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TEAM COHESION AND PERFORMANCE DURING A UNIVERSITY SOCCER CHAMPIONSHIP: TWO SIDES OF THE COIN

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ABSTRACT

The cohesion-performance relationship in team sport is fairly well established, although information on this topic within the African soccer context is limited. The study aimed to compare successful and less successful soccer teams on team cohesion and various descriptive variables (age, previous championship experience and team stability), based on the final log position of a championship involving teams from 16 tertiary institutions. A cross-sectional design was used and 263 participants (mean age: 22.64±2.28 years) completed the Group Environmental Questionnaire of Carron et al. (1985) before the start of the 2012 University Sport South Africa (USSA) soccer championship. One-way analysis of variance revealed that the top four finishing teams had greater previous championship experience than the other 12 teams. Strong individual attraction to the group was advantageous to performance, whereas higher levels of group integration were associated with lower performance. Efforts to foster team cohesion should focus on both the task and social dimensions of group cohesion, but should consider the potential disadvantages of high group integration.

Key words: Football; Team success; Cohesion-performance relationship; Tournament experience; Group Environmental Questionnaire (GEQ).

INTRODUCTION

Team success depends on the identification and development of various performance and performance moderating variables (Lowther & Lane, 2002). The outcome of sport contests is often decided by narrow margins, as elite players and teams tend to be physically, technically and tactically well prepared. Subsequently, psychological and team-related factors often prove to be the difference between winning and losing (Matheson *et al*., 1997; Williams & Krane, 2001). This especially seems to be the case in interactive team sports, like soccer, which require high interdependence and cooperation between teammates.

In a critical review of team processes in sport, Collins and Durand-Bush (2015) identified three popular frameworks in the sport psychology literature, namely group cohesion (Carron *et al*., 1985), teambuilding (Carron & Spink, 1993) and team coordination (Eccles & Tenenbaum, 2004). Sport teams usually function within well-defined contexts, which include clear goals, distinct roles and specific working procedures (Pescosolido & Saavedra, 2012). This implies that cohesion between team members is an important topic within the context of team performance, but there seems to be a paucity of information about group cohesion within the African sporting context.

Group cohesion research has generally been grounded in the initial work of Carron (1982) on the situational, personal and leadership correlates of cohesion. Building on this seminal work, Carron *et al*. (1985) postulated cohesion as a multidimensional construct that distinguishes between individuals and the group to which they belong, as well as between task and social dimensions. Individual attraction to the group reflects a member's personal attraction to the group, whilst group integration refers to each member's perception of the team as a totality. Both individual attraction and group integration can further be divided into task cohesion (how the team operates as a unit to achieve a common objective) and social cohesion (how team members integrate on a social level). Later, Carron *et al*. (1998:213) defined cohesion as "the dynamic process that is reflected in the tendency of a group to stick together and remain united in the pursuit of its instrumental objectives and/or for the satisfaction of member affective needs".

High levels of group cohesion are generally considered to be advantageous and are associated with enhanced performance (Rovio *et al*., 2009). Widmeyer *et al*. (1993) found a positive cohesion-performance relationship in 25 of the 30 studies in their review, concluding that harmony, synergy and cooperative team work between players and coaching staff are critical to optimal performance. According to Brawley *et al*. (1987), strong team cohesion encourages shared responsibility in the face of adversity and allows members to withstand the negative consequences of disruptive events. Strong group cohesion may also produce greater effort, thereby increasing performance (Bray & Whaley, 2001). Strong cohesion has been shown to accelerate individual effort and relentlessness towards accomplishing team objectives in such a way that group actions are in harmony (Mach *et al*., 2010).

Carron *et al*. (2002) found a strong cohesion-performance relationship among soccer teams (r=0.74, $p<0.05$) for individual attractions to the group-task, with a very large effect size (d=1.94). The effect size for the relationship between performance and group integration-task was large (d=1.16), although this correlation (r=0.55) was not statistically significant. This does not imply that social cohesion is unimportant, as Tziner *et al*. (2003) reported a significant relationship between perceptions of social cohesion and winning soccer matches (r=0.27, $p<0.0001$). However, the 10-year retrospective meta-analysis of Filho *et al*. (2014) revealed a moderately strong correlation between task cohesion and performance (r=0.45, $p<0.01$), and a weak cohesion-performance relationship for social cohesion (r=0.11, $p<0.01$).

PURPOSE OF THE RESEARCH

Exploring the influence of group cohesion perceptions on team performance would contribute to our understanding of the cohesion-performance relationship within the African soccer context. The aim of this study was to compare successful and less successful soccer teams regarding various descriptive variables (age, previous championship experience, team stability) and the perceptions of the players about their team's cohesion, based on the final log positions of a soccer championship.

METHODOLOGY

Ethical considerations

The study was approved by the Stellenbosch University Research Ethics Committee (Reference number: HS841/2012).

Research design

A cross-sectional design was used during which championship participants were surveyed.

Participants

Male soccer players (N=263) between the ages of 17 and 32 years (22.64±2.28 years) competed in the 2012 University Sport South Africa (USSA) soccer championship. Participation in this tournament was restricted to students from 16 tertiary institutions. These players had on average been playing soccer for 12.16±3.76 years. A large proportion of the participants (n=174, 66.2%) were competing in their first USSA championship. Sixty players (22.8%) were participating in their second, 21 players (8.0%) in their third, and eight players (3.0%) in their fourth USSA championship.

Procedures

The Executive Committee of the USSA soccer championship approved the study. Thereafter, the coaches and/or managers of the 16 participating teams were informed. Teams were met with separately on the day before the start of the championship during which the study was explained, voluntary participation requested and the participants were informed of their right to withdraw from the study without prejudice. The researchers guaranteed confidentiality and anonymity of the individual results. All participants signed informed consent forms. Data was gathered in a classroom setting in order to limit competition-specific biases and the researchers gave instructions aimed at reducing socially desirable answers.

Measurement variables

Descriptive information

Data was collected on player age, number of previous USSA championships and team stability (the number of months each player had been part of their respective teams).

Cohesion

The Group Environmental Questionnaire (GEQ) (Carron *et al*., 1985) was used to measure the athletes' perception of their team's cohesion. The GEQ comprises 18 items, measuring 4 subscales: *individual attraction to the group-task* (member's feelings about their personal involvement to achieve important team goals), *individual attraction to group-social* (the degree to which a member is attracted to the team by its social milieu), *group integration-task* (how a team functions as a unit to achieve team goals) and *group integration-social* (the unification of the team on a social level). Items were measured on a 9-point scale anchored by "strongly disagree" [1] and "strongly agree" [9]. Higher scores reflect stronger perceptions of cohesion. Carron *et al.* (1985) reported internal consistency for the 4 subscales ranging from 0.64 to 0.76 across 2 independent samples of athletes.

Performance

The championship consisted of 4 pools with 4 teams each. Each team played 3 matches during the pool phase, followed by the play-offs based on the log position of each pool at the end of the round-robin matches. Each team played 1 match per day for 5 consecutive days. The final log position was used as the measure of team performance. Teams were used as the unit of analysis instead of individual players, which are in accordance with the recommendation of Rousseau (1985) to adjust the analysis level to the focus of the unit under investigation, in this case more and less successful teams. The teams were divided into four groups, namely teams 1 to 4, 5 to 8, 9 to 12, and 13 to 16 on the final log standings. Between-group comparisons were made for these groups and for the top 8 and bottom 8 teams.

Analysis of data

Descriptive statistics (M, SD and SEM) were calculated. Teams were compared by means of a one-way Analysis of Variance (ANOVA), followed by the Least-Significant-Difference post-hoc procedure. Statistical significance was set at $p \leq 0.05$. Cronbach's Alpha for reliability estimates for the 4 GEQ subscales are presented in Table 1. The GEQ has not been standardised for use within the South African context, which warrants further investigation. The internal consistency of the GEQ subscales was adequate, except for individual attraction to group-task (α<0.48).

Table 1. **DESCRIPTIVE STATISTICS AND RELIABILITY COEFFICIENTS OF GEQ SUBSCALES**

GEQ subscales	M±SD	SEM	α
Individual attraction to group-task	6.87±1.73	0.11	0.48
Individual attraction to group-social	6.77±1.46	0.09	0.62
Group integration-task	6.19±1.58	0.10	0.69
Group integration-social	5.48±1.60	0.10	0.57

RESULTS

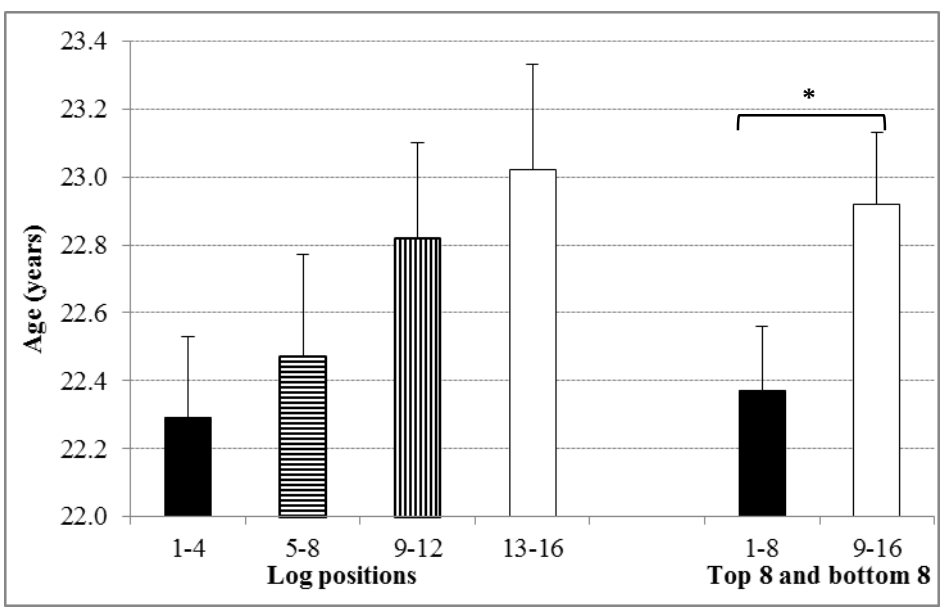
Table 2 reports the between-group comparisons for age, previous USSA championship experience and team stability. Figures 1 to 3 illustrate the differences between the respective groups.

Figure 1 shows that the top 8 teams were significantly younger than the bottom 8 teams (22.37±2.18 vs. 22.92±2.35 years; $F_{1,261}$=3.910; p=0.05). The top 4 teams on the log (0.90±0.98 championships) had significantly ($F_{3,259}$=12.456; p<0.01) more previous experience in this championship than the remaining 12 teams (Figure 2). Likewise, the top 8 teams had significantly more previous experience in this championship than the bottom 8 teams (0.63±0.89 vs. 0.33±0.60 championships; $F_{1,261}$=10.355; p<0.01). Five of the 8 teams that did not take part in the 2011 championship finished in the bottom half of the log, with 3 of those teams finishing in the bottom 4 positions, indicating the importance of previous championship experience.

Table 2. **AGE, PREVIOUS CHAMPIONSHIP EXPERIENCE AND TEAM STABILITY: BETWEEN-GROUP COMPARISONS**

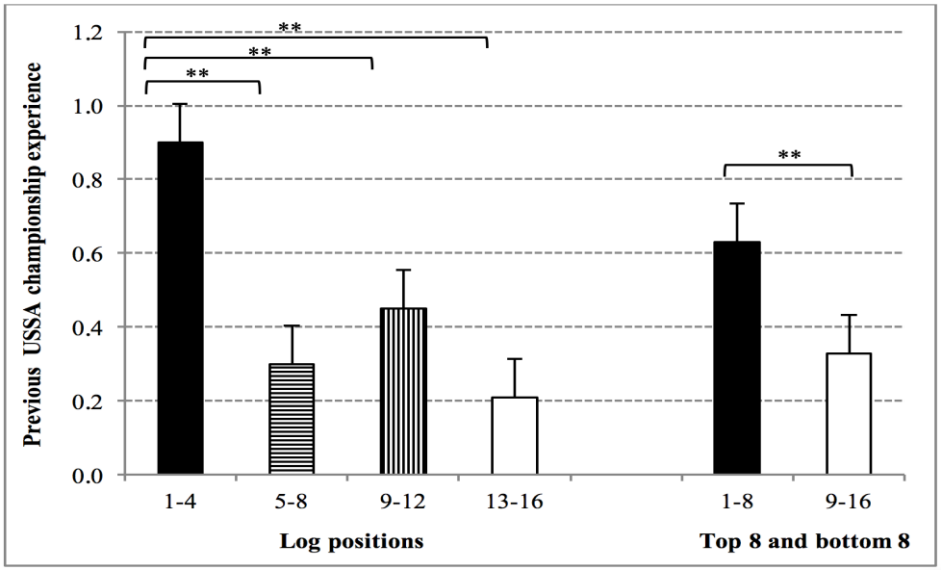
Teams 1-4, 5-8, 9-12, 13-16			Top 8 and bottom 8 teams		
Log pos.	**M±SD**	**SEM**	**Log pos.**	**M±SD**	**SEM**
			Age (*years*)		
1-4	22.29±2.05	0.24	1-8	22.37±2.18	0.19
5-8	22.47±2.33	0.30			
9-12	22.82±2.23	0.28	9-16	22.92±2.35	0.21
13-16	23.02±2.48	0.31			
			Previous championship experience (*number of championships*)		
1-4	0.90±0.98	0.12	1-8	0.63±0.89	0.08
5-8	0.30±0.62	0.08			
9-12	0.45±0.66	0.08	9-16	0.33±0.60	0.05
13-16	0.21±0.51	0.06			
			Team stability (*number of months the players had been part of their respective teams*)		
1-4	23.04±14.17	1.67	1-8	18.87±13.40	1.17
5-8	13.87±10.51	1.36			
9-12	14.98±10.97	1.36	9-16	18.77±14.44	14.44
13-16	22.50±16.44	2.02			

Log Pos. = Log Position



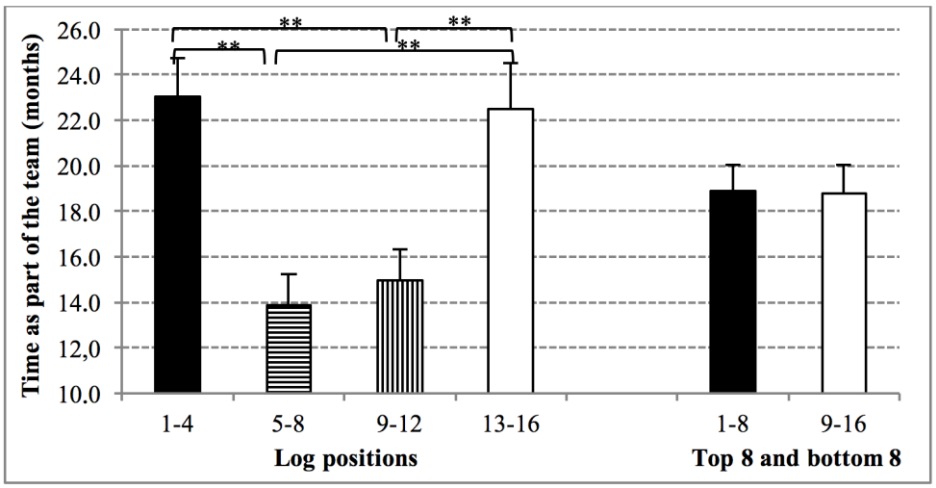
*Significant difference ($p \leq 0.05$)

Figure 1. **AGE: BETWEEN-GROUP COMPARISONS**



** Significant difference (p≤0.01)

Figure 2. **PREVIOUS USSA CHAMPIONSHIP EXPERIENCE: BETWEEN-GROUP COMPARISONS**



** Significant difference (p≤0.01)

Figure 3. **TEAM STABILITY: BETWEEN-GROUP COMPARISONS**

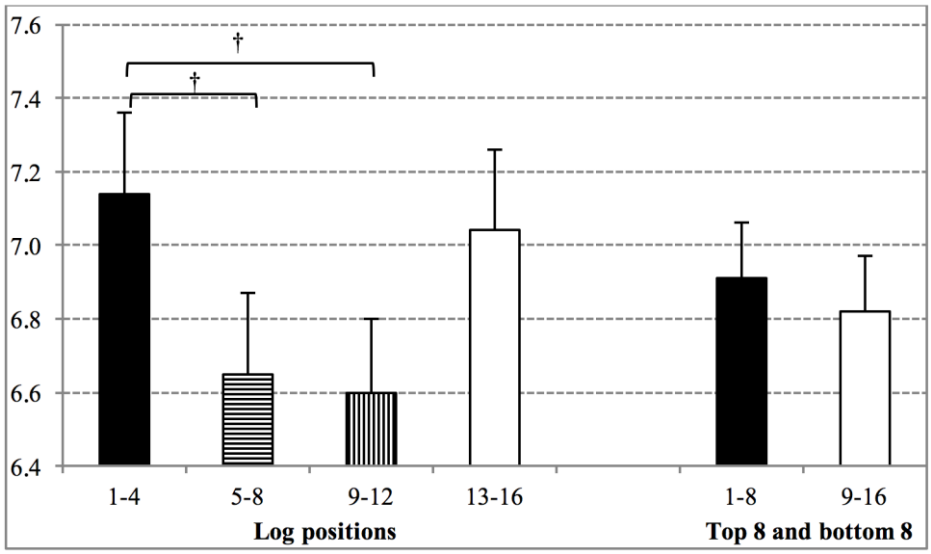
Table 3. **GROUP COHESION: BETWEEN-GROUP COMPARISONS**

Teams 1-4, 5-8, 9-12, and 13-16			Top 8 and bottom 8 teams		
Log pos.	**M±SD**	**SEM**	**Log pos.**	**M±SD**	**SEM**
Individual attraction to group–task					
1-4	7.14±1.83	0.22	1-8	6.91±1.77	0.15
5-8	6.65±1.67	0.22			
9-12	6.60±1.60	0.20	9-16	6.82±1.69	0.15
13-16	7.04±1.77	0.22			
Individual attraction to group-social					
1-4	7.18±1.33	0.16	1-8	6.77±1.47	0.13
5-8	6.29±1.49	0.19			
9-12	6.54±1.49	0.18	9-16	6.78±1.46	0.13
13-16	7.01±1.41	0.17			
Group integration–task					
1-4	6.31±1.40	0.17	1-8	6.08±1.53	0.13
5-8	5.81±1.65	0.21			
9-12	5.96±1.73	0.21	9-16	6.30±1.63	0.14
13-16	6.64±1.47	0.18			
Group integration–social					
1-4	5.31±1.57	0.19	1-8	5.15±1.50	0.13
5-8	4.95±1.40	0.18			
9-12	5.60±1.61	0.20	9-16	5.82±1.63	0.14
13-16	6.04±1.63	0.20			

Log Pos. = Log Position

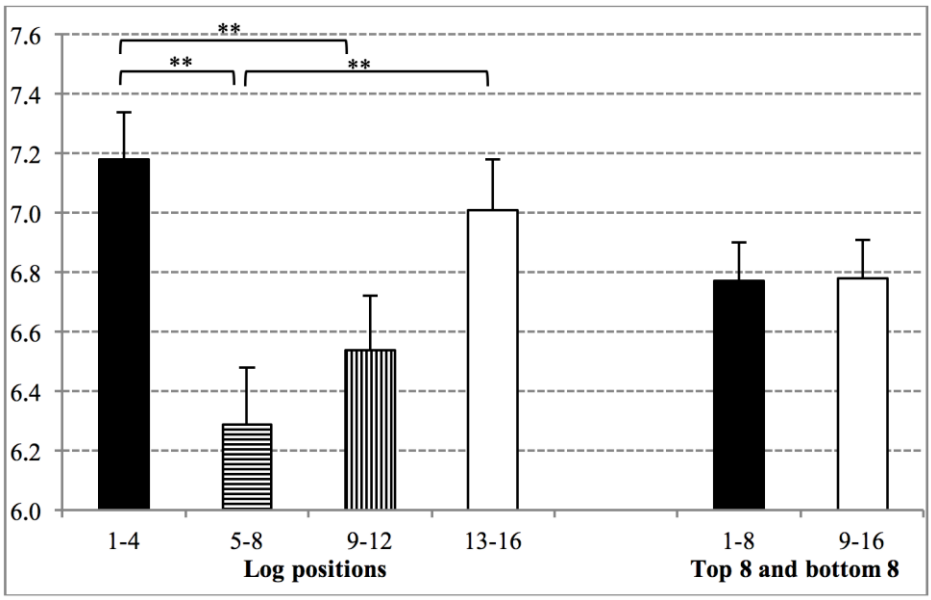
Figure 3 shows that the players from the top 4 teams (23.04±14.17 months) and bottom 4 teams (22.50±16.44 months) had been part of their respective teams for significantly longer ($F_{3,259}$=8.634; p<0.01) than the players from the teams that finished 5th to 8th (13.87±10.51 months), and 9th to 12th (14.98±10.97 months) on the final log standings. Three of the bottom 4 teams did not participate in the 2011 championship. This could have skewed the results; despite having played together for longer than some of the other teams, their inexperience at this particular level of competition possibly contributed to their poorer performance.

Table 3 and Figures 4 to 7 indicate the between-group comparisons for each of the 4 groups on the cohesion subscales. The one-way ANOVA between the 4 groups of four teams revealed an effect for individual attraction to group-task with regard to their final log positions that approached the 95% confidence interval ($F_{3,259}$=1.636; p<0.10; Figure 4). The top 4 teams obtained higher scores (7.14±1.83) than the teams that ended 5th to 8th (6.65±1.67) and 9th to 12th (6.60±1.60), respectively. Given the poor reliability indices for this subscale, these results need to be interpreted with caution. Figure 5 revealed that the players from the top 4 teams (7.18±1.33) were more attracted to the group on a social level than the players from the teams that ended 5th to 8th (6.29±1.49) and 9th to 12th (6.54±1.49; $F_{3,259}$=5.389; p<0.01). The bottom 4 teams (7.01±1.41) also scored higher on this subscale than the teams ranked 5th to 8th.



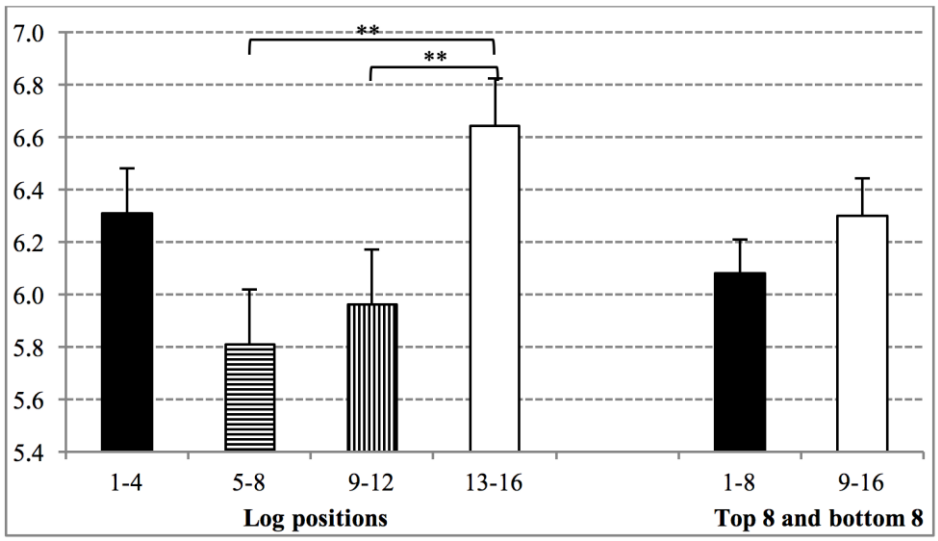
† Borderline statistical significance (p≤0.10)

Figure 4. **INDIVIDUAL ATTRACTION TO GROUP–TASK SCORES: BETWEEN-GROUP COMPARISONS**



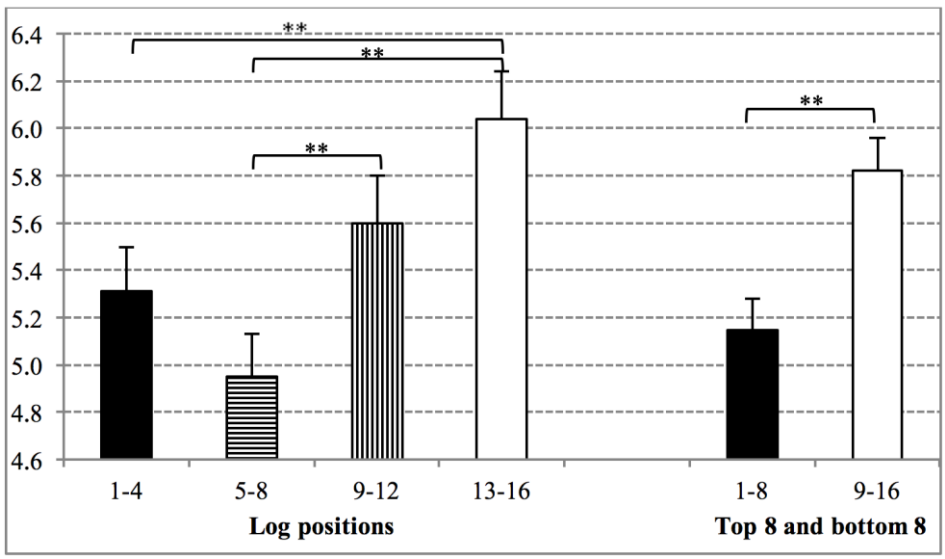
** Significant difference (p≤0.01)

Figure 5. **INDIVIDUAL ATTRACTION TO GROUP–SOCIAL SCORES: BETWEEN-GROUP COMPARISONS**



** Significant difference ($p \leq 0.01$)

Figure 6. **GROUP INTEGRATION–TASK SCORES: BETWEEN-GROUP COMPARISONS**



** Significant difference ($p \leq 0.01$)

Figure 7. **GROUP INTEGRATION–SOCIAL SCORES: BETWEEN-GROUP COMPARISONS**

Players from the bottom 4 teams (6.64±1.47) scored higher on group integration-task than the teams ranked 5th to 8th (5.81±1.65) and 9th to 12th (5.96±1.73; $F_{3,259}$=3.598; p<0.01; Figure 6).

Figure 7 revealed that the players from the bottom 4 teams (6.04±1.63) had more positive perceptions about their social integration with the group than the players from the top 4 teams (5.31±1.57) and the teams ranked 5th to 8th (4.95±1.40; $F_{3,259}$=5.502; p<0.01). The teams that ended 5th to 8th also scored lower than the teams that ended 9th to 12th (5.60±1.61). The bottom 8 teams were subsequently more socially integrated than the top 8 teams (5.82±1.63 vs. 5.15±1.50; $F_{1,261}$=12.013; p<0.01).

DISCUSSION

Age

The top eight teams were on average 6.60 months younger than the bottom eight teams. Among student athletes, such a small difference (actual age difference: 2.46%) could be regarded as trivial, since the effect size of this difference was small (d=0.24).

Championship experience

Previous championship experience was strongly associated with team performance. Data from the last four FIFA World Cups (2002–2014) revealed that the semi-finalists included significantly more players who previously participated in the World Cup than the other participating teams (Kobal *et al*., 2016). Shared experiences of both successes and failures play an important role in establishing and maintaining strong group cohesion (Brawley, 1990). Experience enhances psychological momentum and creates positive perceptions about future success (Perry & Williams, 1998; Lazarus, 2000). Salvador (2005) noted that experience enables more effective coping, which results in more positive perceptions of future success.

Team stability

Carron (1982) argued that continuity in team selection over an extended period is critical in maintaining cohesion and overall performance. Widmeyer *et al*. (1985) noted that long-term familiarity among players creates synergy, cooperative teamwork, interdependence, commitment and self-sacrifice in order to accomplish team tasks. Mach *et al.* (2010) also showed that team stability (the length of time players on a team had been playing together) enhanced the cohesion-performance relationship. The current results indicate a quick turnover of players, which is to be expected due to the typical three-year duration of undergraduate degree programmes. This has implications for the establishment and development of team cohesion within university sport teams, since Filho *et al.* (2014) observed that the cohesion-performance relationship tends to be stronger among college level athletes than among high school and professional athletes.

Group cohesion

Individual attraction to group-task

The current findings agree with Zaccaro and McCoy (1988) who showed that high interpersonal attraction and commitment to the group task is positively related to performance. The findings of the current study also lend support to Carron *et al*. (2002) who reported a strong correlation between individual attraction to the group-task and soccer team performance (r=0.74, p<0.05, d=1.94).

Individual attraction to group-social

Greater individual attraction to the group on a social level seems to be related to team success. Prapavessis and Carron (1996) stated that attraction to the group on a social level enhances commitment, interdependency and member satisfaction. A player's appraisal of social cohesion occurs on both cognitive and affective levels and the interaction between these elements precipitates collaboration between team members, thereby enhancing performance (Adegbesan, 2010). It also generates an atmosphere which is conducive to open communication and creates the fundamental processes for conferring socially desirable rewards, including positive feedback and encouragement (Brawley *et al*., 1993). The high scores of the bottom four teams point towards the potential problem of too strong social cohesion. Hardy *et al.* (2005) noted that high social cohesion at the individual level may lead to decreased focus and commitment to the task, possible social isolation and problems with social attachment. The participants in their study perceived high social cohesion to be more problematic than high task cohesion.

Group integration-task

Grieve *et al*. (2000) and Senecal *et al*. (2008) demonstrated that team performance is dependent on the level of integration by group members regarding the task at hand. The current results show that the top four teams had higher group integration-task scores than the teams that ended 5^{th} to 12^{th} on the log. Slater and Sewell (1994) alluded to the reciprocal relationship between cohesion and performance where cohesion enhances performance, whilst performance may also enhance cohesion. Three of the four bottom-placed teams qualified for participation in the championship for the first time in 2012. Therefore, their success during the regional qualifiers may have resulted in a strong sense of group cohesion regarding the upcoming tournament. However, Littlepage *et al*. (1989) noted that the variables that influence group cohesion are different from those that moderate performance. For example, teams with insufficient experience or inadequate preparation for competition at a particular competitive level would perform poorly despite having strong task cohesion.

Group integration-social

High social cohesion has been linked to team performance (Chang & Bordia, 2001; Paskevich *et al*., 2001). The current results, however, suggest that the strong social integration of teams was negatively related to their performance. Strong social tendencies could be detrimental to group functioning in competitive environments due to goal-related and communication problems (Hardy *et al*., 2005), whilst it may also interfere with the task objectives (Casey-Campbell & Martens, 2009). Despite the possibility that social cohesion may negatively affect the performance of a team, Zaccaro and McCoy (1988) argued that coaches and performance consultants should not exclusively attempt to enhance task cohesion at the expense of the social needs of the team.

Whilst the general consensus is that task-cohesion has a greater influence on team performance than social-cohesion (Carron *et al*., 2002; Filho *et al*., 2014), collectively the current results indicate that high individual attraction to the group was positively related to team performance, whereas high group integration was negatively related to team performance. This applied to both the task- and social-cohesion dimensions. Due to a lack of literature to substantiate these results, the researchers speculated about the influence of cultural differences between the current sample (participants of African origin) and the predominantly European or North-

American samples from which most of the group cohesion literature is derived. The notion that African societies generally tend to be more collectivistic than Western individualistic societies was explored, with Vogt and Laher (2009) noting that this may influence various team processes. Wendt *et al.* (2009), for example, expected that group cohesion would be stronger among team members from collectivistic societies, but this was not substantiated by their data. In analysing the individual 100m and 4x100m relay performances, Sorokowski (2009) noted that the sprint-relay performances of teams from collectivist cultures were facilitated, whereas the performances of teams from individualistic cultures were impeded.

Individual attraction to the group refers to the feelings of group members about the group, their motivation to remain in the group, and the degree to which their personal objectives and needs are satisfied (Carron & Brawley, 2000). An individual's perception about his attraction to the group may provide motivation for directed efforts aimed at contributing more effectively to the group's functioning in order to foster a sense of belonging. Group integration refers to closeness, similarity, level of bonding and unification of the group, based on the perceptions of each individual member of the group as a whole (Carron & Brawley, 2000). Rovio *et al.* (2009) noted that high social integration could lead to conformism in group thinking and have a restricting effect on the behaviour of group members. Expanding on these ideas, it is also plausible that overly optimistic perceptions about the group's integration could result in social loafing or complacency in trying to keep the existing group harmony intact, instead of striving to improve it even further. However, Van Dyk and De Kock (2004) cautioned against upholding beliefs that the behaviour of different cultural groups in South Africa are in line with their stereotypical group orientations, such as collectivism.

CONCLUSIONS

Previous experience in this particular championship was the biggest differentiating factor between the more successful and less successful teams, emphasising the importance of continuity in team selection for this championships. As far as the relationship between team cohesion and championship performance are concerned, there seems to be two sides to the coin. On the one side, high values for individual attraction to the group seem advantageous and related to good team performance. On the flip side of that coin, high group integration scores may place teams at a disadvantage as it is related to poor team performance.

LIMITATIONS

The use of student athletes limits the generalisability of these results beyond this population. The responses of the participants were gathered at a single time point (the day before the start of a five-day championship). The full effect of group cohesion on the performance of each team (and vice versa) was subsequently not captured as the players' perceptions about their team's cohesion could have changed due to match outcomes and/or other events as the championship progressed. Jamieson (2010) noted that group interaction patterns are dynamic and susceptible to change over time. The use of the final log position as the measure of team performance also has limitations. Beal *et al.* (2003), for example, found a stronger cohesion-performance relationship when performance was defined as specific player behaviours compared to when match outcome was used. Lastly, causation cannot be established through comparative studies, because the various extraneous and mediating factors are not controlled for.

RECOMMENDATIONS

Longitudinal studies need to explore changes in the cohesion-performance relationship over time, as well as the factors contributing to them. Coaches should incorporate team building strategies that emphasise both the task and social dimensions of cohesion to enhance team efficacy, but should be cautious of the potential disadvantages of high group integration. Cross-cultural research is warranted regarding team cohesion (both attraction to the group and group integration) and performance, as well as into collectivism-individualism within the team sport context. Coaches and selectors should strive towards stability in team selection and need to expose the selected players to competitive situations in order for them to gain the necessary experience to achieve success at championship level.

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