

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

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ABSTRACT

The objective of this study was to investigate the interaction between the prior experience, cognitive perceptions and psychological skills of senior rugby players in South Africa. 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. Different biographical variables appeared to distinguish between the groups with respectively high and low levels of psychological skills 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 groups with high and low levels of psychological skills. 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 trans-national level. 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.

Key words: Psychological skills; Cognitive perceptions; Prior 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 in challenging circumstances than players with low levels of psychological skills (Kruger, 2005c). It is apparent that psychological skills play an important role in players' ability to cope with the demanding competitive environment in elite rugby. A number of

researchers are in accord that high levels of psychological skills lead to better sports performance (e.g., Martens, 1987; Smith *et al.*, 1995; Hodge & McKenzie, 1999; Lazarus, 2000; Hale & Collins, 2002). The reasons why athletes differ in the level of psychological skills that they develop have however not been extensively researched. This necessitated an investigation into the factors that might contribute to the development of, or could have an influence on the utilization of psychological skills of senior rugby players in South Africa.

INFLUENCING FACTORS

Lazarus (2000) pointed out that in the highly competitive environment of professional sport, a variety of factors such as psychological skills, state anxiety, perceptions, life transitions and environmental factors can play a very significant role in athletes' performances. Kruger (2005a) argued that the coping model as suggested by Moos and Schaefer (1993) can provisionally be used to conceptualize and integrate a number of these seemingly unrelated factors that could influence athletes' performance in their highly competitive environment. This model (figure 1) 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), often through the mediating role of their cognitive appraisal of the situation and resultant coping responses that they employ (panel 4). It thus seems that, among other factors, cognitive appraisal plays an important part in a person's ability to adapt to trying circumstances. It is important to briefly focus on the important role that cognitive appraisal plays in sport.

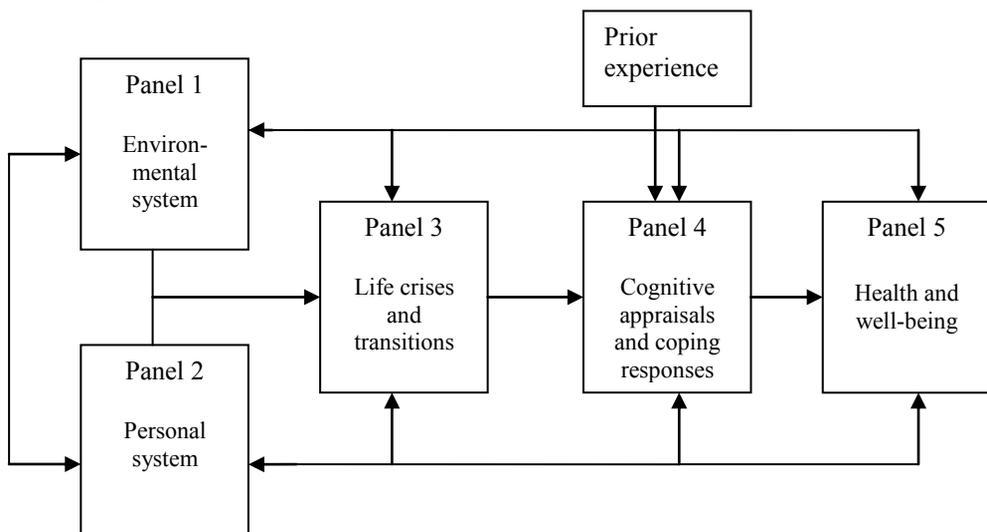


FIGURE 1. THE INTERACTION BETWEEN THE PANEL OF THE GENERAL CONCEPTUAL MODEL OF THE COPING PROCESS THAT WERE INVESTIGATED, PRIOR EXPERIENCE INDICATED AS AN ADDITIONAL DIMENSION (Moos & Schaefer, 1993)

Peoples' 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). One's cognitive appraisal of a situation is thus the first step in forming a cognitive perception. This cognitive perception can, in turn, be instrumental in determining the type of coping response that an individual will employ (Moos & Schaefer, 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 psychological skills that the athletes possess and the way in which these skills are applied (as illustrated by the bidirectional pathways in figure 1).

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). These authors conclude 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 or unrealistic expectations of performing well in any given competition. This "performance history" is often reflected in athletes' current rankings, and influences their cognitive perceptions of their own as well as their opponents' abilities. The influence that an athletes' prior experience might have on his/her cognitive perceptions, can potentially play a vital role in determining their performance in competitive situations (Lazarus, 2000).

Salvador (2005) found that coping in competitive situations will depend on factors such as perceived possibilities of control over success. According to this author, these perceptions of the possibility of achieving success are created by prior experience in similar competitions or the rank of the opponent, among others. Other researchers have confirmed that the strongest predictor of sport-specific self-confidence is the abilities that the individual believe that he or she has, and that it depends strongly on the individual's prior experience in similar situations (Gould *et al.*, 1984; Hall *et al.*, 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 that an athlete could possess and apply (Hodge & MacKenzie, 2002; Weinberg & Gould, 2003). It is therefore, reasonable to argue that prior experience could have a substantial influence on athletes' psychological skills.

Prior experience, however, does not only include an athlete's experiences in the sports arena. It could also include the athlete's prior exposure to sports psychological interventions. It is known that exposure to sports psychological interventions could significantly improve athletes' psychological skills (e.g., Hodge & McKenzie, 1999; Hale & Collins, 2002; 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 *et al.*, 2003; Hanton *et al.*, 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 Schaefer (1993) do not clearly elucidate the role of prior experience in the development of cognitive appraisals or perceptions, the above literature suggest a link between these two constructs. Research findings by, among others Lazarus (2000) and 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 Schaefer (1993), the aim of this article is thus to investigate the interaction between the psychological skills (panel 2), prior experience and cognitive perceptions (panel 4) of senior rugby players in South Africa.

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 a 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 was gathered from all four South African Super 12 teams (henceforth referred to as trans-national 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 Tshwane 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 the time of data collection. The number of players included in this study was thus 139 trans-national 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 *et al.*, 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 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) (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 adapted 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 to 16).
- 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 trans-national) into groups with

high levels of psychological skills (high groups) and groups with low levels of psychological skills (low groups) based on their total scores on the ACSI-28. 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 and standard deviations were determined for each of the groups (i.e., club, provincial and trans-national 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 were not strictly and rigidly applied, as they are considered *guidelines* and should be used accordingly (Steyn & Ellis, 2009). 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 and 0.70 as having a medium effect. Values of 0.71 and above were considered as having a 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 also 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, and 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 sport 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.
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 have better "mental toughness" than your team. Question 23d: Your team has lower levels of physical capabilities (e.g. handling skills, strength, fitness etc.) 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 sport 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 trans-national 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	<i>d</i> -value (effect size)		
	Club	Provincial	Trans-national
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* ≥ 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 etc.) 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 differences 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.

Trans-national rugby players

There were more significant differences between the high and low groups on trans-national level than on the provincial level. The trans-national high (n=77) and low groups (n=60) differed with regard to the number of senior provincial games and the number of trans-national games that they had played. The players in the high group had played an average of seventeen (17) trans-national 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 trans-national games per year is taken into account. The players who had a higher average of trans-national game experience appeared to have higher levels of psychological skills than the other players.

The biggest difference between the high and low groups on trans-national 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 etc.) 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 trans-national 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 trans-national 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			Trans-national		
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' sport psychological exposure, 3) their perception of who should provide sport 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. The identification of what exactly those factors are could be an interesting avenue for further research.

At the trans-national level, there was a combination of three of the biographical variables that were measured 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 trans-national 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 trans-national (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 suggested by the Moos and Schaefer model (1993) in figure 1, a vast number of factors could influence the degree to which athletes are able to cope with challenging or 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 trans-national ($d=0.73$) 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 trans-national 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, possibly reflecting higher self-confidence. No differences, however, were found in this regard between the high and low groups on provincial level.

When using the model of Moos and Schaefer (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 trans-national 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 trans-national 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 trans-national group. There are 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 trans-national 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' sport 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 sport psychological exposure, they would have been better informed regarding the role of sport psychology. This could possibly have caused them to experience less uncertainty about the sport 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 sport psychological issues could cause uncertainty. This could influence psychological factors such as their anxiety and self-confidence 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 sport 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 sport 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. Identifying the direction of interaction between prior experience, cognitive perceptions and psychological skills did not fall within the aims of this study. This could however 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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