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Differentiating African Teams from European Teams: Identifying the Key Performance Indicators in the FIFA World Cup 2018

by
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Soccer is the most popular sport in the world. Despite this global popularity, European teams in contrast to African ones, have dominated the Fédération Internationale de Football Association (FIFA) World Cup tournaments for many decades. Therefore, the aim of this study was to examine the performance indicators that differentiated between African and European teams in the 2018 FIFA World Cup. Thirty matches played by five European (n = 15) and five African teams (n = 15) from the group stages of the World Cup were analysed using the InStat video system. The results showed that European teams had higher averages than African teams on the following performance variables: total shots, shots on target, goals scored from open play and set pieces, ball possession, short passes, medium passes, total passes, accurate passes and corner kicks. Therefore, soccer coaches should take note of these findings as they could serve as a benchmark for African teams to set trends and improve their performance at FIFA World Cup tournaments.

Key words: *performance, tactics, set-play, open-play, goals, competition.*

Introduction

Association football (soccer) is the most popular sport in the world (Kubayi et al., 2015; Reilly, 1997). The Fédération Internationale de Football Association (FIFA) is the global governing body of soccer and organises an international tournament for countries throughout the world: the FIFA World Cup. This competition is contested by the national soccer teams from six FIFA continental zones: Asian Football Confederation (AFC), Confédération Africaine de Football (CAF), Confederation of North, Central American and Caribbean Association Football (CONCACAF), Confederación Sudamericana de Fútbol (CONMEBOL), Oceania Football Confederation (OFC), and Union of European Football Associations (UEFA). The FIFA World Cup has been hosted every four years since its inception in 1930, with notable exceptions in 1942 and 1946 because of the World War II and its aftermath (Wong, 2008).

To determine the participating teams in the FIFA World Cup, qualifying rounds are held in the preceding three years. The tournament comprises 32 national soccer teams from the various continental zones. The competition has two stages: a group stage and a knockout stage. The *group stage* consists of eight groups, each with four teams who play each other once. The top two teams in each group proceed to the *knockout stage*, which starts with a round of 16, followed by the quarter-finals, the semi-finals, the third-place match and the final (Wong, 2008). Since the World Cup began, as far back as 1930 in Uruguay, no African team has ever won the tournament, let alone reached the semi-final stage of the competition. Yet, most African players who represent their countries at the national level play in big European leagues such as the English Premier League, La Liga and Serie A, to mention just a few. Despite this, the highest achievements by African teams are Cameroon, Senegal and Ghana reaching the quarter-finals in the 1990,

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2002, and 2010 FIFA World Cup tournaments, respectively (Njororai, 2017).

Given that Africa has 54 countries registered under the auspices of CAF, its performance has been mediocre when compared to those of other continents (Njororai, 2017). Performance of African national soccer teams in the World Cup has not met the expectations of their followers and has been consistently very poor in contrast to teams from CONMEBOL and UEFA (Njororai, 2017). Of great concern and disappointment is that out of 15 games at the 2018 FIFA World Cup, African teams only won three matches, drew two matches and were defeated in 10 matches. Consequently, all five African countries (i.e., Egypt, Morocco, Nigeria, Senegal and Tunisia) that featured in the tournament were eliminated in the group stage. This was the worst record since 1986, as at least one African team had qualified for the knockout stage in all tournaments since then.

Despite the underperformance of African teams, there appears to be limited research on their key performance indicators (Kubayi and Toriola, 2018). In this study, performance indicators refer to a selection, or combination, of action variables that could define some or all aspects of a performance. Performance indicators are useful as they relate to successful performance or outcomes. Analysts and coaches use them to assess a performance of an individual, a team or elements of a team (Hughes and Bartlett, 2002).

Therefore, it is essential to investigate performance indicators that distinguished European from African teams during the 2018 FIFA World Cup. Such comparison is important because European teams have dominated the World Cup tournaments; for example, they have won five of the last six World Cups. With this great success in World Cup competitions, there is a need for soccer coaches and analysts to benchmark European teams with African teams in order to identify performance variables that define successful team performance across the continents (Winter and Pfeiffer, 2016). As Liu et al. (2015) argue, the World Cup features the world's best national teams and gathers different playing styles, and therefore, key performance indicators may differ between European and African national teams. The purpose of this study was to examine the performance indicators that distinguished between African and European teams at the 2018 FIFA World Cup competition.

Methods

Match sample

A total of 30 matches comprising five African teams (i.e., Egypt, Morocco, Nigeria, Senegal and Tunisia) (n = 15) and five European teams (i.e., Belgium, Croatia, England, France and Russia) (n = 15) from the group stages of the 2018 FIFA World Cup were analysed using the InStat video analysis system. The selected European and African teams were balanced in terms of the number of matches played in order to portray a true reflection of equal team performances (Jones et al., 2004). This study was approved by the Ethics Committee of the Tshwane University of Technology, Pretoria, South Africa.

Performance indicators

The performance indicators in this study included variables related to goal scoring (total shots, shots on target, goals scored from open play and set pieces, and goals conceded from open play and set pieces), passing and organising (ball possession, short passes, medium passes, long passes, total passes, accurate passes, crosses, dribbles, successful dribbles, corner kicks, offsides, and lost balls), and defending (tackles, successful tackles, ball recoveries, fouls committed, and yellow and red cards). The operational definitions of these variables have been provided elsewhere (Liu et al., 2015, 2016).

Reliability testing

To determine the reliability of the performance indicators, the intra-observer agreement using the percentage error method was adopted (Hughes et al., 2004). Three matches (10% of total matches) were analysed and re-analysed after a month's interval in order to avoid learning effects (O'Donoghue, 2010). Thereafter, the two data sets were compared, and all performance indicators were within the acceptable threshold (i.e., 5%) (Hughes et al., 2004).

Statistical analysis

Data were reported as means and standard deviations. An independent-sample *t*-test was used to compare differences in performance indicators between African and European teams. Additionally, effect size (ES) was used to examine the magnitude of mean differences between the two groups of teams. ES

values were classified as 0.01 (*small effect*), 0.06 (*moderate effect*) and 0.14 (*large effect*) (Cohen, 1988). The probability level was set at $p \leq 0.05$ and all statistical analyses were performed using the Statistical Package for the Social Sciences version 25.

Results

Table 1 presents performance indicators that differentiated between African and European national teams at the 2018 FIFA World Cup. The results showed that European teams had more total shots (M = 12.5, SD = 2.7, p = 0.26, ES = 0.79) and shots on target (M = 5.0, SD = 1.9, p = 0.12, ES = 1.10), and they scored more goals from open play (M = 4.2, SD = 2.5, p = 0.12, ES = 1.00) and set pieces (M = 2.8, SD = 2.2, p = 0.02, ES = 1.10) than African teams. In addition, African teams conceded more goals from open play (M = 2.6, SD = 1.5, p = 0.24, ES = 1.12) and set pieces (M = 2.6, SD = 0.5, p = 0.27, ES = 1.97) than their European counterparts. The magnitude of the differences in the mean values was large for the number of goals conceded from set pieces (ES = 1.97).

Table 1

Key performance indicators between African and European national soccer teams

Variable	African teams M (SD)	European teams M (SD)	*p*	ES
Variables related to goal scoring				
Total shots	10.7 (1.7)	12.5 (2.7)	0.26	0.79
Shots on target	3.4 (0.8)	5.0 (1.9)	0.12	1.10
Goals scored from open play	2.2 (1.3)	4.2 (2.5)	0.12	1.00
Goals scored from set pieces	1.0 (0.7)	2.8 (2.2)	0.02*	1.10
Goals conceded from open play	2.6 (1.5)	0.4 (0.5)	0.24	1.12
Goals conceded from set pieces	2.6 (0.5)	1.8 (1.3)	0.27	1.97
Variables related to passing and organising				
Ball possession (%)	46.4 (3.8)	51.8 (5.2)	0.04*	1.19
Short passes	117.0 (18.0)	140.2 (24.7)	0.13	1.07
Medium passes	280.2 (36.3)	353.0 (60.2)	0.04*	1.46
Long passes	37.6 (6.3)	31.8 (5.9)	0.17	0.95
Total passes	434.8 (47.0)	525.0 (63.7)	0.03*	1.31
Accurate passes (%)	83.0 (1.9)	85.2 (4.1)	0.31	0.69
Crosses	10.8 (1.3)	9.8 (1.6)	0.31	0.68
Dribbles	28.4 (3.8)	28.4 (4.0)	1.00	0.00
Successful dribbles (%)	58.4 (5.7)	58.0 (3.0)	0.89	0.08
Corner kicks	3.5 (1.1)	4.9 (0.7)	0.04*	1.52
Offside	1.5 (1.0)	1.7 (1.0)	0.75	0.20
Lost balls	57.2 (4.1)	56.2 (4.1)	0.71	0.24
Variables related to defending				
Tackles	35.0 (3.7)	31.4 (4.7)	0.22	0.85
Successful tackles (%)	56.8 (9.8)	54.0 (7.8)	0.63	0.32
Ball recoveries	52.0 (2.5)	51.8 (2.9)	0.91	0.07
Fouls committed	15.8 (3.0)	14.3 (3.0)	0.45	0.50
Yellow cards	1.8 (0.6)	1.4 (0.8)	0.42	0.57
Red cards	0.0 (0.0)	0.1 (0.1)	0.35	0.00

**Significant at p<0.05*

European teams had higher averages on the following performance indicators: ball possession (M = 51.8, SD = 5.2, p = 0.04, ES = 1.19), short passes (M = 140.2, SD = 24.7, p = 0.13, ES = 1.07), medium passes (M = 353, SD = 60.2, p = 0.04, ES = 1.46), total passes (M = 525.0, SD = 63.7, p = 0.03, ES = 1.31), accurate passes (M = 85.2, SD = 4.1, p = 0.31, ES = 0.69), corner kicks (M = 4.9, SD = 0.7, p = 0.04, ES = 1.52) and offsides (M = 1.7, SD = 1.0, p = 0.75, ES = 0.20). African teams had more long passes (M = 57.2, SD = 4.1, p = 0.17, ES = 0.95), crosses (M = 10.8, SD = 1.3, p = 0.31, ES = 0.68), lost balls (M = 140.2, SD = 24.7, p = 0.71, ES = 0.24), tackles (M = 35.0, SD = 3.7, p = 0.22, ES = 0.85), successful tackles (M = 56.8, SD = 9.5, p = 0.63, ES = 0.32), ball recoveries (M = 52.0, SD = 2.5, p = 0.91, ES = 0.07), fouls (M = 15.8, SD = 3.0, p = 0.45, ES = 0.50) and yellow cards (M = 1.8, SD = 0.6, p = 0.42, ES = 0.57) than European teams.

Discussion

The aim of this study was to identify key performance indicators that were typical of European and African teams during the 2018 FIFA World Cup. The results showed that European teams had more total shots and shots on target than African teams. These findings are consistent with those of Castellano et al. (2012), who reported that total shots and shots on target had the greatest discriminatory power among successful teams during the 2002, 2006 and 2010 FIFA World Cup tournaments. The results of the current study support the view that successful European teams are stronger than unsuccessful teams considering variables related to goal attempts (Lago-Peñas et al., 2010). Given the high importance of shots on target, coaches should design and implement practice sessions that pay particular attention to shooting accuracy (Zhou et al., 2018).

This study further indicated that European teams scored more goals from open play and set pieces than African teams. However, a significant difference was only observed in the number of goals scored from set plays, with a moderate effect size. Carling et al. (2005) also found that successful teams were far more efficient than unsuccessful teams at scoring from set plays. Therefore, the present study concludes with certainty that in modern soccer, the number of goals emanating from set pieces for successful teams is increasing considerably and is vital for team performance and success. African teams conceded more goals from set pieces, with a large magnitude of the mean difference. Thus, it could be suggested that African teams should adopt tactics which prevent them from conceding set-play-related goals. The first step in this regard would be to investigate how African teams defend corner kicks and free kicks as well as tactics that are appropriate to accomplish such tasks. These areas are understudied in contemporary soccer research in the continent.

The present findings further showed that European teams had a significantly higher percentage of ball possession than African teams. The magnitude of difference between European and African teams was large, thereby demonstrating that ball possession is regarded as an important indicator of team success in soccer. Jones et al. (2004) confirmed that in the English Premier League, successful teams had significantly longer possession than unsuccessful teams. Bradley et al. (2014) also reported that teams who dominated European competitions adopted a style of play based on a possession style or indirect play, suggesting they preferred to "control" the game by dictating play. Therefore, it is important that African teams should keep possession in order to improve their chances of success.

While African teams played more long passes, European teams made more short and medium passes. It has been demonstrated that using short passes is a more reliable way of advancing the ball to the final third than moving the ball with a higher proportion of less accurate, long passes (Oberstone, 2009). The importance of tactics involving short passes is that a team usually retains ball possession for longer periods of time, which may help create goal-scoring opportunities while preventing the opposing team from having possession of the ball and scoring (Hirotsu and Wright, 2003; Oberstone, 2009). However, to effectively and efficiently apply tactics characterised by short passes during a match, a more skilful, creative player with excellent conditioning and pace to support the constant movement and overlapping runs is needed (Oberstone, 2009). This may manoeuvre the opponents out of their defensive shape and create open areas on the pitch in which players

may have greater goal-scoring opportunities. Therefore, coaches should develop and implement training sessions that provide players with the opportunity to use short passes to penetrate defensive lines, with the aim of having a shot on goal (Araya and Larkin, 2013).

The findings of our study also indicated that African teams had more lost balls, fouls, and tackles than European teams. Given these findings, it is not surprising in the analyses that African teams received more yellow cards than their European counterparts. The current observations demonstrate that receiving a yellow card not only compromises a player's defensive performance in an attempt to avoid being sent off (Liu et al., 2015), but also has a negative impact in terms of advancing to knockout stages of the tournament. For example, for the first time in the history of soccer, two teams (Senegal and Japan) from the same group in the 2018 FIFA World Cup were equal in total points, goal difference, total number of goals scored and head-to-head; as a result, the disciplinary record was the determining factor in qualifying for the round of 16. Senegal was knocked out at the group stages of the World Cup due to FIFA's Fair Play points, as they received more yellow cards than Japan. This confirms the importance of fair play in determining the success of teams at the world cup.

The results of this study should be interpreted in the light of a number of limitations. Firstly, only 30 matches played by five African and European teams, respectively, at the group stage of the FIFA World Cup were analysed. This approach excluded matches played in the qualifying rounds of the tournament which could have yielded a more inclusive trend regarding how African teams defended corner kicks and set plays at soccer World Cup in comparison to their European counterparts. Secondly, it should be noted that soccer performance is a multidimensional construct as it is determined by a complex combination of physical, tactical, physiological, social and environmental factors. Therefore, the plausible role of these factors in determining the performances of the African teams could not be evaluated as it was beyond the scope of this study.

Conclusion

The purpose of this study was to investigate performance indicators that differentiated between African and European teams during the 2018 FIFA World Cup. Our findings show that variables such as total shots, shots on target, goals scored from open play and set pieces, ball possession, short passes, medium passes, total passes, accurate passes, and corner kicks are important in differentiating between African and European teams. African teams should therefore pay attention to these performance indicators during training and competition in order to improve overall match performance outcomes at the FIFA World Cup.

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