclusions of the individual manuscripts:**

Δ Manuscript 1 concluded that there were substantial literature findings that supported and explained the influence of the different psychological factors that form part of the Moos and Shaefer (1993) coping model regarding the coping abilities of athletes. It appeared that this model could potentially be applied in a sports context to clarify the factors influencing the coping process of athletes.

Δ The results in manuscript 2 reported significant differences between the psychological skills of the Super 12 and club rugby players on four of the seven ACSI-28 subscales. No differences, however, could be found between Super 12 and provincial rugby players. The research further concluded that no statistically or practically significant differences in psychological skills could be found between forwards and backline rugby players or between the different positional groupings (props, hookers, locks, loose forwards, inside backs and outside backs) in senior South African rugby.

Δ Manuscript 3 concluded that senior South African rugby players with high levels of psychological skills experienced lower levels of state anxiety, and that they interpreted the state anxiety that they experienced as more facilitative to their performance. This might suggest that rugby players with high levels of psychological skills could generally cope better with the challenges of competitive rugby. Rugby players with high levels of psychological skills also experienced higher levels of self-confidence and interpreted their self-confidence as more facilitative to performance.

Δ The results in manuscript 4 suggested that certain prior experiences and a number of sports-specific perceptions could have an influence on the psychological skills of rugby players. However, the only biographical variable that appeared to be a common denominator between the high psychological skills groups on all three levels of rugby were the players' perceptions regarding their own abilities to do optimal psychological preparation before a game. The research could not indicate the direction of the interaction

between prior experience, cognitive perceptions and psychological skills, but acknowledged the strong association between these factors and the levels of psychological skills of South African senior rugby players.

## KEY TERMS

Sports psychology, state anxiety, cognitive anxiety, somatic anxiety, stress, psychological skills, coping, cognitive psychology, competitive sport and rugby.

## AFRIKAANSE TITEL

**PSIGOLOGIESE VAARDIGHEDE, KOMPETISIE-ANGS EN *COPING* VAN SUID-AFRIKAANSE RUGBYSPELERS: 'N KOGNITIEWE PERSPEKTIEF**

## OPSOMMING

**Doelstelling:** Die hoofdoel van hierdie navorsing was om die psigologiese vaardighede, kompetisie-angs en *coping* van senior Suid-Afrikaanse rugbyspelers te ondersoek.

**Metodologie:** Die eerste manuskrip (hoofstuk 2) is 'n literatuuroorsig wat ondersoek na die relevansie van die Moos en Shaefer (1993) *coping*-model binne 'n sportkonteks ingestel het. Daar is bepaal of hierdie spesifieke model gebruik kan word om die verskeie psigologiese faktore wat bydra tot die *coping*-proses in 'n enkele model te kan integreer.

Die model is geëvalueer deur die onderskeie relevante faktore van die *coping*-proses te ondersoek. Die omgewingsisteem, persoonlike faktore, lewenskrisisse en oorgangsfases, kognitiewe evaluerings en *coping*-response, sowel as die algemene gesondheid van sportlui, is deur hierdie model ondersoek.

Die manuskripte in hoofstuk 3, 4 en 5 het gebruik gemaak van enkelopname dwarsdeursnee-navorsingsontwerpe om die relevante inligting met behulp van psigometriese meetinstrumente te bekom. Die studiepopulasie het bestaan uit die volgende senior Suid-Afrikaanse rugbyspelers wat gedurende die 2003 en 2004 seisoene gespeel het: Suid-Afrikaanse Super 12-spanne (die Stormers, Bulls, Cats en die Sharks); Suid-Afrikaanse provinsiale spanne (Vrystaat Cheetahs, Goue Leeus, Noordwes-Luiperds en die Valke); Suid-Afrikaanse klubrugbyspelers (Noordwes-Universiteit se 1ste span, Tswane University of Technology se 1ste span, Kimberley Gekombineerde Magte se 1ste span en die Luiperds-amateurklubspan).

Die spelers is telkens twee tot drie dae voor 'n belangrike wedstryd psigometries geëvalueer. Die studiepopulasie het uit 139 Super 12-rugbyspelers, 106 provinsiale rugbyspelers en 95 klubrugbyspelers bestaan (N=340). Die *Athletic Coping Skills Inventory-28* (ACSI-28) is gebruik om die rugbyspelers se psigologiese vaardighede te evalueer (manuskripte 2, 3 en 4). Die *Competitive State Anxiety Inventory*-2 (CSAI-2) is gebruik om die rugbyspelers se kompetisie-angs te evalueer (manuskrip 3), terwyl 'n biografiese vraelys (wat deur die navorsers ontwerp is) gebruik is om sekere demografiese, biografiese en ander inligting van die spelers te bekom.

**Resultate en gevolgtrekkings van die onderskeie manuskripte**

Δ Manuskrip 1 het bevind dat daar 'n groot hoeveelheid literatuur is wat die relevansie van die verskeie psigologiese faktore van die Moos en Shaefer-model (1993) ondersteun en verklaar het. Dit het die relevansie van hierdie psigologiese faktore wat bydra tot die *coping*-proses verduidelik en beklemtoon. Dit het verder ook uit die resultate geblyk dat hierdie model van Moos en Shaefer (1993) wel potensieel binne 'n sportkonteks toegepas kan word om die verskeie faktore wat bydra tot effektiewe *coping* van sportlui te beklemtoon en te probeer verklaar.

Δ Die resultate in manuskrip 2 het aangedui dat daar op vier van die sewe ACSI-28 subskale betekenisvolle verskille tussen die Super 12- en klubrugbyspelers gevind is. Daar kon egter geen betekenisvolle verskille tussen die psigologiese vaardighede van die Super 12 en provinsiale rugbyspelers gevind word nie. Die resultate het voorts ook getoon dat daar geen betekenisvolle verskille tussen voor- en agterspelers gevind kon word nie, asook nie tussen die onderskeie posisionele groeperinge nie (hakers, stutte, slotte, losvoorspelers, binne-agterlynspelers, buite-agterlynspelers)

Δ In manuskrip 3 is daar bevind dat senior Suid-Afrikaanse rugbyspelers met hoë vlakke van psigologiese vaardighede laer vlakke van kompetisie-angs ervaar het. Daar is ook bevind dat die spelers met hoë vlakke van psigologiese vaardighede die angs wat hulle wel ervaar het as meer positief en voordelig vir hulle prestasie beskou het. Hierdie groep spelers het voorts ook oor beter selfvertroue beskik. Dit kan daarop dui dat spelers met

hoë vlakke van psigologiese vaardighede beter kan cope met die uitdagings en druk van kompeterende rugby.

Δ Die resultate in manuskrip 4 het aangedui dat vorige ervaring en sekere sportspesifieke kognitiewe persepsies 'n invloed getoon het op die psigologiese vaardighede van die senior rugbyspelers. Daar was egter net een biografiese veranderlike wat op al drie vlakke van rugby tussen die groepe met hoë en lae psigologiese vaardighede onderskei het, naamlik die spelers se persepsie rakende hulle vermoë om optimaal psigologies vir 'n wedstryd te kan voorberei. Die resultate kon nie onomwonde die rigting van die interaksie tussen vorige ervaring, kognitiewe persepsies en psigologiese vaardighede aandui nie. Daar is egter tot die gevolgtrekking gekom dat daar wel 'n sterk assosiasie tussen hierdie faktore by senior Suid-Afrikaanse rugbyspelers bestaan.

**SLEUTELTERME**

Sportpsigologie, kompetisie-angs, kognitiewe angs, somatiese angs, stres, psigologiese vaardighede, *coping*, kognitiewe psigologie, kompeterende sport en rugby.

## PREFACE

This thesis consists of four manuscripts (chapters 2, 3, 4 and 5) that have been submitted for publication in peer-reviewed journals*. The manuscripts were structured according to the submission guidelines of the specific journals to which they were submitted. These guidelines include suggestions regarding the spacing, format, maximum length, citations and references of each manuscript. For all the journals the authors had to follow the reference and citation guidelines in the *Publication Manual of the American Psychological Association* (5th ed., 2001). For the purpose of this academic document, however, the paragraph spacing of the manuscripts was set at one-and-a-half and the figures and tables were integrated into the manuscripts.

* Manuscript 1 (Chapter 2) submitted to: *The International Journal of Sport and Exercise Psychology*
  Manuscript 2 (Chapter 3) submitted to: *Journal of Sport and Exercise Psychology*
  Manuscript 3 (Chapter 4) submitted to: *Psychology of Sport and Exercise*
  Manuscript 4 (Chapter 5) submitted to: *Psychology of Sport and Exercise*

## OUTLINE OF STUDY

The outline of the study is presented next, as well as a brief description of the content and aims of the different manuscripts and chapters.

**Manuscript 1: An integrative model for understanding coping in sport**

The aim of this article was to ascertain whether the coping model suggested by Moos and Shaefer (1993) could be applied to investigate the interaction between various psychological factors involved in the coping process, within a sports context. The model was evaluated by integrating literature findings on all the relevant factors, including: the

environmental system, personal factors, life crises and transitions, cognitive appraisals and coping responses, as well as the general health and well-being of individuals.

**Manuscript 2: A Psychological skills profile of senior South African rugby players**

The aims of this article were 1) to determine if a relationship existed between playing position and psychological characteristics within the total group of senior rugby players, 2) to investigate if there were differences in psychological skills between the three levels of rugby players in South Africa and 3) to establish a psychological skills profile of the rugby players that were included in this research.

**Manuscript 3: The influence of psychological skills on the state anxiety of senior South African rugby players**

The first aim of this research was to determine how senior South African rugby players with high levels of psychological skills (general coping ability) differed from senior South African rugby players with low levels of psychological skills in terms of the state anxiety (intensity and direction) that they experienced. The second aim was to determine the interaction between the intensity and directional interpretation of state anxiety and specific psychological skills of senior South African rugby players.

**Manuscript 4: Prior experience, cognitive perceptions and psychological skills of senior South African rugby players**

The aim of this article was to investigate the interaction between the psychological skills, prior experience and certain cognitive perceptions of senior rugby players in South Africa. Due to the close relationship between cognitive perceptions and prior experience that was found in literature, it was also important to investigate the influence that a combination of these factors had on the psychological skills of South African senior rugby players.

| CHAPTER | CONTENT OF CHAPTER |
|---|---|
| Chapter 1 | Preface and outline of the study |
| Chapter 2 | ***Manuscript 1:*** Literature review: An integrative model for understanding coping in sport |
| Chapter 3 | ***Manuscript 2:*** A psychological skills profile of senior South African rugby players |
| Chapter 4 | ***Manuscript 3:*** The influence of psychological skills on the state anxiety of senior South African rugby players |
| Chapter 5 | ***Manuscript 4:*** Prior experience, cognitive perceptions and psychological skills of senior South African rugby players |
| Chapter 6 | General findings, conclusions and recommendations |

## AUTHORS' CONTRIBUTIONS

| Name | Role in study |
|---|---|
| Mr. P. Kruger (M.A.)<br>(Clinical Psychologist) | Responsible for collection of all the data, literature searches, statistical analyses, design and planning of all manuscripts, interpretation of results and writing of all manuscripts. |
| Dr. J.C. Potgieter (Ph.D.)<br>(Clinical Psychologist) | Promoter. Supervised the writing of manuscripts, initial planning and design of manuscripts. |
| Prof. D.D.J. Malan (Ph.D.)<br>(Sports Scientist) | Co-promoter. Supervised the writing of manuscripts, initial planning and design of manuscripts. |

| | |
|---|---|
| Prof. H.S. Steyn (Ph.D.)<br>(Statistician) | Responsible for statistical analyses and advice on the interpretation of results of manuscripts 2, 3 and 4. |

The following is a statement from the co-authors confirming their individual roles in this research as stipulated above and giving their permission that the four manuscripts may form part of this thesis.

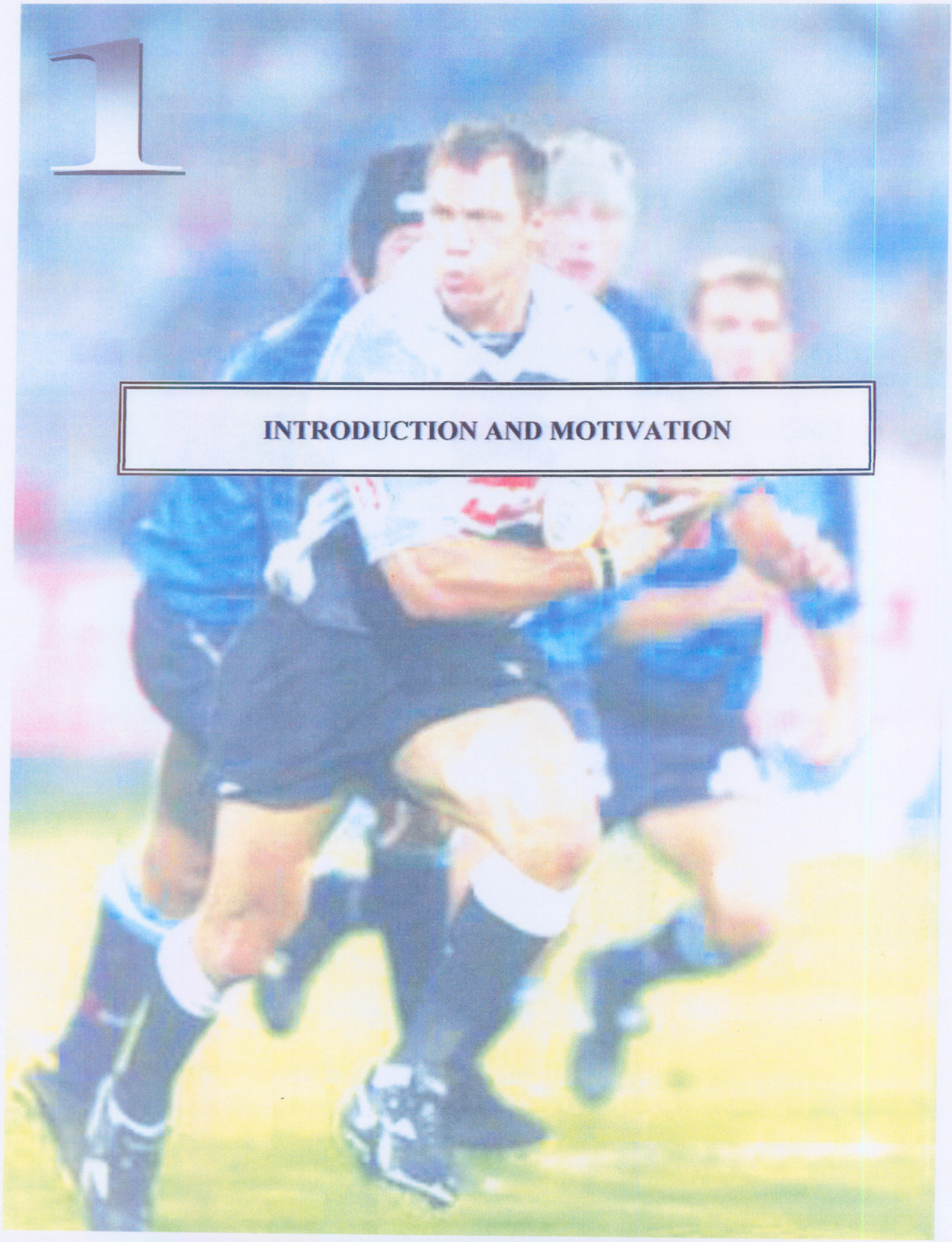
I declare that I have approved the above-mentioned manuscripts and that my role in the study as indicated above is representative of my actual contribution. I hereby give my consent that manuscripts may be published as part of the Ph.D. thesis of Pieter Kruger.

Dr. J.C. Potgieter

Prof. D.D.J. Malan

Prof. H.S. Steyn

# 1



# INTRODUCTION AND MOTIVATION

# CHAPTER 1: INTRODUCTION AND MOTIVATION

Athletes' physical attributes are very important, but psychological factors have long been known to play a significant role in sports performance. The inability to cope with psychological stress is one such factor that has played a significant role in sports participation and performance throughout history. Psychological stress can prevent athletes from coping with the demands of competitive sports and can influence their performance, as well as their general psychological health and well-being.

Coping is a complex, conscious psychological process that can be influenced by a number of factors. A literature review revealed that various conceptual models of coping have been developed and verified in mainstream psychology, but not many have been adapted to the sports environment. Since coping appeared to play such a vital role in professional sports, it was important firstly to identify a relevant coping model. The relevance of the Moos and Schaefer (1993) model was subsequently evaluated to determine if it could successfully be applied within a sports context. There were substantial literature findings that confirmed and explained the influence of different factors in the coping process, all of which form part of this inclusive model.

After this initial literature review, two of the factors that appeared to be of particular importance in the coping process of athletes were further investigated: a) psychological skills (as part of their personal system) and b) athletes' levels of state anxiety (as part of their psychological health and well-being).

1) A vast number of researchers agree that it is often the athletes' psychological functioning, rather than just their physical abilities, that will have an influence on the result at any level of competition. A number of authors state that the best rugby players in the world reach their full potential by incorporating psychological training into their daily training and pre-match routines. However, it is still unclear which specific psychological

skills will have the most prominent influence on a rugby player's or any other athlete's coping abilities.

2) Most researchers agree that state anxiety may have a negative effect on the psychological health and well-being, as well as the performance ability of competitive athletes. Empirical support for the existence of different factors that may influence an athlete's state anxiety has been found in numerous studies. Disagreement, however, still exists with regard to the exact nature of the factors that may either induce or reduce anxiety in athletes by enhancing their ability to cope with it. The question could therefore be asked if better psychological skills will assist athletes in lowering the level of state anxiety that they experience, and if so, which specific factors will play a part in this coping process.

Although research has been done on the coping abilities of athletes in different sports disciplines, there are very few research articles available on the coping abilities of senior rugby players. Even fewer research articles are available on the various sports-psychological factors that play a role in senior South African rugby players' abilities to cope. This lack of sports-psychological research within the South African rugby context highlighted the necessity to evaluate the specific factors that could influence the coping abilities of these rugby players.

## PURPOSE AND VALUE OF THIS RESEARCH

The results of an investigation into the influence of psychological skills and state anxiety on the coping abilities of senior rugby players in South Africa can be of great value to professionals working in the field of applied sports psychology. Increased understanding of the way in which different factors are interwoven and influence the rugby players' coping would enable psychologists to more easily identify the origin of problems such as state anxiety. Through the early identification of such problems, sports psychologists could implement appropriate preventative or intervention techniques, such as the development or improvement of relevant psychological skills.

## LITERATURE SEARCH

The following academic databases/search engines were used to gather literature for the relevant literature reviews: EbscoHost; Academic Search Premier; SPORT Discus; PsycInfo; PsychLit; MEDLINE; Science Direct, Google, Yahoo.

## ETHICAL CONSIDERATIONS

This research project was approved by the Ethics Committee of the North-West University (no. 04K21). Before the commencement of each psychometric evaluation, the players were informed regarding the following:

- The nature of the psychometric evaluation.
- The purpose of the psychometric evaluation.
- Accessibility of results.
- Utilization of the results.
- Issues regarding confidentiality.
- Their rights to refuse the evaluation or withdraw at any time.

After this information had been relayed to the participants, they were asked to sign an informed consent form which declared that they understood their rights, that they permitted the researcher to proceed with the evaluation and that the data could be used for research purposes.

## DEFINITIONS AND CLASSIFICATIONS

### Psychological skills

#### Definition

The term *Psychological skills* is very widely used in literature to describe a vast number of skills utilized by individuals in their ongoing efforts to manage daily stressors. For the purpose of this study, the term *psychological skills* will refer to the skills that athletes utilize in order to facilitate performance.

### Anxiety

#### Definition

Lazarus (2000) defines anxiety as an emotion that develops when a person is facing an existential threat. Anxiety is aroused when important values and goals are threatened in situations characterized by ambiguous outcomes. If a person has only limited personal resources to fight against a possible threat, an increase in his/her sense of vulnerability will result. Other researchers such as Martens et al. (1990) and Spielberger (1966) describe anxiety as a complex negative emotion with a variety of cognitive, physiological and behavioral symptoms that have often been linked to stress.

#### Classification of anxiety

**1) Trait anxiety**

Campen and Roberts (2001) state that the anxiety experienced by athletes is generally considered to contain *trait* and *state* elements. *Trait anxiety* refers to the overall level of anxiety that is consistent over time and across variable situations within a given individual.

**2) State anxiety**

*State anxiety* is multi-dimensional, with certain cognitive, emotional and physiological components that are situation-specific and most often evident prior to or during competition (Martens et al., 1990). This multi-dimensional approach to explain state anxiety refers to its subcomponents as cognitive and somatic anxiety (Martens et al., 1990; Weinberg & Gould, 2003).

**a) Cognitive anxiety**

Cognitive anxiety is the mental element of state anxiety. According to Burton (1998) cognitive anxiety in sport manifests as negative expectations regarding the attainment of success and subsequent negative self-evaluation by the individual that can prompt one or more of the following types of negative mental consequences: 1) worry and other negative thoughts, 2) images of disaster and other disturbing evaluation-related imagery, 3) concentration problems that may distract an athlete and prevent optimal focus, and 4) feelings varying between loss of control and feeling totally overwhelmed.

**b) Somatic anxiety**

Somatic anxiety, contrary to cognitive anxiety, is the individual's perception of the change in physiological response to the competition threat, owing to psychological factors (Burton, 1998; Martens et al., 1990). Somatic symptoms may include elevated heartbeat, excessive sweating, shivers, headaches, tired muscles, nausea and even vomiting or diarrhea.

Due to the fact that *trait anxiety* appears to be consistent over time and across variable situations within a given individual (Campen & Roberts, 2001), the emphases of this research will be on factors influencing the ever-changing nature of state anxiety.

## Coping

### Definition

Coping has been defined in a number of ways. However, it can be best described as the means by which a person manages or regulates his/her emotions; therefore the role of coping should not be overlooked in dealing with emotions like anxiety (Lazarus, 2000). Coping can also be viewed as a complex, conscious psychological process that refers to all the mechanisms utilized by individuals to meet a significant threat to their psychological stability and to enable them to function effectively (Anshel et al., 2001; Möller, 1990).

The process of coping commences at the initial arousal stage of an emotion and operates throughout an emotional encounter. Anshel et al. (2001) assert that the coping process should ideally link the athlete's interpretation of a stressor to their use of coping strategies. Lazarus (2000) stipulates that coping with debilitating *anxiety* is one of the most important aspects in human life and many researchers (Hall & Kerr & Matthews, 1998; Hanton & Connaughton, 2002; Hanton & Jones, 2003) agree on the importance of coping with this emotion (anxiety) in sport.

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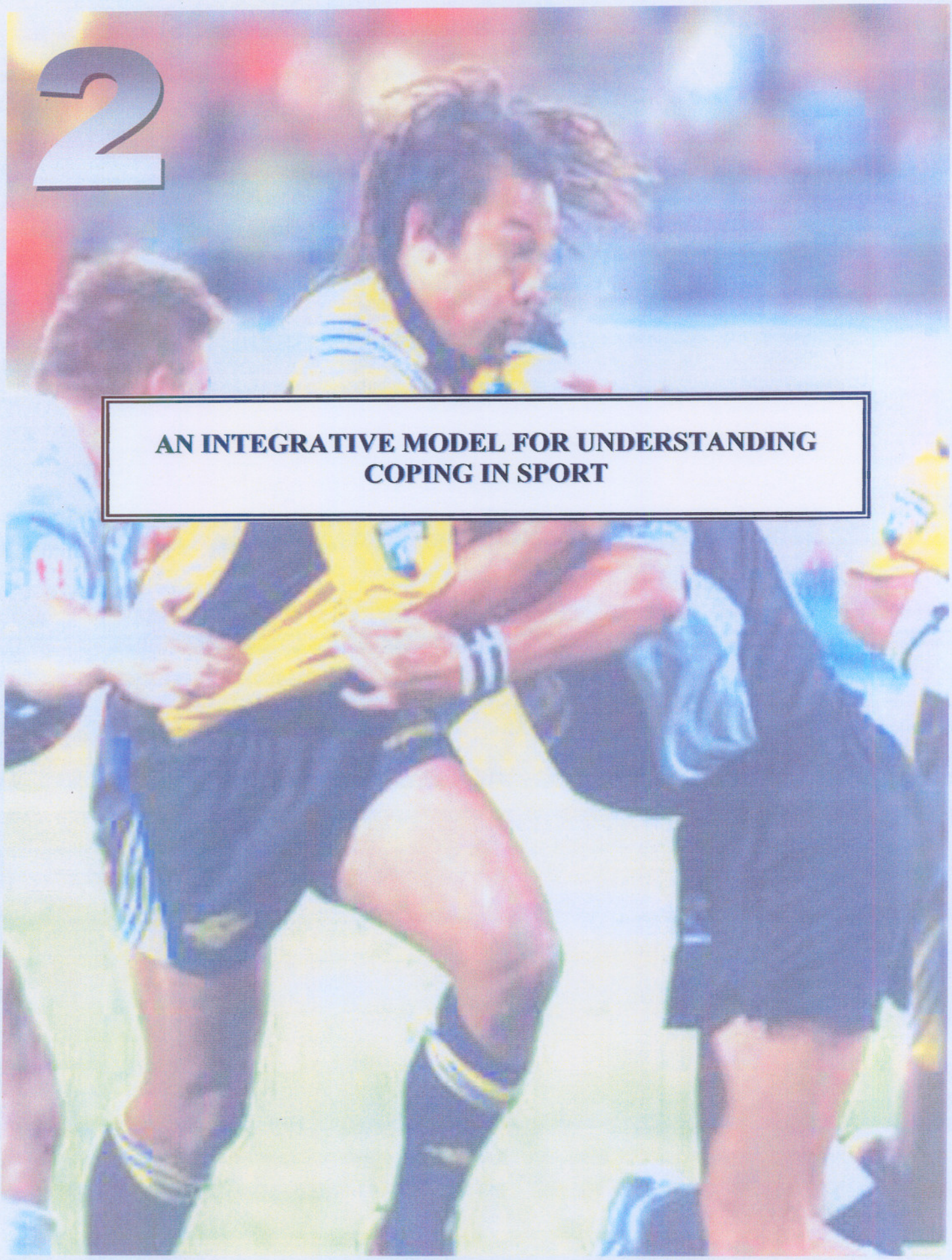
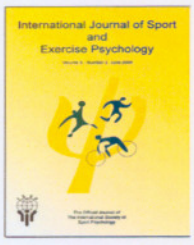


# AN INTEGRATIVE MODEL FOR UNDERSTANDING COPING IN SPORT

## CHAPTER 2: MANUSCRIPT 1

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# AN INTEGRATIVE MODEL FOR UNDERSTANDING COPING IN SPORT

[1]Pieter Kruger, [*2]Johan Potgieter, [3]Dawie Malan, [4]Faans Steyn

## ABSTRACT

Various conceptual models of the coping process have been developed and verified in mainstream psychology, but not many have been adapted to, and tested within, the sports environment. The purpose of this article was to ascertain whether the coping model suggested by Moos and Shaefer (1993) could be applied successfully to explain the interaction between various factors involved in the coping process, within the context of competitive sports. The model was evaluated by examining the relevant influencing factors, namely the environmental system, personal factors, life crises and transitions, cognitive appraisals and coping responses, as well as the influence that these factors have on the general health and well-being of individuals. A substantial amount of sports-psychological literature findings confirmed the importance of each of these factors, and indicated the degree to which existing knowledge within the field of sports psychology could successfully be integrated into the model. It appeared that the coping model of Moos and Shaefer could potentially be applied in a sports context to conceptualize the coping process, and clarify the role and influence of different factors.

Keywords: Coping, coping model, sports psychology, environmental factors, health and well-being, psychological skills, cognitive perceptions.

[1] **Mr. P Kruger** – Clinical psychologist, Private Practice, 3 Greyling Street, Jankra Building, 2nd Floor, Potchefstroom 2520, South Africa; Tel. +27 83 757 3137; fax: +27 866 414 085; e-mail: pieterkruger@wol.co.za.

[2] **Dr. J.C. Potgieter** – Senior lecturer, Department of Psychology, Potchefstroom Campus, North-West University, PO Box X6001, Potchefstroom 2520, South Africa; Tel: +27 18 299 1722; e-mail: psgjcp@puknet.puk.ac.za.

[3] **Prof. D.D.J. Malan** – Director: School for Biokinetics, Recreation and Sports Science, Potchefstroom Campus, North-West University, PO Box X6001, Potchefstroom 2520, South Africa

[4] **Prof. H.S. Steyn** – Head: Statistical Consultation Service, Potchefstroom Campus, North-West University, PO Box X6001, Potchefstroom 2520, South Africa

• Corresponding Author

## Introduction

The purpose of sports participation throughout history has been to perform optimally, to outwit the opponents and ultimately to be the best in your specific sport. In modern-day sports, sponsors, national sports unions, federations, clubs and fans all want their team or favourite athlete to be number one. Athletes (the word athlete is used here to describe all forms of sports participants) have to live with this pressure on a daily basis, and are therefore involved in a continuous quest to try and find ways of enhancing their performance.

The multi-million dollar industry that creates and supplies athletes with the necessary equipment and nutritional supplements tries to assist them in the enhancement of their physical performance. Physical attributes, however, are not all that matter in sports performance, as psychological factors have long been known to play a significant role (Griffith, 1930). Sports psychologists are constantly researching the differences in the psychological attributes of athletes on the different levels of competition. This is part of an attempt to contribute to the ongoing quest of establishing which psychological factors distinguish elite athletes from average and club level athletes.

The inability to cope with psychological stress is one factor that has robbed more athletes of physical energy, victory and enjoyment in sport than any other factor (Martens, 1987). Stress can cause interpersonal conflict, induce physical injury and even drive athletes to early retirement. Although the terms stress and anxiety are often used interchangeably in the literature, stress refers to a broader process which, if a person is unable to cope with the particular stressor, can ultimately lead to anxiety (Weinberg & Gould, 2003). Empirical support for the existence of different factors that can influence an athlete's state anxiety has been found in studies examining variables such as self-handicapping tendencies (Prapavessis, Grove, Maddison & Zillman, 2003), effects of competition location (Bray & Martin, 2003), psychological skills (Fletcher & Hanton, 2001), skills level (Hanton & Jones, 2003), pre-competitive states (Mellalieu, Hanton & Jones, 2003) and the fluctuations in state anxiety throughout competition (Butt, Weinberg & Horn, 2003). Most of the above-mentioned researchers concur that anxiety influences performance and they thus focus on finding the best way to prevent a decrease in performance due to stress and

anxiety. However, disagreement still exists with regard to the exact nature of the stress and anxiety-inducing factors in athletes, as well as their ability to cope with it. The question could therefore be asked if better coping abilities will assist athletes in achieving better performance. Even more important is to establish which factors will play a part in the coping process.

## An integrative conceptual model

Various conceptual models of coping have been developed and verified in mainstream psychology (e.g., Ayers, Sandler, West & Roosa, 1996; Carver, Scheier & Weintraub, 1989; Connor-Smith, Compas, Wadsworth, Thomsen & Saltzman, 2000; Moos & Shaefer, 1993), but not many have been adapted to the sports environment. One such model that is used for the conceptualization of the coping process is suggested by Moos and Shaefer (1993) (shown in Fig. 1). The purpose of this research is to ascertain whether this model can be applied successfully to investigate the interaction between the various factors involved in the coping process within a sport context. The applicability of this coping model will be evaluated by examining and integrating existing literature within sports psychology by means of the Moos and Shaefer model.

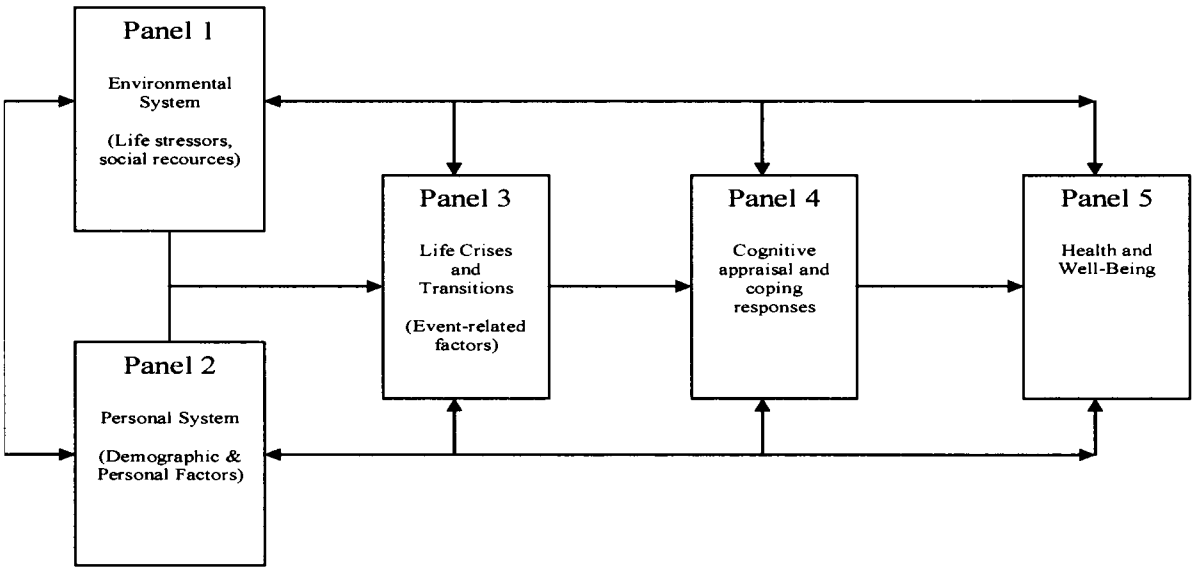


*Figure 1*: A general conceptual model of the coping process (Moos & Shaefer, 1993)

Coping has been defined in a number of ways, but can best be described as a complex, conscious psychological process that refers to all the mechanisms (as shown in Fig. 1) utilized by individuals to meet a significant threat to their psychological stability and to enable them to function effectively (Anshel et al., 2001; Lazarus, 2000; Moos & Shaefer, 1993). Within the sports environment, not all athletes are able to cope with the emotions and pressure that they experience prior to or during an important competition.

According to the conceptual model of Moos and Shaefer (1993), a number of changeable and situational factors interact in the process of shaping an individual's coping efforts, and should therefore be considered when investigating the coping process. As illustrated in Fig. 1, the environmental system (panel 1) and personal factors (panel 2) can have an influence on the general well-being (panel 5) of individuals, within the context of crises and life transitions that they face (panel 3). People's cognitive appraisal and coping responses (panel 4) in these situations will play a mediating role in determining their well-being.

The bidirectional paths in the framework (Fig. 1) indicate the interaction between panels and suggest that reciprocal feedback can occur between the different factors at any stage of the coping process. Exposure to stress appears to trigger a process of adaptation that could lead to the development of adaptive functioning (Weinberg and Gould, 2003). The model of Moos and Shaefer will be used to conceptualize the factors that are currently considered to be instrumental in coping with stress and anxiety, and to explore the applicability of this model within a sports context.

The different panels in the Moos and Shaefer (1993) model and their relevance to athletes' coping attempts in a competitive sports environment are discussed next.

### 1. Environmental factors

The environmental factors, as represented by panel 1 in the Moos and Shaefer (1993) model, include a variety of stressors that athletes have to contend with. Environmental stressors are ongoing life stressors such as financial insecurity, unsuccessful time management, marital or inter-relational problems, injury or illness and a lack of social support from family members and friends. The abovementioned stressors can influence

people's ability to cope with difficulties in life (Lazarus, 2000; Moos & Shaefer, 1993). These factors could influence athletes in their daily lives, as well as in their sports careers. The bidirectional paths in the model (Fig. 1) indicate the interaction between environmental factors (panel 1) and a number of other important factors in the coping process. Although environmental factors might not always necessarily have a direct influence on athletes' sports performance, the inability to cope with these stressors could ultimately influence their preparation and performance on the field (Kleinke, 1998; Lazarus, 2000; Rees & Hardy, 2004).

In a study on 130 elite tennis players, inadequate social support and life stressors, for example, were found to have a definite deleterious effect on their performance (Rees & Hardy, 2004). Psychologists such as Garratt (2002), however, argue that truly successful athletes should be able to perform optimally under any circumstances. Although a number of the environmental stressors such as lack of social support or financial insecurities cannot be changed easily, certain psychological skills might influence the way people react to these stressors. This raises the question of which psychological skills will assist athletes in dealing with these environmental stressors.

From this discussion it thus appears that environmental factors (panel 1) could play an important role in the coping process of athletes. Athletes with a large number of life stressors might find it more difficult to cope in life and in sport than athletes with fewer life stressors. However, it seems that insight into the stress-buffering nature of certain psychological factors might enable sports psychologists to focus on improving the relevant factors that could facilitate performance.

### 2. Personal factors

Together with the environmental system (panel 1), the personal system (panel 2) can have a significant influence on the general well-being and health of an individual. Personal factors such as sociodemographic characteristics, personal coping resources and the psychological skills of an individual might have an influence on the stress that a person sometimes experiences in day to day living (Moos & Shaefer, 1993). These factors could also have an influence on athletes in the sports arena.

As early as the 1930s, coaches became interested in the role that psychological skills play in sports performance (Griffith, 1930). Athletes and coaches realized that there were more to sports performance than just adequate training and physical ability (Murphy, 1995). Although the term *psychological skills* is currently very widely used in psychology literature, Murphy and Tammen (1998) broadly define psychological skills within the context of sport as the learned behaviours used by athletes to regulate their sports performance. These authors argue that since such skills can be learned, it is reasonable to expect that measurable differences exist in the level of psychological skills development displayed by experts and novices in various sports.

### *2.1 The importance of psychological skills*

Since psychological skills appear to make up an important part of the personal factors (panel 2) that can play a part in the coping process, it is essential for the purpose of this study to investigate the relevance of psychological skills as they apply to the coping process used by athletes in general.

Research has shown that athletes with high levels of psychological skills almost always perform more consistently and experience lower levels of state anxiety than their counterparts with low levels of psychological skills (Fletcher & Hanton, 2001; Hird, Landers, Thomas & Horan, 1991; Nideffe, Bond, Cei & Manlini, 2001). A number of other researchers agree that it is often the athletes' psychological functioning rather than their physical abilities that will have an influence on the result at any level of competition (Greenspan & Feltz, 1989; Hale & Collins, 2002; Hodge and McKenzie, 1999; Martens, 1987; Shaw, 2001; Smith & Christensen, 1995). Although a consensus seems to have emerged that athletes cognitively manage their performance by the use of skills such as goal-setting and concentration, a comprehensive model of psychological skill usage that is commonly accepted has yet to emerge.

The contribution and importance of specific psychological skills in sports performance will depend on the type of sport in which the athletes compete (Heishman & Bunker, 1989; Hodge & McKenzie, 1999; Martens, 1987; Weinberg & Gould, 2003). Hale and Collins

(2002) concluded that for rugby players to play to their full potential, they must be physically, technically, nutritionally and especially psychologically prepared. These authors state that the best rugby players in the world reach their full potential by incorporating psychological training into their daily training and pre-match routines. However, it is still unclear which specific psychological skills will have the biggest influence on a rugby player's or any other athlete's performance.

### *2.2 Sport-specific psychological skills*

All researchers do not concur on the relative importance of the different psychological skills needed in sports participation and performance. As already mentioned, researchers (Heishman & Bunker, 1989; Hodge & McKenzie, 1999; Martens, 1987; Weinberg & Gould, 2003) found that the type of sport that athletes compete in will determine the importance of the specific psychological skill.

Analyses of relevant literature in this regard, however, yielded a group of skills that seems to overlap different theories, and are continuously found in sports psychological literature. These skills include confidence, goal-setting, concentration, communication, coping with adversity, peaking under pressure, freedom from worry, achievement motivation, coachability and arousal control (Bennet & Pravitz, 1987; Hale & Collins, 2002; Hodge & McKenzie, 1999; Smith et al., 1995; Wheaton, 1998). The relevance and importance of a number of these skills to the coping and performance ability of elite and competitive athletes will be discussed briefly below.

#### *a) Goal-setting and motivation*

The types of goals that athletes set are important factors for the development of motivation. The correlation between motivation and performance is reliant on goal-setting (Bakker, Whiting & van der Brug, 1990), and it can thus be argued that an athlete with effective goal-setting strategies will most likely have better motivation, as well as better performance during the course of a season.

Odd and Hallgeir (2002) found in a study involving Norwegian Olympic athletes, that team cohesion is positively correlated with goal clarity (striving towards the same common team goal), which in turn is positively correlated with performance. Despite the fact that some

researchers (Munroe, Terry & Carron, 2002) stress the importance of setting team goals rather than individual goals (Martens, 1987), all these researchers coincide that goal-setting is one of the most important psychological skills in order to facilitate performance.

***b) Self-confidence***

The influence that self-confidence can have on sports performance is verified by a number of researchers (Butt et al., 2003; Craft et al., 2003; Hodge & McKenzie, 2002; Psychountaki & Zervas, 2000). Psychountaki and Zervas found level of self-confidence to be an important predictor in the performance of young swimmers. Self-confident athletes are more likely to remain calm under pressure because they believe in their own ability to succeed. Hodge and McKenzie (1999) stated that high levels of confidence could influence an athlete's concentration positively, lead to lower anxiety levels, and have an influence on the type of goals that an athlete will set. This positive relationship between self-confidence and performance is one of the most consistent findings in research relating to peak performance in all sports (Butt et al., 2003; Craft et al., 2003; Hodge & McKenzie, 2002).

***c) Concentration***

The type of concentration or attentional style that athletes need to compete successfully will differ between sports and between positions within the same sport. That is why it is important to evaluate an athlete's attentional style according to his specific sport and position (Summers, Christensen & Sheath, 2002). Most researchers in sports psychology are in agreement that concentration is one of the key psychological skills that can have an influence on an athlete's performance (Bennet & Pravitz, 1987; Hodge & McKenzie, 1999; Smith et al., 1995; Summers et al., 2002; Wheaton, 1998). There is a number of consistent differences that has emerged between the concentration skills of expert and novice athletes. Expert athletes attend more to advanced information than do novices and thus can anticipate better and make faster decisions. They furthermore search more systematically for cues, attend more to movement patterns of their opponents and are more successful in predicting the flight pattern of a ball than novices are (Weinberg & Gould, 2003). Research regarding the influence of concentration on sports performance is abundant.

*d) Imagery and visualization*

The term imagery can best be defined as a process of using all the senses to create or recreate an experience in the mind (Hale & Howe, 2002). Effective imagery will include and evoke the images, sounds, feelings, smells and tastes applicable to the recreation of a given situation, whereas visualization only refers to the visual element of imagery (Garratt, 2002).

The type of imagery and the way in which athletes use it can influence factors such as self-confidence. Callow and Hardy (2001) investigated the relationship between imagery type and confidence, as well as possible moderating variables such as skills level in netball players. It appeared that the more players made use of goal-achievement-oriented imagery, the better self-confidence they had. Numerous researchers agree that imagery and visualization appear to have a definite influence on a number of factors relating to sports performance and should thus be considered an important part of an athlete's repertoire of psychological skills (Callow & Hardy, 2001; Garratt, 2002; Hale & Howe, 2002; Weinberg & Gould, 2003).

*e) Coping with adversity*

Athletes often encounter adverse circumstances during competitive events, and this causes them to experience anxiety symptoms such as negative thoughts (Smith et al., 1995). These negative thoughts can lead to a number of problems, including negative expectations, poor concentration, images of failure or a decrease in self-confidence (Barnes & Swain, 2002). It therefore appears that the inability to cope with adversity could have dire consequences for the athlete in terms of a number of other psychological skills, some of which have already been discussed above.

The above-mentioned psychological skills seem to play an important part in the sports performance of competitive athletes. The use of these psychological skills appears to enhance performance and assist athletes in coping with adverse conditions. Athletes' self-reliance would increase if they acquire new psychological skills. This could help them to cope successfully with seemingly overwhelming changes and circumstances (Moos & Shaefer, 1993). It is important to remember the complex interaction between the different

panels in the coping model (Fig. 1), since a change in a specific panel will not only influence the other panels, but could also influence the total outcome of the coping process. Each path in the coping model (Fig. 1) identifies a process that is potentially alterable. The relatively stable environmental and personal factors in the coping process that have been discussed thus far might influence the other, more dynamic factors that will be discussed below.

### 3. Life crises and transitions (event-related factors)

Life crises and transitions refer to specific event-related factors that people encounter, which will usually involve a number of different factors and should not be viewed as an isolated panel. The athletes' personal factors (panel 2, including psychological skills), as well as the environmental factors (panel 1) could have a telling influence on how they deal with these life crises and transitions.

Significant changes in a person's life circumstances often occur due to the dynamic nature of the environment they live in (Moos & Shaefer, 1993). The way in which people adapt to these life transitions and crises (panel 3) might have a considerable influence on their general health and well-being, because ineffective coping will increase a person's stress levels. In a clinical psychological context, event-related factors might refer to life crises and transitions such as trauma, loss of a loved one, ageing, losing a job or conflict in a close relationship (Kleinke, 1998). In a sports context, however, these are not the only relevant type of factors that could have an influence on athletes' ability to cope. Many demands are being placed on modern-day athletes, due to the competitive environment and the stressful nature of elite sport (Jones, 1995; Swain & Jones, 1992; Weinberg & Gould, 2003). Since sport is professional athletes' job, they have to live with the pressure of performing constantly and consistently on a daily basis, in order to be assured of their income and livelihood. A competition or competitive event can therefore be viewed as a typical event-related factor that an athlete will encounter that could lead to the development of stress or anxiety.

Effective coping abilities are essential in dealing with anxiety provoking event-related factors that competitive athletes experience ever so often. Researchers consider an increase in the understanding of the antecedents of pre-competitive anxiety states in athletes as one

of the most important priorities in sport anxiety research (Hardy & Jones, 1994). One of the primary reasons for research on this topic is the significant number of athletes experiencing debilitating state anxiety responses with the onset of competition (Hall & Kerr, 1998; Hall, Kerr & Matthews, 1998). Research conducted with an elite group of swimmers found that anxiety intensity levels were higher in subjects who interpreted their anxiety as debilitative than in those who reported it as being facilitative (Jones, Hanton, & Swain, 1994). This has been found to be true for gymnasts (Jones, Swain, & Hardy, 1993) as well as basketball players (Swain & Jones, 1996). Insight into the antecedents of state anxiety could provide answers for the prevention or control of state anxiety in athletes.

The evaluation of athletes' behavioural and emotional responses to such event-related stressors has developed into a focal area of sports psychology. Many researchers have been interested in assessing anxiety responses of athletes to competitive events (Bray & Martin, 2003; Butt et al., 2003; Fletcher & Hanton, 2001; Mellalieu, Hanton & Jones, 2003; Woodman & Hardy, 2001) and the deleterious effect that high-stakes competition can have on performance (Lazarus, 2000). Coping with these event-related factors and the initiating stressors are rightly regarded as very important to all athletes who are trying to be successful in competitive sport. The combined influences of the environmental factors (panel 1), personal factors (panel 2) and event-related factors (panel 3) that have been discussed thus far are believed to shape the health and well-being (panel 5) of an athlete, both directly and indirectly through the cognitive appraisals that will be examined next (Moos & Shaefer, 1993).

## 4. Cognitive appraisal and coping responses

Several emotions (including anxiety) may occur within the same adaptational encounter. The emotion that people experience depends to a large extent on the appraisals (perceptions) of their goals, as well as their beliefs about their self, the world, personal resources (psychological skills), as well as environmental factors (Lazarus, 2000; Moos & Shaefer, 1993).

### *4.1 Cognitive appraisal*

The way in which athletes perceive their opponents can influence the result of a match, because it could lead to a number of either positive or negative emotions, including state

anxiety (Barnes & Swain, 2002; Lazarus, 2000). According to Anshel et al. (2001), anxiety begins with the athlete's appraisal of a specific event or detection of a threatening stimulus that causes him/her to form a certain cognitive perception about the event. This indicates the necessity to investigate the influence that certain cognitive perceptions have on the development of athletes' psychological skills, general behaviours and specific coping responses. Within the context of sport, this implies that if a player perceives his opponent to be better than himself (and thus makes a negative cognitive appraisal of the situation and his own abilities), chances are that he will experience a negative emotion such as anxiety, which could hinder his performance (Jones, Swain & Cale, 1991).

In a study by Kruger (2003) on South African Super 12 rugby players, the cognitive perceptions of their physical and psychological preparation in comparison with the other Tri-Nation teams (those of New Zealand and Australia) were investigated. Only 11% of the players (n=108) were of the opinion that they had had more sports psychological exposure than their Australian and New Zealand counterparts, and 71,1% of the players indicated that they perceived the Australian and New Zealand teams to have better psychological skills than they do. In contrast, 59,3% of the South African Super 12 players perceived themselves as being just as well or even better prepared physically (speed, power, fitness, ball-handling skills, etcetera.) than their Super 12 opponents. It therefore appeared as if the South African players did not attribute their poor performance in the 2003 Super 12 competition to a lack of physical preparation or skills. However, the perceived lack of sports psychological exposure and psychological skills could have accounted for the difference in performance.

Other studies (Pensgaard & Roberts, 2003; Ursin, 1988) have also shown that in order to employ the correct coping strategies that would facilitate performance, the players have to *perceive* a certain degree of control over any given situation. Perception of control is therefore related to lower levels of anxiety and better performance. Likewise, negative perceptions can contribute to anxiety in competitive sports, because public competition reveals an athlete's comparative competence in the sport to all the spectators (Lazarus, 2000). This implies that the pressure on athletes increases if they compete in front of other people, because mistakes or poor performance will be witnessed by everybody present.

This statement by Lazarus is important, because anxiety can be viewed as a negative outcome of the coping process (Kleinke, 1998). This suggests that athletes' cognitive appraisals or perceptions in a given situation can thus be viewed as important in regulating the outcome of the coping process.

Athletes' performance history and their ranking in the specific sport will influence their expectation of performance (Jones et al., 1991; Lazarus, 2000; Salvador, 2005). Their expectation of performance could influence their perception of the opponents, as well as their perception of how the fans and spectators will perceive them. This could in turn influence their coping and performance (Humara, 1999). According to Lazarus (2000), prior experience might be responsible for the development of certain psychological skills which athletes possess, rather than prior performance success. In other words, the way in which athletes perceive their own ability might be one of the most important factors in facilitating their performance (Lazarus, 2000; Murphy & Tammen, 1998).

The Cognitive Activation Theory of Stress (CATS) (Eriksen, Murison, Pensgaard & Ursin, 2005) partially supports the theories of researchers like Lazarus (2000) and Salvador (2005). Eriksen et al. (2005) suggest that it is not necessarily the performance, or the feedback from evaluation of the performance, that matters in important competitions, but rather the subjective feeling and perception of being able to perform successfully that reduces the stress responses of athletes (Eriksen et al., 2005). A major advantage with CATS is that it has a very explicit definition of coping. These researchers suggest that the type of strategy that an athlete utilizes to cope is not the main issue in sport. It is the expectation of the competition result and a higher degree of perceived control over and satisfaction with results among elite athletes participating in international competitions that are important (Eriksen et al., 2005).

One aspect that all the above-mentioned researchers agree on is that perceptions play a very important role in coping and performance in sport. In support of Moos and Shaefer (1993), these literature findings suggest that cognitive appraisals or perceptions indeed play a very important role in the coping process of athletes. Positive perceptions or appraisals seem to

assist athletes in reducing stress and coping with anxiety, which ultimately leads to a better performance.

### *4.2 Coping responses*

As discussed in the introduction, one specific factor that influences a person's well-being is the ability to cope with psychological stress. When examining the conceptual model of Moos and Shaefer (1993) it becomes clear that coping with psychological stress involves a number of factors. It appears that factors from an individual's environment, in combination with the use of psychological skills (as discussed above), will play an instrumental role in determining if the individual can cope with difficult situations and stressors. A lack of coping in this regard will cause them to experience negative outcomes, such as anxiety.

Different types of basic coping strategies are described by Moos and Shaefer (1993). They assert that an individual can approach a problem and make active efforts to resolve it (approach-coping), or try to avoid the problem (avoidance-coping) and mainly focus on managing the emotions associated with it. Pensgaard and Roberts (2003) found that it is not always easy to determine whether a coping strategy is effective or not and whether coping styles remain constant across time and situations. A number of recent studies have examined the use of coping skills and strategies employed by athletes in competitive sports settings with varying results (Gaudreau & Blondin, 2002; Gaudreau & Blondin, 2004; Gaudreau, Blondin & Lapierre, 2002; Holt & Dunn, 2004; Pensgaard & Roberts, 2003). Researchers found that athletes employ a number of different strategies, specifically when they want to alter environmental circumstances contributing to their stress (Campen & Roberts, 2001; Crocker, 1992).

An example of the stressors that elite athletes encounter, how they attempt to cope with these, as well as their perceptions of their coping responses, are apparent in a recent study by Holt and Dunn (2004). These researchers found positive relationships between personal goals, stress appraisals and coping responses of high-performance female athletes. However, it is not clear if these relationships will apply to all sports or even to all genders. Contrary to the beliefs of some researchers (Holt & Dunn, 2004; Lazarus & Folkman,

1984), Eriksen et al. (2005) suggest that the type of coping strategy or response is not the main issue in sport. They reiterate that it is the expectation of the result that is important.

After investigating literature regarding both cognitive appraisals and coping responses, it appears that these factors do not only play an important role in the coping process from a mainstream psychological perspective, but in a sports context as well. The model of Moos and Shaefer (1993) actually emphasizes the central mediating role of cognitive appraisals and coping responses in the coping process. From the discussed literature it appears that athletes' cognitive appraisals could even play a more important role than coping responses in the coping process. One could deduce that cognitive appraisals are one the most important factors in dealing with stress and anxiety. This statement can be supported from the cognitive-behavioural approach in psychology. The core belief of cognitive-behavioural therapists is that specific activating events do not cause the emotional consequences that people experience, but rather that their belief (perception) concerning the situation is responsible for the emotional reaction (Corey, 2001). There can be little doubt that cognitive appraisal will also play an important role in the coping abilities of competitive athletes.

## 5. Health and well-being

A large number of demands seem to be built into our already complex and pressured daily existence, and factors such as noise, inflation, unemployment, racism and random violence add even more stress to our lives. These demands have affected the mental health and psychological well-being of our society (Weinberg & Gould, 2003). Since athletes are part of the general community, they are not exempted from these problems and demands. In recent years there has been a growing attempt by health professionals to teach people how to decrease their risk of illness and to improve their general psychological well-being (Holahan & Moos, 1994; Kleinke, 1998). This includes the concept of primary prevention by avoiding negative health practices such as smoking, excessive alcohol use or a poor diet. Weinberg and Gould (2003) state that failure to cope with psychological stress leads to symptoms such as depression and anxiety. They further assert that anxiety-related disorders are the biggest psychological health problem in the USA for people between the ages of 18 and 54 years.

Exercise has been associated with decreased levels of depression and anxiety, but within the context of competitive sport, additional factors that come into play cause this association to be more complex. Exercise and sport can become additional stressors for professional athletes. Sport is the professional athletes' job and they have to perform constantly to be assured of their income and livelihood. As a result, the well-being and psychological health of athletes, and in fact their very livelihood, are threatened when they are unable to cope with anxiety-provoking stressors. Competition anxiety or state anxiety therefore appears to be one of the biggest threats to the psychological health and well-being of professional athletes, and it appears to play an important role in the coping process.

According to Campen and Roberts (2001), abundant research on the anxiety-performance relationship in athletes has yielded a variety of theoretical models, with varying degrees of empirical support. These models vary from the inverted U-hypothesis and drive theory to models of individual zones of optimal functioning (IZOF) in which a range of anxiety, specific to an individual athlete, is associated with optimal performance (Cox, 1994; Gould & Krane, 1992; Hanin, 2000; Martens 1987; Martens, Vealey & Burton, 1990). Anxiety in sport therefore appears to be constantly researched due to the important role that it plays, not only in performance, but also in the psychological health and well-being of athletes.

### *5.1 Anxiety*

The anxiety experienced by athletes is generally considered to contain *trait* and *state* elements. *Trait anxiety* refers to the overall level of anxiety that is consistent over time and across variable situations within a given individual (Campen & Roberts, 2001). *State anxiety* is multi-dimensional, with certain cognitive, emotional and physiological components that are situation-specific and most often evident prior to or during competition (Martens et al., 1990). Additional dimensions of state anxiety have been proposed by researchers like Jones and Swain (1992) and Jones (1995). Jones and Swain (1992) found that an athlete's directional interpretation of anxiety (perception of anxiety as being facilitative or debilitative to performance) is an important determinant of the actual effect that anxiety will have on their performance.

In a number of studies in which both the intensity and direction of state anxiety symptoms were measured, results indicated that anxiety can be perceived to have both positive and negative effects upon athletic performance (Hanton, Thomas & Maynard, 2004; Jones et al., 1994; Jones, Swain & Hardy, 1993). These and other researchers are constantly striving to gain a better understanding of the psychological skills that will enable athletes' to perceive anxiety as facilitative to performance, and to cope with debilitating anxiety. There is, however, no consensus on this question as yet.

One fact that most researchers do agree on is that state anxiety can have a negative effect on the psychological health and well-being of competitive athletes (Kleinke, 1998; Weinberg & Gould, 2003). According to the coping model of Moos and Shaefer (1993), psychological health and well-being play an important part in the coping process. It can thus be deduced from these statements that state anxiety can influence the coping process of athletes in competitive sports. To be able to cope effectively, athletes will have to be able to deal with the state anxiety they experience prior to or during competitions.

## Conclusion

After analyses of the relevant sports-related psychological and coping factors, it appears that there is currently no commonly accepted model which addresses all the relevant factors associated with coping and performance ability in sport. Research on psychological skills, state anxiety and coping in sport has been conducted on numerous occasions. However, there seems to be no universally accepted integrative framework that explains the inter-relationship between all the relevant factors and the influence these have on athletes' performance abilities. Such a model should assist in identifying the underlying cause of certain athletes' occasional inability to cope with competitive situations, which will in turn help psychologists apply the appropriate preventative or intervention techniques.

It seems that the coping model of Moos and Shaefer (1993) provides a platform and basic framework where these relevant factors can be integrated into a single model to clarify the coping process.

Although the different panels in the model of Moos and Shaefer (1993) have been discussed individually, these factors cannot be compartmentalized in practice. As the bidirectional paths in the model indicate, all these factors influence one another and elements of the different factors are visible in all the panels. The panels were individually discussed to emphasize the important role that each factor plays and to clarify its relevance to the coping process. However, there is no single factor that is involved in the coping process that does not influence or is not influenced by a number of the other factors. The discussion of the individual factors ultimately amounted to the fact that it is the combination of all these different factors, rather than any single one, that will be instrumental in athletes' coping abilities.

The literature discussed above indicated the potentially important role that the different panels in the Moos and Shaefer (1993) model play in the coping process of athletes. There were substantial literature findings that supported and explained the influence of each of these factors on the coping process. It thus appears that the model of Moos and Shaefer (Fig. 1) can potentially be applied in a sports context to clarify the factors influencing the coping process. Further research into the different constructs and the interplay between panels of the coping model will serve to elucidate the complex process of coping in sport.

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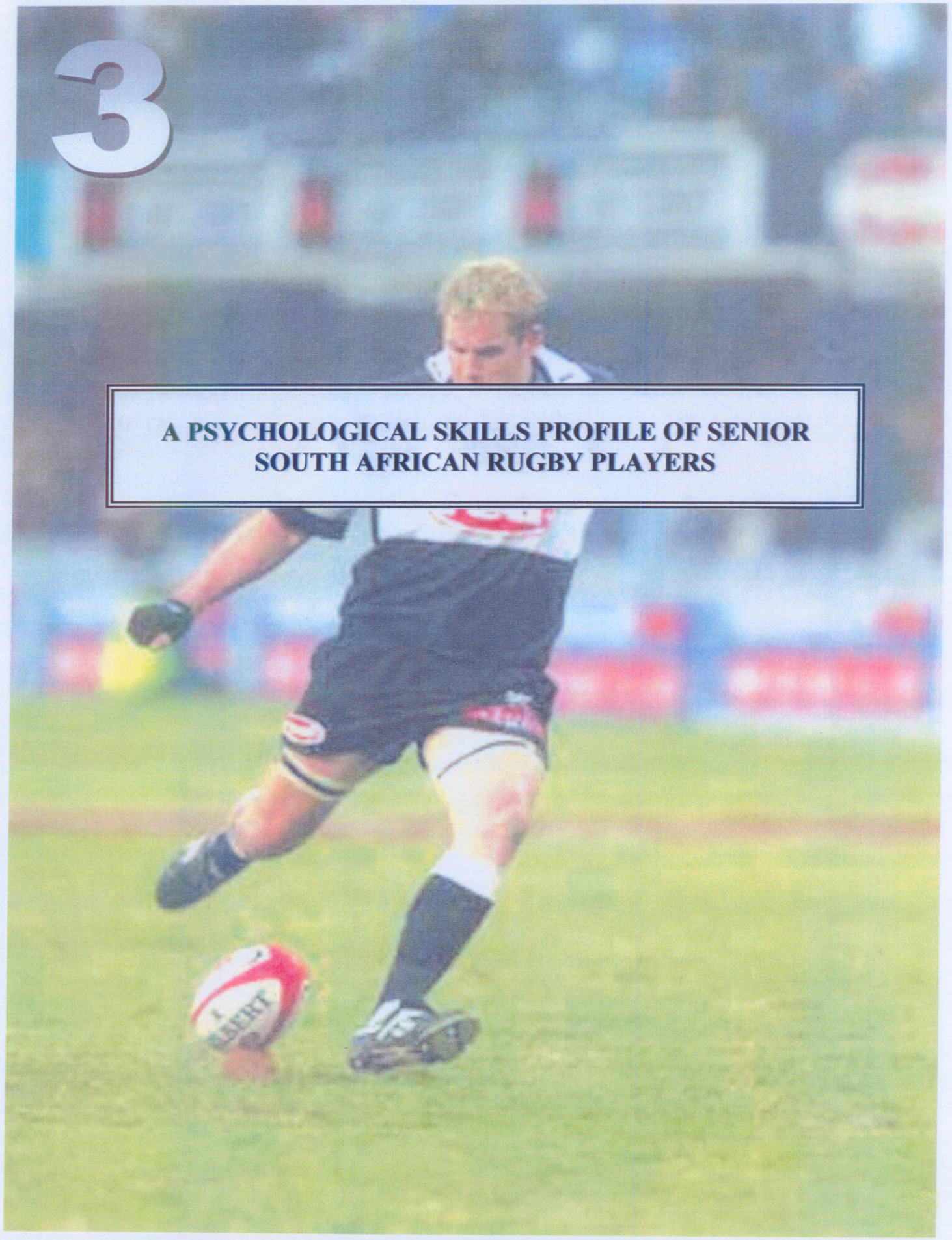
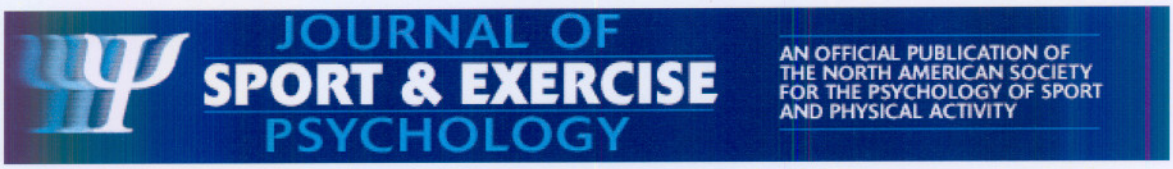


# A PSYCHOLOGICAL SKILLS PROFILE OF SENIOR SOUTH AFRICAN RUGBY PLAYERS

## CHAPTER 3: MANUSCRIPT 2

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# A PSYCHOLOGICAL SKILLS PROFILE OF SENIOR SOUTH AFRICAN RUGBY PLAYERS

[5]Pieter Kruger, [*6]Johan Potgieter, [7]Dawie Malan, [8]Faans Steyn

## ABSTRACT

The objective of this study was to determine the difference in psychological skills between senior rugby players playing in different positions, and competing at different levels of rugby in South Africa. The study population included 139 trans-national players, 106 provincial players and 95 club rugby players. A cross-sectional design was used to assess the players' psychological skills by means of the Athletic Coping Skills Inventory (ACSI-28). Results showed that the trans-national players had significantly better psychological skills than their club counterparts. The trans-national and provincial rugby players, however, did not differ significantly in any of the psychological skills. No significant differences could be found between the psychological skills of forwards and backline rugby players or between any of the different positional groupings of the rugby players. These results were used to provide a graphic illustration of the psychological skills profile of the three different levels of senior rugby players in South Africa.

Keywords: sports psychology, ACSI-28, psychological assessment, South African rugby, competitive sport.

[5] **Mr. P Kruger** – Clinical psychologist, Private Practice, 3 Greyling Street, Jankra Building, 2nd Floor, Potchefstroom 2520, South Africa; Tel. +27 83 757 3137; fax: +27 866 414 085; e-mail: pieterkruger@wol.co.za.

[6] **Dr. J.C. Potgieter** – Senior lecturer, Department of Psychology, Potchefstroom Campus, North-West University, PO Box X6001, Potchefstroom 2520, South Africa; Tel: +27 18 299 1722; e-mail: psgjcp@puknet.puk.ac.za.

[7] **Prof. D.D.J. Malan** – Director: School for Biokinetics, Recreation and Sports Science, Potchefstroom Campus, North-West University, PO Box X6001, Potchefstroom 2520, South Africa

[8] **Prof. H.S. Steyn** – Head: Statistical Consultation Service, Potchefstroom Campus, North-West University, PO Box X6001, Potchefstroom 2520, South Africa

* Corresponding Author

Comprehensive preparation is the key to success at any level of sports participation. Therefore every athlete needs to have sufficient nutritional intake, adequate technical knowledge, well-rehearsed match strategies and highly trained physiological capacities. At international level, however, the only difference between good and great athletes is often their level of psychological preparation (Smith, 2002).

An important part of this psychological preparation is the development of the ability to cope with the psychological stress that accompanies elite sports participation. In this coping process there is individual variability in people's responses to stress, which means that each individual will probably deal with the stressful situation in his/her own way. This is due to the fact that there are a number of adaptive resources and coping strategies which individuals could utilize in dealing with stress (Holahan & Moos, 1994; Moos & Shaefer, 1993).

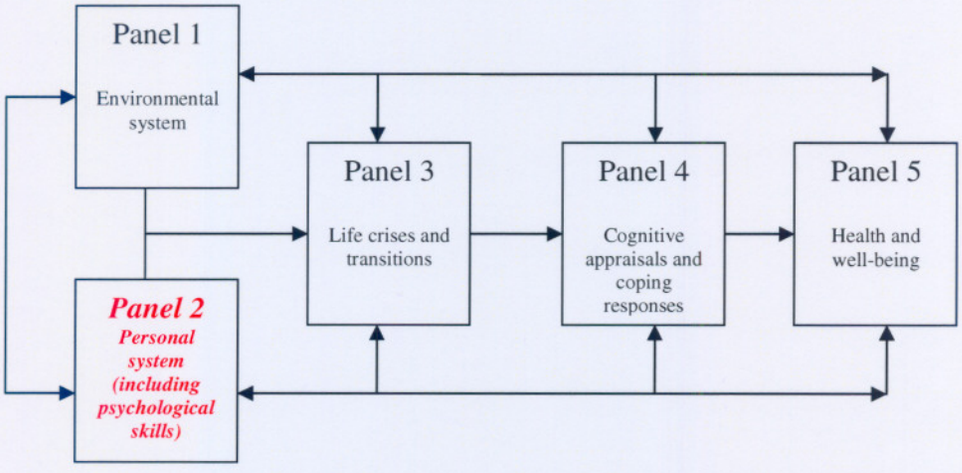


*Figure 1:* A general conceptual model of the coping process (Moos & Shaefer, 1993)

Moos and Shaefer (1993) created a general conceptual model for the explanation of the coping process (Fig. 1) in which they identified 1) the environmental system (life stressors and social resources), 2) the personal system (demographic and personal factors such as psychological skills), 3) event-related factors and 4) cognitive appraisal and

coping responses as instrumental in determining 5) the health and well-being of individuals. One factor in the coping process that has been investigated on numerous occasions is athletes' psychological skills (as part of the personal system – panel 2). After a comprehensive literature search, no information regarding the differences in psychological skills among senior rugby players in South Africa could be found. The purpose of this study is to explore the possibility that there might be important differences in the psychological skills of rugby players performing on the different levels of senior rugby in South Africa (club, provincial and trans-national). The results will be used to establish a profile of the psychological skills of the rugby players on the different levels of rugby in South Africa.

**Psychological skills and sports performance**

Nideffer, Bond, Cei and Manlini (2001) found that athletes with high levels of psychological skills performed more consistently than athletes with low levels of psychological skills. This could be explained by the fact that higher levels of psychological skills have been shown to have a positive correlation with better execution of general motor and cognitive tasks (Hird, Landers, Thomas & Horan, 1991), especially when athletes are fatigued and under physical stress (Booras, 2001). In accordance with these findings, research by Feltz and Landers (1983) as well as Greenspan and Feltz (1989) has confirmed that subjecting athletes to the approaches inherent in various thought processes has a beneficial impact on motor skill performance.

The question arises whether a specific selection of psychological skills exists that would facilitate exceptional sports performance when developed optimally. One factor that should be taken into account is that the type of sport that athletes compete in will determine the specific psychological skills that they will need in their quest for better performance (Martens, 1987). Smith and Christensen (1995) found that psychological skills accounted for significant amounts of variance in the athletic performance of baseball players, specifically on some of the subscales of the Athletic Coping Skills Inventory-28 (ACSI-28, Smith et al., 1995). The ACSI-28 was a better predictor of athletic success in these baseball players than the assessment of physical skills. However, it is not clear if the same skills would facilitate optimal performance in other sports, such as rugby.

Hale and Collins (2002) stated that for rugby players to play to their full potential, they must be physically, technically, nutritionally and psychologically prepared. They further added that the best rugby players in the world reach their full potential by incorporating psychological training into their daily training and pre-match routines. It thus appears that the key difference between a good performance and a poor performance on an elite level in rugby could be the level of psychological skills, rather than just good physical abilities (Hale & Collins, 2002; Hodge & McKenzie, 1999). However, it is still unclear whether the overall psychological skills level, or rather the eminence in certain specific psychological skills, would differentiate between good and exceptional rugby players.

Research in this regard is complicated since the effect that psychological skills will have on a specific athlete might be influenced by a number of other factors. Environmental influences, crises and life transitions, the cognitive appraisals and coping strategies that athletes employ as well as the state of their general health and well-being may influence the impact of psychological skills (Mahoney, Gabriel & Perkins, 1987; Moos & Shaefer, 1993; Shaw, 2001; Smith & Christensen, 1995; Smith, Shutz, Smoll & Ptacek, 1995).

**Psychological skills and playing position**

An important aspect of performance in team sports that has not been adequately investigated is the relationship between players' positions in a team and their psychological skills. This area of research is vital, because in order to perform optimally, different positions within a team often demand the successful application of different sets of skills (Cox & Yoo, 1995).

A review of research investigating the relationship between playing position and psychological characteristics of players involved in different team sports produced few results. In a study of American football players, Cox and Yoo (1995) found a difference in psychological skills between linesmen (forwards) and backfield players. However, it is unclear if such differences will be found in South African rugby players. No literature that addresses the topic of position-specific psychological skills in rugby could be found. Investigations by Kirkoaldy (1982), Nation and LeUnes (1983), Schurr, Ruble, Nisbet and Wallace (1984) and Cox (as cited in Cox & Yoo, 1995), however, did provide

tentative support for the hypothesis that a relationship does exist between psychological characteristics and player position.

### The assessment of psychological skills

The assessment of athletes' psychological skills is of both theoretical and practical interest to sports psychologists. A number of methods have been developed to assess the psychological skills of athletes, including a wide range of inventories, qualitative interviews, observational techniques and single-subject designs. Existing psychological skills inventories include questionnaires such as the Athletic Motivation Inventory (AMI; Tutko, Lyon & Ogilvie, 1969), Psychological Performance Inventory (PPI; Loehr, 1986), the Psychological Skills Inventory for Sports (PSIS; Mahoney et al., 1987), the Sport-Related Psychological Skills Questionnaire (SPSQ, Nelson & Hardy, 1990), the Athletic Coping Skills Inventory-28 (Smith et al., 1995), the Psychological Skills Inventory for Sport (PSI; Wheaton,1998) and the Test of Performance Strategies (TOPS; Thomas, Murphy & Hardy, 1999). It is evident from this list, which is by no means exhaustive, that there is always some kind of shortcoming to or criticism to be levelled against any particular inventory. Therefore researchers will always attempt to develop a better, more comprehensive questionnaire than the existing ones. Apart from the criticism against the psychological skills questionnaires themselves, there is also a shortcoming in terms of relevant norms to interpret the results accurately and effectively when using these questionnaires within a rugby context.

Although a psychological skills profile will not provide normative data for comparison, it will give athletes a provisional means to evaluate themselves and compare their perceived psychological skills to those of other athletes in the same sport. Such a profile, however, will only be of use if the measured constructs can be viewed as reliable and valid, and the researcher thus has to be very careful when deciding which psychometric instrument to use.

**Preamble to research**

It is important to investigate the differences between the psychological skills of elite and amateur rugby players, in order to determine the effect that personal factors (panel 2), and more specifically psychological skills, have on the coping abilities of rugby players. If there is a difference between the psychological skills of the different levels or positional groupings of senior rugby players in South Africa, it is imperative that a psychological skills profile be developed. This might provide future researchers and practitioners with provisional guidelines against which teams can be compared.

The aims of this article are 1) to determine if a relationship exists between playing position and psychological characteristics within the total group of senior rugby players, 2) to investigate if there is a difference in psychological skills between the three levels of rugby players in South Africa, and 3) to establish a psychological skills profile of the rugby players that are included in this research.

## METHOD

### *Research design*

A cross-sectional design was used to assess the psychological skills central to the stated aims of this study. The players were psychometrically evaluated during a single session in the week leading up to an important game (usually 2-3 days before the game).

### *Participants*

The participants in this research project were senior South African rugby players representing all three levels of senior rugby (regional/trans-national level e.g. Super 12, provincial level e.g. Currie Cup and Vodacom Cup, as well as club level e.g. Super Sport National Club Championships) during the 2003 and 2004 seasons.

After permission had been obtained from the technical advisory committee of the South-African Rugby Football Union (SARFU), data were gathered from all four the South African Super 12 teams (Stormers, Bulls, Cats and Sharks).

Data were also gathered at provincial level from two large provincial rugby unions (Free State Cheetahs and Gauteng Lions Rugby Union) and two smaller rugby unions (Leopards Rugby Union and the Falcons Rugby Union). At club level, four of the best club rugby teams, including two university teams (North-West University 1st team and Tswane University of Technology 1st team), one open club (Kimberley Combined Forces) and one combined club (the Leopards Amateur team) also participated in this study. Three of the four club teams were rated in the top eight club teams in 2004.

Each team consisted of a squad of between 22 and 30 players. The number of players included in this study was thus 139 Super 12 rugby players, 106 provincial rugby players and 95 club rugby players, resulting in a cumulative total of 340 senior players.

***Psychometric instruments***

The Athletic Coping Skills Inventory-28 (ACSI-28) was used to evaluate the psychological skills of the rugby players. College level athletes were used in the standardization of this questionnaire. This inventory was designed to assess psychological skills (Smith et al., 1995), but in certain instances the subscales of the ACSI-28 represent varied skill domains (Murphy & Tammen, 1998). All these subscales, however, will be referred to as psychological skills in this research. It has an internal validity of 0,86 (N=1027) and the test-retest reliability after a period of one week was found to be 0,87 (N=97) (Smith et al., 1995). The ACSI-28 consists of seven subscales measuring 1) coping with adversity, 2) peaking under pressure, 3) goal-setting, 4) concentration, 5) freedom from worry, 6) confidence and achievement motivation, as well as 7) coachability. This inventory also yields a total *Personal Coping Resource* score, which is assumed to reflect a multi-faceted psychological skill construct reflecting an athlete's overall coping ability.

***Procedure***

The relevant rugby union or club was contacted prior to every evaluation and the rationale of the research project was explained to the team management and players. After the relevant authorities had granted permission for the research to be conducted, a

time (as close as possible to an important game) and venue were negotiated with the coach.

***Ethical considerations***

This research project was approved by the Ethics Committee of the North-West University (no. 04K21). Participation in this research project was voluntary. Before the commencement of each psychometric evaluation, the players were informed of all the ethical considerations relevant to this type of research, as well as their rights to refuse the evaluation or withdraw at any time.

***Statistical analyses***

The Wilks test was used to do a multivariate analysis of variance (MANOVA) on the subscales of the ACSI-28 to compare the psychological skills of the different levels of players. When statistical significance was established, one-way analyses of variance (ANOVA), followed by Tukey HSD multiple comparisons, were performed on each of the subscales and the total of the ACSI-28. The Tukey tests were used to make the three possible pair-wise comparisons between the level-means for each subscale and total (Tabachnick & Fidell, 2000).

Since the research group was not a randomly selected group, non-parametric statistical procedures had to be used for the evaluation of the various positions and player levels. For both these cases, effect size indices can be used.

Effect size indices were calculated following each of the above stages. For the MANOVA the omnibus effect size was obtained by calculating 1 minus Wilks' lambda (Kline, 2004), which gives the multivariate proportion of total variance explained by the variability among all the levels. For ANOVA the omnibus effect size, eta-squared, was obtained as the ratio of the ANOVA sum of squares for levels to the total sum of squares (Kline, 2004). Guideline values suggested by Cohen (1988) are:

- eta-square = 0,01: small effect
- eta-square = 0,06: medium effect
- eta-square = 0,14: large effect

To establish practical significance for each of the pair-wise comparisons of means, Cohen's *d* (Cohen, 1988) was used by dividing the difference in means by the common standard deviation of all levels (obtained as the square root of the ANOVA means square error). The following guidelines apply:

- d = 0,2: small effect
- d = 0,5: medium effect
- d = 0,8: large effect

These guidelines should not be strictly and rigidly applied. These are only *guidelines* and should be used accordingly (Steyn, 2005). For the purpose of this study, any value of 0,3 and above will be regarded as practically significant and discussed, since it tends to be moving towards a medium effect.

## RESULTS

***Differences between positional groupings of senior South African rugby players***

Firstly, the difference in psychological skills between the positional groupings (props, hookers, locks, loose forwards, inside backs and outside backs), as well as differences between forwards and backline players of the entire research population, was investigated. Contrary to the findings of Cox and Yoo (1995), no differences could be found between the psychological skills of the different positional groupings of the research population. The table with the results is omitted from this article, since no significant differences between the psychological skills of these groups were established. The psychological skills of South African senior rugby players also did not differ for forwards and backline players.

***Differences between Super 12, provincial and club rugby players***

As indicated above, it was established that there were no differences of either statistical or practical significance between the psychological skills of the different positional groupings in the research population as a whole. The focus then moved towards establishing whether there were differences in the psychological skill levels of senior rugby players competing on the three different levels of rugby in South Africa. In Table 1

the descriptive statistics for the different psychological skills (ACSI-28) between the three levels of rugby players are presented.

Table 1: *Descriptive statistics of the psychological skills (ACSI-28) of the three different levels of senior South African rugby players*

| | Super 12 (n=139) | Provincial (n=106) | Club (n=95) |
|---|---|---|---|
| ACSI-28 skill | Mean and SD | Mean and SD | Mean and SD |
| Coping with adversity | 8,09 ± 2,21 | 7,95 ± 2,03 | 7,33 ± 2,25 |
| Performance under pressure | 9,08 ± 2,03 | 8,63 ± 1,88 | 8,43 ± 2,51 |
| Goal-setting | 6,55 ± 2,21 | 5,99 ± 1,90 | 5,81 ± 2,10 |
| Concentration | 8,58 ± 2,90 | 8,21 ± 2,72 | 7,77 ± 3,00 |
| Freedom from worry | 7,44 ± 2,49 | 7,00 ± 2,41 | 6,33 ± 2,10 |
| Performance motivation | 8,61 ± 2,87 | 9,16 ± 1,59 | 8,76 ± 1,99 |
| Coachability | 9,48 ± 2,15 | 9,58 ± 2,00 | 8,53 ± 2,13 |

The maximum score that could be obtained on each subscale was twelve. With the exception of the *performance motivation* and *coachability* subscales, there is an overt and progressive decline in the scores obtained by the Super 12 compared to provincial compared to club rugby players. Investigation of the statistical and practical significance of these differences in the psychological skills scores between the three levels of rugby players revealed the following:

Table 2: *The results of the Wilks test for the differences in psychological skills (ACSI-28) between the three levels of senior South African rugby players (N=340)*

| | Test | F | df1 | df2 | p | eta-square |
|---|---|---|---|---|---|---|
| ACSI-28 | Wilks | 108,57 | 6 | 331,0 | p<0,0001 | **0,663** |

The Wilks test was used to determine whether there was a global difference between the psychological skills of the three levels of rugby players in South Africa. The results in Table 2 show that there were statistically significant differences between the three levels (p<0,0001), as well as a practically significant difference of large effect (eta-square=0,663). Although this indicated that there were definite differences between the levels of rugby players with regard to the psychological skills that they possessed, the Wilks test did not indicate between which levels these differences occurred. In order to

determine the origin of these differences, further analyses of the general coping resource score (the composite score obtained from the ACSI-28 subscales that gives an indication of general coping ability) were conducted.

Table 3: *Statistical comparison of the ACSI-28 general coping resource score for the three levels of senior South African rugby players (p-values)*

| Level | n | Mean | Difference between levels | p |
|---|---|---|---|---|
| Super 12 | 139 | 8,26 | Super 12 – Provincial | 0,610 |
| Provincial | 106 | 8,07 | Super 12 – Club | **0,006†** |
| Club | 95 | 7,61 | Provincial – Club | 0,075 |
| Total | 339 | 7,95 | | |

†p<0,05

The results in Table 3 indicated that there was a statistically significant difference (p=0,006) between the general coping resource scores of the Super 12 and of the club rugby players (Table 3). The difference between the Super 12 and provincial players were not of any significance, and there was also no significant difference between the provincial and club players. The Super 12 players thus appeared to have significantly higher levels of psychological skills (culminating in a higher coping resource score) than the club rugby players. These results, however, did not divulge which psychological skills played an important role. Closer attention was subsequently given to the specific psychological skills which constituted the total ACSI-28 score of the players on the three different levels of rugby in South Africa.

Statistical differences between Super 12 and club rugby players were found on three of the seven ACSI-28 subscales. More specifically, the Super 12 players appeared to have significantly better concentration skills (p=0,024), experienced less worry in competitive situations (p=0,004) and were more coachable than their club counterparts (p=0,010). From an applied psychological viewpoint, however, practical significance would be of more importance than statistical significance. Subsequent analyses (shown in Table 4) revealed that four of the seven ACSI-28 subscales showed practically significant differences of at least small to medium effect between Super 12 and club rugby players.

Table 4: *Statistical comparison of the ACSI-28 psychological skills for the three levels of senior South African rugby players (practical significance; Cohen's d-values)*

| Level | Cope with adversity | Performance under pressure | Goal-setting | Concentration | Freedom from worry | Performance motivation | Coachability |
|---|---|---|---|---|---|---|---|
| Super 12 – Provincial | 0,068 | 0,218 | 0,185 | 0,168 | 0,192 | -0,214 | -0,094 |
| Super 12 – Club | 0,173 | **0,312*** | 0,247 | **0,378*** | **0,461*** | -0,037 | **0,420*** |
| Provincial - Club | 0,104 | 0,095 | 0,063 | 0,210 | 0,270 | 0,177 | **0,514*** |

*d> 0,3

Apart from the differences already mentioned, the *Performance under pressure* subscale ($d$=0,312) indicated that the Super 12 players appeared to be better able to stay composed and effectively manage pressure in big matches than their club counterparts, especially when the stakes were high. It is also an indication that the Super 12 players probably were challenged rather than threatened by pressure situations. The Super 12 players furthermore had a significantly higher *concentration* score than club rugby players ($d$=0,378). The elite rugby players thus appeared to have the ability to focus their attention on a specific task and to keep that focus for a prolonged period of time. This also indicated the ability to block out distracting external stimuli and to cope with unexpected situations.

According to the abovementioned ACSI-28 results, the Super 12 players tended to perform better under pressure than club rugby players. This was also indicated by the significantly higher score obtained on the *Freedom from worry* subscale ($d$=0,461). This subscale gives an indication of the players' ability to cope with external pressure as well as pressure created from their perceptions of the given game situation. Players with low scores on this subscale might tend to play negative, conservative rugby because they are afraid of making mistakes. This causes much less creative play and more stereotyped rugby, because players are afraid of playing innovative and higher-risk rugby. Therefore a player with less worry or anxiety will tend to perform better under pressure.

Super 12 ($d$=0,420) and provincial rugby players ($d$=0,514) were both shown to have significantly higher scores on the *coachability* subscale than the club rugby players

(Table 4). This subscale quantifies the players' reactions in situations where they are confronted or addressed by the coach or members of the team management. Different individuals react differently to criticism and this could indicate that the elite players (provincial and Super 12) were more open to instructions and were willing to learn and accept constructive criticism from their coaches without taking it personally or becoming upset.

***Psychological skills profile***

The ACSI-28 results in Table 4 show that the Super 12 rugby players had practically significant better scores on four of the seven subscales than club rugby players. In contrast, Super 12 and provincial rugby players did not differ significantly on any of the seven ACSI-28 subscales. The values that were used for the psychological skills profile in Fig.2 were obtained from the result in Table 1.

Although this research did not address the rugby players' physical skills, there appears to be a possibility that the ACSI-28 could provisionally be used to differentiate between elite and club rugby players in senior South African rugby. This seems to offer support to the suggestion made by Hodge and McKenzie (1999) as well as Hale and Collins (2002) that the key difference between a good performance and a poor performance on an elite level in rugby is often on the level of psychological skills, rather than just good physical skills. The psychological skills scores of the Super 12 and the club rugby players are illustrated in Fig. 2.

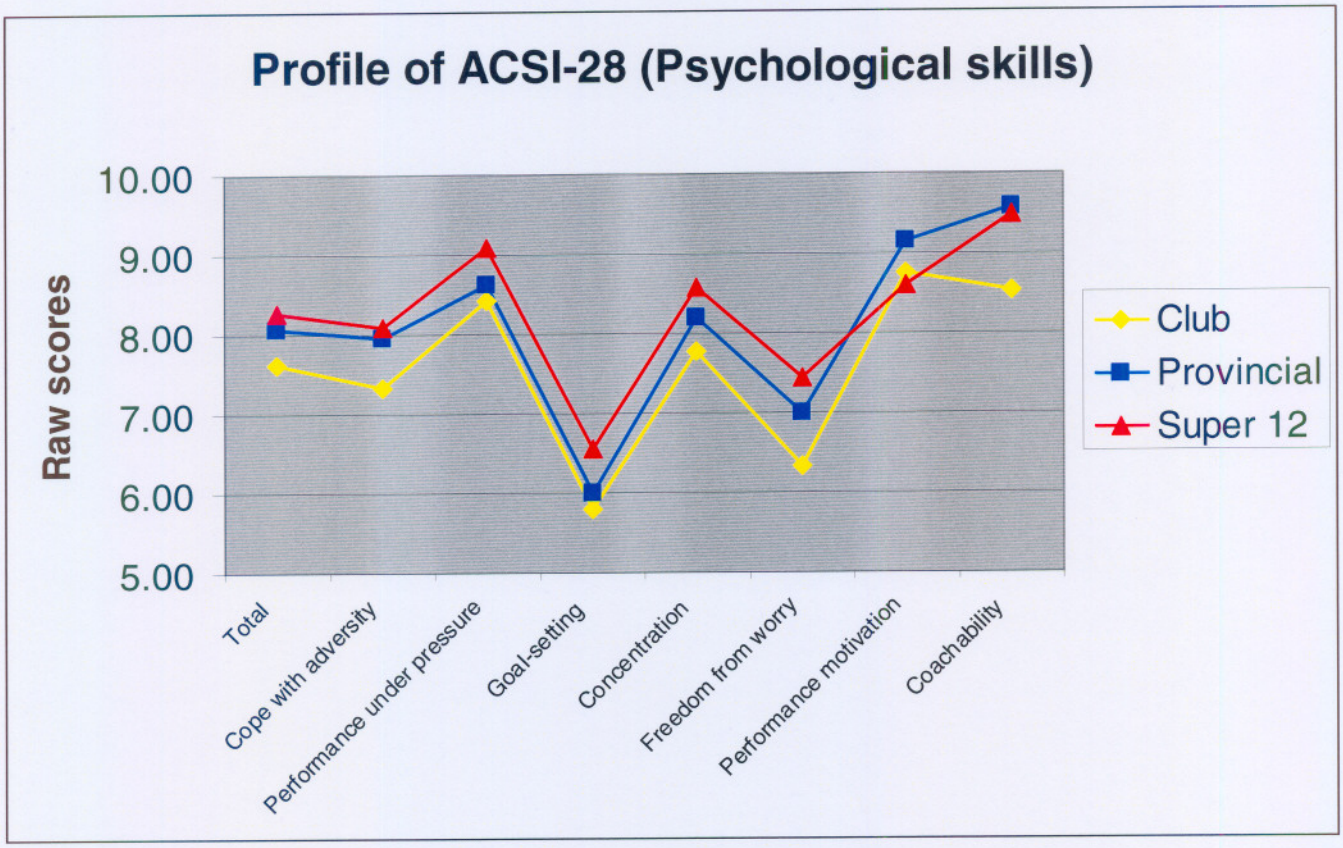


*Figure 2*: A psychological skills profile (ACSI-28) of the Super 12, provincial and club rugby players in South Africa

## DISCUSSION

The lack of authentic scenarios involving elite athletes (specifically in team sports such as rugby) is one of the reasons for the limited research findings regarding the role of psychological skills in elite sports performance. The relatively small number of elite athletes in every sport often leads to small sample sizes in research projects and a subsequent lack of statistical power (Pensgaard & Roberts, 2003). At the same time one can argue that if there is a high response rate (as was the case in this research), one is dealing with the total population of athletes. The extent to which these results can be generalized and applied to other populations thus becomes limited. However, the purpose of this research was not to generalize results to the general rugby population, but

rather to explore the possibility that there might be important differences in the psychological skills of players performing on the different levels of senior South African rugby.

Contrary to what Cox and Yoo (1995) found between linesman (forwards) and backfield players in American football, no significant differences could be found between forwards and backline rugby players in this study with regard to their psychological skill levels. Furthermore, no significant differences in psychological skills could be found between any of the different positional groupings (props, hookers, locks, loose forwards, inside backs, and outside backs) of senior South African rugby players, a finding that seems to differ from those by researchers such as Schurr et al. (1984) and Cox and Yoo (1995). In the modern style of rugby that most teams currently play, the emphasis has moved from one-dimensional specialized players to more multi-skilled players. A prop should be able to run with a ball and a centre should be able to play in rucks and mauls. The players are thus moving more towards developing multiple physical and psychological skills. This could be a plausible explanation why no statistical differences where found in the psychological skills of the different positional groupings.

Results indicating significant differences between Super 12 and club rugby players on four of the seven ACSI-28 subscales are consistent with previous research, which suggests that athletes with higher levels of psychological skills performed more consistently (Hird et al., 1991; Nideffer et al., 2001). The fact that their higher levels of psychological skills enabled them to produce more consistently good performances might offer one possible explanation why Super 12 players reach the highest level of their sport. Although psychological skills cannot replace physical skills (Hale & Collins, 2002), it appears as if psychological skills levels are important co-contributors in differentiating between club and elite rugby players. However, with the Moos and Shaefer (1993) coping model as reference, it is evident from the results that the personal system, and more specifically the differences in the psychological skills of senior SA rugby players, plays an important role in the coping process of competitive rugby players.

Super 12 players, for instance, had significantly higher scores on the *Performance under pressure* subscale than club rugby players. One would expect that elite rugby players would probably be better able to stay composed and handle pressure in big matches than club rugby players, especially when the stakes are high. However, it should be kept in mind that players' abilities to perform under pressure could be influenced by a number of factors, such as environmental factors (panel 1), event-related factors (panel 3), cognitive appraisals (panel 4) and the way in which they cope with competition anxiety (Mahoney et al., 1987; Moos & Shaefer, 1993; Shaw, 2001; Smith & Christensen, 1995; Smith et al., 1995). Psychological skills as such, are thus not the only factors that will be important in differentiating between the different levels of rugby players in terms of their ability to manage high-pressure situations successfully.

The fact that the Super 12 players had a significantly higher *concentration* score than club rugby players confirms the importance of this psychological skill in the context of competitive rugby. Most researchers in sports psychology are in agreement that concentration is one of the key psychological skills that can have a positive influence on an athlete's performance (Hodge & McKenzie, 1999; Martens, 1987; Smith et al., 1995; Summers, Christensen & Sheath, 2002; Wheaton, 1998). Expert performers use various concentration cues, picking up these cues more quickly than do novices, to help themselves perform their skill more quickly and more effectively (Weinberg & Gould, 2003). They anticipate better and make faster decisions, attend more to movement patterns of their opponents and are more successful in predicting the flight pattern of a ball than novices are (Weinberg & Gould, 2003). The fact that the Super 12 rugby players had better concentration skills than the club rugby players could thus be another contributing factor to their performance ability and the fact that these players reached an elite (Super 12) level of rugby.

The Super 12 players did not only appear to perform better under pressure than the club rugby players, but they obtained a significantly higher score on the *Freedom from worry* subscale as well. The negative thoughts or worries that athletes sometimes experience while they are competing can lead to a number of problems, such as negative expectations, a decrease in self-confidence and poor concentration (Barnes & Swain,

2002). The Super 12 players' apparent ability to rid themselves of these debilitating thoughts could be a plausible explanation for the fact that they also scored better on the *concentration* subscale.

The negative thoughts or worries mentioned by Barnes and Swain (2002) are often referred to as *cognitive anxiety* in the literature (Weinberg & Gould, 2003). This group of Super 12 rugby players' *'freedom from worry'* could thus be an indication that they probably experience less cognitive anxiety. Fletcher and Hanton (2001) found that athletes with high levels of psychologically skills experienced less state anxiety than their counterparts with lower levels of psychological skills. It is consequently reasonable to expect that, because the Super 12 players had better overall psychological skills than club rugby players (eta-square=0,663), they would probably experience less anxiety. With a number of studies suggesting a link between state anxiety and athletic performance, it could be construed that athletes' level of state anxiety can directly or indirectly have an influence on their performance (Fletcher & Hanton, 2001; Jones, Hanton & Swain, 1994; Jones, Swain & Hardy, 1993). More specifically, research has shown that state anxiety can influence activation/arousal control, self-confidence, concentration skills and the ability to perform under pressure (Hale & Collins, 2000; Hodge & McKenzie, 1999; Martens. 1987). While players with lower scores on the *Freedom from worry* subscale, (such as the club rugby players) would be afraid to make mistakes, and thus play less creative and more stereotypical rugby (Smith et al., 1995), a player with less worry or anxiety will tend to perform better and more consistently under pressure and therefore be able to progress to the next level of rugby. The absence of state anxiety could be due to the successful application of a combination of psychological skills. This combination of psychological skills of the Super 12 rugby players could once again be a probable explanation why they reached their current level of performance.

The finding that both Super 12 and provincial rugby players had significantly higher scores on the *coachability*-subscale (Table 4) than the club rugby players corresponds with the findings of researchers such as Murphy and Tammen (1998). These researchers stated that psychological skills are the *learned* behaviours used by athletes to regulate their sports performance. Since such skills can be learned, it is possible that players who

are more open to positive criticism and advice from their coaches might learn and develop better psychological skills over a period of time (Murphy & Tammen, 1998). Should this be the case, it is reasonable to expect that measurable differences will exist in the level of psychological skills development displayed by different rugby players, as was found in this research.

Personal factors such as psychological skills are one of the variables that can influence an individual's ability to cope with psychological stress (Martens, 1987; Moos & Shaefer, 1993). The fact that Super 12 and provincial players were shown to have better psychological skills than senior club rugby players could indicate that the elite rugby players are better able to cope with the pressure associated with professional rugby. According to the coping model of Moos and Shaefer (1993), there are however a number of other factors such as environmental factors (panel 1), event-related factors (panel 3), coping responses and cognitive appraisals (panel 4), and general health and well-being (panel 5) that could also play a role in the coping process.

## CONCLUSION

The results presented in this article could give sports psychologists an indication of the possible psychological strengths of elite rugby players in South Africa. However, it is not possible from this research to predict if improved psychological skills in club rugby players will enable them to make the step-up to provincial rugby, because the additional role of individual differences in physical abilities were not taken into account. This question is an important topic for future research.

One of the shortcomings of this research was that it did not provide concrete answers to the lack of normative data on the psychological skills of South African senior rugby players. The results rather indicated that the differences in psychological skills between the levels of rugby players should be more thoroughly investigated in the future. Although a psychological skills profile (Fig. 2) was created, these results should be interpreted very carefully, especially when used as a possible guideline in applied settings or in comparing other rugby teams or individuals.

Another shortcoming is that this study only investigated the psychological *skills* of the research population and not the specific psychological *methods* that they utilize before or during competitive situations. Hodge and McKenzie (1999) state that psychological *methods*, such as imagery, self-talk and relaxation techniques are used to develop specific psychological *skills* such as concentration, coping under pressure, coping with adversity and peak psychological activation. This research thus illuminated the difference between the psychological *skills* of the different levels of rugby players in South Africa, without investigating the *methods* that they used to obtain their current levels of psychological skills.

This research concludes that no statistically or practically significant differences in psychological skills could be found between forwards and backline rugby players or between the different positional groupings (props, hookers, locks, loose forwards, inside backs, and outside backs) in senior South African rugby. However, there was a definite practically significant difference between the psychological skills of Super 12 rugby players and club rugby players in South Africa (as illustrated in the psychological skills profile in Fig.2). Further research should be done into the other factors of the coping model before the real value of the findings in this research can be viewed in perspective.

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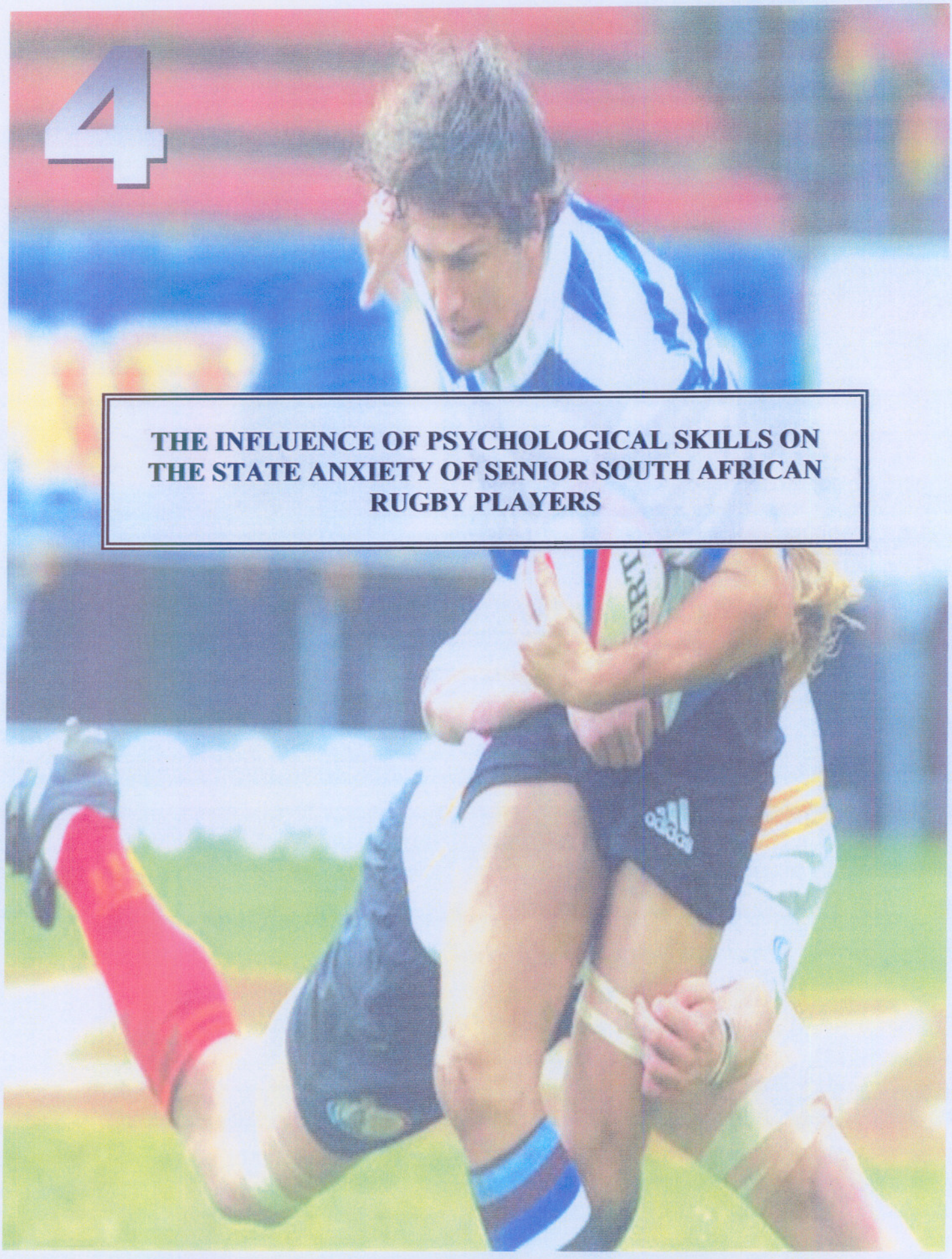
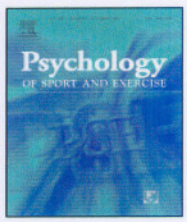


# THE INFLUENCE OF PSYCHOLOGICAL SKILLS ON THE STATE ANXIETY OF SENIOR SOUTH AFRICAN RUGBY PLAYERS

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# THE INFLUENCE OF PSYCHOLOGICAL SKILLS ON THE STATE ANXIETY OF SENIOR SOUTH AFRICAN RUGBY PLAYERS

[9]Pieter Kruger, *[10]Johan Potgieter, [11]Dawie Malan, [12]Faans Steyn

[9] **Mr. P Kruger** – Clinical psychologist, Private Practice, 3 Greyling Street, Jankra Building, 2nd Floor, Potchefstroom 2520, South Africa; Tel. +27 83 757 3137; fax: +27 866 414 085; e-mail: pieterkruger@wol.co.za.

[10] **Dr. J.C. Potgieter** – Senior lecturer, Department of Psychology, Potchefstroom Campus, North-West University, PO Box X6001, Potchefstroom 2520, South Africa; Tel: +27 18 299 1722; e-mail: psgjcp@puknet.puk.ac.za.

[11] **Prof. D.D.J. Malan** – Director: School for Biokinetics, Recreation and Sports Science, Potchefstroom Campus, North-West University, PO Box X6001, Potchefstroom 2520, South Africa

[12] **Prof. H.S. Steyn** – Head: Statistical Consultation Service, Potchefstroom Campus, North-West University, PO Box X6001, Potchefstroom 2520, South Africa

• Corresponding Author

# THE INFLUENCE OF PSYCHOLOGICAL SKILLS ON THE STATE ANXIETY OF SENIOR SOUTH AFRICAN RUGBY PLAYERS


## ABSTRACT

*Objectives*: The objectives of this study were to investigate whether psychological skills influenced the intensity and direction of anxiety symptoms, as well as the self-confidence of South African senior rugby players. A further objective was to identify the relative contributions of the different psychological skills to the variance in the anxiety response and the self-confidence of the players.

*Design and method*: The study population included 106 provincial players and 96 club rugby players (N=202). A cross-sectional design was used to assess the players' psychological skills by means of the Athletic Coping Skills Inventory-28. Their state anxiety was measured by means of the Competitive State Anxiety Inventory-2. The senior rugby players were divided into groups with high and low levels of psychological skills respectively. Statistically significant differences between the two groups were determined by means of Student t-tests, and practical significance by calculating Cohen's *d-value*.

*Results*: Results suggested that the high group experienced lower levels of state anxiety and higher levels of self-confidence. They also interpreted the state anxiety and self-confidence that they experienced as more facilitative to performance. Stepwise multiple linear regressions revealed that all the psychological skills, except goal-setting, appeared to contribute to the variance in the state anxiety and self-confidence of the rugby players in this study.

*Conclusions*: Personal factors such as psychological skills appeared to play an integral part in the coping process of South African senior rugby players by lowering their state anxiety while enhancing the levels of self-confidence that they experienced.



Keywords: cognitive anxiety, somatic anxiety, self-confidence, psychological skills, coping, rugby.

## Introduction

Recent research within the domain of competitive sport has investigated the different factors that can influence athletes' state anxiety. Several variables, including physical skill levels (Hanton, Thomas & Maynard, 2004; Jones, 1995), coping abilities (Kim & Duda, 2003) and psychological skills (Fletcher & Hanton, 2001) have been hypothesized to have an influence on state anxiety. Researchers such as Hodge and McKenzie (1999) and Hale and Collins (2002) have investigated the interaction between constructs such as psychological skills and anxiety. These authors have found that these constructs play an important role in the coping ability and performance of rugby players on all levels of rugby.

Contradictory findings with regard to the relationship between competitive anxiety responses (state anxiety) and psychological skills, however, still exist in the literature, despite having received considerable research attention. In an attempt to clarify these issues, researchers such as Fletcher and Hanton (2001) investigated the intensity and direction dimensions of the dynamic interaction between state anxiety and self-confidence in non-elite swimmers with different levels of psychological skills. They found that the swimmers with high levels of certain psychological skills experienced less state anxiety than their counterparts with lower levels of psychological skills. These results by Fletcher and Hanton once again confirms that psychological skills can have an influence on the levels of state anxiety that athletes experience, while emphasizing the importance of investigating this relationship in different sports disciplines. Due to a lack of specific literature in a South African rugby context, the emphasis of this research will be on the influence of psychological skills on the ever-changing nature of state anxiety of South African senior rugby players.

## The coping process

Psychological skills play an important part in athletes' ability to cope in competitive situations. Kruger (2005) found that the model for the conceptualization of the coping process that was suggested by Moos and Shaefer (1993) (shown in Fig. 1), could provisionally be used within a sports-psychological context to explain this complex process.

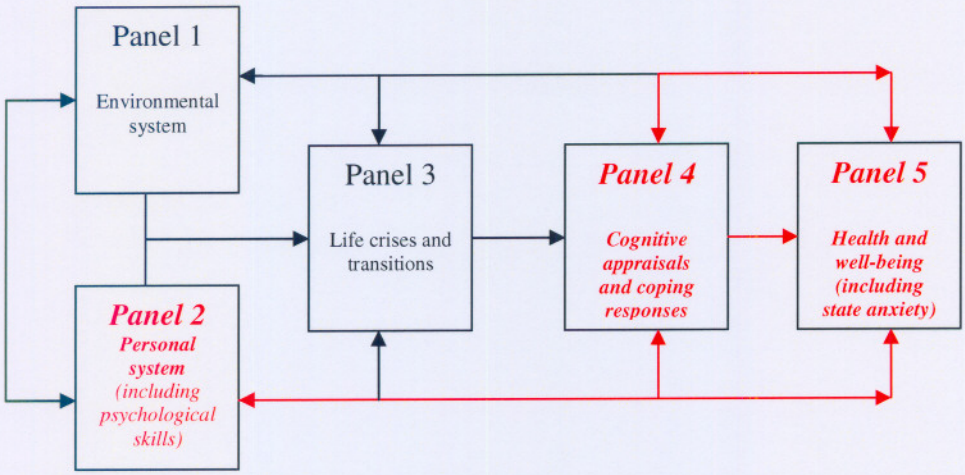


*Figure 1:* The interaction between the panels of the general conceptual model of the coping process (Moos & Shaefer, 1993) that were investigated in this research

Researchers agree that the process of coping in sport should not be confused with the outcome. If an athlete is not performing well, it does not automatically imply that he/she is not coping. The coping strategy that the athlete is applying might not be effective in the given situation, or there may be a tactical, technical or physiological reason for the failure. It must therefore be emphasized that coping involves a number of factors such as the athlete's behavioural and cognitive efforts to manage demanding person-environment transactions (Crocker, Kowalski & Graham, 1998; Lazarus, 2000; Moos & Shaefer, 1993).

The model in Fig.1 helps explain and elucidate the influence that personal factors (panel 2), including psychological skills, can have on rugby players' coping abilities. One major factor that can influence rugby players' general psychological well-being (panel 5) is the extent to which they experience and are able to deal with state anxiety in competitive situations.

## Psychological skills and state anxiety

It is commonly found in sports-psychological literature that researchers do not clearly differentiate between psychological *skills* and *methods*. Hodge and McKenzie (1999) state that psychological *skills* such as concentration, coping under pressure, coping with adversity and peak mental activation must be developed through the use of psychological

*methods*, such as imagery, positive self-talk and relaxation techniques. The focus of this research, however, was on the psychological *skills* of rugby players which culminate in a *general coping resource score* (as indicated by the ACSI-28 total). According to the conceptual model of the coping process as illustrated in Fig.1 (Moos & Shaefer, 1993), this quantified score can represent a number of personal factors and certain cognitive appraisals that the athletes utilize during the coping process in a specific situation.

When viewing the conceptual model of Moos and Shaefer (1993), the complex nature of the influence that state anxiety can have on the athlete's ability to perform appears clearer. This model leaves room for the possibility that state anxiety can have either positive or negative influences on athletes, due to the mediating influence of their cognitive appraisals (panel 4). In the early 1990's, researchers such as Jones and Swain (1992) introduced directional interpretation of anxiety symptoms. This indicated whether the athletes interpreted their anxiety symptoms as being debilitative (impairing) or facilitative (enhancing) to performance. A number of subsequent studies have indicated that anxiety can be perceived to have positive and/or negative effects upon athletic performance (Hanton et al, 2004; Jones et al., 1993; Jones et al., 1994), and that interpretation of the direction of anxiety was indeed a better predictor of performance than its intensity (Eubank, Collins & Smith, 2000; Swain & Jones, 1996). However, contradictory findings that could not find support for this directional component of anxiety were reported (Edwards & Hardy, 1996; Jerome & Williams, 2000).

Psychological skills have been shown to influence the intensity and direction of the state anxiety that athletes experience (Fletcher & Hanton, 2001). With numerous studies suggesting a link between state anxiety and athletic performance, it could be deduced that psychological skills can have a direct or indirect influence on an athlete's performance (Fletcher & Hanton, 2001; Hanton et al., 2004; Jones et al., 1993; Jones et al., 1994). However, it is still not clear which psychological skills will have the greatest influence on state anxiety as athletes, and in this study rugby players specifically, try to cope with the demands and stressors of the competitive environment within which they operate. An investigation into these specific matters would therefore be warranted to gain insight into

how South African rugby players interpret the state anxiety they experience before and during matches.

**Preamble to research**

Fletcher and Hanton (2001) highlighted two key issues from existing literature on psychological skills and competitive anxiety: 1) Research findings differ as to whether psychological skills usage influences the intensity and/or direction of anxiety symptoms and 2) no research has identified the relative contributions of different psychological skills to the anxiety response.

The aims of this research were therefore to determine how South African senior rugby players with high levels of psychological skills differ from those with low levels of psychological skills in terms of the state anxiety (intensity and direction) that they experience. A further aim was to determine the interaction between the intensity and the direction of state anxiety and specific psychological skills of South African senior rugby players. Finally, the contribution of psychological skills to the variance in state anxiety and self-confidence of the rugby players was investigated. An investigation into the relationship between psychological skills and state anxiety in these rugby players could clarify the role that psychological skills play in the coping process. This could provide sports psychologists with valuable information on how to help athletes improve their sports performance.

## METHOD

### *Research design*

A cross-sectional design was used to assess the psychological skills and state anxiety central to the stated aims of this study.

### *Participants*

South African senior rugby players from two large provincial rugby unions (Free State Cheetahs and Gauteng Lions Rugby Union), two smaller rugby unions (Leopards Rugby Union and the Falcons Rugby Union) as well as four club rugby teams, including two university teams (North-West University 1st team and Tswane University of Technology

1st team), one open club (Kimberly Police) and one combined club (Leopards Amateur team) participated in this research project, resulting in a total of 202 (96 club and 106 provincial) rugby players. Three of the four club teams were rated among the top eight club teams in 2004.

***Psychometric instruments***

1. The Athletic Coping Skills Inventory-28 (ACSI-28) was used to evaluate certain psychological skills of the rugby players. This inventory was designed to assess psychological skills (Smith, Shutz, Smoll & Ptacek, 1995), but in certain instances the subscales of the ACSI-28 appear to represent varied skill domains (Murphy & Tammen, 1998). However, all these subscales are referred to as psychological skills in this research, as was done by Smith et al. (1995). The ACSI-28 has an internal validity of 0,86 (N=1027) and the test-retest reliability after a period of one week was found to be 0,87 (N=97).

   The ACSI-28 consists of seven subscales measuring seven independent psychological skills, namely 1) coping with adversity, 2) peaking under pressure, 3) goal-setting, 4) concentration, 5) freedom from worry, 6) confidence and performance motivation, and 7) coachability. This inventory also yields a total *Personal Coping Resource* score, which reflects a multi-faceted psychological skills construct and thus gives and indication of a person's overall coping ability.

2. The Competitive State Anxiety Inventory-2 (CSAI-2) was used to measure cognitive and somatic state anxiety, as well as athletes' levels of self-confidence. These CSAI-2 subscales indicated internal consistency, with alpha reliability coefficients ranging from 0,79 to 0,90 across three samples of athletes. It has an overall reliability of 0,81, and this instrument is also deemed valid (Martens, Burton, Vealey, Bump & Smith, 1990).

   Although Cox, Martens and Russel (2003) revised the CSAI-2 at the end of 2003, the initial research had already been conducted using the CSAI-2. In considering the consistency of results, it was decided to continue with the CSAI-2.

***Procedure/ Data collection methods***

Permission was obtained from the relevant rugby unions for the research to be conducted. Players were psychometrically evaluated at a time as close as possible to an important game.

***Ethical considerations***

This research project was approved by the Ethics Committee of the North-West University (no. 04K21). Participation in this research project was voluntary. Before the commencement of each psychometric evaluation, the players were informed of all the ethical aspects, as well as of their rights to refuse the evaluation or withdraw at any time.

***Statistical analyses***

A median-split was used to divide the total group of senior rugby players into a group with high levels of psychological skills (good coping resources) and a group with low levels of psychological skills (poor coping resources) based on their total ACSI-28 scores. In order to achieve two truly distinct groups, participants who scored the same as the median ($M$=8) were omitted from the analysis.

A Hotelling T-square test was done on the CSAI-2 (state anxiety) to compare these subscales with the psychological skills of the two identified groups of players (Tabachnick & Fidell, 2000). Student t-tests (Kline, 2004) were performed on each of the subscales of state anxiety in order to establish statistical significance between the two groups.

Effect size indices were calculated following each of the above stages. For the Hotelling T-square test the omnibus effect size was obtained by calculating the eta-square, which gives the multivariate proportion of the total variance accounting for group membership (Steyn, 2005). Guideline values suggested by Cohen (1988) in the case of only one variable are:

- eta-square = 0,01: small effect

- eta-square = 0,06: medium effect
- eta-square = 0,14: large effect.

To establish practical significance for the difference of means, Cohen's *d-value* (Cohen, 1988) was used by dividing the difference in means by the common standard deviation of the two groups. The guidelines for practical significance are:

- d = 0,2: small effect
- d = 0,5: medium effect
- d = 0,8: large effect.

These guidelines should not be strictly and rigidly applied. These are only *guidelines* and should be used accordingly (Steyn, 2005).

To investigate which psychological skills would have a significant influence on the level of state anxiety that South African senior rugby players experienced, stepwise multiple linear regressions were done (Tabachnick & Fidell, 2000). Each of the subscales of state anxiety was taken as criterion and the different psychological skills were used as predictors.

Stepwise multiple linear regressions were further used to determine the contribution of specific psychological skills (represented by the ACSI-28 subscales) to the variance in the anxiety scores (intensity and direction) of participants. The statistical analyses were done by using the SAS computer system (SAS Institute, 2003).

## RESULTS

### *Differences between high and low psychological skills usage groups*

The *general coping resource-score,* as indicated by the ACSI-28 total, was used to divide the total group of rugby players into a high and a low psychological skills group (henceforth referred to as the high group and the low group respectively). This quantified score represents all seven psychological skills subscales of the ACSI-28.

The high group consisted of 88 players, with only 41 of these players indicating a *directional* interpretation of their state anxiety. The low group consisted of 114 players,

with 69 of them indicating a *directional* interpretation of their state anxiety. Contrary to the expectation that the high group would consist of more provincial players, this group showed a relatively even distribution, with 56,82% (n=50) of the group being provincial players and 43,18% (n=38) club players. From the statistics in Tables 1 and 2, the differences in the anxiety scores (intensity and direction) between the high and low group are evident.

Note that low scores on the cognitive and somatic *intensity* subscales in Table 1 indicate that the rugby players experience less cognitive and somatic anxiety than the rugby players with high scores on these subscales. Conversely, for the self-confidence subscale, a higher score indicates better self-confidence. Higher *directional* interpretation scores for the anxiety symptoms as well as self-confidence of the rugby players indicate that the players experienced their symptoms as facilitative to their performance.

Table 1: *Descriptive statistics for the state anxiety and self-confidence of the high and low psychological skills groups*

| Variable | N (=202) | | Mean and standard deviation | |
|---|---|---|---|---|
| **Intensity** | **High** | **Low** | **High** | **Low** |
| Cognitive anxiety | 88 | 114 | 17,61 ± 5,03 | 21,18 ± 5,30 |
| Somatic anxiety | 88 | 114 | 16,70 ± 4,28 | 19,46 ± 4,61 |
| Self-confidence | 88 | 114 | 29,24 ± 4,74 | 26,07 ± 4,19 |
| **Direction** | **(n=110)** | | | |
| Cognitive anxiety | 41 | 69 | 46,15 ± 8,12 | 39,48 ± 8,07 |
| Somatic anxiety | 41 | 69 | 45,79 ± 9,18 | 42,39 ± 8,60 |
| Self-confidence | 41 | 69 | 52,61 ± 6,59 | 45,29 ± 7,63 |

As indicated in Table 1, the cognitive and somatic anxiety intensity scores were lower in the high group (17,61 and 16,70) compared to the low group (21,18 and 19,46). The scores indicating the direction of cognitive and somatic anxiety (Table 1) demonstrate that the high group experienced their symptoms of anxiety as more facilitative to performance (46,15 and 46,85), whereas the low group experienced these symptoms as more debilitative (39,48 and 42,39). The self-confidence intensity and direction scores were both higher in the *high group* in contrast to the mean of the low group. This indicates that the high group did not only appear to experience less state anxiety, but

interpreted the anxiety symptoms that they experienced as more facilitative. According to the results in Table 1, the high group also appeared to be more self-confident than the low group.

Following the median-split that divided the group of senior rugby players into a high and low psychological skills group, a Hotelling test was used to determine whether there was a significant difference between the state anxiety and self-confidence of the two groups of rugby players. The results showed that the high-group experienced lower levels of state anxiety and more self-confidence, which was of both statistical ($p<0.0001$) and practical (eta-square=0,19) significance. To determine the significance of the difference in cognitive and somatic anxiety between the high and low psychological skills groups, a T-test was done. The T-test indicated that the group with high levels of psychological skills had significantly better scores ($d>0,5$) on all the CSAI-2 subscales (Table 2).

Table 2: *T-test comparison between the state anxiety and psychological skills of the high and low psychological skills groups*

| Variable | | t-value | df | p | F-ratio variances | d |
|---|---|---|---|---|---|---|
| Cognitive anxiety | Intensity | -4,84 | 200 | <0,0001 | 1,11 | -0,69* |
| Somatic anxiety | Intensity | -4,35 | 200 | <0,0001 | 1,16 | -0,62* |
| Self-confidence | Intensity | 5,04 | 200 | <0,0001 | 1,28 | 0,71* |
| Cognitive anxiety | Direction | 4,18 | 108 | 0,0001 | 1,01 | 0,82* |
| Somatic anxiety | Direction | 2,56 | 108 | 0,0117 | 1,14 | 0,51* |
| Self-confidence | Direction | 5,11 | 108 | <0,0001 | 1,34 | 1,01* |

*$d>0,5$

According to the results stated in Table 2, rugby players with high levels of psychological skills experienced significantly less cognitive ($d$=-0,69) and somatic anxiety ($d$=-0,62), and had significantly better self-confidence ($d$=0,71) than the rugby players with low levels of psychological skills. Furthermore, the high group interpreted the cognitive ($d$=0,82) and somatic anxiety ($d$=0,51) that they experienced as more facilitative to performance. It was also found that the high group interpreted their levels of self-confidence ($d$=1,01) as more facilitative to performance than the low group. However, these results do not indicate what the contribution of the specific psychological skills

(that constitute the ACSI-28 total) to the variance in the intensity and direction of state anxiety and self-confidence would be. Further analyses were done to determine this.

***The influence of specific psychological skills on state anxiety***

Stepwise multiple linear regressions were used to establish the influence of specific psychological skills (represented by the ACSI-28 subscales) on the anxiety scores (intensity and direction) of participants (Table 3).

Table 3: *Stepwise multiple linear regressions between the ACSI-28 (psychological skills) and CSAI-2 (anxiety intensity and direction and self-confidence) subscales for the total group of senior South African rugby players*

| Dependent variable | | ACSI-28 psychological skill | Partial R-square | R-Square | Pr>F |
|---|---|---|---|---|---|
| Cognitive anxiety | Intensity | Freedom from worry | 0,290 | 0,290 | <0,0001 |
| | | Optimal performance under pressure | 0,047 | 0,337 | 0,0002 |
| Somatic anxiety | Intensity | Freedom from worry | 0,146 | 0,146 | <0,0001 |
| | | Coping with adversity | 0,059 | 0,206 | 0,0001 |
| Self-confidence | Intensity | Coping with adversity | 0,163 | 0,163 | <0,0001 |
| | | Performance motivation | 0,050 | 0,214 | 0,0004 |
| Cognitive anxiety | Direction | Concentration | 0,142 | 0,142 | <0,0001 |
| | | Freedom from worry | 0,084 | 0,226 | 0,0009 |
| | | Optimal performance under pressure | 0,026 | 0,253 | 0,0546 |
| Somatic anxiety | Direction | Freedom from worry | 0,081 | 0,081 | 0,0026 |
| | | Concentration | 0,036 | 0,118 | 0,0379 |
| Self-confidence | Direction | Coachability | 0,180 | 0,180 | <0,0001 |
| | | Freedom from worry | 0,075 | 0,256 | 0,0013 |
| | | Optimal performance under pressure | 0,049 | 0,306 | 0,0069 |
| | | Performance motivation | 0,027 | 0,333 | 0,0397 |

First, the contribution of the different psychological skills to the intensity of state anxiety and self-confidence were determined, followed by the contribution of the psychological skills to the directional interpretation of state anxiety and self-confidence. Note that only the psychological skills that were shown to have a significant influence on the 0,1500

level during the stepwise multiple linear regressions were included in Table 3, and will be discussed.

*Psychological skills and the influence on the* ***intensity*** *of state anxiety and self-confidence*

Although *freedom from worry* is not a psychological skill in itself, Smith et al. (1995) describe this subscale of the ACSI-28 as indicative of players' abilities to manage pressure, as well as the absence of excessive worry about making mistakes or performing poorly. It further indicates whether or not the players are influenced by other people's opinion regarding their performance. The *freedom from worry* subscale contributed 29% to the variance in the intensity of cognitive anxiety that senior rugby players experienced. The *optimal performance under pressure* subscale indicates whether the players are challenged rather than threatened by pressure situations (Smith et al., 1995). The *freedom from worry* subscale, in conjunction with the *optimal performance under pressure* subscale, explained more than one third (33,78%) of the variance in the intensity of cognitive anxiety that senior rugby players experienced. The players that worried about performing poorly or making mistakes in important games thus seemed to experience more cognitive anxiety than players that were mentally more relaxed prior to an important match.

The *freedom from worry* subscale also appeared to contribute to the variance in the intensity of the somatic anxiety that the rugby players experienced. A combination of this subscale and the *coping with adversity* subscale contributed 20,62% to the variance in the intensity of somatic anxiety that the South African senior rugby players experienced (Table 3). The *coping with adversity* subscale indicates the rugby players' ability to remain positive and enthusiastic even under difficult circumstances (Smith et al., 1995). This usually suggests that rugby players who remain calm and controlled under adverse conditions would be able to recover quickly from mistakes and setbacks.

Approximately 21,4% of the variance in the self-confidence of the group of rugby players could be explained by the contribution of the *coping with adversity* and the *performance motivation* subscales. The latter gives an indication of the rugby players' confidence and motivation levels. It indicates how hard they are willing to work to improve their skills and how often they will give 100% during games and practices.

*Psychological skills and the influence on the* ***direction*** *of state anxiety and self-confidence*

The T-test (Table 2) showed practically significant differences between the direction of the cognitive and somatic anxiety (i.e., the perception of anxiety being either facilitative or debilitative to performance) of the high group and low group. The measured individual psychological skills, however, only accounted for a small percentage of the variance in the direction of the cognitive anxiety of the rugby players (Table 3). *Concentration* showed the largest contribution (14,2%), followed by *freedom from worry* (8,4%) and *optimal performance under pressure* (2,6%) for a cumulative contribution of 25,3%. The *concentration* subscale of the ACSI-28 is an indication of the rugby players' abilities to focus on the task at hand and the degree to which they tend to become distracted in games or practice situations (Smith et al., 1995).

Although *concentration* and *freedom from worry* also appeared to have an influence on the variance in the direction of somatic anxiety of the rugby players, the cumulative contribution was comparatively small (11,8%).

Four of the individual psychological skills appeared to contribute to the variance in the direction of the self-confidence of the rugby players. *Coachability* appeared to explain 18% of the variance in the direction of the self-confidence of the rugby players. This subscale indicates the extent to which players are open to instructions from the coach and team management and are willing to learn and accept constructive criticism without taking it personally or becoming upset (Smith et al., 1995). Other psychological skills that also contributed to the variance in the direction of self-confidence were *freedom from worry* (7,5%), *optimal performance under pressure* (4,9%) and *performance motivation* (2,7%). The cumulative contribution of these four factors to the variance in directional interpretation of the rugby players' self-confidence was 33,3%.

When applying the coping model of Moos and Shaefer (1993), these results suggest that personal factors (panel 2) such as psychological skills play an integral part in the coping process of South African senior rugby players. As a group, rugby players with high levels of psychological skills experienced lower levels of state anxiety, and interpreted the state anxiety that they experienced as more facilitative to their performance. This might suggest that rugby players with high levels of psychological skills could generally cope better with the challenges of competitive rugby. Rugby players with high levels of psychological skills also experienced higher levels of self-confidence and interpreted their self-confidence as more facilitative to performance. Weinberg and Gould (2003) concur that low self-confidence is related to perceptions of threat and corresponding changes in state anxiety. Therefore, athletes with high levels of confidence could be expected to experience less state anxiety than athletes with low levels of confidence.

Furthermore, the high group in this study interpreted the cognitive and somatic anxiety that they experienced as more facilitative to performance. Fletcher and Hanton (2001) partially supported the hypothesis that performers who demonstrated higher psychological skills usage could interpret pre-competitive anxiety symptoms as facilitative and display higher self-confidence. These results coincide with the findings of other researchers who state that psychological skills are important in moderating the intensity and direction of pre-competitive anxiety (Hale & Whitehouse, 1998; Hanton & Jones, 1999; Jones & Hanton, 1996; Maynard, Smith & Warwick-Evans, 1995). Rugby players with high levels of psychological skills also displayed high levels of self-confidence. Hanton et al. (2004) highlighted self-confidence as an essential quality for elite athletes to possess in order to protect them against potentially debilitating thoughts and feelings experienced in competitive situations. An important contribution of the research in this study is the fact that the same tendency that the aforementioned researchers stressed was found to exist among South African senior rugby players.

It is noteworthy that only 56,82% of the players in the high group were provincial rugby players. This finding could imply that there were factors other than psychological skills

that influenced rugby players' coping and could thus also have influenced their performance. Factors such as a lack of physical skills, sub-standard fitness or deficiencies in sport-specific technical or tactical abilities might well explain why such a large number of club rugby players with high levels of psychological skills are not playing provincial rugby. Researchers such as Hird, Landers, Thomas and Horan. (1991) indicated that although psychological skills are important in the execution of physical and cognitive tasks, they cannot replace physical skills.

There is in all probability not a one-directional explanation for the results that were found in this research. A possible explanation for the relationship between state anxiety and psychological skills could be that it is due to the bidirectional paths in the coping process. As indicated in Fig.1, the relationship between the measured factors is reciprocal (Moos & Shaefer, 1993). High levels of psychological skills might have been responsible for the more positive cognitive appraisals (directional interpretation) by the high group of their anxiety symptoms. This might have enabled them to experience the stressors of competitions as more positive and thus cope better with their anxiety symptoms.

Conversely, more positive cognitive appraisals could have influenced the players' psychological skills positively and helped them experience less state anxiety. Hanton et al. (2004) found that once an athlete has interpreted his symptoms of anxiety as being either positive or negative towards performance (panel 4 – cognitive appraisal), these interpretations remained relatively stable before a competition. It is therefore not possible to establish the direction of the coping model's paths from this research, specifically when dealing with state anxiety. However, the results do suggest that a combination of high levels of psychological skills (panel 2) and positive cognitive appraisals (panel 4) contributed to more positive outcomes in coping with the state anxiety that certain South African senior rugby players experienced.

It is notable from the literature review that there is not yet a comprehensive and commonly accepted model that identifies the psychological skills utilized by athletes and that explains how these skills are used to help athletes cope with state anxiety (Bennet & Pravits, 1987; Murphy & Tammen, 1998; Smith et al., 1995).

A closer investigation of the results revealed the contributions of the different psychological skills to the rugby players' state anxiety (intensity and direction) and self-confidence. All accept one of the ACSI-28 subscales (*goal setting*) contributed in some way to the variance in the different aspects of state anxiety and self-confidence that was measured.

A number of other researchers have investigated the psychological skills and methods that are important in moderating the intensity and direction of pre-competitive anxiety. In order for players to experience *freedom from worry*, to have *optimal performance under pressure, cope with adversity* and have *performance motivation*, they would have to make use of a number of psychological methods. Findings suggest that the use of methods such as relaxation techniques (Maynard et al., 1995), mental imagery (Hale & Whitehouse, 1998), rationalization of thoughts and feelings (Hanton & Jones, 1999) and positive expectations of goal achievement (Jones & Hanton, 1996) could be beneficial to competitive athletes. The use of such methods was found to help athletes moderate the intensity of their anxiety symptoms, and also to maintain facilitative interpretations of these anxiety symptoms. Although the contribution of certain psychological *skills* to the variance in state anxiety and self-confidence of the players has been indicated, more research should be done to determine the psychological methods that contribute to the development of these psychological skills.

The *Freedom from worry* subscale appeared to contribute to the variance in both the cognitive anxiety (intensity – 29% and direction – 8,4%) and the somatic anxiety (intensity – 14,6% and direction – 8,1%) that the rugby players experienced. Although the contributions were reasonably small, this tendency corresponds with the view of researchers such as Barnes and Swain (2002). These researchers reported that the negative thoughts and worries that athletes sometimes experience can lead to a number of problems, including negative expectations, images of failure (that can lead to even more anxiety) or a decrease in self-confidence. The players' abilities to control their thoughts and focus on the relevant stimuli in a game could therefore be instrumental in good performance. This emphasizes the need for players to learn and make use of relevant psychological methods. By using psychological methods such as imagery, goal-setting, breath control, relaxation

techniques and positive self-talk (Weinberg & Gould, 2003), rugby players would be able to manage their thoughts and increase concentration. This could lead to a reduction in both cognitive and somatic anxiety.

The players' capacity to be challenged rather than threatened by pressure situations (as indicated by the *optimal performance under pressure* subscale) contributed to the difference in the intensity (4,7%) and direction (2,6%) of their cognitive anxiety as well as the direction (4,9%) of their self-confidence . Pressure environments where expectations and rewards are high and where the fear of failure occurs, can negatively affect any elite rugby player (Barnes & Swain, 2002). If players do not have the ability to absorb and neutralize this negative impact of pressure, it can lead to debilitating thoughts and negative actions that could prevent them from applying the skills they have learned in training to the competitive situation (Barnes & Swain, 2002). This could cause them to experience even more pressure and trigger a negative spiral of events. It is thus possible that the inability to cope with pressure in a competitive environment could elevate a rugby player's cognitive anxiety levels and make them feel less self-confident, because they continue to make uncharacteristic errors. This could be a plausible explanation for the contribution of the *optimal performance under pressure* subscale to the cognitive anxiety and self-confidence of the rugby players.

The fact that the *coping with adversity* subscale explained 16,3% of the variance in the self-confidence intensity of the players suggests that there is a link between these two factors. Weinberg and Gould (2003) stated that this association could be explained by the fact that self-confidence arouses positive emotions, facilitates concentration and affects game strategies and psychological momentum. Therefore, self-confident rugby players would be able to view adverse conditions as challenges and react with increased determination. This would also explain the role that *coping with adversity* played in the intensity of somatic anxiety of the evaluated players.

Albeit a moderate contribution that the *concentration* subscale made to the directional interpretation of the cognitive anxiety (14,2%) of the rugby players, it is in accordance with existing literature in sports psychology. According to Burton (1998), cognitive

anxiety in sport is manifested by negative expectations regarding the attainment of success and subsequent negative self-evaluation by the individual that can prompt negative mental consequences. Therefore, if a player could develop his ability to concentrate, he would be able to focus his attention on relevant information (Hodge & McKenzie, 1999) and minimize the time spent on the development of negative expectations or disturbing evaluation-related imagery that could manifest as cognitive anxiety (Burton, 1998; Weinberg & Gould, 2003).

One third (33,3%) of the variance in the direction of self-confidence in this group of rugby players could be explained by a combination of *coachability, freedom from worry, optimal performance under pressure* and *performance motivation.* Coachability, however, contributed to more than half of that variance (18%). A possible explanation for the role of coachability in the directional interpretation of self-confidence can be suggested. Players who are more coachable and are willing to learn and accept constructive criticism without taking it personally or becoming upset, could interpret their self-confidence as significantly more facilitative. Self-confidence stems from the rugby players' appraisal of their own abilities together with their perception of how other people perceive them (Lazarus, 2000). It is plausible that players who are more open to positive criticism and advice from their coaches might have good insight into their own strengths and weaknesses, which will enable them to experience their self-confidence as facilitative to performance. Conversely, a player with high levels of self-confidence might also be less sensitive to negative criticism and therefore be more coachable.

The research results in Table 2 suggest that no single psychological skill seemed to explain the variance in state anxiety and self-confidence of the two groups of rugby players. It was rather a combination of psychological skills that appeared to contribute to these variances (Table 3). The contribution of different combinations of psychological skills explained, on average, almost a quarter of the variance in the state anxiety and self-confidence of the rugby players. This implies that, although the psychological skills measured in this research appear to play an important part in managing state anxiety and self-confidence, there seems to be a number of other factors or psychological skills that could also have had an influence on this variance. This accentuates the statement by

Moos and Shaefer (1993) that coping is a complex process that involves a number of factors and not only the presence and successful application of psychological skills.
Future research should examine whether improvements in the psychological skills that had been identified in this research will in fact effectively contribute to elite rugby players' abilities to cope with state anxiety in competitive situations. The studies should address the effect that these psychological skills have on performance when different strategies are combined to form a psychological skills package. Increased understanding of the relationship between psychological skills and competitive anxiety responses in senior rugby players could help sports psychologists develop players with better and more consistent performance.

The moderate contribution of the individual psychological skills explaining the variance in state anxiety (intensity and direction) of the different groups in this research does not necessarily imply that specific psychological skills cannot influence state anxiety. It is possible that psychological skills that were not measured by the ACSI-28 could have an influence on the state anxiety of rugby players. Future researchers should use questionnaires that measure other combinations of psychological skills in order to validate the results of this research.

In conclusion, and in support of the model by Moos and Shaefer (1993), psychological skills (panel 2) seem to represent only one of a number of factors that can influence the coping processes (such as dealing with state anxiety) of South African senior rugby players. Further research into other factors such as life crises and transitions, environmental factors, cognitive appraisals and psychological well-being are warranted, in order to address the complex coping processes of South African senior rugby players holistically.

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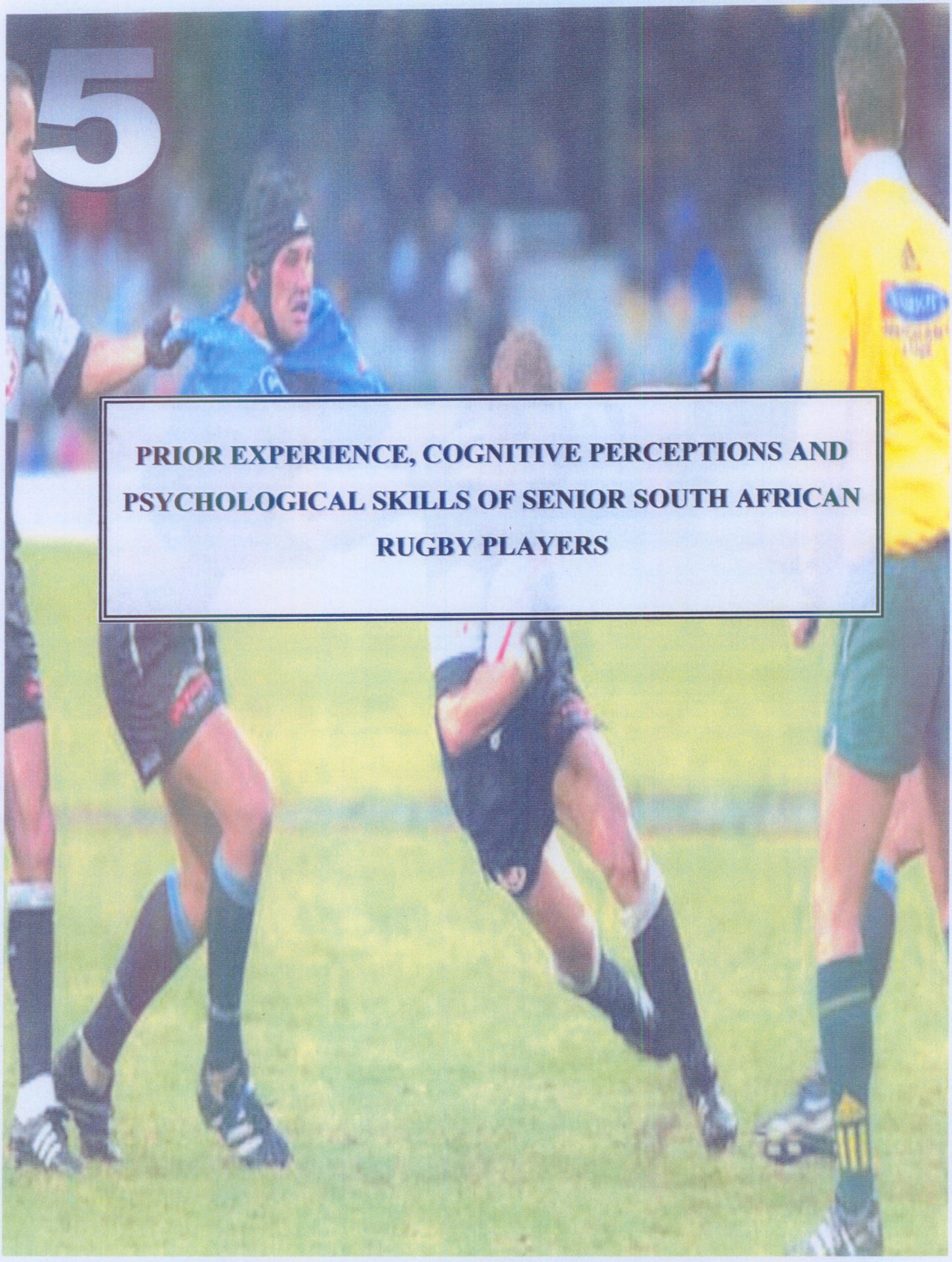
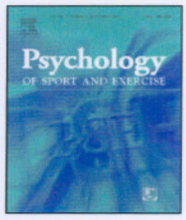


# PRIOR EXPERIENCE, COGNITIVE PERCEPTIONS AND PSYCHOLOGICAL SKILLS OF SENIOR SOUTH AFRICAN RUGBY PLAYERS

## CHAPTER 5: MANUSCRIPT 4

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# PRIOR EXPERIENCE, COGNITIVE PERCEPTIONS AND PSYCHOLOGICAL SKILLS OF SENIOR SOUTH AFRICAN RUGBY PLAYERS

[13]Pieter Kruger, *[14]Johan Potgieter, [15]Dawie Malan, [16]Faans Steyn

[13] **Mr. P Kruger** – Clinical psychologist, Private Practice, 3 Greyling Street, Jankra Building, 2nd Floor, Potchefstroom 2520, South Africa; Tel. +27 83 757 3137; fax: +27 866 414 085; e-mail: pieterkruger@wol.co.za.

[14] **Dr. J.C. Potgieter** – Senior lecturer, Department of Psychology, Potchefstroom Campus, North-West University, PO Box X6001, Potchefstroom 2520, South Africa; Tel: +27 18 299 1722; e-mail: psgjcp@puknet.puk.ac.za.

[15] **Prof. D.D.J. Malan** – Director: School for Biokinetics, Recreation and Sports Science, Potchefstroom Campus, North-West University, PO Box X6001, Potchefstroom 2520, South Africa

[16] **Prof. H.S. Steyn** – Head: Statistical Consultation Service, Potchefstroom Campus, North-West University, PO Box X6001, Potchefstroom 2520, South Africa

* Corresponding Author

# PRIOR EXPERIENCE, COGNITIVE PERCEPTIONS AND PSYCHOLOGICAL SKILLS OF SENIOR SOUTH AFRICAN RUGBY PLAYERS


## ABSTRACT

*Objectives*: The objective of this study was to investigate the interaction between the prior experience, certain cognitive perceptions and the psychological skills of senior rugby players in South Africa.

*Design and method*: The study population included 139 trans-national players, 106 provincial players and 95 club rugby players (N=340). A cross-sectional design was used to assess the players' psychological skills by means of the Athletic Coping Skills Inventory-28 (ACSI-28). Players' prior experience and cognitive perceptions were determined by means of a biographical questionnaire.

*Results*: The players performing on each level of rugby were divided into groups with high and low levels of psychological skills respectively. Different biographical variables appeared to distinguish between the high and low groups on the different levels of rugby. The players' perceptions regarding their own abilities to optimally prepare themselves psychologically before a game appeared to be the only common denominator differentiating between the high and low groups on all three levels of rugby. A combination of perceptions and prior experience explained 44,81% of the variance in the psychological skills (ACSI-28 total) of the club rugby players, 9% of the variance on provincial level and 21,3% of the variance on Super 12 level.

*Conclusions*: There appeared to be significant interaction between prior sport experience, certain cognitive perceptions and the psychological skills of the rugby players involved in this study. Cognitive psychological intervention could therefore play an important part in the psychological preparation of senior rugby players in South Africa.



Keywords: psychological skills, cognitive perceptions, prior sport experience, rugby

## Introduction

Recent research reported significant differences between the psychological skills of senior elite and club rugby players in South Africa (Kruger, 2005b). The rugby players with high levels of psychological skills were also reported to experience less cognitive and somatic anxiety than players with low levels of psychological skills (Kruger, 2005c). According to these research findings, it appeared that psychological skills played an important role in players' ability to cope with the demanding competitive environment in elite rugby. A number of other researchers are in accord that high levels of psychological skills lead to better sports performance (e.g., Hale & Collins, 2002; Hodge & McKenzie, 1999; Lazarus, 2000; Martens, 1987; Smith, Shutz, Smoll & Ptacek, 1995). The reasons why athletes differ in the development of sports psychological skills have not been found in research. This necessitated an investigation into the factors that contribute to the development of, or could have an influence on, the psychological skills of senior rugby players in South Africa.

## Influencing factors

Lazarus (2000) pointed out that a variety of factors such as psychological skills, state anxiety, perceptions, life transitions and environmental factors can play a very significant role in sports participation and performance. Kruger (2005a) argued that the coping model as suggested by Moos and Shaefer (1993) can provisionally be used to conceptualize and integrate a number of seemingly unrelated factors into an inclusive model. The model could be used in an attempt to explain the coping process in competitive athletes. This model (Fig.1) will hence be used as conceptual framework to gain more insight into some factors that could influence the psychological skills of South African senior rugby players.

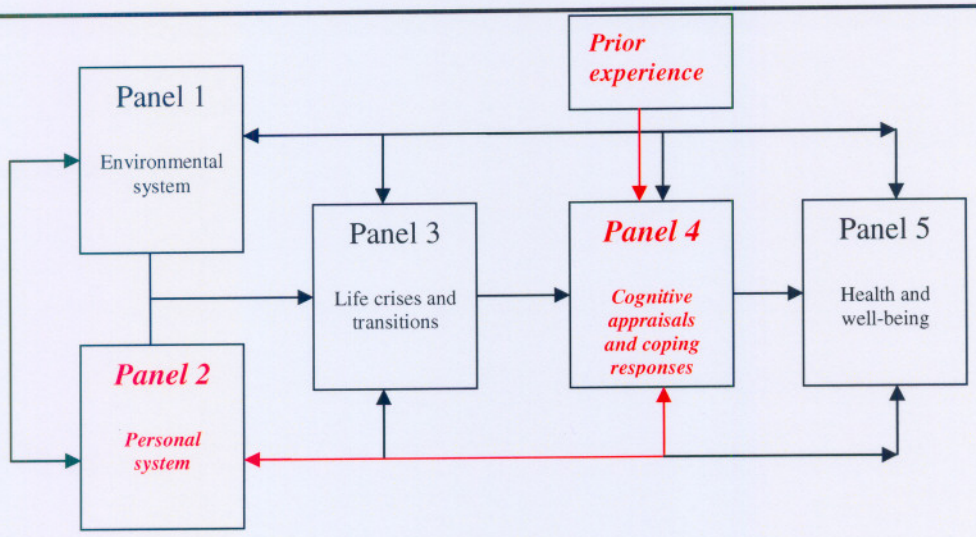


*Figure 1*: The interaction between the panels of the general conceptual model of the coping process (Moos & Shaefer, 1993) that were investigated, with prior experience indicated as an additional dimension

This model suggests that environmental factors (panel 1), personal factors (panel 2) and event-related factors (panel 3) can influence a person's general health and well-being (panel 5), through the mediating role of their cognitive appraisal and coping responses (panel 4). It thus seems that, among other factors, cognitive appraisal plays an important part in the coping process. It is important to briefly focus on the important role that cognitive appraisal plays in sport.

People's cognitive appraisal or evaluation of a specific situation or event will cause them to form a certain cognitive perception of that specific situation (Corey, 2001). Cognitive *appraisal* is thus the first step in forming a cognitive *perception*. The terms cognitive appraisal and cognitive perception will be used interchangeably, depending on the context of the situation described. The word *cognitive* refers to a conscious intellectual activity (such as thinking, reasoning, remembering or imagining), and perception involves the recognition and interpretation of sensory stimuli based on memory, after appraisal of a situation (American Heritage Dictionary, 2000). This cognitive perception can, in turn, be instrumental in determining the type of coping response that an individual will employ (Moos & Shaefer, 1993). The reciprocal interaction that exists between the different groups

of factors in this model suggests that personal factors (such as psychological skills) can have an influence on the cognitive perceptions that athletes experience. However, cognitive perceptions could also influence the current psychological skills that the athletes possess and apply (as illustrated by the bidirectional pathways in Fig.1).

As mentioned earlier, the findings by Kruger (2005b; 2005c) suggest that psychological skills could play a major role in the coping process of senior rugby players. Therefore the question arises if cognitive perceptions influenced the psychological skills of the evaluated rugby players.

**The influence of prior experience on cognitive perceptions**

A number of researchers are in accord that sport-specific cognitive perceptions are the result of athletes' prior experience in their specific sports (Lazarus, 2000; Salvador, 2005). They concluded that prior sport experience will be instrumental in developing athletes' perceptions of their abilities to perform. Lazarus (2000) postulates that athletes' "performance history" will be responsible for the realistic expectations of performing well in any given competition. This "performance history" is often reflected in athletes' current rankings, which in turn influences their cognitive perceptions of their own as well as their opponents' abilities. This could imply that athletes' prior experience might play a vital role in performance and could influence the psychological skills that athletes apply in competitive situations. Lazarus thus highlights that the athletes' perceptions of any given situation (due to their prior experience) could play an important role in their sports performance.

Salvador (2005) supports this statement and confirms that coping in competitive situations will depend on factors such as perceived possibilities of control over success. These perceived possibilities of success are created by prior experience in similar competitions or the rank of the opponent, among others. Other researchers have reported that the strongest predictor of sport-specific self-confidence was found to be the abilities that the individuals believed they had, and it depended on the individuals' prior experience in similar situations (Gould, Petlichkoff & Weinberg, 1984; Hall, Kerr & Matthews, 1998; Humara, 1999). Self-confidence thus appears to stem from prior experiences. Self-confidence, however, is

also known to have an influence on a number of psychological skills (Hodge & MacKenzie, 2002, Weinberg & Gould, 2003). If prior experience can influence self-confidence, and self-confidence can influence certain psychological skills, it is reasonable to argue that prior experience could have an influence on athletes' psychological skills.

Prior experience, however, does not only include experiences in the sports arena. Prior sports psychological exposure could also be viewed as part of the athletes' prior experience. Some of the key roles of cognitive-behavioural psychologists are to encourage their clients to discover their basic faulty perceptions, to challenge them to validate these perceptions, and to explain to them how they can replace these perceptions with empirically grounded ones (Corey, 2001). Exposure to this kind of therapeutic intervention could influence clients' general perceptions, psychological skills and coping abilities.

It is known that more sports psychological exposure could improve athletes' psychological skills (e.g., Hale & Collins, 2002; Hodge & McKenzie, 1999; Weinberg & Gould, 2003). In a study by Ferraro and Rush (2000), most professional and elite amateur athletes from a number of sports disciplines agreed that sports psychology had a large influence on their sports performance. Most of them conceded that they could benefit from the services of a sports psychologist. Despite this, the significant majority under-utilized sports-psychological services and did not have a history of consulting sports psychologists.

**The role of cognitive perceptions in competitive sport**

Studies have shown that in order to employ the correct coping strategies that could facilitate performance, athletes have to perceive a certain degree of control over any given situation (Pensgaard & Roberts, 2003; Ursin, 1988). Perception of control is thus related to lower levels of stress/anxiety and could contribute to effective coping (Butt, Weinberg & Horn, 2003; Hanton, Thomas & Maynard, 2004; Jennings, 1993). Apart from the perceptions that athletes have regarding themselves, the way in which they perceive their opponents can also influence the result of a competition. Perceptions regarding opponents could lead to positive or negative emotions, depending on the content of the specific perceptions (Barnes & Swain, 2002; Lazarus, 2000). When athletes perceive their opponents as being better than they are, it could lead to a negative emotion, such as state

anxiety. These negative thoughts and perceptions could influence the athletes' coping and application of psychological skills, thus influencing their performance as well.

When considering the above-mentioned discussion, the interaction between prior experiences (including sports-psychological exposure), cognitive perceptions and psychological skills appear to be worth investigating among senior South African rugby players.

**Preamble to research**

Although Moos and Shaefer (1993) do not clearly state their own opinion regarding the role of prior experience in the development of cognitive appraisals or perceptions, there is enough literature suggesting a link between the two constructs (as seen in the above-mentioned literature). However, it appears that the above-mentioned factors play an important role in the coping process. Without confounding the variables, the research findings (e.g., Lazarus, 2000; Salvador, 2005) justify an investigation into the interaction between prior experience, cognitive perceptions and the psychological skills of senior South African rugby players.

In accordance with the model of Moos and Shaefer (1993), the aim of this article is to investigate the interaction between the psychological skills (panel 2), prior experience and certain cognitive perceptions (panel 4) of senior rugby players in South Africa. Due to the close relationship between cognitive perceptions and prior experience that can be found in literature, it is also important to investigate the influence that a combination of these factors could have on the psychological skills of senior South African rugby players. The answers that this research might provide could clarify unanswered questions regarding the interaction between these two panels in the Moos and Shaefer model.

## METHOD

### *Research design*

A cross-sectional design was used to assess the psychological skills and other biographical constructs central to the stated aims of this study. The players were

psychometrically evaluated during a single session in the week leading up to an important game (usually 2-3 days before the game).

***Participants***

The participants in this research project were South African senior rugby players from all three levels of senior rugby (regional/trans-national level, e.g., Super 12, provincial level, e.g. Currie Cup and Vodacom Cup, as well as club level e.g., Super Sport National Club Championships) during the 2003/2004 seasons.

Data were gathered from all four South African Super 12 teams, while at provincial level it was gathered from two large provincial rugby unions (Free State Cheetahs and Gauteng Lions Rugby Union) and two smaller rugby unions (Leopards Rugby Union and Falcons Rugby Union). Four of the best club rugby teams, including two university teams (the PUKKE of the North-West University and the team of the Tswane University of Technology), one open club (Kimberly Combined Forces) and one combined club (the Leopards Amateur team) also participated in this study. Three of the four club teams were rated among the top eight club teams during 2004. The number of players included in this study was thus 139 Super 12 rugby players, 106 provincial rugby players and 95 club rugby players, resulting in a cumulative total of 340 senior players.

***Psychometric instruments***

1. The Athletic Coping Skills Inventory-28 (ACSI-28) was used to evaluate certain psychological skills of the rugby players. This inventory was designed to assess psychological skills (Smith, Shutz, Smoll & Ptacek, 1995), but in certain instances the subscales of the ACSI-28 appear to represent varied skill domains (Murphy & Tammen, 1998). In accordance with the way in which the authors of this instrument and subsequent users thereof conceptualised it, these subscales will be referred to as psychological skills in this research. The ASCI-28 has an internal validity of 0,86 (N=1027) and the test-retest reliability after a period of one week was found to be 0,87 (N=97) (Smith et al., 1995). The ACSI-28 consists of seven subscales measuring 1) coping with adversity, 2) peaking under pressure, 3) goal-setting, 4) concentration, 5) freedom from worry, 6) confidence and achievement motivation, as

well as 7) coachability. This inventory also yields a total *Personal Coping Resource* score, which is assumed to reflect a multi-faceted psychological skill construct.

2. Biographical Questionnaire (compiled by researcher).

   This self-compiled biographical questionnaire was customized for each level of rugby players, in order to make the questions relevant to their level of participation. Only the questions relevant to this research are listed in Table 1. It was used to obtain:

   - Rugby history during school and senior rugby careers (questions 4 to16).
   - Perceptions of sports psychology and sports-psychological exposure (questions 17 to 22).
   - Perceptions of their physical and psychological abilities in comparison with those of their competitors (questions 23a to 23e).

***Procedure***

Each of the relevant rugby unions or clubs was contacted prior to the proposed evaluation to explain the rationale and purpose of the research project to the team management. After permission had been obtained for the research to be conducted, a time (as close as possible to an important game) and venue was negotiated with the coach.

***Statistical analyses***

Firstly, the interaction between prior experience, the measured cognitive perceptions and the psychological skills of the rugby players had to be determined. A median-split was used to divide the players on each level (i.e., club, provincial and Super 12) into groups with high levels of psychological skills (high groups) and groups with low levels of psychological skills (low groups) based on their total ACSI-28 scores. In order to achieve truly distinct groups within each level, participants who scored the same as the median ($M$=8) were omitted from the analysis.

Previous experience and cognitive perceptions of the players were used as independent variables. Means with standard deviations were determined for each of the groups (i.e., club, provincial and Super 12 players) to compare the high-level and low-level psychological skills groups on each level. To establish practical significance for the

difference of means, Cohen's *d* was used (Cohen, 1988; Kline, 2004). This entails dividing the difference in means by the maximum of the standard deviations of the two groups (Steyn, 2000). The guidelines for interpretation are:

- d = 0,2 : small effect
- d = 0,5 : medium effect
- d = 0,8 : large effect

These guidelines should not be strictly and rigidly applied. These are only *guidelines* and should be used accordingly (Steyn, 2005). For the purpose of this study, values between 0,20 and 0,34 were interpreted as having a small effect and values between 0,35 to 0,70 as having a medium effect. Values above 0,71 were of large effect.

Stepwise multiple linear regressions (Tabachnick & Fidell, 2001) were done to investigate the influence of previous experiences and cognitive perceptions on the psychological skills of senior South African rugby players. The ACSI-28 total score was used as a criterion, while prior experiences and cognitive perceptions were used as predictors. The results indicated which variables contributed and how much each variable contributed to the variance in the psychological skills of the South African senior rugby players.

## RESULTS

### *Prior experience and cognitive perceptions*

A number of questions in the biographical questionnaire were used to determine the rugby players' prior experience and to investigate certain cognitive perceptions that they had (Table 1). It was not possible to evaluate their perception of every single team they played against, therefore the questions were asked in general. This provided the researchers with a fair idea of the players' general perceptions regarding their opponents. With a few exceptions, the questions were answered on a 5-point Likert scale.

Table 1: *Biographical questionnaire related to prior experience and certain cognitive perceptions of senior South African rugby players*

| **Rugby history during school years.** |
|---|
| Question 4: At what age did you start playing rugby? |
| Question 5: How many years of high school rugby did you play? |
| Question 6: What was the highest level of rugby that you achieved in high school? |
| **Rugby history during senior rugby career.** |
| Question 8: In what year did you make your senior provincial debut? |
| Question 9: How many senior provincial games have you played? |
| Question 10: For how many months have you been out of senior rugby due to injury? |
| Question 11: Have you ever played for a Super 12 team in the past? |
| Question 12: If yes, in which year did you make your Super 12 debut? |
| Question 14: How many Super 12 games did you play in the past? |
| Question 16: What is the highest level of rugby that you have played in South Africa? |
| **Perceptions of sports psychology and sports-psychological exposure.** |
| Question 17: Have you consulted with a sports psychologist in the past? |
| Question 18: If yes, how often did you go/ do you go? |
| Question 19: What is your opinion regarding sports psychology? |
| Question 20: What is your need in regard to sports psychology? |
| Question 21: How well are you able to psychologically prepare yourself before a game? |
| Question 22: Whose responsibility is it to look after the sports-psychological needs of players? |
| **Perceptions of the players' physical and psychological abilities with regard to their competitors in general. Players had to react to the following statements:** |
| Question 23a: Other teams at your level of rugby have more sport psychological exposure than your team. |
| Question 23b: Other teams on your level of rugby have better psychological skills than your team. |
| Question 23c: In general, other teams on your level of rugby have better "mental toughness" than your team. |
| Question 23d: Your team has lower levels of physical capabilities (e.g. handling skills, strength, fitness etcetera) than other teams on your level of rugby. |
| Question 23e: Other teams on your level of rugby are all on the same level of psychological skills. |

***Prior sports-psychological exposure***

Although 44,82% (n=147) of the rugby players participating in this research (N=340) indicated that they had consulted a sports psychologist in the past, only 22,45% (n=25) of this group of players had a fixed pattern of consultation. At the time that the research was conducted, a mere 7,81% (n=25) of the entire research group was actively involved with a sports psychologist. Ironically, almost two thirds of these players (n=17) were club rugby players. This was surprising, since 78,97% (n=259) of the players indicated that they perceived sports psychology to be either important or very important to their performance. Only 2,5% (n=8) of the total research population indicated that they were not willing to consult with a sports psychologist and 1,83% (n=6) indicated that sports psychology was a waste of time. These results could be of value when interpreting the rest of the results, since this might give the reader an indication of why a number of players appear to be uninformed regarding sports psychological issues.

***Differences between high and low psychological skills usage groups***

After the median-split within all three levels (i.e. club, provincial and Super 12 players) had been completed, effect sizes for each of the groups were determined to compare the high-level and low-level psychological skills groups on each level. Only the results that were of practical significance on any of the levels are presented in Table 2.

Table 2: *Effect size of the differences between the high and low psychological skills groups (ACSI-28 total score) regarding the prior experience and cognitive perceptions of the different levels of senior South African rugby players*

| Variable | *d*-value (effect size) | | |
|---|---|---|---|
| | Club | Provincial | Super 12 |
| Question 6 – Highest level at school. | -0,35* | -0,20▪ | 0,16 |
| Question 9 – No. of senior provincial games. | -0,31▪ | 0,19 | -0,27▪ |
| Question 14 – No. of Super 12 games. | - | 0,13 | -0,22▪ |
| Question 19 – Opinion of sports psychology. | 0,30▪ | 0,47* | -0,12 |
| Question 21 – Perception regarding own psychological preparation before a game. | 0,77* | 0,27▪ | 0,73* |
| Question 22_1 – The players feel that team management should provide them with sports-psychological services. | -0,57* | -0,03 | 0,03 |
| Question 23b – Perception that other teams have better psychological skills. | -0,34▪ | 0,11 | -0,20▪ |
| Question 23c - Perception that other teams have better general "mental toughness". | -0,59* | 0,18 | -0,14 |
| Question 23d - Perception that their team has lower levels of physical skills. | -0,35* | -0,07 | -0,27▪ |
| Question 23e - Perception that other teams are all on the same level of psychological skills. | -0,18 | -0,03 | 0,36* |

▪$d$= 0,20 – 0,34
*$d \geq$ 0,35

***Club rugby players***

The results in table 2 indicate that the most significant differences between the high groups and low groups were found at club level. Club rugby players with high levels of psychological skills (n=38) differed significantly on eight of the biographical variables from the club players with low levels of psychological skills (n=57). Factors that appeared to be associated with their psychological skills included the highest level of rugby they played at school and their opinion regarding sports psychology. In the high group, 83,86% of the players played at least at provincial level at school, whereas only

68% of the low group could manage to play at a level higher than their school's first team.

The club players furthermore appeared to differ significantly regarding the perception of their own ability to do effective psychological preparation before a game. In the high group 89,19% of the players indicated that they perceived themselves as being able to prepare well or very well psychologically before a game. This provided a practically significant difference with a large effect between the high and low groups. Only 66,67% of the low group felt that they had the ability to prepare well or very well psychologically before a game. It is notable that the high group took responsibility for their own psychological preparation (66,16%), whereas the majority of the low group (64,91%) felt it was the responsibility of the coach or team management to provide the service.

The difference between the high and low groups regarding their perceptions of opponents' level of psychological skills was also significant, but with a small effect. In the high group only 32,44% of the players indicated that they perceive their opponents to have better psychological skills than themselves. In the low group 42,11% of the players agreed that their opponents had better psychological skills than them. A total of 26,32% of the low group thought that their opponents had better mental toughness than them, but only 16,0% of the high group agreed with that statement. The majority of the high group (72,98%) rejected the statement that their team was on a lower level of physical preparation (e.g., handling skills, strength, fitness etcetera) than their opponents. In contrast, only half of the low group (50,87%) disagreed with the statement.

From these results it appears that the groups with high and low psychological skills respectively differed significantly in respect of a combination of perceptions and prior experience.

***Provincial rugby players***

The only difference between the high group (n=43) and the low group (n=52) on provincial level were the highest level of rugby they had played at school, as well as their

opinion regarding sports psychology and their perception regarding their abilities to do optimal psychological preparation before a game (table 2).

The significance of the difference between the high and low groups regarding the highest level of rugby they played at school was of small effect. A total of 88,37% of the high group had played at least provincial rugby at school, while 78,84% of the low group had reached the same level of achievement. The difference between the two groups regarding their opinions on the importance of sports psychology differed significantly, with medium effect. It was significant that 97,67% of the provincial players with high levels of psychological skills indicated that they perceived sports psychology to be important or very important. Only 76,93% of the low group indicated that they shared the same opinion. Lastly, 41,86% of the high group thought that they had very good psychological skills and could prepare themselves psychologically very well before a game. A total of only 26,92% of the players in the low group shared that same view.

It thus seems that the perceptions of the players in the high and low groups respectively at provincial level differed regarding their own abilities and the importance of sports psychology. Prior experience, such as the highest level of rugby played at school, also appeared, to a lesser extent, to play a part in the difference between the high and low groups.

***Super 12 rugby players***

There were more significant differences between the high and low groups on Super 12 level than on the provincial level. The Super 12 high (n= 77) and low groups (n=60) differed with regard to the number of senior provincial games and the number of Super 12 games that they had played. The players in the high group had played an average of seventeen (17) Super 12 games per player, whereas the low group played only twelve (12). This is a considerable difference if the fact that each team plays only 11 Super 12 games per year is taken into account. The players who had a higher average of Super 12 game experience appeared to have higher levels of psychological skills than the other players.

The biggest difference between the high and low groups on Super 12 level involved their perceptions regarding their abilities to do optimal psychological preparation before a game. In the high group, 46,75% of the players perceived themselves to have very good psychological skills and could prepare themselves very well psychologically before a game. In contrast, only 18,33% of the low group had the same perceptions of themselves.

Only 28,57% of the high group, and an even lower 21,66% of the low group, believed that their opponents had lower levels of psychological skills than their own teams. The rest of the players indicated that they were either not sure of the extent to which their opponents were psychologically prepared, or they agreed that their opponents had better psychological skills than they did. In contrast, 67,53% of the high group and 55,00% of the low group were of the opinion that they were physically on the same level as or better prepared (e.g., handling skills, strength, fitness etcetera) than their opponents. However, it is important to note that 55,84% of the high group and 41,66% of the low group indicated that their Super 12 rivals were not all on the same level of psychological preparation.

The only biographical variable that appeared to be a common denominator between the high and low groups on all three levels were the players' perceptions regarding their own abilities to do optimal psychological preparation before a game. The results in Table 2 suggest that prior experience (such as highest level of rugby played, as well as the number of games played at provincial and Super 12 level) and the indicated perceptions could have an influence on the psychological skills of rugby players. This raised the question of what the possible contribution of the prior experience and cognitive perceptions might be to the variance in psychological skills on the different levels of senior rugby players in South Africa.

***The contribution of prior experience and cognitive perceptions to the variance in psychological skills***

Stepwise multiple linear regressions were done to determine the contribution of the rugby players' prior experience and cognitive perceptions to their total psychological skills score (ACSI-28 total). Only the biographical variables that were shown to have a

significant influence on the 0,1500 level in the stepwise model are displayed in Table 3 and will be discussed. Each level of rugby players was again investigated separately, since the questions in the biographical questionnaire were tailored according to the settings on the specific levels.

Table 3: *Stepwise multiple linear regressions between the psychological skills score (ACSI-28 Total), prior experience and cognitive perceptions for the different levels of senior South African rugby players*

| Club | | | Provincial | | | Super 12 | | |
|---|---|---|---|---|---|---|---|---|
| Variable | Partial R-square | Model R-square | Variable | Partial R-square | Model R-square | Variable | Partial R-square | Model R-square |
| Q21† | 0,217 | 0,217 | Q19 | 0,047 | 0,047 | Q21 | 0,140 | 0,140 |
| Q23c | 0,122 | 0,340 | Q21 | 0,043 | 0,090 | Q6 | 0,054 | 0,195 |
| Q22_1 | 0,048 | 0,388 | - | - | - | Q16 | 0,018 | 0,213 |
| Q19 | 0,038 | 0,427 | - | - | - | - | - | - |
| Q9 | 0,025 | 0,4481 | - | - | - | - | - | - |
| Total contribution to variance | | 44,81% | | | 9,0% | | | 21,3% |

†Refer to table 1 for questions.

The results in table 3 indicate the combinations of factors on the different levels of rugby that appeared to have had an influence on the players' total psychological skills score. The partial R-square indicates the relative contribution of each of the variables to the ACSI-28 total, while the model R-square score gives an indication of the cumulative contribution of the variables to the total ACSI-28 score. The last row indicates the total percentage that each group of factors contributes to the variance in the psychological skills on each level of rugby.

From the results in table 3, it can be seen that a combination of perceptions (Q21, Q23c, Q22_1 and Q19) and prior experience (Q9) explained 44,81% of the variance in the psychological skills (ACSI-28 total) of the club rugby players. This is a large contribution and appears significant, especially when all the possible factors that could influence the players' psychological skills are considered. A combination of the players' 1) perceptions regarding their own abilities to do optimal psychological preparation before a

game, 2) their perception of other teams' sports-psychological exposure, 3) their perception of who should provide sports-psychological services to their team and 4) their perception of the importance of sports psychology explained 42,7% of the variance in their psychological skills. The number of previous games that they have played contributed 2,5% to the variance. The major role that cognitive perceptions played in determining the level of psychological skills of the club rugby players is consequently emphasized.

There were only two biographical variables that contributed significantly to the variance in the psychological skills of the provincial rugby players. A combination of the provincial players' 1) perceptions of the importance of sports psychology and 2) the perceptions regarding their own abilities to do optimal psychological preparation before a game contributed 9% to the variance in their psychological skills. It seems that, apart from prior experience and cognitive perceptions, there were other factors that made a more significant contribution to the psychological skills of rugby players at provincial level.

At the Super 12 level, there was a combination of three biographical variables that contributed to the variance in the psychological skills of the players. Again the players' perceptions regarding their own abilities to do optimal psychological preparation before a game contributed to fairly low overall variance (14,0%). This time however, it combined with 1) the highest level of rugby they played at school level (5,4%), as well as 2) the highest level of rugby that they had played on senior level (1,8%). This combination between cognitive perceptions and prior experience contributed 21,3% to the variance in the psychological skills of the Super 12 rugby players in South Africa. Although this contribution appears to be relatively small, it is significant if one considers the vast number of factors that could influence the players' psychological skills.

As was the case with the comparison between the high groups and low groups on the different levels of rugby (table 2), the same common denominator appears to surface. The players' perceptions regarding their own abilities to do optimal psychological preparation before a game contributed to the variance in their psychological skills on club (21,7%),

provincial (4,3%) and Super 12 (14%) level. The other contributions varied between the different levels. However, prior experience and cognitive perceptions did contribute, to a greater or lesser extent, to the variance in the psychological skills on all of the levels of rugby in South Africa.

## DISCUSSION

As seen in the Moos and Shaefer model (1993) in Fig. 1, a vast number of factors could influence the coping of athletes in competitive situations. The results seem to confirm the findings of researchers like Ursin (1988) and Pensgaard and Roberts (2003). These researchers stated that athletes who perceive a certain degree of control over their competitive situation would find it easier to employ the correct coping response and would thus be able to apply the correct combination of psychological skills.

There appeared to be significant interaction between cognitive perceptions and psychological skills. A number of cognitive perceptions of the rugby players with high levels of psychological skills differed from those of the players in the groups with low levels of psychological skills. However, there was only one biographical variable that appeared to be a common denominator and differentiated between the high and low groups on all three levels. This biographical variable was the players' perceptions regarding their own abilities to do optimal psychological preparation before a game. This coincides with research findings that the abilities that individuals believed they had were the strongest predictor of self-confidence (Gould et al., 1984; Hall et al., 1998; Humara, 1999). Self-confidence is known to have a significant influence on a number of the athletes' psychological skills (Hanton et al., 2004; Weinberg & Gould, 2003). This could explain why this specific perception appeared to play such a prominent role in the psychological skill levels of all the players in this research. As seen in the results in table 2, the players' perceptions regarding their abilities to prepare themselves optimally before a game differed significantly between the high and low groups on club ($d$=0,77), provincial ($d$=0,27) and Super 12 ($d$=0,73) level. The relative contribution of this specific perception also contributed to the variance in psychological skills on all three levels (table 3).

As mentioned earlier, the way in which athletes perceive their opponents can also influence the result of a competition, depending on the content of the specific perceptions (Barnes & Swain, 2002; Lazarus, 2000). Rugby players who perceive their opponents to be psychologically and physically better prepared than they are could therefore struggle to cope and to compete successfully against these opponents. On the club as well as the Super 12 level, there were noticeable differences in the way that rugby players from the high and low groups respectively perceived their opponents. The high groups generally had more favourable perceptions regarding their own psychological skills and physical abilities in relation to their opponents. No differences, however, were found in this regard between the high and low groups on provincial level.

When using the model of Moos and Shaefer (1993) as reference, it is not possible to determine the direction of the interaction between these perceptions and psychological skills. It could be that the more positive perceptions influenced the psychological skills of the players, or conversely that the higher levels of psychological skills allowed the players to develop more positive sport-specific perceptions. Despite the uncertainty regarding the direction of the interaction, it appears that these two factors are strongly associated.

Apart from the cognitive perceptions, the interaction between the players' prior experience and their psychological skills were also investigated. According to the results in table 2, prior rugby experience appeared to play a part in the differences that were found between the psychological skills of the high and low groups at different levels. Although the significance of the prior experience was of small or medium effect, the highest level of rugby played at school as well as the number of senior provincial and Super 12 games played, differed between the high and low groups. This corresponds with the findings of other researchers (Lazarus, 2000; Perry & Williams, 1998), who suggested that prior experience might be responsible for the psychological patterns and cognitions seen in athletes. It is thus plausible that athletes' prior experience could influence the psychological skills that they apply in competitive situations. Salvador (2005) also lends support to these results and states that coping in competitive situations

will depend on factors such as perceived possibilities of success, which in turn is brought about by prior experience in the athletes' specific sport.

According to the above-mentioned literature findings, the frequency of high-level exposure of the high group could explain why they have developed certain psychological skills to help them cope in the competitive environment of rugby in South Africa. This assumption corresponds with research conducted by Perry and Williams (1998). These authors found that advanced tennis players (individuals who had been participating in the sport for an extended period of time) appeared to cope more effectively and reported more facilitative interpretations of their anxiety than novices.

Apart from the difference between the high and low groups on each level, prior rugby experience also seemed to contribute to the variance in the psychological skills of the total group of club and Super 12 players. The results in table 3 suggested that the number of senior provincial games played contributed 2,5% to the total variance in the psychological skills of the club players. A combination of the highest level of rugby played at school level and at senior level explained 7,2% of total variance in psychological skills of the Super 12 group. There is an immense number of factors that could influence the rugby players' psychological skills. Thus, albeit a relatively small contribution that prior experience appears to make to the total variance of psychological skills of the club and Super 12 players, it is still worth noting. Researchers like James (2003) suggest that a person's basic psychological patterns/skills would already have been established in his/her childhood. These patterns/skills and their application, however, could be influenced or changed by significant incidents in a person's life or by psychological intervention. It is thus possible that these players reached those high levels of rugby in the past due to the fact that they had already developed high levels of psychological skills.

Apart from the findings discussed above, a number of other noteworthy results came to the fore. A relatively high number of players on all three levels of rugby regularly indicated to certain specific questions that they did not want to give an opinion or did not know how their opponents compared to them. A possible explanation for this could be

that these rugby players were uninformed regarding the role of sports psychology or had uncertainties regarding other teams' sports-psychological exposure. This would not be surprising, since only 7,35% of the total research group ever had a fixed pattern of consulting a sports psychologist. If players had more sports-psychological exposure, they would have been better informed regarding the role of sports psychology. This could possibly have caused them to experience less uncertainty about the sports-psychological exposure of their opponents. Uncertainty is a major situational source of stress (Weinberg & Gould, 2003). The mere possibility that South African senior rugby players are uninformed regarding sports-psychological issues could cause uncertainty. This could influence psychological factors such as their anxiety levels, and hence their ability to cope in high-pressure situations (Weinberg & Gould, 2003).

Ferraro and Rush (2000) found that the main reported reason for the fact that athletes do not make use of sports-psychological services is the fear of lost time and money. However, they concluded that the real reason could be that most athletes do not like experiencing affect of any kind. Sport, according to these authors, is often regarded as being about action and the expression of emotions through movement rather than through words. This could explain why, despite the fact that 78,97% (n=259) of the players in this research indicated that sports psychology is either important or very important to their performance, such a small percentage of players actually regularly consulted a sports psychologist. These results emphasize how important it is for elite rugby players to get more sports-psychological exposure, since this could improve their psychological skills (e.g., Hale & Collins, 2002; Hodge & McKenzie, 1999; Weinberg & Gould, 2003). Psychologists could encourage their clients to discover their basic faulty perceptions and they can furthermore inform them of and eliminate a number of their uncertainties regarding their own and their opponents' psychological abilities (Corey, 2001).

In conclusion, it is important to acknowledge the contribution of prior experience and cognitive perceptions to the levels of psychological skills of the rugby players. The results suggested that both these factors could influence the psychological skills of the South African rugby players and could therefore also influence their coping abilities. This research, however, could not indicate the direction of the interaction between prior

experience, cognitive perceptions and psychological skills. This could be the objective of further investigation into this interaction, since it could clarify the exact role that these factors play in performing at the elite level of rugby in South Africa.

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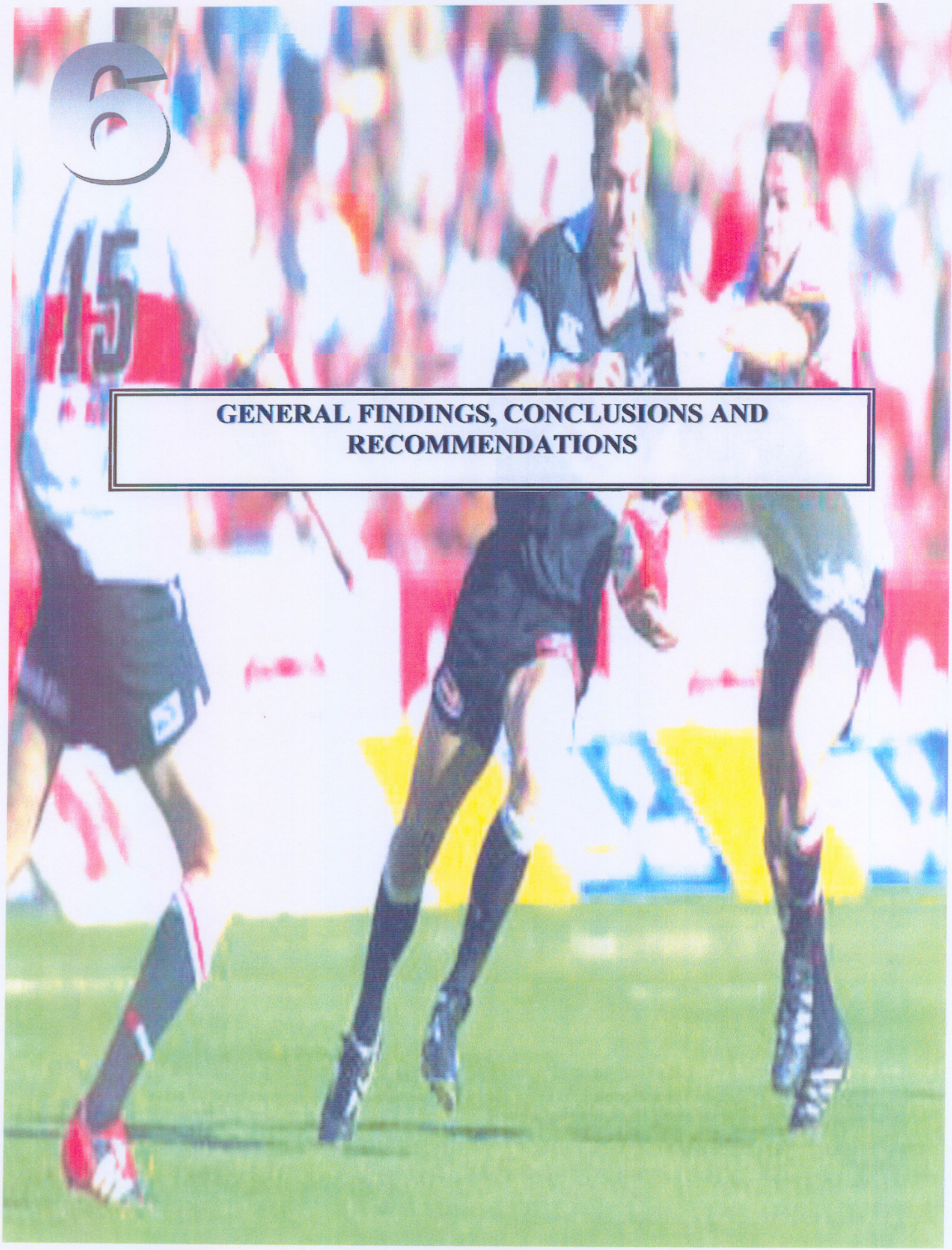
# 6

# GENERAL FINDINGS, CONCLUSIONS AND RECOMMENDATIONS



# CHAPTER 6:
# GENERAL FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

## INTRODUCTION

In this chapter, a summary of the main findings of the four manuscripts in this thesis will be given. The results will be discussed briefly, followed by the conclusions that were drawn. This summary of each manuscript will be concluded with a brief overview of the possible shortcomings, as well as recommendations for future research. Finally, the contribution of this study to sports psychology in South Africa will be discussed.

## SUMMARY OF THE MAIN FINDINGS

The salient findings of the four manuscripts reported in this thesis were:

**Manuscript 1 (Chapter 2): An integrative model for understanding coping is sport**

Not many conceptual coping models within the field of psychology have been adapted to investigate the interaction between the various factors involved in the coping process within a sports context. The purpose of this manuscript was to determine whether the coping model suggested by Moos and Shaefer (1993) could be applied successfully in the context of competitive sport. The coping model of Moos and Shaefer appeared to provide a basic framework that can be used to investigate the relevant factors that may influence the coping abilities of competitive athletes. This model was successfully used to integrate a number of seemingly unrelated factors into a single model to clarify the coping process in the context of competitive sport, and more specifically, the context of senior competitive rugby in South Africa.

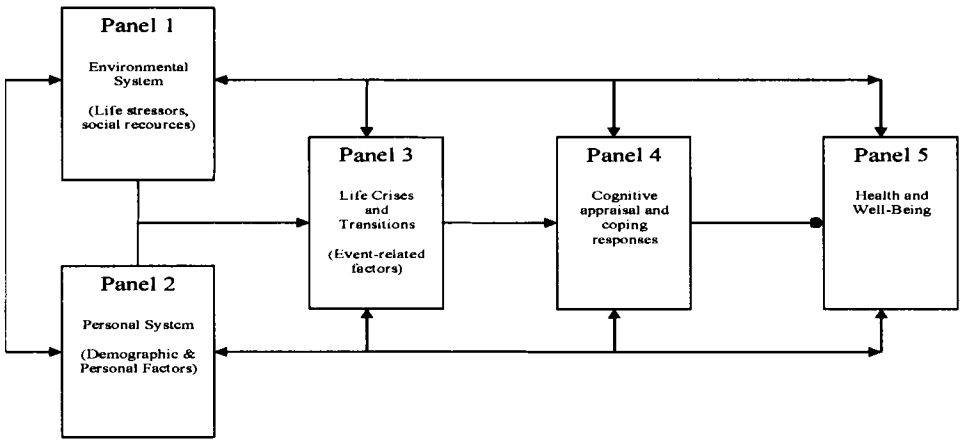



*Figure 1*: A general conceptual model of the coping process (Moos & Shaefer, 1993)

A vast amount of sports-scientific evidence was found to support the relevance of each of the panels in the model (Fig. 1) and confirms its relevance to the coping process. It was found that although the different panels in the Moos and Shaefer (1993) model could be discussed individually, these factors could not be compartmentalized in practice. As the bidirectional paths in the model indicate, all these factors influence one another and elements of the different factors are visible in all the panels. The discussion of the individual factors ultimately amounted to the fact that it is the combination of all these different factors, rather than any single one, that will be instrumental in athletes' coping abilities.

Weaknesses/shortcomings of this research:

- This research manuscript was based on literature findings from a number of researchers in the recent past. No research was conducted with a research population of competitive athletes in order to verify the provisional conclusions of this manuscript. The conclusions in this specific research manuscript should therefore be interpreted very carefully, since they are theoretical in nature.

Recommendations for future research:

- Future researchers should use the coping model of Moos and Shaefer (1993) as framework to investigate the practical value of this model in a competitive sports setup.

**Manuscript 2 (Chapter 3): A psychological skills profile of senior South African rugby players**

The findings in manuscript 1 suggested that there is no single panel in the Moos and Shaefer (1993) model that will entirely explain the coping process of competitive athletes. However, this does not imply that the contribution of each panel should not be investigated, as each panel contributes in a meaningful and specific way to the coping process as a whole. This prompted the researchers to do a further investigation into the influences that a number of the panels in the Moos and Shaefer model could have on one another. The importance of psychological skills in sports performance is continuously emphasized by researchers in the field of sports psychology. Therefore, a closer investigation into the levels of psychological skills of senior South African rugby players playing in different positions and at different levels of competitive rugby seemed warranted.

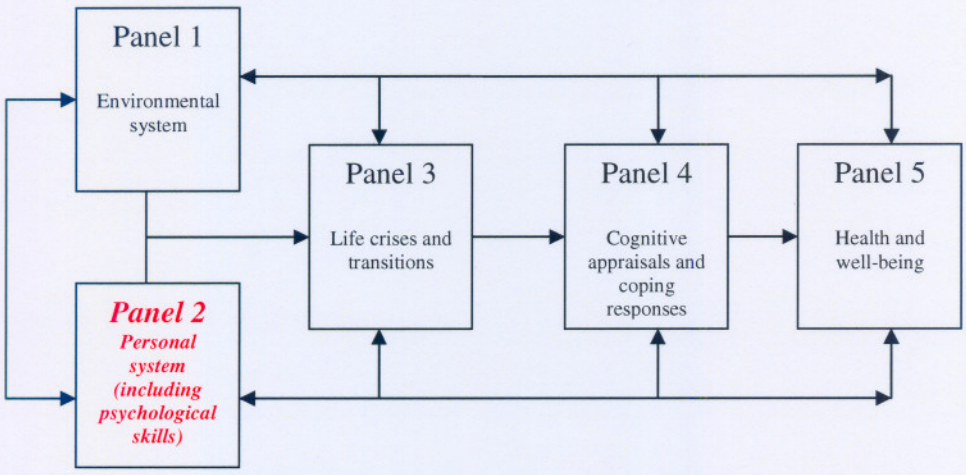



*Figure 2*: The 'Personal system' panel of the general conceptual model of the coping process (Moos & Shaefer, 1993) that was investigated in manuscript 2

Although the role of rugby players' physical skills was not addressed in this manuscript, it appeared that the ACSI-28 could provisionally be used to differentiate between elite and club rugby players in senior South African rugby on the grounds of the psychological skills that they possess. No significant differences could be found between the psychological skills of forwards and backline rugby players in this study. There were also no significant differences in psychological skills between any of the different positional groupings (props, hookers, locks, loose forwards, inside backs, and outside backs) of senior South African rugby players. Significant differences, however, were found between the psychological skills of Super 12 and club rugby players in South Africa. More specifically, the Super 12 players appeared to have significantly better concentration skills, could cope better under pressure, experienced less worry in competitive situations and were more coachable than their club counterparts. The results were used to provide a graphic illustration of the psychological skills profile of the three different levels of senior rugby players in South Africa.

Weaknesses/shortcomings of this research:

- This research did not provide a concrete solution to the lack of normative data on the psychological skills of South African senior rugby players; the results could not be generalized to the senior rugby population, since the sample was not randomly selected.
- In this study, only the psychological *skills* of the research population were investigated, and not the specific psychological *methods* that the rugby players utilized before or during competitive situations. The psychological methods that were used to develop or maintain the measured psychological skills are thus still unknown.
- It is not possible from this research to predict if improved psychological skills in club rugby players will enable them to make the step up to provincial rugby, since the role of individual differences in physical abilities were not taken into account.

Recommendations for future research:

- The above-mentioned shortcomings could be dealt with by determining in a follow-up study whether an improvement in the psychological skills of club rugby players

could enable them to make the step up to provincial rugby. Physical as well as psychological skills should be evaluated to determine the relative contribution of each of these classes of skills to the level of competitive rugby that the player will reach.

- This research only evaluated a certain number of psychological skills. It is possible that other psychological skills or combinations of psychological skills could also be used to differentiate between elite and club rugby players. It is therefore important to repeat this research, using different measuring instruments and different sets of psychological skills to validate, contradict or complement the results that were obtained.

**Manuscript 3 (Chapter 4): The influence of psychological skills on the state anxiety of senior South African rugby players**

The aim of this manuscript was to determine the interplay between psychological skills (panel 2) and state anxiety (panel 5), through the mediating role of the rugby players' cognitive perceptions (panel 4).

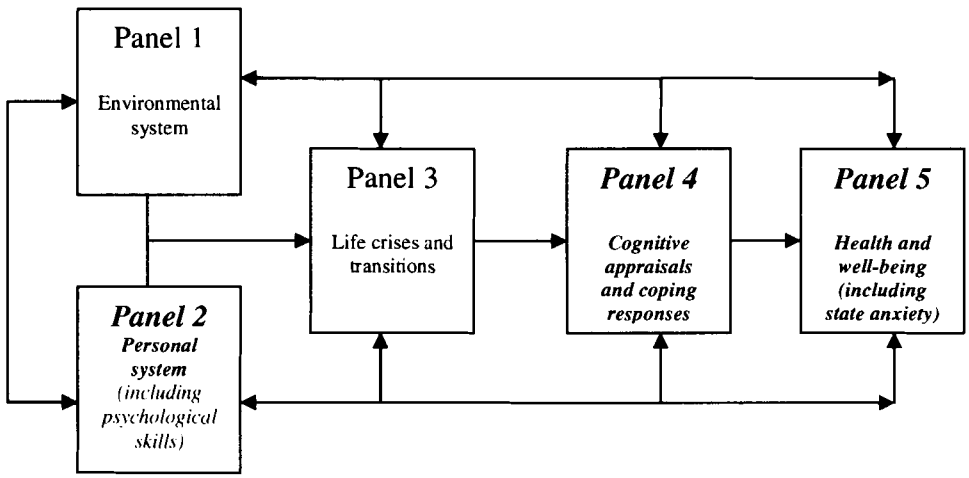



*Figure 3*: The interaction between the panels of the general conceptual model of the coping process (Moos & Shaefer, 1993) that were investigated in manuscript 3

Rugby players with high levels of psychological skills were found to experience lower levels of state anxiety, and interpreted the state anxiety that they experienced as more facilitative to their performance. These results coincided with the findings of other researchers (Hale & Whitehouse, 1998; Hanton & Jones, 1999; Jones & Hanton, 1996; Maynard, Smith & Warwick-Evans, 1995), who state that psychological skills are important in moderating the intensity and direction of pre-competitive anxiety.

All the psychological skills on the ACSI-28, except goal-setting, appeared to contribute to the variance in the state anxiety and self-confidence of the rugby players in this study. These combinations of psychological skills explained, on average, almost a quarter of the variance in the state anxiety and self-confidence of the rugby players.

It was noteworthy that only 56,82% of the players in the high psychological skills group were provincial rugby players. This finding implies that there were factors other than psychological skills that influenced rugby players' performance. Factors such as a lack of physical skills, sub-standard fitness or deficiencies in sports-specific technical or tactical abilities might well explain why such a large number of club rugby players with high levels of psychological skills were not playing provincial rugby.

Weaknesses/shortcomings of this research:

- This research was conducted on only four provincial and four club rugby teams. These teams were not randomly selected, therefore the findings could not be generalized to the total senior rugby population in South Africa.
- Results should furthermore be interpreted very carefully. The rugby players in the present study were evaluated by means of self-report questionnaires. Potential susceptibility to response distortions should be taken into consideration.

Recommendations for future research:

- Researchers should examine whether improvements in the psychological skills that have been identified in this research will in fact effectively contribute to elite rugby players' abilities to cope with state anxiety in competitive situations.

- Future research should also address the effect that the facilitated development of these psychological skills could have on performance when different strategies are combined to form a psychological skills package.
- It is also possible, if not probable, that psychological skills that were not measured by the ACSI-28 could have an influence on the state anxiety of the rugby players. Future researchers should use questionnaires that measure other combinations of psychological skills in order to validate the results found in this research.

**Manuscript 4 (Chapter 5): Prior experience, cognitive perceptions and psychological skills of senior South African rugby players**

This research focused on the important interaction between cognitive perceptions (panel 4) and prior experience, and highlighted the influence that these factors have on the psychological skills of senior South African rugby players (panel 2). A number of cognitive perceptions of the rugby players with high levels of psychological skills differed from those of the players with low levels of psychological skills.

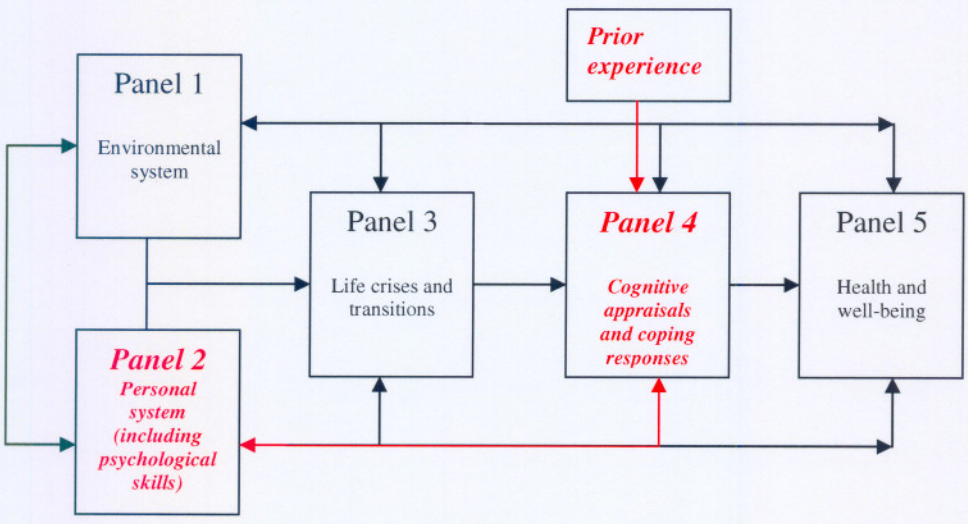



*Figure 4*: The interaction between the panels of the general conceptual model of the coping process (Moos & Shaefer, 1993) that were investigated in manuscript 4, with prior experience indicated as an additional dimension

Club level: Club rugby players with high levels of psychological skills differed significantly in eight of the biographical variables from the club players with low levels of psychological skills. These eight factors included the club players' prior experience and a number of perceptions regarding their own as well as the opponents' physical and psychological abilities. It appeared from the results that the most significant differences in terms of prior experience and cognitive perceptions between the high and low groups were found on club level.

Provincial level: The only differences between the high and low psychological skills group on provincial level were a) the highest level of rugby that they played at school, b) their opinion regarding sports psychology and c) their perception regarding their own abilities to do optimal psychological preparation before a game.

Super 12 level: There appeared to be more significant differences between the high and low psychological skills groups on Super 12 level than on the provincial level. The Super 12 high and low groups differed on six of the biographical variables. The results suggested that prior experience (such as highest level of rugby played, as well as the number of games played at provincial and Super 12 level) and a number of the evaluated perceptions (such as perceptions regarding their own as well as the opponents' physical and psychological abilities) appeared to have had an influence on the psychological skills of the rugby players.

The only biographical variable that appeared to be a common denominator differentiating between the high and low psychological skills groups on all three levels of rugby (club, provincial and Super 12) were their perceptions regarding their own abilities to optimally prepare themselves psychologically before a game. This result is in accordance with other researchers who found that the way in which athletes perceive their own ability might be one of the most important factors in facilitating their performance (Lazarus, 2000; Murphy & Tammen, 1998). Results furthermore indicated that a combination of perceptions and prior experience explained 44,81% of the variance in the psychological skills (ACSI-28 total) of the club rugby players, 9% of the variance on provincial level and 21,3% of the variance on Super 12 level.

Weaknesses/shortcomings of this research:

- Only a certain number of cognitive perceptions could be evaluated by the researchers. When obtaining information about the players' perceptions regarding their opponents' physical and psychological abilities, the questions had to be formulated in general, since it was not possible to include players' perceptions about every opposing team. It might thus be that there are other cognitive perceptions that could also play a significant role in the psychological skills of these evaluated rugby players.

Recommendations for future research:

- It is important to evaluate a more exhaustive set of cognitive perceptions, in order to establish comprehensively the influence that perceptions could have on the psychological skills of rugby players, or vice versa.

## CONTRIBUTION OF THE RESEARCH

The field of applied sports psychology is still relatively new in South Africa and there is not a large number of research articles available on the psychological factors that can influence the coping abilities or performance of senior South African rugby players. This research made an important contribution in this regard.

Firstly, results from this research indicated that sports psychologists should ensure that they use a holistic approach when dealing with the coping abilities of athletes involved in competitive sports. The results obtained from this research highlighted the fact that there is no single factor that will enable athletes to improve their coping in competitive sports, but that a combination of factors play an important role in this coping process. The model of Moos and Shaefer (1993) includes a number of important psychological factors and could provisionally be used to conceptualise the coping process of elite and amateur athletes alike.

Secondly, the differences that exist between elite and amateur senior rugby players in South Africa with regard to the psychological skills that they possess were highlighted.

Furthermore, the psychological skills profile of players performing on the different levels of senior rugby could provide provisional guidelines for comparison of other teams or players.

Thirdly, the interaction that was found between psychological skills and state anxiety emphasized the importance of maintaining and developing good psychological skills in senior rugby players in South Africa. The important role that psychological skills played in the cognitive perceptions (directional interpretation) of the rugby players' state anxiety was also highlighted.

Fourthly, the influence that prior sports experiences and a number of sports-specific cognitive perceptions could have on the psychological skills of rugby players was elucidated. This implies that cognitive therapists could play an important part in the sports-psychological preparation of rugby players by encouraging their clients to discover their basic faulty perceptions, challenging them to validate these perceptions and explaining to them how they can replace it with empirically grounded ones.

This preliminary research on the psychological skills, state anxiety and coping of senior South African rugby players should be used as a platform to initiate future research. The results and conclusions of this research, however, could guide sports psychologists to develop and apply appropriate intervention techniques. This might enable them to focus on improving relevant factors that could facilitate performance in rugby.

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# APPENDIX A

# Questionnaire: Research: Super12, 2004

Name and Surname:_____ Position/s:_____

| Section A: Demografics<br>Please **encircle** the relevant response | | | | | | For office use only |
|---|---|---|---|---|---|---|
| | | | | | | 1-3 |
| 1 | Year of birth | 1 | 9 | | | 4-5 |
| | | | | | | |
| 2 | Marital status | Single | | 1 | | 6 |
| | | Engaged | | 2 | | |
| | | Married | | 3 | | |
| | | Married with children | | 4 | | |
| | | Divorced | | 5 | | |
| | | Widower* | | 6 | | |
| | | | | | | |
| 3 | Race (for statistical purposes only) | White | | 1 | | 7 |
| | | Coloured | | 2 | | |
| | | Asian | | 3 | | |
| | | Black | | 4 | | |
| | | | | | | |
| Section B: Rugby history | | | | | | |
| 4 | At what age did you start playing rugby? | | | | | 8-9 |
| | | | | | | |
| 5 | How many years of highschool rugby have you played?<br>Years: | | | | | 10 |
| | | | | | | |
| 6 | What is the highest level of rugby that you have achieved in high school? | | | | | |
| | 2nd Team | | | 1 | | 11 |
| | 1st Team | | | 2 | | |
| | Provincial: Merit-/ Academy Team | | | 3 | | |
| | Provincial: Craven Week | | | 4 | | |
| | SA Schools | | | 5 | | |
| | Other: (specify): | | | 6 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 7 | In what year did you achieve the above mentioned level? | 1 | 9 | | | 12-13 |
| | | 1 | 9 | | | 14-15 |
| | | 1 | 9 | | | 16-17 |
| | | | | | | |
| 8 | In what year did you make your senior provincial debut? | 1 | 9 | | | 18-19 |
| | | | | | | |
| 9 | How many senior provincial games have you played? | | | | | 20-22 |
| | | | | | | |
| 10 | For how many months have you been out of provincial rugby due to injury? | | | Months | | 23-24 |
| | | | | | | |
| 11 | Have you played for a Super12 team in the past? | | | | | |
| | Yes | | | 1 | | 25 |
| | No | | | 2 | | |
| | | | | | | |
| 12 | If yes, in which year did you make your Super12 debut? | | | | | 26-29 |
| | | | | | | |
| 13 | For which of the following Super12 teams have you played in the past? | | | | | |
| | Sharks | | | 1 | | 30 |
| | Bulls | | | 2 | | 31 |
| | Cats | | | 3 | | 32 |
| | Stormers | | | 4 | | 33 |
| | | | | | | |
| 14 | How many games have you played for each team? | | | | | |
| | Sharks Number of games: | | | | | 34-35 |
| | Bulls | | | | | 36-37 |
| | Cats | | | | | 38-39 |
| | Stormers | | | | | 40-41 |
| | | | | | | |
| 15 | In which Super12 squad are you currently? | | | | | |
| | Sharks | | | 1 | | 42 |
| | Bulls | | | 2 | | |

| | | | |
|---|---|---|---|
| | Cats | 3 | |
| | Stormers | 4 | |
| | | | |
| 16 | What is the highest level of rugby that you have played in South-Africa? | | |
| | Provincial | 1 | 43 |
| | Super12 | 2 | |
| | SA Sevens | 3 | |
| | SA Merit | 4 | |
| | South-Africa 'A' | 5 | |
| | Springboks | 6 | |
| | Other (specify):_____ | 7 | |
| | | | |
| Section C: Sport psychological background | | | |
| 17 | Have you been to a sport psychologist in the past? | | |
| | Yes | 1 | 44 |
| | No | 2 | |
| | | | |
| 18 | If yes, how often did you/ do you go? | | |
| | Weekly | 1 | 45 |
| | Monthly | 2 | |
| | Once in six months | 3 | |
| | Once a year | 4 | |
| | No steady pattern | 5 | |
| | | | |
| 19 | What is your opinion on sport psychology? | | |
| | Very important | 1 | 46 |
| | Important | 2 | |
| | It could help me, but it is not important | 3 | |
| | It's a waist of time | 4 | |
| | | | |
| 20 | What is your need in regard to sport psychology? | | |
| | I'm already involved with a sport psychologist | 1 | 47 |
| | I would like to visit one, but I don't know where to start looking | 2 | |
| | I will get involved if the service is provided | 3 | |

| | | | |
|---|---|---|---|
| | I don't feel the need to get involved with a sport psychologist | 4 | |
| | | | |
| 21 | How would you rate your own level of psychological skills / preparation before a game | | |
| | Very good | 1 | 48 |
| | Good | 2 | |
| | Average | 3 | |
| | Below average | 4 | |
| | Poor | 5 | |
| | | | |
| 22 | Who's responsibility is it to look after the sport psychological needs of the players? | | |
| | It is my own responsibility | 1 | 49 |
| | The coach should make sure that all the players are motivated and psychologically prepared before a game | 2 | |
| | Management must appoint a sport psychologist who can look after all the players on the team | 3 | |
| | | | |
| 23 | Please indicate in what way do you agree or disagree with the following statements? | | |

| | | Completely agree | Agree | Neutral | Disagree | Completely disagree | |
|---|---|---|---|---|---|---|---|
| | Australian and New Zealand rugby players have more sport psychological opportunities than SA players | 1 | 2 | 3 | 4 | 5 | 50 |
| | Aus. and N.Z. players have better psychological skills than SA players | 1 | 2 | 3 | 4 | 5 | 51 |
| | In general, Aus. and N.Z. players have better mental toughness than SA players | 1 | 2 | 3 | 4 | 5 | 52 |
| | SA teams have lower levels of physical capabilities (e.g. handling skills, strength, fitness etc.) than NZ and Aus. players | 1 | 2 | 3 | 4 | 5 | 53 |
| | NZ and Australian players are on the same level of psychological skills | 1 | 2 | 3 | 4 | 5 | 54 |

| | | | | |
|---|---|---|---|---|
| 24 | Which country's player have, in your opinion, the best mental toughness | Australia<br>New Zeeland | 1<br>2 | 55 |

## Section D: Personal life

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 25 | Please indicate the influence of each of the below mentioned factors on your performance during the course of a season | | | | | | |
| | | Big positive influence | Positive influence | Neutral | Negative Influence | Big negative influence | |
| | Family/ Personal relationships | 1 | 2 | 3 | 4 | 5 | 56 |
| | Team members/ team spirit | 1 | 2 | 3 | 4 | 5 | 57 |
| | Coach | 1 | 2 | 3 | 4 | 5 | 58 |
| | Team management | 1 | 2 | 3 | 4 | 5 | 59 |
| | Referee / Match officials | 1 | 2 | 3 | 4 | 5 | 60 |
| | Spectators | 1 | 2 | 3 | 4 | 5 | 61 |
| | Media | 1 | 2 | 3 | 4 | 5 | 62 |
| | Home games | 1 | 2 | 3 | 4 | 5 | 63 |
| | Away games | 1 | 2 | 3 | 4 | 5 | 64 |
| | Financial issues | 1 | 2 | 3 | 4 | 5 | 65 |
| | Thoughts about the future | 1 | 2 | 3 | 4 | 5 | 66 |
| | Inland flights (to play away games) | 1 | 2 | 3 | 4 | 5 | 67 |
| | International flights (to Australasia) | 1 | 2 | 3 | 4 | 5 | 68 |

| | | | | | |
|---|---|---|---|---|---|
| 26 | Mark each relevant statement relating to playing in the Super12 competition | | | | |
| | | Yes | Neutral | No | |
| | I find it difficult to play under a new coach | 1 | 2 | 3 | 69 |
| | I find it difficult to adjust to a new game plan | 1 | 2 | 3 | 70 |
| | It is difficult for me to adjust in different circumstances every week | 1 | 2 | 3 | 71 |
| | It is difficult to build up good team spirit when you play with unfamiliar players | 1 | 2 | 3 | 72 |
| | Being on tour so often during the Super12 really influences my mood negatively | 1 | 2 | 3 | 73 |
| | I think a lot about losing my place to another player | 1 | 2 | 3 | 74 |
| | I am afraid that I might lose my place to a "quota-player" | 1 | 2 | 3 | 75 |

## Section E: Super12, 2004

| | | | |
|---|---|---|---|
| 27 | In your opinion, which of the teams would perform the best in the 2004 Super12 competition | | |
| | Sharks | | |
| | Bulls | | |
| | Cats | | |
| | Scorers | | |
| | Crusaders | | |
| | Blues | | |
| | Highlanders | | |
| | Brambles | | |
| | Reds | | |
| | Waratah | | |
| | Chiefs | | |
| | Hurricanes | | |

| | | |
|---|---|---|
| 28 | Complete the following statement | |

For me to be fully psychologically prepared for this Super12 competition, I would like to...

# Questionnaire: Research: Sport Psychology

Name and Surname:_____

Team:_____ Position/s: _____

| Section A: Demografics<br>Please **encircle** the relevant response | | | | | | | For office use only |
|---|---|---|---|---|---|---|---|
| | | | | | | | 1-3 |
| 1 | Year of birth | | 1 | 9 | | | 4-5 |
| | | | | | | | |
| 2 | Marital status | Single | | | 1 | | 6 |
| | | Engaged | | | 2 | | |
| | | Married | | | 3 | | |
| | | Married with children | | | 4 | | |
| | | Divorced | | | 5 | | |
| | | Widower* | | | 6 | | |
| | | | | | | | |
| 3 | Race (for statistical purposes only) | White | | | 1 | | 7 |
| | | Coloured | | | 2 | | |
| | | Asian | | | 3 | | |
| | | Black | | | 4 | | |
| | | | | | | | |
| Section B: Rugby history | | | | | | | |
| 4 | At what age did you start playing rugby? | | | | | | 8-9 |
| | | | | | | | |
| 5 | How many years of highschool rugby have you played?<br>Years: | | | | | | 10 |
| | | | | | | | |
| 6 | What is the highest level of rugby that you have achieved in high school? | | | | | | |
| | 2nd Team | | | | 1 | | 11 |
| | 1st Team | | | | 2 | | |
| | Provincial: Merit-/ Academy Team | | | | 3 | | |
| | Provincial: Craven Week | | | | 4 | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | SA Schools | | | | | 5 | |
| | Other: (specify): | | | | | 6 | |
| | | | | | | | |
| 7 | In what year did you achieve the above mentioned level? | | | | | | 12-13 |
| | | | | | | | 14-15 |
| | | | | | | | 16-17 |
| | | | | | | | |
| 8 | In what year did you make your **senior** provincial debut? | | | | | | 18-19 |
| | | | | | | | |
| 9 | How many senior provincial games have you played? | | | | | | 20-22 |
| | | | | | | | |
| 10 | For how many months have you been out of provincial rugby due to injury? | | | | | Months | 23-24 |
| | | | | | | | |
| 11 | Have you played for a Super 12 team in the past? | | | | | | |
| | Yes | | | | | 1 | 25 |
| | No | | | | | 2 | |
| | | | | | | | |
| 12 | If yes, in which year did you make your Super 12 debut? | | | | | | 26-29 |
| | | | | | | | |
| 16 | What is the highest level of rugby that you have played in South-Africa? | | | | | | |
| | Provincial | | | | | 1 | 43 |
| | Super12 | | | | | 2 | |
| | SA Sevens | | | | | 3 | |
| | SA Merit | | | | | 4 | |
| | South-Africa 'A' | | | | | 5 | |
| | Springboks | | | | | 6 | |
| | Other (specify):_____ | | | | | 7 | |

## Section C: Sport psychological background

| | | | |
|---|---|---|---|
| 17 | Have you been to a sport psychologist in the past? | | |
| | Yes | 1 | 30 |
| | No | 2 | |
| | | | |
| 18 | If yes, how often did you/ do you go? | | |
| | Weekly | 1 | 31 |
| | Monthly | 2 | |
| | Once in six months | 3 | |
| | Once a year | 4 | |
| | No steady pattern | 5 | |
| | | | |
| 19 | What is your opinion on sport psychology? | | |
| | Very important | 1 | 32 |
| | Important | 2 | |
| | It could help me, but it is not important | 3 | |
| | It's a waist of time | 4 | |
| | | | |
| 20 | What is your need in regard to sport psychology? | | |
| | I'm already involved with a sport psychologist | 1 | 33 |
| | I would like to visit one, but I don't know where to start looking | 2 | |
| | I will get involved if the service is provided | 3 | |
| | I don't feel the need to get involved with a sport psychologist | 4 | |
| | | | |
| 21 | How would you rate your own level of psychological skills / preparation before a game | | |
| | Very good | 1 | 34 |
| | Good | 2 | |
| | Average | 3 | |
| | Below average | 4 | |
| | Poor | 5 | |
| | | | |
| 22 | Who's responsibility is it to look after the sport psychological needs of the players? | | |
| | It is my own responsibility | 1 | 35 |
| | The coach should make sure that all the players are motivated and psychologically prepared before a game | 2 | |
| | Management must appoint a sport psychologist who can look after all the players on the team | 3 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 23 | Please indicate in what way do you agree or disagree with the following statements? | | | | | | |
| | | Completely agree | Agree | Neutral | Disagree | Completely disagree | |
| | Other provincial rugby players have more sport psychological opportunities than your team's players | 1 | 2 | 3 | 4 | 5 | 36 |
| | Other provincial rugby players have better psychological skills than your team's players | 1 | 2 | 3 | 4 | 5 | 37 |
| | In general other provincial rugby players have better mental toughness than your team's players | 1 | 2 | 3 | 4 | 5 | 38 |
| | Your team has lower levels of physical capabilities (e.g. handling skills, strength, fitness etc.) than other provincial rugby teams. | 1 | 2 | 3 | 4 | 5 | 39 |
| | Other provincial rugby players are all on the same level of psychological skills | 1 | 2 | 3 | 4 | 5 | 40 |

## Section D: Personal life

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 25 | Please indicate the influence of each of the below mentioned factors on your performance during the course of a season | | | | | | |
| | | Big positive influence | Positive influence | Neutral | Negative Influence | Big negative influence | |
| | Family/ Personal relationships | 1 | 2 | 3 | 4 | 5 | 41 |
| | Team members/ team spirit | 1 | 2 | 3 | 4 | 5 | 42 |
| | Coach | 1 | 2 | 3 | 4 | 5 | 43 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Team management | 1 | 2 | 3 | 4 | 5 | 44 |
| | Referee / Match officials | 1 | 2 | 3 | 4 | 5 | 45 |
| | Spectators | 1 | 2 | 3 | 4 | 5 | 46 |
| | Media | 1 | 2 | 3 | 4 | 5 | 47 |
| | Home games | 1 | 2 | 3 | 4 | 5 | 48 |
| | Away games | 1 | 2 | 3 | 4 | 5 | 49 |
| | Financial issues | 1 | 2 | 3 | 4 | 5 | 50 |
| | Thoughts about the future | 1 | 2 | 3 | 4 | 5 | 51 |
| | Domestic flights (to games) | 1 | 2 | 3 | 4 | 5 | 52 |
| | Being away from home often | 1 | 2 | 3 | 4 | 5 | 53 |
| | Other: Specify_____ | 1 | 2 | 3 | 4 | 5 | 54 |

| 26 | Mark each relevant statement relating to playing in a new team. | | | | |
|---|---|---|---|---|---|
| | | Yes | Neutral | No | |
| | I find it difficult to play under a new coach | 1 | 2 | 3 | 55 |
| | I find it difficult to adjust to a new game plan | 1 | 2 | 3 | 56 |
| | It is difficult for me to adjust in different circumstances every week | 1 | 2 | 3 | 57 |
| | It is difficult to build up good team spirit when you play with unfamiliar players | 1 | 2 | 3 | 58 |
| | Being on tour so often during the Super12 really influences my mood negatively | 1 | 2 | 3 | 59 |
| | I think a lot about losing my place to another player | 1 | 2 | 3 | 60 |
| | I am afraid that I might lose my place to a "quota-player" | 1 | 2 | 3 | 61 |

## Section E: 2004 Season

| 27 | In your opinion, which of the teams that you are going to play against this year, will be the toughest to beat | |
|---|---|---|
| 1 | | 62 |
| 2 | | 63 |
| 3 | | 64 |
| 4 | | 65 |
| 5 | | 66 |

| 28 | Complete the following statement |
|---|---|

For me to be fully psychologically prepared for this season, I would like to...

# Questionnaire: Research: Sport Psychology

Name and Surname:_____

| Section A: Demografics<br>Please **encircle** the relevant response | | | | | | | For office use only |
|---|---|---|---|---|---|---|---|
| | | | | | | | 1-3 |
| 1 | Year of birth | 1 | 9 | | | | 4-5 |
| | | | | | | | |
| 2 | Marital status | Single | | | 1 | | 6 |
| | | Engaged | | | 2 | | |
| | | Married | | | 3 | | |
| | | Married with children | | | 4 | | |
| | | Divorced | | | 5 | | |
| | | Widower* | | | 6 | | |
| | | | | | | | |
| 3 | Race (for statistical purposes only) | White | | | 1 | | 7 |
| | | Coloured | | | 2 | | |
| | | Asian | | | 3 | | |
| | | Black | | | 4 | | |
| | | | | | | | |
| Section B: Rugby history | | | | | | | |
| 4 | At what age did you start playing rugby? | | | | | | 8-9 |
| | | | | | | | |
| 5 | How many years of highschool rugby have you played?<br>Years: | | | | | | 10 |
| | | | | | | | |
| 6 | What is the highest level of rugby that you have achieved in high school? | | | | | | |
| | 2nd Team | | | | 1 | | 11 |
| | 1st Team | | | | 2 | | |
| | Provincial: Merit-/ Academy Team | | | | 3 | | |
| | Provincial: Craven Week | | | | 4 | | |
| | SA Schools | | | | 5 | | |
| | Other: (specify): | | | | 6 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | |
| 7 | In what year did you achieve the above mentioned level? | | | | | 12-13 |
| | | | | | | 14-15 |
| | | | | | | 16-17 |
| | | | | | | |
| 8 | In what year did you make your senior (e.g. club) debut? | | | | | 18-19 |
| | | | | | | |
| 9 | How many senior (e.g. club) games have you played? | | | | | 20-22 |
| | | | | | | |
| 10 | For how many months have you been out of provincial rugby due to injury? | | | Mon ths | | 23-24 |
| | | | | | | |
| 11 | Have you played for an University-/ club team in the past? | | | | | |
| | Yes | | | 1 | | 25 |
| | No | | | 2 | | |
| | | | | | | |
| 12 | If yes, in which year did you make your University-/ club debut? | | | | | 26-29 |
| | | | | | | |
| Section C: Sport psychological background | | | | | | |
| 17 | Have you been to a sport psychologist in the past? | | | | | |
| | Yes | | | 1 | | 30 |
| | No | | | 2 | | |
| | | | | | | |
| 18 | If yes, how often did you/ do you go? | | | | | |
| | Weekly | | | 1 | | 31 |
| | Monthly | | | 2 | | |
| | Once in six months | | | 3 | | |
| | Once a year | | | 4 | | |
| | No steady pattern | | | 5 | | |
| | | | | | | |
| 19 | What is your opinion on sport psychology? | | | | | |
| | Very important | | | 1 | | 32 |

| | | | |
|---|---|---|---|
| | Important | 2 | |
| | It could help me, but it is not important | 3 | |
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| | I'm already involved with a sport psychologist | 1 | 33 |
| | I would like to visit one, but I don't know where to start looking | 2 | |
| | I will get involved if the service is provided | 3 | |
| | I don't feel the need to get involved with a sport psychologist | 4 | |
| | | | |
| 21 | How would you rate your own level of psychological skills / preparation before a game | | |
| | Very good | 1 | 34 |
| | Good | 2 | |
| | Average | 3 | |
| | Below average | 4 | |
| | Poor | 5 | |
| | | | |
| 22 | Who's responsibility is it to look after the sport psychological needs of the players? | | |
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| | The coach should make sure that all the players are motivated and psychologically prepared before a game | 2 | |
| | Management must appoint a sport psychologist who can look after all the players on the team | 3 | |
| | | | |
| 23 | Please indicate in what way do you agree or disagree with the following statements? | | |

| | | Completely agree | Agree | Neutral | Disagree | Completely disagree | |
|---|---|---|---|---|---|---|---|
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## Section D: Personal life

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| | Referee / Match officials | 1 | 2 | 3 | 4 | 5 | 45 |
| | Spectators | 1 | 2 | 3 | 4 | 5 | 46 |
| | Media | 1 | 2 | 3 | 4 | 5 | 47 |
| | Home games | 1 | 2 | 3 | 4 | 5 | 48 |
| | Away games | 1 | 2 | 3 | 4 | 5 | 49 |
| | Financial issues | 1 | 2 | 3 | 4 | 5 | 50 |
| | Thoughts about the future | 1 | 2 | 3 | 4 | 5 | 51 |
| | Studies | 1 | 2 | 3 | 4 | 5 | 52 |
| | Hostel/ social events | 1 | 2 | 3 | 4 | 5 | 53 |
| | Other: Specify_____ | 1 | 2 | 3 | 4 | 5 | 54 |

| 26 | Mark each relevant statement relating to playing in a new team. | | | | |
|---|---|---|---|---|---|
| | | Yes | Neutral | No | |
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| | I find it difficult to adjust to a new game plan | 1 | 2 | 3 | 56 |
| | It is difficult for me to adjust in different circumstances every week | 1 | 2 | 3 | 57 |
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| 2 | | 63 |
| 3 | | 64 |
| 4 | | 65 |
| 5 | | 66 |

| 28 | Complete the following statement |
|---|---|

For me to be fully psychologically prepared for this season, I would like to...

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____