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SPORT PSYCHOLOGICAL SKILL LEVELS AND RELATED PSYCHOSOCIAL FACTORS THAT DISTINGUISH BETWEEN RUGBY UNION PLAYERS OF DIFFERENT PARTICIPATION LEVELS

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ABSTRACT

The purpose of this study was to compare 60 top ranked and 60 lower ranked u/19 rugby union players from the PUK Rugby Institute (18.78 ± 0.28 years). Results show slight differences regarding previous consultations with sport psychologists, perceived importance of and need for psychological skills training sessions and the players' perceived ability to be psychologically well prepared for competitions. Effect size results (indicating practical significance) show that the top ranked players perceive psychosocial factors such as team members/team spirit, coaches, and financial aspects as significantly more positive ($d \geq 0.4$) than the lower ranked players, while they are also significantly better ($d \geq 0.4$) at fitting in with new team members, settling in with coaches and adapting to change in general. The top ranked players also showed significantly greater self-confidence ($d \geq 0.4$), personal coping resources, coping with adversity, average psychological skills and activation control scores than their lower ranked counterparts, stressing the important role of sport psychological skills towards rugby performance. It can be concluded that sport psychological skill levels and related psychosocial factors can distinguish between rugby union players of different participation levels. Results are discussed in reference to practical implications for future sport psychological skills training programmes.

Key words: Sport psychological skills; Performance; Rugby union.

INTRODUCTION

The International Rugby Board repealed the rules on amateurism after the 1995 Rugby World Cup and as a result rugby became a professional sport (Treasure *et al*., 2000). Shortly after the 1995 World Cup tournament, Cox and Yoo (1995) stated that success in professional sport is not only dependent on the physical and tactical aspects but that psychological skills also need to be addressed. As a result, Garraway *et al.* (2000) pointed out that similar demands were placed on the rugby players' psychological skill levels, as has been the case in other professional sporting codes. Le Roux and Pienaar (2001) as well as Lyons (2001) further noted that sport psychology plays an important and ever-increasing role in the world of competitive sport. The importance of sport psychology is emphasized by the contention that the knowledge obtained by the study of an athletes' behaviour within a sporting environment could be used to explain, predict and change behaviour (Potgieter, 2003). The identification and development of sport psychological skills have subsequently become of great interest to

players, coaches, administrators and sport psychology researchers, due to the relationship that exists between these skills and the development as well as performance of the modern rugby player (Golby & Sheard, 2004).

A recent study by Kruger (2003) showed that 67.5% of South African Super 12 rugby players regard sport psychological skills as important performance determinants. Despite this contention, only 2.8% of these players individually consulted a sport psychologist, while only 29.6% perceived their own ability to be psychologically well prepared for competitions as very good. These results suggest a definite need for sport psychological services (67.5% of the players indicated a great need or need for psychological skills training sessions), as it could hold value for performance improvement within the sport. The introduction to sport psychological skills training at the junior and sub-elite levels of sport primarily falls within the responsibility of the coach (Gould *et al.,* 1999). Within the South African context, however, 84% of teachers who coach at the secondary school level have not received any training in sport psychology (Le Roux & Pienaar, 2001), resulting in players who do not possess sound foundational skills required for optimal performance. In addition to this problem, no information exists on the sport psychological skills of junior rugby players in South Africa. In fact, research into the sport psychological skills of rugby union players in general is very limited.

Researchers (Maynard & Howe, 1989; Hodge & McKenzie, 2002; Kruger, 2003; Golby & Sheard, 2004; Kruger, 2005) studying the relationship between different sport psychological skills and rugby performance often attempt to describe this relationship by comparing players from different competitive levels or by comparing players from successful teams with players from less successful teams. In this regard Hodge and McKenzie (2002) found higher self-confidence levels in more successful rugby players. Kruger (2003) showed that the top placed South African team in the 2003 Super 12 tournament scored significantly higher ($p<0.05$) in goal setting/mental preparation, concentration, confidence and achievement motivation than the other three South African teams. English international rugby league players were reported to show significantly higher ($p<0.05$) attentional control than their division one counterparts (Golby & Sheard, 2004). The latter finding is, however, in contrast with that of Maynard and Howe (1989), who found no such differences for attentional control. Lastly, Kruger (2005) noted significantly better ($p<0.05$) general coping skills, concentration skills, coachability and less worries among South African Super 12 players, compared to senior South African club rugby players.

From these results it is clear that certain sport psychological skills are related to success in rugby. The lack of research on the sport psychological skills of junior rugby players and its effect on performance makes research on this topic imperative. The subsequent purpose of this study is, therefore, to distinguish between u/19 club rugby players of different participation levels based on:

- their prior exposure to sport psychologists and sport psychological skills training programmes (SPSTP)
- their perceived importance of SPSTP
- their perceived ability to be psychologically prepared for competitions
- their expressed need for SPSTP
- psychosocial factors influencing their participation and performance in rugby

- their general reaction to change and specific situations
- their sport psychological skills profiles.

METHOD

Subjects

The subjects were elite student rugby players enrolled at an institution for higher learning in South Africa. They were all first year students at the North-West University (Potchefstroom Campus) and affiliated with the PUK Rugby Institute (PRI) during the 2004 and 2005 seasons. It should be noted that the first year at university is a difficult time for most students, as they have to adapt to various new situations. The players were, therefore, tested after an initial period of two months at the university (two months into the pre-season training). At the end of these two seasons, respectively, the u/19 coaching panel from the PRI identified and ranked the top four u/19 players in each playing position for that particular season. This meant that 120 u/19 rugby union players with a mean age and standard deviation of 18.78 and 0.28 years respectively, from the PRI were included in this study. This group consisted of 107 white, seven coloured and six black players. The highest previous representative levels of these players are: South African schools team (n=2), Craven week provincial team (n=29), provincial academy team (n=50), secondary school teams (n=39). According to the above-mentioned ranking, the top two ranked players in each position were included in the top group, while those ranked third and fourth respectively were included in the lower ranked group. It should be noted that these subjects were not randomly selected to participate in this study from a larger population pool. This study is merely interested in describing tendencies of the top ranked 60 players compared to the other 60 players of the PRI over the 2004 and 2005 seasons. Caution should, therefore, be applied when generalizing the results to u/19 rugby players in general. The implications of this point will be discussed further when describing the statistical analysis that was conducted.

Test procedure

Administration of testing

The study was approved by the Ethics Committee of the Faculty of Health Sciences at the North-West University, Potchefstroom Campus (reference number 058K13). Players were tested at corresponding times in each of the two seasons, i.e. two months into the pre-season. All of the players completed informed consent forms. Parental permission was also obtained. At the time of testing no sport psychological skills training sessions had been conducted. The purpose of the study and confidentiality of the individual player results were explained to the players. It was specifically mentioned that no coaches would have access to the results. The results could, therefore, not influence team selection, thereby reducing the effect of socially desirable answers from the players.

Demographic, general rugby and sport psychology questionnaire

Demographic information (name, surname, birth date, test date, age and race), rugby playing history (years of playing, playing position(s)) and sport psychology background (visits to sport psychologists (individually or team), importance of sport psychology, need for sport psychological services, the extent to which the player felt he could prepare himself

psychologically for matches) were gathered by means of a questionnaire developed for and implemented as part of the SPSTP of the PRI. Subjects also had to indicate the effect of general psychosocial factors on their participation and performance in rugby, as well as their reaction to change on a 5 point Likert scale ranging from 1 (very negative) to 5 (very positive).

Sport psychological skills questionnaires

The various sport psychological skills and constructs were measured using three reliable and valid sport psychological questionnaires, i.e. the Competitive State Anxiety Inventory–2 (CSAI-2) of Martens *et al*. (1990), the Athletic Coping Skills Inventory–28 (ACSI-28) of Smith *et al*. (1995) as well as the Psychological Skills Inventory (PSI) of Wheaton (1998).

The CSAI-2 is a self-report questionnaire consisting of three nine-item sub-scales measuring somatic state anxiety, cognitive state anxiety and state self-confidence. Individual items are rated on a 4-point Likert scale from 1 (*not at all*) to 4 (*very much so*). Sub-scale scoring is additive, although one somatic anxiety item has reversed scoring, yielding sub-scale totals ranging from 9 to 36. Initial psychometric tests (Martens *et al*., 1990) confirmed solid internal consistency for all the sub-scales, with alpha reliability coefficients ranging from r=0.79 to r=0.90. The initial concurrent validity research (Martens *et al*., 1990) on the CSAI-2 demonstrated reasonably consistent relationships with eight previously validated state and trait inventories.

The ACSI-28 measures coping with adversity, peaking under pressure, goal setting/mental preparation, concentration, freedom from worry, confidence and achievement motivation, as well as coachability. Lastly, the average value for the above seven skills is calculated to produce a personal coping resources score. Athletes had to read statements which describe experiences of other athletes and had to recall the frequency of similar experiences. Each sub-scale is composed of four items measured on a 4-point Likert scale ranging from 0 (*almost never*) to 3 (*almost always*). Each of the sub-scale scores can, therefore, range from 0 to 12 and the composite personal coping resources score can range from 0 to 84. The results are converted to a percentage score with higher values reflecting better skill levels. Test-retest reliability of the personal coping resources score on the ACSI-28 was found to be r=0.87 over a one week period for a sample of 97 male and female college athletes. Internal consistency reliability of the ACSI-28 total score was r=0.86. Preliminary concurrent validity evidence was reported as the sub-scales were shown to be related to various sport psychological questionnaires (Smith *et al*., 1995).

The PSI (consisting of 64 items) measures achievement motivation, goal directedness, activation control, maintaining self-confidence, concentration and mental rehearsal from which an average psychological skills score is derived. Each skill consists of ten items measured on a 5-point Likert scale ranging from 0 (*never*) to 4 (*always*). Reverse scoring applies in some cases with the sub-scale scores expressed as percentages. Higher values also reflect better sport psychological skill levels. The test-retest reliability on the PSI was found to range from r=0.84 to r=0.97 (Wheaton, 1998). The validity of this questionnaire is, currently, subject to further testing, but this questionnaire has been included in the study as it is currently being used by the South African Sports Confederation and Olympic Committee in their High Performance Programme.

Statistical analysis

The statistical package Statsoft (2004) was used to process the data. The descriptive statistics (averages and standard deviations) of each test variable of the two groups were calculated and significance of differences between the more and less successful groups of PRI players was determined by means of effect sizes. Since it was not a randomly selected group, the use of t-tests to compare the two groups is not permitted. The use of effect sizes (ES) to indicate practically significant differences is more suitable (Steyn, 2006) in which ES = $(M_1 - M_2)/s$ (Thomas & Nelson, 2001). Here, M_1 = the mean of the first group in the comparison, M_2 = the mean of the second group in the comparison and s = the standard deviation. Thomas and Nelson (2001) recommend that the pooled standard deviation be used in research designs such as the present one:

$$sp = \sqrt{\frac{s_1^2(n_1-1)+s_2^2(n_2-1)}{n_1+n_2-2}}$$

Here, Sp = the pooled standard deviation, s_1^2 = the variance of the players in the first group, s_2^2= the variance of the players in the second group, n_1 = the number of players in the first group and n_2 = the number of players in the second group. Effect sizes are expressed as Cohen's d-value and can be interpreted as follows: an ES of more of less 0.8 is large, an ES of more of less 0.5 is moderate and an ES of more or less 0.2 is small (Thomas & Nelson, 2001).

RESULTS AND DISCUSSION

Figures 1-4 report on the previous consultations with sport psychologists, the perceived importance of SPSTP, the perceived ability to be psychologically well prepared for competitions and the perceived need for SPSTP, for the top ranked (n=60) and lower ranked (n=60) players, respectively.

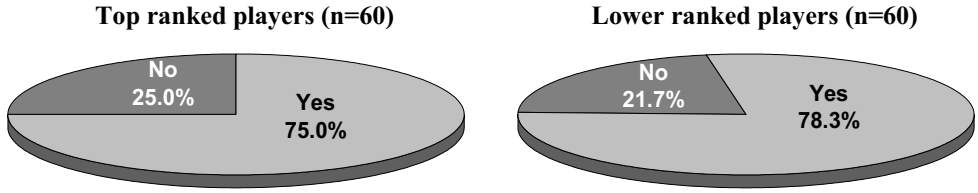

FIGURE 1. **THE PERCENTAGE OF PLAYERS WHO PREVIOUSLY CONSULTED A SPORT PSYCHOLOGIST (INDIVIDUALLY OR DURING TEAM SESSIONS)**

No considerable differences exist regarding the top and lower ranked players' previous consultations with sport psychologists. Collectively only 23.3% of the tested subjects previously consulted with sport psychologists. This result may seem to contradict the findings of Kruger (2003) who reported that only 2.8% of South African Super 12 players consulted sport psychologists. It should be taken into account that the present study also included consultations during team sessions, whereas the last-mentioned researcher only reported on players who consulted with sport psychologist on an individual basis.

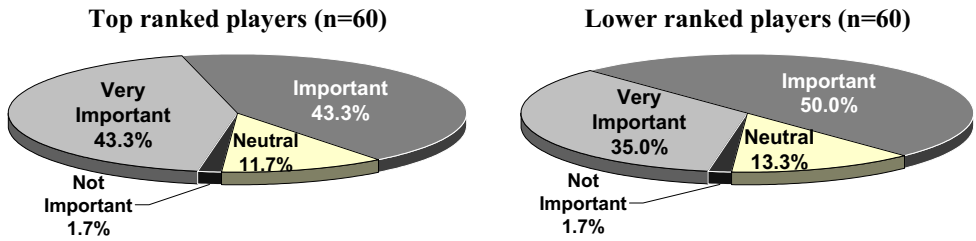

FIGURE 2. **THE PERCEIVED IMPORTANCE OF SPSTP**

Reasonably similar perceptions regarding the importance of SPSTP were expressed by the players from the two tested groups. A slight difference was observed in that more of the top ranked players compared to lower ranked players perceive SPSTP as very important (43.3% vs. 35.0%). This, however, led to an inverse situation regarding players who perceive SPSTP as important as 43.3% of the top ranked players compared to 50.0% of the lower ranked players held this perception. Similar percentages of the players were uncertain about the importance of SPSTP (11.7% vs. 13.3%) or perceived it as unimportant (1.7% each).

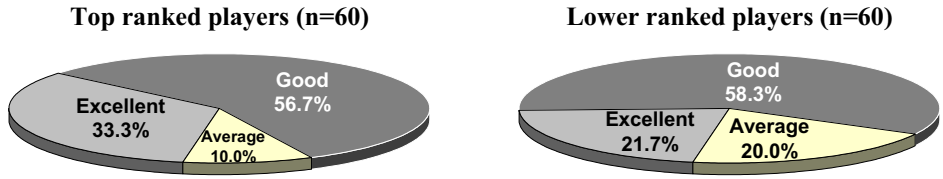

FIGURE 3. **THE PLAYERS' PERCEIVED ABILITY TO BE PSYCHOLOGICALLY WELL PREPARED FOR COMPETITIONS**

A considerable difference (top group: 33.3% vs. lower group: 21.7% excellently prepared) exists regarding the players' perceived psychological preparation for competitions. Similar percentages indicate that they are well prepared (56.7% vs. 58.3%), resulting in more players from the lower ranked group (20.0% vs. 10.0%) who perceive their psychological preparation as being average. Collectively, these results compare well with that of South African Super 12 players as reported by Kruger (2003) and further indicate room for improvement, which should be addressed through SPSTP.

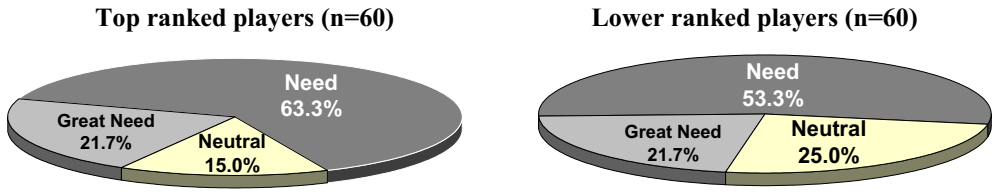

FIGURE 4. **THE PLAYERS' PERCEIVED NEED FOR SPSTP**

The same percentage of players in the two groups (21.7%) expressed a great need for SPSTP. Among the remaining players, a greater number of top ranked players showed a great need for

SPSTP, possibly brought about by a more serious approach to their rugby careers than the lower ranked players. Despite the evidence that shows that the majority of professional and amateur athletes is of the opinion that they could benefit from sport psychological services (Ferraro & Rush, 2000), this study found that 20.0% of the total number of players had a neutral need for SPSTP. Meyers *et al*. (1995) justified such results by reporting that there are certain athletes who feel that they can deal with their own emotions without any outside help. Furthermore, the lack of previous exposure to sport psychologists and SPSTP (Fig. 1) may contribute to this finding, since the players may not know how such programmes can be of benefit. As previously noted, the subjects in this study are first year students at a tertiary institute. Therefore, these players underwent major changes (related to rugby and life in general) in the two months prior to being tested. It was, therefore, also decided to compare the two groups of players regarding general psychosocial factors and circumstances influencing participation and performance in rugby, as well as their reaction to change. The results of these self-evaluations are reported in Tables 1 and 2. The different psychosocial factors, circumstances and reaction to change items are placed in order of importance/impact, starting with the factors which the top ranked players perceive as being the most facilitative towards participation and performance and ending with the most debilitative factor towards participation and performance.

TABLE 1. **GENERAL PSYCHOSOCIAL FACTORS AND CIRCUMSTANCES INFLUENCING PARTICIPATION AND PERFORMANCE IN RUGBY**

Variables	Top ranked players (n=60) M ± SD	Lower ranked players (n=60) M ± SD	Effect sizes (d-value)
Effect of family/personal life	4.57 ± 0.70	4.57 ± 0.65	0.00
Effect of team members/team spirit	4.48 ± 0.50	4.15 ± 0.84	0.47*
Effect of coaches	4.40 ± 0.69	4.10 ± 0.86	0.38*
Effect of home games	4.22 ± 0.74	4.18 ± 0.89	0.05
Thoughts about what the future has in stall	4.13 ± 0.87	3.83 ± 0.96	0.33
Effect of spectators	3.87 ± 0.77	3.65 ± 0.68	0.30
Effect of the score board	3.67 ± 1.27	3.78 ± 1.03	-0.10
Effect of away games	3.45 ± 0.72	3.83 ± 0.67	-0.55*
Effect of financial aspects	3.32 ± 0.70	3.05 ± 0.77	0.37*
Thoughts about possibly losing my place in the team to a quota player	3.17 ± 1.29	2.97 ± 1.26	0.16
Effect of referees	2.98 ± 0.39	2.98 ± 0.62	0.00
Thoughts about possibly losing my place in the team to another player	2.98 ± 1.08	2.88 ± 1.14	0.09
Possibility of a career ending injury	2.97 ± 1.21	2.70 ± 1.36	0.21
Academic pressure experienced	2.92 ± 0.83	2.80 ± 0.90	0.14
The perceived effect of the quota system on own performance	2.10 ± 1.31	2.10 ± 1.12	0.00

Effect sizes: ** d=0.8: large; * d=0.5: moderate and d=0.2: small

TABLE 2. **THE RUGBY PLAYERS' REACTION TO CHANGE**

Variables	Top ranked players (n=60) M ± SD	Lower ranked players (n=60) M ± SD	Effect sizes (d-value)
Fitting in with new team members	4.25 ± 0.88	3.75 ± 1.02	0.52*
Being part of a new team spirit	4.25 ± 0.91	3.95 ± 0.95	0.32
Fitting in with new game plans	4.05 ± 0.85	3.75 ± 0.91	0.34
Settling in with new coaches	3.92 ± 0.87	3.55 ± 0.95	0.41*
General ability to adapt to change	3.88 ± 1.03	3.43 ± 1.20	0.40*

Effect sizes: ** d=0.8: large; * d=0.5: moderate and d=0.2: small

Both these tables emphasize the important interaction between the players and their coaches. The top players held moderately greater, positive reflections about the effect of their coaches on their performance (d=0.38) and their ability to adapt to new coaches at the PRI (d=0.41). Similarly, the influence of team mates and the team spirit on performance (d=0.47) and fitting in with new team mates (d=0.52) were more favourable among the top ranked players than the lower ranked players. The top ranked players perceived their own ability to adapt to change in general to be moderately better (d=0.40) than the lower ranked players. Another moderately significant difference between the two groups was financial aspects, in which the top ranked players perceived this aspect as being more facilitative than the lower ranked players.

A plausible explanation for this is the statistics which show that 51 of the top ranked players, compared to 12 of the lower ranked players were bursary holders. The average amount that the 63 bursary holders received were enough to pay for tuition fees, accommodation and certain rugby related expenses. It is, therefore, clear that the lower ranked players experienced more financial difficulties with perceived negative participation and performance consequences.

Interestingly, the top ranked players perceived the effect of the scoreboard (d=-0.10) and away games (d=-0.55) as more debilitative than the lower ranked players. The latter finding is difficult to explain. Furthermore, these tables also brought to light certain factors which have potentially negative effects on the participation and performance of the players, i.e. average values below 3.0. These are the perceived effect of the quota system on their own performance (top=2.10 ± 1.3; lower=2.10 ± 1.12), academic pressure (top=2.92 ± 0.83; lower=2.80 ± 0.90), thoughts about serious career ending injuries (top=2.97 ± 1.21; lower=2.70 ± 1.36), effects of referees (top=2.98 ± 0.39; lower=2.98 ± 0.62) and thoughts about possibly losing a place in the team to another player (top=2.98 ± 1.08; lower=2.88 ± 1.14). To a large extent the top and lower ranked players reported similar values for these factors. These factors should deliberately be accounted for in the coaching programme of these players to prevent any debilitative effect thereof on participation and performance.

Although the aforementioned results shed light on important psychosocial factors which distinguish between rugby players of different participation levels, the real interest of this study lies in the question whether or not it is possible to distinguish between rugby players of different participation levels based on their sport psychological skills profiles. The subsequent comparisons between the two groups of players for the CSAI-2, ACSI-28 and PSI constructs and skills are reported in Tables 3-5. Small effect sizes (practical significance) were observed

for both cognitive and somatic state anxiety. A moderately significant difference (d=0.44) was observed for state self-confidence, with the top ranked players showing better self-confidence levels. In fact, this finding is upheld when using other measurement instruments such as the ACSI-28 and PSI (see similar results in Tables 4 and 5). These results emphasize the importance of high self-confidence levels in order to attain success in rugby and are in agreement with the previously reported results of Hodge and McKenzie (2002).

TABLE 3. **COMPARISONS BETWEEN THE TOP AND LOWER RANKED PLAYERS FOR COGNITIVE STATE ANXIETY, SOMATIC STATE ANXIETY AND STATE SELF-CONFIDENCE, AS MEASURED WITH THE CSAI-2 (MARTENS *ET AL.*, 1990)**

Percentiles: The data from the total subject group (N=120) were used to determine every 5th percentile for each specific variable. The specific percentile in which the average value of a particular group fell is highlighted.								
35%	40%	45%	50%	55%	Variables	Groups	M ± SD	Effect size (Cohen's d-value)
			Top		Cognitive state anxiety•	Top (n=60)	20.92 ± 4.87	0.22
		Lower				Lower (n=60)	19.80 ± 5.47	
				Top	Somatic state anxiety•	Top (n=60)	21.15 ± 5.23	0.11
			Lower			Lower (n=60)	20.58 ± 5.13	
				Top	State self-confidence	Top (n=60)	26.32 ± 4.97	0.44*
Lower						Lower (n=60)	24.15 ± 4.94	

• Lower anxiety scores represent better construct levels.
Effect sizes: ** d = 0.8: large; * d = 0.5: moderate and d = 0.2: small

Since performance accomplishments are associated with self-confidence (Weinberg & Gould, 2003), success could further give rise to increased self-confidence levels. The relationship between self-confidence and performance outcome can be seen as an example of a continuous cause and effect cycle, i.e. self-confidence enabling success and success leading to increased self-confidence.

TABLE 4. **COMPARISONS BETWEEN THE TOP AND LOWER RANKED PLAYERS FOR THE VARIOUS COPING SKILLS, AS MEASURED WITH THE ACSI-28 (SMITH *ET AL.*, 1995)**

Percentiles: The data from the total subject group (N=120) were used to determine every 5th percentile for each specific variable. The specific percentile in which the average value of a particular group fell is highlighted.									Effect size (Cohen's d-value)
40%	45%	50%	55%	60%	65%	Variables	Groups	M ± SD	
			Top			Personal coping resources score	Top (n=60)	65.77 ± 11.53%	0.48*
Lower							Lower (n=60)	59.88 ± 12.79%	
				Top		Coping with adversity	Top (n=60)	69.56 ± 19.76%	0.44*
Lower							Lower (n=60)	61.11 ± 18.84%	
			Top			Peaking under pressure	Top (n=60)	54.58 ± 15.83%	0.20
		Lower					Lower (n=60)	51.26 ± 17.21%	
					Top	Goal setting / Mental preparation	Top (n=60)	55.56 ± 17.61%	0.23
			Lower				Lower (n=60)	50.83 ± 22.48%	
					Top	Concentration	Top (n=60)	67.50 ± 15.55%	0.32
	Lower						Lower (n=60)	61.84 ± 19.52%	
			Top			Freedom from worry	Top (n=60)	52.50 ± 18.04%	0.37
	Lower						Lower (n=60)	47.49 ± 18.88%	
				Top		Confidence and achievement motivation	Top (n=60)	59.73 ± 11.07%	0.52*
Lower							Lower (n=60)	52.93 ± 14.62%	
		Top				Coachability	Top (n=60)	55.98 ± 17.43%	0.13
	Lower						Lower (n=60)	53.75 ± 16.27%	

Effect sizes: ** d = 0.8: large; * d = 0.5: moderate and d = 0.2: small

In addition to confidence and achievement motivation (d=0.52) the top ranked players had better personal coping resources scores (d=0.48) and were more able to cope with adversity (d=0.44) than the lower ranked players. In using the same questionnaire (the ACSI-28), Kruger (2005) found significantly higher ($p<0.05$) personal coping resources scores among South African Super 12 players than senior club players. Collectively, these results show the importance of sound general coping skills and specifically the ability to maintain emotional control, remain calm and related, while being positive and enthusiastic despite difficult match situations (coping with adversity). These skills are needed to excel at the highest level and can distinguish between rugby union players from different competitive levels.

TABLE 5. **COMPARISONS BETWEEN THE TOP AND LOWER RANKED PLAYERS FOR THE VARIOUS SPORT PSYCHOLOGICAL SKILLS, AS MEASURED WITH THE PSI (WHEATON, 1998)**

Percentiles: The data from the total subject group (N=120) were used to determine every 5th percentile for each specific variable. The specific percentile in which the average value of a particular group fell is highlighted.									
35%	40%	45%	50%	55%	60%	Variables	Groups	M ± SD	Effect size (Cohen's d-value)
					Top	Average psychological skills	Top (n=60)	71.58 ± 10.98%	0.45*
Lower							Lower (n=60)	66.59 ± 10.99%	
				Top		Achievement motivation	Top (n=60)	83.00 ± 11.30%	0.38
Lower							Lower (n=60)	79.83 ± 11.46%	
				Top		Goal directedness	Top (n=60)	70.79 ± 15.14%	0.32
Lower							Lower (n=60)	65.42 ± 18.10%	
					Top	Activation control	Top (n=60)	66.88 ± 14.78%	0.43*
	Lower						Lower (n=60)	60.75 ± 14.03%	
					Top	Maintaining self-confidence	Top (n=60)	70.63 ± 15.40%	0.37
	Lower						Lower (n=60)	64.79 ± 16.04%	
				Top		Concentration	Top (n=60)	71.13 ± 11.54%	0.26
		Lower					Lower (n=60)	67.83 ± 13.96%	
				Top		Mental rehearsal	Top (n=60)	65.42 ± 14.12%	0.28
		Lower					Lower (n=60)	60.88 ± 17.58%	

Effect sizes: ** d = 0.8: large; * d = 0.5: moderate and d = 0.2: small

Two more skills were outlined as practically significant in distinguishing between top and lower ranked rugby players, i.e. the average psychological skills score (d=0.45) and activation control (d=0.43). These results were not previously seen in published literature. Activation control, refers to an athletes' ability to reach his optimal arousal level for peak performances, which Hanin (2000) termed the individual zone of optimal functioning (IZOF). This IZOF or level of arousal is specific to each individual and from the results in Table 5 it seems as if the top ranked players are more aware of their arousal levels and more effective in activating or deactivating their arousal levels in order to achieve peak performances.

Collectively, the results indicate that the top ranked players outscored the lower ranked players on average in all but two of the 18 tested sport psychological skills or constructs. The two constructs in which the lower ranked players' average values were slightly better (lower scores representing better results in both cases) are cognitive state anxiety and somatic state anxiety. Despite these higher anxiety levels, it is shown that the top ranked players might be more effective at managing their anxiety in order to perform optimally, by applying their better general coping and sport psychological skills and their ability to control their activation levels effectively. In this regard Kruger (2005) reported that rugby players with high overall psychological skills scores experienced their symptoms of both cognitive and somatic anxiety as more facilitative to performance than players with low overall psychological skills scores.

CONCLUSIONS AND RECOMMENDATIONS

Although only slight differences exist regarding previous consultations, the perceived importance, abilities and need for SPSTP, the results from the total group emphasize the development and systematic implementation of SPSTP.

Furthermore, the results of this study unequivocally show that rugby players (even as early as the u/19 level) can be distinguished based on certain psychosocial factors and their sport psychological skill levels. The results pertaining to the general psychosocial factors influencing participation and performance as well as the players' reaction to change holds important information for the coaching programme for elite first year student rugby players. Specific attention needs to be given to fostering good player-coach relationships and team spirit. Sensitivity and transparency regarding the quota system, continuity in team selection, the players' reactions to refereeing decisions and allowing substantial time for academic responsibilities must be accounted for. It is also recommended that other psychosocial factors applicable to the team sport situation such as communication skills, interpersonal and social adaptation skills as well as team dynamic factors be researched.

The importance of sound sport psychological skills is stressed as self-confidence, personal coping resources, coping with adversity, average psychological skills as well as activation control can distinguish between rugby players from different participation levels. Despite these results, players should not be selected based solely on their sport psychological profiles (Weinberg & Gould, 2003). According to Cox and Yoo (1995) physique, strength, speed and skill levels should be the primary selection criteria. The sport psychological skill levels of these tested players again emphasize the need for and importance of developing sound sport psychological skills as it is clearly related to team selection.

The systematic and consistent SPSTP currently implemented by the PRI (three part-time sport psychology consultants working with the u/19, u/21 and senior squads respectively) bodes well for the development and performances of the PRI players and teams. However, the effectiveness of the current programme must be researched. Since university rugby is seen as the breeding ground for "tomorrow's stars", the sport scientific approach of the PRI holds great benefits for South African rugby as a whole.

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