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Statistical performance of Ethiopian football national team and its success prediction capacity (The 4th Africans championship (CHAN): Rwanda 2016

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Abstract
This research has been carried out to evaluate Ethiopian national football team statistical performance and to identify the playing style. In addition, the research was also aimed to assess the extent to which statistical performance in possession, passing, passing effectiveness, crosses, successful crosses and on-target shoots as a parameter to predict the likelihood of success. Sometimes statistical figures may predict or correlate with success and sometimes these figures may not predict success. Therefore it was hypothesized that, Ethiopians would have a better statistical performance in possession, passing, passing effectiveness, crosses and on-target shots. And also it was predicted as there will not be relationship between the above parameters statistical and success. For this 3 games were analyzed objectively by having frequency count and percentage as a statistical approach. Finally it was found that Ethiopian football team was found poor in the statistics of possession, passing, passing effectiveness and on-target shots. It was not possible to have saying about which style Ethiopian side used. However, as commonly found with the analysis of recent FIFA world cups, statistical performance in the analyzed games can predict success. Finally, for Ethiopian football team, it is highly recommended to have a well-defined approach or style of play so that players and teams can work accordingly. For this a proactive kind of football is better recommended.

Keywords: Performance, possession, soccer, reactive, proactive, style of play, success and statistics

1. Introduction

1.1 Background of the study

Without doubt the most popular sport throughout the world is football, which is also known with the code soccer. Starting from those early soccer like kicking games, practiced by ancient peoples, the game is passionate and demanding. Starting from the establishment of FIFA (federation international de football association) since 1904, a number of competitions commonly held on different scale.

Performance in higher level soccer heavily relies on various factors. For example, soccer requires the fitness which enables to play for prolonged time, high intensity and intermittent exercises (Mohr *et al*., 2003) [14]. This way, soccer players during games obliged to perform about 1300 actions (out of these, 200 of the actions are expected to be carried out at high intensity) and there will be in average 5 seconds between these actions (Bangsbo *et al*., 2006) [2]. Still technical proficiency, tactical know-how and psychological makeup take their share for performance or success achievement in soccer.

How teams play depends on the quality they do have and it is in consideration of the opponent. In a sense there are approaches or styles of play different teams prefer to succeed or win. Possession based approach (proactive style) and direct play (reactive style) are the two common extremes that teams employ during the battle of winning matches (Matthias Kempe *et al*., 2014) [13].

In soccer, the ultimate goal that teams strive their best is to score goals and not to concede goals (Matthias Kempe *et al*., 2014) [13]. Therefore, regardless of the difference in playing style (approach), every team is targeting to score and defending not to concede. Teams with a possession based may be successful in most cases (e.g. in the FIFA world cup of 2006, 12010 and 2014).

On the contrary teams with a direct style of play may sometimes be successful (Ajibua M. A. & Igbokwe N. 2013) [1] and the success that Portugal achieved during Euro 2016 tournament is an evidence. For all these and other instances, there is a continuous debate over which style is appropriate to be successful (Matthias Kempe 2014) [13]. However it should not be forgotten that it is a myth to think off winning all games. Still it logical at first to examine and evaluate the quality of the players and to decide which style best suits. Having a clear model enables to work on the players (youths) accordingly and to make them natural for the approach.

M. Hughes and I. Franks, 2005 [16], has concluded that successful teams tend to have possession football that involves more touches/passes per possession than unsuccessful teams. On the contrary, Liam Diax and Dr. Laurence Protheroe, 2015 [12], found that direct style of play is successful so as to create shots which are important factors in football today. In line with this, the Euro 2016 tournament showed that despite not being among the best five teams in possession, Portugal, the champion of Euro 2016, was among those three best in the total number of shots.

Statistical techniques are applied to every aspect of life with technological advances (Matthias Kempe *et al*., 2014) [13]. This way, statistical methods or evaluation is evident recently (Cengiz and Kilinc, 2007) [5]. This can witness the necessity of soccer performance analysis of individuals and teams to be able to have corrective measures accordingly. During statistical analysis of soccer performance, possession and passing success (Castellano *et al*., 2012) [4], passing and on-target shots (Moura, Martins and Cunha, 2013) [15] are the common parameters. Furthermore, the number of crosses and the success rate of crosses are among those performance predicting parameters. And these parameters were the criteria against which the statistical performance and success of Ethiopian male football national team is evaluated.

2. Objective of the study

- To reveal the performance of Ethiopian football national team objectively in terms of ball possession percentage, number of passing, passing effectiveness, crosses and on-target shots,
- To identify success prediction possibility of statistical performance,
- To find out which playing style was predominantly used by Ethiopian football team and
- To forward possible recommendations.

3. Method

An objective evaluation of the quantitative or statistical performance has been done. Count of frequency has been used to analyze and evaluate performance in terms of passes, crosses, balls won in different thirds of the field and shots. Percentage has been employed to analyze possession, the effectiveness of passes, length of passes and success rate of crosses.

The evaluation has been done with those three games which have been played against Cameroon, Angola and Democratic Congo during the 4th Orange African nations championship (CHAN): Rwanda 2016. Thus, a total of three games has been analyzed critically by having ball possession percentage, total number of passes, length of passes, passing effectiveness, number of crosses, success rate of crosses, and on-target shoots as evaluation criteria. However, because of limited number of games, advanced statistical method was not used.

4. Result

Based on the finding, the result of research is shown in number in each table and with a description statement under each table.

Table 4.1: Ball possession percentage when Ethiopia plays against each team

Versus	Cameroon	Angola	D. Congo
Ethiopia	44%:56%	49%:51%	41%:59%
Goal	0:0	0:1	0:3

When we see the ball possession percentage of Ethiopia, it was 44%, 49% and 41% against Cameroon, Angola and D. Congo respectively. Cameroon (56%) takes a priority over Ethiopians in terms of possession. D. Congo takes a pronounced superiority (59%) when possession becomes the parameter. There was no that much difference in possession between Ethiopia and Angola, even though Angola was the winner.

Table 4.2: Number of passes and passing effectiveness

Game	Total passes	Passing effectiveness
Ethiopia versus Cameroon	402	73%
	507	83%
Ethiopia versus Angola	412	78%
	416	80%
Ethiopia versus D. Congo	426	72%
	525	80%

According to table 4.1, Ethiopians made 402 passes, 412 passes and 416 passes when they play against Cameroon, Angola and D. Congo respectively. On the contrary Cameroon made 507 (105 more passes than Ethiopia), Angola made 416 passes (4 more passes than Ethiopia) and D. Congo made 525 passes (99 more passes than Ethiopian) when they play against Ethiopia.

In passing effectiveness Ethiopia achieved 73% when playing against Cameroon and Cameroon achieved 83%. When playing against Angola, which was able to have passing effectiveness of 80%, Ethiopia was able to have 78% passing effectiveness. More inferiorly, Ethiopia was having 72% of passing effectiveness when playing against D. Congo, which was able to have 80% passing effectiveness.

4.1 Length of passes

Game	Short pass (<17m)	Medium passes (17-34m)	Long passes (>34m)
Ethiopia versus Cameroon	55%	34%	11%
	49%	42%	9%
Ethiopia versus Angola	56%	34%	10%
	42%	45%	13%
Ethiopia versus D. Congo	53%	36%	11%
	43%	47%	10%

As the numeric value from table 4.2, Ethiopians make most of their passes short (passes which cover distance of less than 17 meter). 53%-56 of their passes in all of the three games was short passes. Since Ethiopians are poor in passing

effectiveness, they were not good to play possession based football and even they did not play that way, because they were not having competence in possession percentage in the games analyzed. On the other extreme, they were not effective to play direct (reactive) kind of football, because they are not good enough to have effective long range passes or crosses and even the statistical analysis revealed they did not played that kind of football.

Table 4.3: Crosses and shots

Game	Crosses in play (success)		Shots		Goal
	Right side	Left side	Total shoot	On-target shoots	
Ethiopia versus Cameroon	3(0%)	1(0%)	1	1	0
	8(25%)	9(22%)	7	7	0
Ethiopia versus Angola	9(0%)	4(0%)	3	1	0
	14(50%)	9(11%)	5	4	1
Ethiopia versus D. Congo	5(0%)	1(0%)	1	0	0
	11(27%)	10(30%)	6	5	3

As shown in table 4.3, in terms of crosses and success rate of the crosses, Ethiopia was poorer than Cameroon (4 versus 17 crosses) and when Ethiopians achieved 0% success with their crosses, Cameroon was able to achieve 25% success in the right side and 22% in the left side crosses. Still Ethiopians were able to cross 13 (9 in right and 4 in the left side) and achieved 0% success in both the right and left side while the Angola counterpart was able to have 23 crosses (14 in right and 9 in the left side) with 50% success in the right side and 11% in the left side.

When Ethiopians played against D. Congo, they were able to cross balls (5 from the right side and 1 from the left side) with 0%success. On the contrary D. Congo was able to cross 21 balls (11 from the right side and 10 from the left side). Still when Ethiopians achieved 0% success, D. Congo was able to have 27% in the right side and 30% success in the left side crosses.

Ethiopians were able to have only 1 on-target shot against Cameroon, when its counterpart able to have to have 7 on-target shots. When playing against Angola, Ethiopia has 4 shots with only 1 on-target shot and Angola made 5 shots with 4 of the shoots on-target. When playing against D. Congo, Ethiopia made 1 off-target shot only while D. Congo made a total of 6 balls and 5 of the shots on-target. These could be one potential factor for Ethiopian side to score no goals when conceding 4 goals.

5. Discussion

Ethiopia was found to have a ball possession percentage of 44%, 49% and 41% when playing against Cameroon, Angola and D. Congo respectively. On the contrary these teams were able to dominate or achieve a ball possession of 56% (Cameroon), 51% (Angola) and 59% (D. Congo). Leaving the other key parameters aside, the possession alone that these teams of Cameroon, Angola and D. Congo achieved indicates as they were likely to be successful over Ethiopia. This is because that there is a positive correlation between possession percentage and winning matches (Parizale & Yates, 2013, and Vogelbein *et al*., 2014) [17, 13]. For example teams winning competitions in 2006 FIFA world cup was 52.4% in average (Catellano *et al*., 2012) [4], in 2010 FIFA world cup was 52.6% in average (Catellano *et al*., 2012) [4] and successful teams in 2014 FIFA world cup was between 50.32-56.71% (Kemal Goral, 2015) [9]. Generally for a goal to be scored, a team needs to have possession of the ball (Lago Pences & Dellal 2010) [11]. That is why Angola (with 1 goal) and D. Congo (with three goals) was able to defeat Ethiopia. However, Cameroon was not able to score or win the match despite achieving superiority over Ethiopia in possession. In some instances possession percentage may not be a valid indicator of how good a team was. What matters the most is the score (goal); possession cannot substitute score though it increases the likelihood of having chances. Possession alone is not the key for success (winning). To show this practically, in Euro 2012, Russia and Holland went home in the group stage despite having an average possession of 56%. Here Cameroon was not able to translate the possession that they achieved into a positive attacking move (shots/chances). More clearly, when Angola and D. Congo was able to have 23 (30.5% average success) and 21 (28.5% average success) crosses respectively, Cameroon was able to have 17 (with 23% average success) crosses despite having a better possession superiority than Angola did when playing against Ethiopia. This is simply an indicator that, "ball possession does not guarantee winning, but it means setting the pace and rhythm of the game…." (Matthias Kempe *et al*., 2014) [13].

Ethiopian side as a team was not able to have superiority or even competence against the counterparts. This inferiority is visibly manifested in the goals they score and conceded (i.e., concede 4 goals and scored 0 goal). This indicates that Ethiopians were not having a possession based (indirect/proactive) football. Even the overall statistical figure indicated that they were not having even a direct (reactive) kind of football in the games analyzed.

Controlled passing was the main indicator for success in the world cup of 2010 (K. Saito, *et al* 2013) [10] and also H. Mendez *et al*., 2013 supported the above by emphasizing the importance of effective passing for success. For Ethiopian side, the inferiority in the number of passes may be because of low possession percentage, or even low possession percentage may be due to low passing score, because there is a positive correlation between possession percentage and passing scores (Collet, 2013) [6]. In this study the same thing is found that Ethiopians were found poor in passing and passing effectiveness in the games analyzed and it is found that the parameters were capable of predicting success. Ethiopians able to have passing effectiveness of 73%, 78% and 72% when they play against Cameroon, Angola and D. Congo respectively. In a better way, Cameroon, Angola and D. Congo were able to have passing effectiveness of 83%, 80% and 80% respectively when they play against Ethiopia. This could contribute for Ethiopians to lose in 2 games and to end up in a 0 draw in one game. When we see the passing effectiveness of those successful teams in the 2014 FIFA world cup, Germany and Argentina, they were able to have 81.9% and 77.68%. Thus, quality of passing is one key parameter to predict success.

Conversion of ball possession in to a positive attacking chance is one critical parameter to measure the quality of possession. The conversion of position into attack is found good with that of Angola and D. Congo. They were able to have 23 and 21

shots respectively when they play against Ethiopia. Ethiopians have only 13 crosses against Angola and 6 against D. Congo. Most importantly, the success of the crosses of Angola was 50% in the right side and 11% in the left side and D. Congo achieved 27% and 30% success in the right and left side crosses respectively. Most badly, Ethiopians achieved 0% success in all the crosses. Here Cameroon made 17 crosses which is less than that of Angola and D. Congo and in average 23.5% of success still which is less than that of what Angola and D. Congo did against Ethiopia. This may have contributed for Cameroon to have a zero draw with Ethiopia despite 56% possession.

Castellano *et al*., 2012 [4] found that attacking play in terms of shoots on target is one main factor to success in today`s soccer. The same thing is found with this study that Ethiopians made only 1 on-target shoot against Cameroon and Angola on each and no on-target shot against D. Congo. Each of these teams made 7 (Cameroon), 4 (Angola) and 5 (D. Congo) on-target shoots when they play against Ethiopia. However, Cameroon was not able to score goals despite more on-target shoots and higher ball possession when Angola and D. Congo score goals and win. Attacking efficiency mainly matters winning.

6. Conclusion

Ethiopian national team was poor in having possession. Besides, the team was found the worst in passing, passing effectiveness, crosses and making successful crosses, on-target shots, and most importantly in scoring goals. Ethiopian side scores no goal when conceding 4 goals in three matches (when the rate of scoring is 0 the rate of conceding was 1.33 per game). It was difficult for Ethiopian side to identify which style of play they employ mainly, because they were poor at possession, passing, crosses or in having long balls.

The statistical performance is found to be a good indicator of success. (i.e., Ethiopians were poor in the statistical figures and they were not successful).

7. Recommendation

We need to have a specific approach or style of play. We don`t have a national football model or philosophy as a guide of coaching and development. We ought to decide which style best fits and works well in today's soccer. From the evidence of the 2006, 2010 and 2014 FIFA world cup successful teams (Spain, Holland, Germany and Argentina), it is too appropriate to have a proactive (indirect) style of football model. The distinguishing characteristics of these teams are patient build up, excellent passing, good links between lines and no long forward pass. In addition to this, having seen our natural preference and physical attribute or natural preference we better need a national philosophy of proactive approach and we need to work on youths accordingly. The game models based on indirect style (proactive) seem to have more chances of success in the near future (Castellano *et al*., 2012) [4].

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