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Soccer Match Results As A Function of Technical-Tactical Performance Score

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SPORT ACADEMY

DEPARTMENT OF SPORT SCIENCE

SPECIALIZATION IN FOOTBALL COACHING (MSc)

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BY:

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July, 2022

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A THESIS SUBMITTED TO THE DEPARTMENT OF SPORT SCIENCE, IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS OF SCIENCE IN FOOTBALL COAHING (MSc)

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DECLARATION

This is to certify that the thesis entitled "**Soccer Match Results As A Function Of Technical-Tactical Performance Score**". submitted in partial fulfillment of the requirements for the degree of Master of science in football coaching in the Department of sport Science, Bahir Dar University, is a record of original work carried out by me and has never been submitted to this or any other institution to get any other degree or certificates. The assistance and help I received during the course of this investigation have been duly acknowledged.

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I hereby certify that I have supervised, read, and evaluated this thesis title **"Soccer match results as a function of Technical-Tactical performance Score**" prepared under my guidance. I recommend the thesis be submitted for oral defense.

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As members of the board of examiners, we examined this thesis entitled "**Soccer match results as a function of Technical-Tactical performance Score**" by **Solomon Assaye Atnafu** We hereby certify that the thesis is accepted for fulfilling the requirements for the award of the degree of "**MSc in football coaching**".

Board of Examiners

External examiner name   Signature   Date

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Chair person's name   Signature   Date

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Contents

List of Tables

List of Figures

Acronyms /Abbreviations

AFCON: African cup of nations

CAF: Confederation of African football

CHAN: African Nations Championship

FIFA: International Federation of association football

UEFA: Union of European Football Associations

WC: world cup

PA: performance analysis

Abstract

The main purpose of this study was to examine the soccer match results as a function of technical tactical performance score. And to determine the prediction capacity of technical-tactical actions for match outcome at AFCON 2021 championship held in Cameroon. The study examines seventeen technical–tactical variables grouped under goal-related, offensive-related and defensive related. 24 national teams were participated and a total of 52 games were played. However, for this research 51 matches were considered as of 36 matches were at group stage and 15 matches were at the knock-out stage. It was hypothesized that technical-tactical performance score will not have significant level of correlation with match outcome (success) and as such do not predicts match outcomes. Purposive sampling method was applied and the design of this research was correlational. The data was analyzed using SPSS Version 25 with Pearson's product correlation movement, and multiple linear regression model to examine the relationship and the prediction capacity of technical-tactical performance score with match outcome. The results shows that from the study variables shot on-target and cross accuracy were significant correlation with match outcome. And aerial duels won was associated with match outcome at knock-out stage games. The variables (shot on target, and aerial duels won) predict the match outcomes. The researcher recommends the coaches and players to work on the technical actions to become successful in AFCON championship tournament.

Key words: performance score, match outcome, goal-related, offensive –related, and defensive related.

CHAPTER ONE

INTRODUCTION

1.1. Background of the Study

All sports are a combination of physical fitness, tactics, technique, and psychological aspects and the importance of each of these variables can change from game to game. Probably one of the reasons that soccer is played by so many is that the game requires no specific gifts to be successful (Javali & Bujurke, 2020).

Soccer is a multifaceted sport, in which success depends on several physical, technical, and tactical factors (Stølen et al, 2005). In soccer, the ultimate goal that teams strives their best is to score goals and not concede goals (Kempe, 2014). Soccer like other team sports is considered a casually intermittent activity involving sudden variation in directional modes that parallel game-related changes in intensity (Stølen et al, 2005). In contrast, to games such as basketball or handball, soccer is a low-scoring game, and scoring a goal is usually a rare event. For this reason, the final match score does not provide a clear picture of the teams' technical-tactical performances. To understand success factors in soccer, various other performance indicators next to goals scored have to be considered. Soccer is also a sport that has elements of chance but, this does not mean successful teams are just luckier than others (Reilly, 2003).

The term success referred to positive outcomes without emphasizing the link to any specific domain. However, from others view the comprehensive and undistorted meaning of the term was not feasible to derive as it stayed implicit in the content. success is perceived either as a task

solved or its purpose fulfilled (Canal et al., 2015; Bishop & Goebl, 2018) the desired outcome of a long-term process or activity (Krukowski et al., 2013; Laitner et al., 2016) scoring high on a task or scale (Kudo & Mori, 2015; Meule et al., 2017) or completion of a goal previously set (Levine et al., 2017). Success' is typically measured using performance indicators such as test results, completion rates and other objective measures. Success is something that, as a concept, remains universal in its appeal and motivation for attainment, whilst seeming consistently to lack definition (Hannon et al., 2017).

The Africa Cup of Nations (AFCON) is the main continental soccer competition in Africa. The tournament is organized by the Confederation of African Football (CAF) and was first hosted in 1957 with four countries competing: Egypt, Sudan, Ethiopia, and South Africa. The latter was disqualified due to its apartheid policy of racial discrimination. Since 1968, the competition has been held every two years. The number of participating teams which was eight in 1986 rose to 12 in 1992. In 1996, the number of teams increased from 12 to 16 with the return of South Africa to African soccer (CAF, 2014). Despite, five decades of the AFCON tournament's organization, there remains limited information on the key performance indicators that determine team success in Africa.

Performance analysis (PA) has been defined as an opportunity to objectively interpret performances within complex sports environments (Fernandez et al., 2017) to improve the performance of individual athletes and team behavior through the delivery of meaningful and purposeful feedback (Bampouras et al., 2012; Nicholls et al., 2018). To identify the factors which lead to success in football it is necessary to find performance indicators that significantly discriminate between winners and losers. However, the identification of critical factors for successful performance poses a major challenge (Hughes & Franks, 2004).

Technical performance in soccer is classified into three categories as goal-related indicator which consists of shooting and on-target shot, Offensive-related indicators which include passes, crosses, and corners, and Defensive-related indicators which include tackles, interceptions, clearances, duels, and aerial duels. However, several factors influence this performance such as match condition (player passion, quality of the opponent team, competition level, match tactic, environmental condition, match place and Player character (player performance, gender, and fatigue) (Joseph et al., 2008).

Successful teams need to have a higher number of shots, successful passes, and more possession to be successful (Armatas et al., 2009; Obertstone; 2009Castellano et al., 2012). Furthermore, Szwarc (2004) and Lago-Penas et al., (2010) suggested that shot effectiveness rather than the total number of shots best discriminated a successful performance. During statistical analysis of soccer performance, possession and passing success (Castellano et al., 2012), passing and on-target shots (Moura et al., 2013) are the common parameters. Furthermore, the number of crosses and the success rate of crosses are among those performance predicting parameters.

Teams with a possession-based may be successful in most cases (e.g. in the FIFA world cup of 2006, On the contrary teams with a direct style of play may sometimes be successful (Ajibua, & Igbokwe, 2013) and the success that Portugal achieved during Euro 2016 tournament is evidence. This means, that possession-based teams might have the chance but, that is not the only method to score goals and win matches (Chekle, 2017).

Most of the aforementioned studies focused on analyzing club competitions (i.e. national league, Champions League), while analyses performed on competitions of national teams are limited

(Castellano et al., 2012; Moura et al., 2014). Nevertheless, it was suggested that team performances are different according to the type of competition both from between- and within-team aspects (Gomez et al., 2013). In particular, the AFCON championship that is disputed by the Continent (Africa) best national teams gather different game styles, and, therefore, key performance indicators may be different from those identified in national and European leagues. There is no compelling evidence to substantiate these results within the African context. Therefore, the question that arises from this study was which performance indicators distinguish between winning, drawing, and losing teams in the AFCON soccer championship?

1.2. Statements of the Problem

Teams presented differences in various technical-tactical actions of match play, suggesting that cultural differences may exist across professional soccer leagues and playing positions (Di Salvo et al., 2007). The winning team performed fewer crosses and passes, and when observing two teams of different skill levels, the weaker one performs more passes (Sarmento et al., 2014). Ball possession was found to be greater when losing than when winning or drawing (Lago & Martı´n, 2007; Lago-Penas et al., 2011).

Teams with a possession-based may be successful in most cases (e.g. in the FIFA world cup of 2006), On the contrary teams with a direct style of play may sometimes be successful (Ajibua & Igbokwe, 2013) and the success that Portugal achieved during Euro 2016 tournament is evidence. To this end, possession-based teams might have the chance. but, that is not the only method to score goals and win matches (Chekle, 2017). During statistical analysis of soccer performance, passing success (Castellano et al., 2012), passing and on-target shots (Moura et al., 2013) are the common parameters that discriminate winning and losing teams. Furthermore, the number of crosses and the success rate of crosses are among those performance predicting parameters

To date, the available published data on key performance indicators in African soccer has focused on ball possession in domestic competitions (Kubayi & Larkin, 2022). For example, Kubayi and Toriola (2019) reported that the losing teams had higher ball possession than the winning teams in the South African Premier Soccer League. In the other study on the AFCON championship of 2017, Winning teams had more goals, total shots, and shots on target than drawing and losing teams. Most of the teams that had a high percentage of ball possession lost their games

(Kubayi & Toriola, 2017). However, the previous research focused on goal-related and offensive related variables and, the limitations of the findings were they lack the analysis related to the potential impact of match performance indicators that can lead to team success and previous researchers used a few variables and small number of games. Due to the evolving nature of soccer, as well as the need for analysts and coaches to be informed of the current in-game performance trends, it is essential to reassess not only the possession of the ball during a match but other possible game-related statistics that may contribute to effective performance (Oberstone, 2009; Araya & Larkin, 2013).

The performance indicators of other nations and continents cannot be the same as the rest of the countries and the continent as well. The previous literature's focused on goal-related and offensive -related variables. But, defensive-related variables also have their own impact on the match outcomes. The winning team performed more interceptions; clearances; aerial challenges; and fewer crosses, passes, and dribbles; and when observing two teams of different skill levels, the weaker ones perform more passes and less dribbling (Sarmento et al., 2014).

Despite five decades of the AFCON tournament's Organization, there remains limited information on the key performance indicators that determine team success in Africa. No study has been conducted related to AFCON 2021 before this finding. This research was focused on the relationship between soccer success in the AFCON championship and technical-tactical actions in matches and which technical-tactical variables predict success in African soccer particularly in national teams of the continent.

1.3. Hypotheses

The researcher hypothesized the following issues.

1. H_0- The goal-related technical-tactical performance score of the team may have no significant relation with the final results of the matches.

2. H_0- The offensive-related technical-tactical performance score of the team may have no significant relation with the final results of the matches.

3. H_0- The defensive-related technical-tactical performance score of the team may have no significant relation with the final results of the matches.

4. H_0- The goal, offensive, and defensive-related technical-tactical variables may not have a prediction capacity for soccer success.

1.4. Objectives of the Study

This research has two types of objectives.

1.4.1 General Objectives of the Study

The general objective of the study was to examine **soccer match results as a function of technical-tactical Performance Score**

1.4.2. The Specific Objectives of the Study

This study has the following specific objectives

1. To unveil the relationship between goal-related technical-tactical variables and soccer success

2. To examine the relationship between offensive-related technical-tactical variables with soccer success

3. To examine the relationship between defensive-related technical-tactical variables with soccer success

4. To determine the prediction capacity of Goal, Offensive and Defensive related technical-tactical variables on soccer success

1.5. Significance of the Study

This study has so many importance's for the coaches, players, sports experts, and scouts also, important for those scholars want to research the area from another side and they might be used as literature or something a benchmark for their research works, and the coaching staffs to get the detail data about their players' performance and their proficiency in actual matches.

The research provides valuable information for soccer scientists and coaches in planning and implementing specific training programs, thereby maximizing team performance.

1.6. Delimitation of the Study

This study was delimited geographically only in African countries. and tournament type at the AFCON 2021 tournament that was held in Cameroon and conceptually it was delimited only on the relationship between technical-tactical performance score as such (Goal-related- Total Shot, and Shot on target, Offensive related- shooting accuracy, possession, Total Passes, Pass Accuracy, crosses, cross Accuracy, and Corners, and Defensive-related variables were Tackles, Tackles Success rate, Interceptions, Clearances, Total duels, Duels Success rate, Aerial duels won and Recovery all these are Independent variables) with dependent variables soccer success(Success in terms of match outcomes which mean, win, draw and loss) and also the time was delimited from January 2022 up to July 2022 G.C.

1.7. Operational Definition of Key Terms

Performance analysis: - is evaluating the weakness and strengths of potentials that have been done

Performance Score:- The rate of actions performed in matches

Success: - is winning matches and trophies.

Match outcome: - The final result of the games i.e. win, draw, and loss.

CHAPTER TWO

REVIEWS OF RELATED LITERATURE

2.1. Sports Performance and Success

Soccer's success, being a complicated team sport, is dependent on individual performance, collective performance, and, most crucially, team performance (Chekle & Tadesse, 2019). Soccer success, like that of other team-oriented sports, is a complex construct in which a variety of intrinsic and extrinsic elements contribute to the overall performance of the match or tournament. Physical conditioning, football-specific technical aptitudes, and team tactics are only a few of the major factors that influence football performance (Sarmento et al., 2018).Various scholars have looked into the aspects that may influence soccer matches to determine which ones are most closely related to success (Castellano, 2008). Due to low amount of goals scored in soccer games, alternative metrics such as ball possession are frequently employed to evaluate teams' performance (Goral, 2015; Kempe et al., 2014; Lago & Martn, 2007).

Many studies have looked at the link between ball possession and success in various levels of competitive soccer, as well as other performance measures (Collet, 2013; Goral, 2015; Jones et al., 2004; Kempe et al., 2014; Lago & Dellal, 2010; Parziale & Yates, 2013; Rodrigues et al., 2016). Among the numerous authors who have looked into the relationship between ball possession and soccer success, Liu et al. (2015a) discovered that ball possession was one of the characteristics that may separate clubs from different levels in the UEFA Champions League. Another study by Lago-Peas & Dellal (2010) found that the top-placed clubs in the Spanish League had a higher average percentage of ball possession than the less successful teams in the league.

The authors of the study Liu et al. (2015b) discovered that ball possession was one of the match statistics that had a positive effect on the probability of winning in the 2014 World Cup group stage. Furthermore, Goral (2015) discovered that ball possession was related to World Cup success in 2014, with the top four teams having the most ball possession during matches. Similarly, Germany was the competition's winner and had the highest mean ball possession percentage. Similarly, Kempe et al. (2014) examined matches from two consecutive seasons of the Bundesliga and the 2010 World Cup and discovered that the most successful teams preferred a ball possession style of play. On the contrary, another study that found a poor relationship between ball possession and success was the work of Gama et al. (2016), who discovered that in the Portuguese Premier League of 2010/2011, the amount of ball possession did not correlate with match outcomes.

2.2. Soccer as a sport

Soccer is one of the most widely played and complex sports in the world, where players need technical, tactical, and physical skills to succeed (Helgerud et al., 2001; Manna et al., 2011). Soccer is a universal game enjoyed everywhere by people regardless of age, gender, size, skill level, color, creed, or station in life. Soccer is a game, in which there is an exciting race, measured dribbling, breathtaking shooting with around ball that can be predicted where to go and can be controlled and consequently, resulting in a brilliant save from an aesthetic point or goal. It is a team game conveying spectators and participants to the new situations and circumstances during the game and leading the masses. Besides being a team game, each player's having an opportunity of proving himself and demonstrates his soccer character and ability in line with their skills, it is a sport where success is attained in tune with his teammates' interaction (Risolo, 2010; İnal, 2006).

2.3. Soccer performance

Soccer performance involves the interaction of technical, physical, and tactical activities among players during match play (Moura et al., 2013). Considering soccer is a dynamic sport that requires a balance between several performance determinants (Alves, et al., 2019). Technical indicators more accurately predict the success of a team (Carling, 2013), the physical characteristics should be considered, as it influences the technical indicators (Bush et al., 2015; Da Mota et al., 2016; Rampinini et al., 2008).

Some soccer analysis systems provide game-related statistics about players' actions (such as control, passing, shots on goal, fouls, and so on) that can provide valuable information about the performance of successful and unsuccessful teams during a match (Moura et al., 2013). A performance indicator is a selection or combination of action variables that aims to define some or all aspects of a performance (Hughes & Bartlett, 2002). Technical parameters such as goals for and against, possession, shots, shot on target, corner kick, and complete and incomplete passes are some of the performance determinants in team sports such as soccer.

2.4. Soccer Performance and Success (Winning Trophies)

According to Agyei (2007), trophies serve an important purpose in sports and games. The significance of trophies in instilling excellence and competition in games and sporting activities cannot be overstated. Trophies appear to be unavoidable in the world of competitive games and sports. They go on to say that the presentation of trophies has a history of inducing excellence, competitive games, and sporting activities. Although scoring a goal is traditionally regarded as the most visible manifestation of soccer success, most player and team actions do not result in a goal being scored, and thus the final match score does not always represent an objective categorization of a team's football performance (Lepschy et al., 2018). The best soccer teams not

only shoot more and more accurately, but they also allow fewer clear shots (Evangelos et al., 2013).

When there are clear rankings that distinguish successful teams from those that fail, the concept of a "winning team" becomes more apparent. In soccer, a team that wins the English Premier League, the Italian Serie A, the Spanish Primera Liga, or the German Bundesliga qualifies for the prestigious European Champions League, which requires a top three or four domestic finish. When a less ambitious club avoids relegation to a lower league, they have succeeded (Torun et al., 2014).

2.5. African Soccer

To date, the available published data on key performance indicators in African soccer has focused on ball possession in domestic competitions (Kubayi & Toriola, 2019). Furthermore, reported that the losing teams had higher ball possession than the winning teams in the South African Premier Soccer League. From a continental perspective, there is little knowledge of the main performance indicators that may influence the African match results. Therefore, understanding the key match statistics is crucial, as the continent's football structure is relatively less developed and needs more scientific information (Zhou et al., 2018) to potentially inform future tactical decisions and coaching processes (Kubayi & Larkin, 2019). By understanding the current trends in team performance, coaches may be able to devise team tactics to maximize the chances of winning the competitions.

The discriminant function analysis showed that the total passes had high discriminatory power. The descriptive analysis also indicated that the winning teams had a higher number of passes than those which lost. This is a key finding, as a greater number of passes may be an effective

approach in building attacking a play and creating more opportunities to shoot at goal (Jones et al., 2004; Araya & Larkin, 2013). However, no significant differences were found between the winners and losers in terms of the accuracy of passes and ball possession (Kubayi & Larkin, 2022). While a previous study has found that for European teams, passing accuracy is strongly linked with holding on to the ball (Collet, 2013), for African matches, ball possession does not define successful team performance (Kubayi & Toriola, 2019). Bradley et al. (2014) also found that dominant teams in the European competitions have adopted a possession style of play, suggesting that they prefer to "control" the game by dictating the play, but if a team is unable to retain the ball possession, a "direct" style of play might be a more appropriate game tactic. This direct style quickly takes the ball into shooting positions, thereby possibly creating more goal-scoring opportunities (Kite & Nevill, 2017). AFCON is now the world's third most lucrative soccer competition in terms of its cumulative television audience, coming after the FIFA World Cup and the UEFA Euro tournaments (CAF, 2014).

2.6. Performance Parameters

To analyze team collective performance and achieve important goals in soccer, it is critical to identify and comprehend the relevant parameters (Clemente et al., 2012). The use of notational analysis to understand the various aspects of performance in individual or team sports has grown in popularity among sport and exercise scientists over the last decade. Many analysts working at various levels of sports performance have used it for a variety of purposes such as technical and tactical evaluation, movement analysis, feedback provision, norm development, and modeling (Shafizadeh et al., 2013; Hughes & Bartlett, 2008).

Performance in higher-level soccer heavily relies on various factors. For example, soccer requires fitness which enables to play for a prolonged time, high intensity, and intermittent

exercises (Mohr et al., 2003). This way, soccer players during games are 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 on average 5 seconds between these actions (Bangsbo et al., 2006). Still, technical proficiency, tactical know-how, and psychological makeup take their share for performance or success achievement in soccer. During statistical analysis of soccer performance, possession and passing success (Castellano et al., 2012), passing and on-target shots (Moura et al., 2013) are the common parameters. Furthermore, the number of crosses and the success rate of crosses are among those performance predicting parameters. Successful passing in modern soccer has been noted as one of the crucial preconditions to becoming a successful team at the highest levels of the game (Jankovic & Leontijevic, 2006). Match statistics related to winning in national team competitions were slightly different from those previously identified for club competitions (Lago-Peñas et al., 2010, 2011; Tenga et al., 2010a, 2010b, 2010c; Yue et al., 2014).

2.6.1. Physical fitness

Success in contemporary soccer relies on physical fitness to an extent. Surprisingly, the demand for modern soccer drastically changed from the previous decades. This can be witnessed with objective findings that showed the players are performing more explosive movements and competing at higher intensities than ever before (Bradley et al. 2009; Da Silva et al., 2010).

Physical variables, such as total distance covered, and distance covered at high intensities provide useful performance indicators (Bradley et al., 2009). During a match, elite soccer players cover the majority of the distance at low intensity (Rienzi et al., 2000). The average distance covered at high intensity is 10% (Carling et al., 2008). Various authors have observed that players cover different distances at high intensity during a match depending on playing position

(Bangsbo et al., 1991; Di Salvo et al., 2009; Ekblom, 1986; Rampinini et al., 2007). Differences in high-intensity activity during a match are also observed by gender (Ekblom, 1986; Krustrup, et al., 2005), training level (Krustrup & Bangsbo, 2001), period of competition (Mohr et al., 2003; Rampinini et al., 2007), level of competition, game style, and environmental factors (Reilly, 1996).

Sprinting constitutes one of the most important activities in soccer, even if it only represents 1–12% of the total distance covered in a match (Rienzi et al., 2000; Van Gool et al., 1988; Withers et al., 1982). Researchers have focused their attention on high-intensity activities during matches in the different national leagues, in particular the English Premier League (Bradley et al., 2009; Di Salvo et al., 2009), the Spanish League (Di Salvo et al., 2007) the Italian League and Danish League (Mohr et al., 2003). Some research on national leagues has included Champions League matches in the same data analysis (Di Salvo et al., 2007; Mohr et al., 2003; Rampinini et al., 2007).

2.6.2. Technical-Tactical Actions

The technical actions can be better predictors of success in soccer compared to pure physical parameters (Bush et al., 2015a; Castellano et al., 2012; Lago-Peñas et al., 2010, 2011; Rampinini et al., 2009; Russell et al., 2013). Lago-Peñas et al. (2010) indicated that ball possession, combined with other factors (e.g. shots, shots on target, crosses) were able to predict the champions of the 2008–2009 Spanish First Division. In addition, Jones et al. (2004) found that there was a significant difference in ball possession between the winning and losing teams of the 2001–2002 English Premier League. The technical indicators are essential for match analysis, as they discriminate match patterns more accurately than other indicators (Da Mota et al., 2016).

In the 2006 FIFA World Cup (WC), Lago (2007) concluded that the technical and tactical indicators are relevant variables to explain points obtained by teams in the group stage of the competition. A similar result was found in the 2014 FIFA WC, which identified a positive effect of counter-attacks, ball possession, short passes, and average passes completed per game in the possibility of victory (Liu et al., 2015). In the same competition, Da Mota et al. (2016) concluded that ball possession did not influence the physical demands of the matches, even though it was related to the time spent in offensive sectors of the field. Alves, et al., (2019). shows that passing success, shots, and shots on target are characteristics of winning teams. These results are in agreement with those of Liu et al. (2015), who found that winners at the 2014 FIFA WC showed that shots and shots on target increased the chance of victory by 13% and 48%, respectively. In addition, a previous study found similar results, suggesting that both total shots and shots on target are crucial to winning in 2002, 2006, and 2010 FIFA WC competitions (Castellano et al., 2012).

2.6.3. Psychological

Psychological skills and psychological status of athletes are often influenced by sports performance, and good performance can be helped by psychological therapy and preparation (Gardner & Moore, 2006; Gyomber et al., 2013, Omar et al., 2009; Zusková et al. 2010). Krane and Williams (2006) concluded that several psychological and behavioral skills and strategies (e.g., goal setting, imagery, anxiety control, and coping skills) are associated with peak performance.

2.7. Success or Winning Predictors

A considerable amount of research in this area has paid attention to goal scoring, as this variable is what ultimately distinguishes success from defeat in soccer (Jones et al., 2004). Lago-Penas et al. (2010) analyzed games from the Spanish first division during the 2008-2009 seasons. These

authors found that successful teams had a higher number of shots at goal and their effectiveness (number of shots converted into goals) was much higher than losing or drawing teams. They suggested that successful teams will attempt more shots, and as a result of their effectiveness, are more likely to score goals compared to teams of a lower skill level. Similar results were also found by Armatas et al. (2009) in their investigation into the shots at goal ratio between successful and unsuccessful teams in the Greek first division. Although these studies produced interesting findings, differentiating between the performance of successful and unsuccessful teams based solely on an analysis of goals scored, does not provide a full understanding of a team's performance. It is recommended that a variety of variables are analyzed to help gain a more in-depth understanding of team performance and whether certain behaviors result in success or defeat (Lago-Penas et al., 2011).

Offensive variables such as the number of total shots, shots on target, penalty area entries, crosses, and fouls received have been investigated in studies comparing the performances of successful and unsuccessful teams (Castellano et al., 2012); Lago-Penas et al., 2011; Ruiz-Ruiz et al., 2011; Lago-Penas et al., 2010; Armatas et al., 2009). Defensive variables such as crosses against, fouls committed and the number of red and yellow cards received have also been analyzed, but only within a limited number of studies. Recommendations provided by Lago Ballesteros and Lago-Penas (2010) and Lago-Penas et al. (2010) stated that future research should look to consider defensive variables in their analyses. Since these studies, more recent research has included these variables when analyzing match performance. For example, in two studies conducted by Castellano et al. (2012) and Lago-Penas et al. (2011) data on sixteen performance indicators relating to offense and defense were collected and analyzed. In both studies, the findings identified that winning teams displayed significantly higher values for ball

possession, total shots, and shots on target than drawing and losing teams. Concerning defensive variables, higher averages (on total shots and shots on target received, fouls committed and red cards received) were recorded for losing teams compared to winning and drawing teams (Castellano et al., 2012). Lago-Penas et al. (2011) also reported that losing teams received significantly more yellow and red cards than winning teams.

In a similar study by Delgado et al. (2013) sixteen performance indicators relating to shots on goal and goals scored were used to assess differences between successful and unsuccessful teams in the 2010 World Cup. The findings highlighted that successful teams recorded better values in all offensive performance indicators than unsuccessful teams except for 'shots off goal'. For all of the eight defensive variables, apart from '% shots off goal against', higher averages were recorded for unsuccessful teams. These findings, along with other research in this area, support the notion that winning teams are stronger in variables relating to offense whilst losing teams display higher averages for defensive variables (Castellano et al., 2012; Lago-Penas et al., 2011; Lago-Ballesteros & Lago-Penas, 2010). Few studies have simultaneously analyzed both attacking and defensive performance and match outcome and further research are warranted.

2.8. The Consistency of Success Predictors

Success in soccer cannot be explained with just a few variables, by analyzing the FIFA World Cup 2014 Liu et al. (2015) showed that most of the 24 variables investigated influence the match outcome. To further improve the performance of soccer teams and players, various data are being produced in professional soccer leagues that provide multiple opportunities to analyze games and identify critical factors for success. The knowledge of performance indicators that can determine success in soccer is critical. This is especially true since soccer is a sport where the outcome is not always free of chance (Dufour, 1993; Reilly & Williams, 2003). Predictive studies enable the

identification of new and useful insights on indicators of performance that can inform future efforts for performance improvement (Sarmento et al., 2014). However, in a recent review, Lepschy et al. (2018) found that less than half of the studies dealing with success factors in soccer utilized predictive analyses. They concluded that there is a need for more predictive analyses to better understand the determinants of success in football.

Broich et al. (2014) and Yue et al. (2014) identified efficiency as the most influential variable in the German Bundesliga. However, Schauberger et al. (2017) showed that (running) distance is the most important variable. On the other hand ,The analysis revealed that, if controlled for home advantage and quality of opponent, defensive errors, shots from counter attacks, goal efficiency, clearances, shots on target Shots from inside the penalty area, crosses, total market value starting formation and total shots are significant predictors for success from a home team perspective. For the away team, defensive errors, total shots, goal efficiency, clearances, total market value starting formation, shots from counter attack, duel success (%), shots on target, successful tackles, and crosses had a significant influence on winning (H. Lepschy et al., 2020). team performances are different according to the type of competition both from between- and within-team aspects (Gómez, Lago-Peñas, & Pollard, 2013).

The match outcome is a primary criterion for evaluating performances in team sports, the closeness of the game (winning and losing margin) provides additional contextual information about the tactical and technical success of the competing teams (Gómez et al., & Sampario, 2014; Higham et al., 2014; Lupo et al., 2014; Sampario et al., 2010). Prior studies found that Shot and Shot on Target were two variables that significantly differentiated and discriminated winning, drawing and losing teams in matches of Korea/Japan 2002, Germany 2006 and South

Africa 2010 World Cup tournaments (Castellano et al., 2012), UEFA Championship League (Lago-Peñas et al., 2011) and Spanish Professional Football League (LagoPeñas et al., 2010).

The soccer game, in particular, can be considered as a complex, self-organized, unstable, unpredictable, and highly dynamic system in which players from competing teams try to keep the stability of their own attacking, organizing, and defending balance and to destabilize the balance of the opposition (Davids et al., 2013; Garganta, 2009; Vilar et al., 2012). Several external match conditions of this sport, such as match location, the standard of competition, team and opposition strength, and match outcome, are suggested as very important variables that influence individual and team behaviors (Eccles et al., 2009; Gómez et al., 2013; Mackenzie & Cushion, 2013; Rampinini et al., 2009; Sarmento et al., 2014).Which means that the success predictors are not limited by some variables and it's not easy to say that performance is consistent and success is stuck with match variables, there are ups and downs in the performance of the individuals and teams as a whole. Finally, it's incredibly hard to predict consistently how football teams will perform. Gladden et al. (2013) demonstrate how Sports performances are uncontrollable, unpredictable, and spontaneous.

2.9. Moderating Factors

In the study of Castellano et al. (2012) analyzed the World Cups of 2002, 2006, and 2010, the authors found that ball possession was not a discriminating variable between successful and unsuccessful teams when the three competitions were analyzed altogether. However, it could have been an important success factor in the competitions of 2006 and 2010, as the results showed ball possession as one of the variables that differentiated winning, drawing, and losing teams in those competitions. In another study analyzing national leagues in Europe, Evangelos et al. (2014) found that ball possession percentage was different between teams only in matches

where the result's range was wide with the winning teams having higher percentages of ball possession than losing teams.

According to Lago-Peñas and Dellal (2010), ball possession can be influenced by alternations of teams' styles of play during a match. In their study, Lago and Martín (2007) concluded that match status, match venue, team identity, and opposition identity could influence the differences in ball possession between teams in a match. Also, analysis of ball possession in soccer should consider factors such as the field location of possessions and the teams' strength. In the study by Jones et al. (2004), for instance, the authors found that the three top teams of the English Premier League of 2001/2002 had significantly longer possessions than the three bottom teams in the competition.

However, the findings revealed that when both successful and unsuccessful teams were losing a match, the durations of ball possession were longer than when they were winning implying that match status can influence ball possession characteristics(Adams et al.,2013) In addition, Adams et al. (2013) found that defenders' ball possession in the opposition's half of the field was a key element of top teams in the English Premier League in 2011/2012, demonstrating the relevance of assessing location and player positions in connection to ball possession in soccer.

The amount of competition is another factor to consider. For instance, the results of the study by Rodrigues et al. (2016), analyzing three seasons of the Brazilian Serie A and Serie B national leagues, showed median and strong correlations between ball possession and success in all seasons of Brazilian Serie A. However, no significant correlation was found in the Serie B competition. These shows the moderating factors for different leagues in different countries were not similar.

According to Liu et al. (2016), winning teams were more likely to dominate the defensive and attack actions which led to more controlled possessions with tactical fouls committed, and clearances with fewer tackle actions.

In recent years, determining the success criteria for soccer teams has been one of the prominent research topics in the scientific community (Bilek & Ulas, 2019; Kubayi & Toriola, 2020a; Young et al., 2019; Zhou et al., 2020). One of the main goals of sports science is to clarify the strategic performance objectives of teams and examine the indicators that improve their competitive outcomes (McGarry, 2009; Rizvandi et al., 2019). In this context, statistical analysis of team performance will provide soccer players and coaches with the opportunity to re-evaluate their performance (Kubayi & Toriola, 2020a; Liebermann et al., 2002). Quantitative analysis of practice sessions can play an important role in detecting priority areas in the training of the team and is a crucial step in observing the opponents' general characteristics, especially their strengths and weaknesses. Soccer is a large and comprehensive industry and, in recent years, has been the subject of numerous statistical estimation studies.

2.10. Evaluating Teams Performance

The match outcome is a primary criterion for evaluating performances in team sports, the closeness of the game (winning and losing margin) provides additional contextual information about the tactical and technical success of the competing teams (Gómez et al., 2014; Higham et al., 2014; Lupo et al., 2014; Sampaio et al., 2010). In the unbalanced games, the winning teams are likely to overcome the losing teams in most of the game statistics (Vaz et al., 2010), and there might be game periods where teams are not really engaged in performing well, because the game result is already decided. Hence, close games should be identified to ensure that

confronting teams played at their best facing the uncertainty in the match outcome (Gómez et al., 2014; Lupo et al., 2014; Sampaio et al., 2010; Vaz et al., 2010).

CHAPTER THREE

RESEARCH METHODS

3.1. Description of The Study Area

This study was conducted in AFCON 2021 Championship national team matches that the tournament was hosted in Cameroon from January, 9 to February, 6/2022. The total numbers of national teams that participated in the tournament were 24 and a total of 52 games were played.

3.2. Research Approach

The study was applied with quantitative research approaches. it's because of the research objectives and the character of the study variables.

3.3. Research Design

Because of the characteristics of the research aims the researcher utilized a Correlational research design. The correlational design was used to explain the link (correlation) between the dependent and independent variables.

3.4. Population, Sample Size, and Sampling Techniques

The target population of this study was the national teams of African countries. The study population of this research was the national teams which were participated in the AFCON 2021 tournament with a total number of 24 national teams. The researcher took 51 games statistics using purposive sampling Technique.

3.5. Source of Data

This research used only the secondary source of data that has been recorded in the data of match center of the OPTA Sports data company. The total number of games were 52 but one game statistics were not found due to this reason this research used 51 games 36 of them were group stage games the rest 15 games were from knock-out stage up to the final game. The data resource website of the research was OPTA Sports data Company.

3.6. Reliability of Data Source

Data used in the study were made available by OPTA Sports data Spain Company (Madrid). Detailed information on the process by which OPTA Sports data are collected, processed and output can be found elsewhere (Liu et al., 2013). The tracking system (OPTA Client System) was tested to have an acceptable inter-operator reliability (intra-class correlation coefficients ranged from .88 to 1.00 and standardized typical error varied from .00 to .37 when using the system to code match actions of individual outfield players) (Liu et al., 2013).

3.7. Data Collection Instruments

The researcher collected the secondary sources of data which are the quantified data of the all games of the national teams and all of the data were continuous. Seventeen variables were selected as study variables in the analysis and they were divided into three groups according to the available literature (Castellano et al., 2012; Lago-Ballesteros et al., 2012; LagoPenas et al., 2011; Liu et al., 2013; Tenga et al., 2010a, 2010b, 2010c). (1) Variables related to goal (2) variables related to offense, and (3) variables related to defense.

3.8. Study Variables

The research focused on a total of 17 independent variables grouped into three as Goal-related, Offensive-related, and Defensive-related. On the other hand, the dependent variables were match outcome (win, draw, and loss)

Dependent variables

Soccer match results are Win, Draw, and Lose.

Independent variables

Goal- related

Total shots, Shots on target

Offensive –Related

Shot accuracy, Total passes, pass accuracy, Number of crosses, Cross accuracy, Corners, Ball possession.

Defensive- Related

Tackles, tackles success rate, interceptions, clearances, duels, duels success rate, aerial duels won, and recovery

3.9. Data Collection Procedure

The data collection procedure for this study was sorted out from an international statistical database. Researcher spends substantial time for cleaning, recording, sorting, and getting the data ready for use.

3.10. Data Analysis

The researcher applied the analysis system, to analyze the relationship between the dependent variables and the independent variables. The researcher used SPSS, Version 25, to unviel the relations of the dependent and independent variables Pearson's product correlation movement for the specific objectives number one, two, and three, and for the last objective of this study the researcher used multiple linear regression model, it's because of the unique character of the objective which determines the prediction capacity of goal-related, offensive-related, and defensive-related variables on the soccer success or match outcome (win, draw and loss). multiple linear regression was applied to determine the prediction capacity of the variables on the dependent variable. Test of data normality and Multi- Colinearity tests were conducted.

CHAPTER FOUR

RESULTS AND INTERPRETATION

4.1. Results and Interpretation

This chapter includes the result section of the data and its interpretation in all objectives and groups onto goal-related variables with match outcome, offensive-related variables with match outcome, and defensive-related variables with match outcome classified as group stage games and knock-out stage games. For the following tables Statistical tests were significant if p < .05.

Table 1

The Relationship of Goal-Related variables with match outcome at Group Stage Games

		Shot on-target	Total shot
Match outcome	Pearson Correlation	.423[*]	.212
	Sig. (2-tailed)	.039	.319
	N	24	24

There is a moderate correlation between match outcome and shot on target with r (22) =.423, p = .039. But, there is no correlation between match outcome and total shot (Table 1).

Table 2

The Relationship of *Goal-Related variables with match outcome at knock-out games*

		Total shot	Shot on target
Match outcome	Pearson Correlation	.316	.259
	Sig. (2-tailed)	.089	.167
	N	30	30

Total shot, and shot on target were not significantly correlated with match outcome (Table 2).

Table: 3

The Relationship of offensive-related variables with match outcome at group stage games

		Shot Accuracy	Possession	Total Pass	Pass Accuracy	Crosses	Cross Accuracy	Corners
Match outcome	Pearson Correlation	.082	.157	.167	.104	.176	.409*	.111
	Sig. (2-tailed)	.703	.463	.435	.629	.411	.047	.605
	N	24	24	24	24	24	24	24

The variables Shot Accuracy, , Possession, Total Pass, Pass Accuracy, Crosses, and Corners, all these variables are not significantly correlated. But, there is a correlation between match outcome and Cross Accuracy $r(22) =.409$, $P= .047$ (Table 3).

Table 4

The Relationship *of offensive-related variables with match outcome at knock-out stage games*

		Shot accuracy	Posses sion	Total passes	Pass accuracy	Cross es	Cross accuracy	Corne rs
Match outcome	Pearson correlation	.093	.246	.101	.253	.069	-.087	.101
	Sig. (2-tailed)	.624	.190	.595	.178	.718	.646	.596
	N	30	30	30	30	30	30	30

Shot accuracy, Possession, Total passes, Pass accuracy, Crosses, Cross accuracy, and Corners have no significant correlation (Table 4).

Table 5

The relationship of defensive –related variables with match outcome at group stage games

		Tackle	Tackle succes s rate	Interceptio n	Clearance	Total Duels	Duels success rate	Aerial Duels Won	Recovery
Match outcome	Pearso n Correla tion	.177	-.333	-.034	.009	-.072	.395	.291	.234
	Sig.(2-tailed) N	.409 24	.112 24	.873 24	.966 24	.736 24	.056 24	.168 24	.270 24

Tackles, Tackles Success rate, Interception, Clearance, Total Duels, Duels success rate, Aerial

Duels Won, and Recoveries have no significant correlation with match outcome (Table 5).

Table 6

The relationship of defensive–related variables with match outcome at knock-out games

		Tackles	Tackle success rate	Interceptions	Clearances	Total duels	Duels success rate	Aerial duels won	Recoveries
Match outcome	Pearson Correlation	-.036	-.178	-.044	-.088	-.045	.061	.373[*]	.009
	Sig. (2-tailed)	.849	.347	.817	.645	.813	.748	.042	.961
	N	30	30	30	30	30	30	30	30

Tackles, Tackles Success rate, Interception, Clearance, Total Duels, Duels success rate, and

Recoveries has no correlation with match outcome. On the other hand, Aerial Duels Won

r(28)=.373, p=.042, has a significant correlation with match outcome (Table 6).

Table: 7

Summary for match outcome and Covariates

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.702[a]	.493	.386	1.201

a. Predictors: (Constant), Shot on-target, Aerial duels won, Cross Accuracy

R- Square = .493, then 49.3 % of of variance in the winning status (match outcome) can be explained by shot on target, aerial duels won and the number of cross accuracy.

Adjusted R- square = .386, this implies that 38.6 % of the variation in the amount of winning status (match outcome) is explained by the regression model.

The regression results R^2 and the adjusted-R^2 statistics of the model were 49.3%, and 38.6% respectively. These results are intended to show how well does the model containing the explanatory variables that can explain variations in the match outcome variable and usually known as the goodness of fit statistics are used to test how well the sample regression function fits the data, that is, how 'close' the fitted regression line is to all of the data points taken together(Table 7).

Therefore the adjusted R^2 value 38.6% indicates that the winning status (match outcome) of the game in AFCON 2021 is well explained by the shot on-target, cross accuracy ,and aerial duels won.

Table: 8

ANOVA table for wining status

ANOVA

	Model	Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	26.616	4	6.654	4.617	.009
	Residual	27.384	19	1.441		
	Total	54.000	23			

a. Dependent Variable: Match outcome

b. Predictors: (Constant), Shot on-target, Aerial duels won, Cross Accuracy

H_0: the overall regression coefficients are insignificant. i.e. All parameters value of regression coefficients is equal to zero.

H_1: the overall regression is significant, i.e. at least one regression parameter is different from zero.

Since p-value = .009 is less than 5%, so, reject H_o which is the overall regression model is significant. The dependent variables (match outcome) taken together have a statistically significant relationship with the Shot on-target, Aerial duels won, Cross Accuracy variables. That is the regression expresses the relationship between the match outcome and the predictors such as Shot on-target, Aerial duels won, and Cross Accuracy are statistically significant with winning status (Table 8).

Table: 9

Multiple linear regression analysis of match outcome in AFCON 2021

						95% Confidence Interval for B		Collinearity Statistics	
	Unstandardized Coefficients		Standardized Coefficients						
Model	B	Std. Error	Beta	T	Sig.	Lower Bound	Upper Bound	Tolerance	VIF
1 (Constant)	.731	1.700		.430	.672	-2.827	4.289		
Aerial duels won	.040	.014	.470	2.773	.012	.010	.070	.929	1.076
Cross Accuracy	-.029	.043	-.131	-.662	.516	-.119	.062	.685	1.459
Shot on-target	.268	.111	.475	2.411	.026	.035	.501	.688	1.454

As the independent variables, Aerial duels won, and Shot on-target has a p-value less than 5% then to conclude, these variables are significant factors for match outcome (winning status) for the AFCON 2021 (Table: 9). This is written in the following equation.

Match outcome (winning status) $= \beta_0 \ (constant) + \beta_{\text{Aerial duels won}} + \beta_{\text{Shot on-target}}$

Match outcome (wining status) = .731 + .04 Aerial duels won + .268 Shot on-target.

Interpretation of regression coefficients

Coefficients indicated how much the match outcome variable varies with shot on-target and aerial duels won variables when all other independent variables are held constant. The beta coefficients indicated how and to what extent shot on-target and aerial duels won influence the match outcome variable.

As Aerial duels won increased by one unit the winning status of the team was increased by .04 when the other factor in the model was considered constant.

When the Shot on-target increased by one unit the winning status (match outcome) of the team was increased by .268 when the other factor in the model becomes constant

Test of Normality

Normality is tested by a graphical method using the histogram. That means the graph is normally distributed with mean and variance.
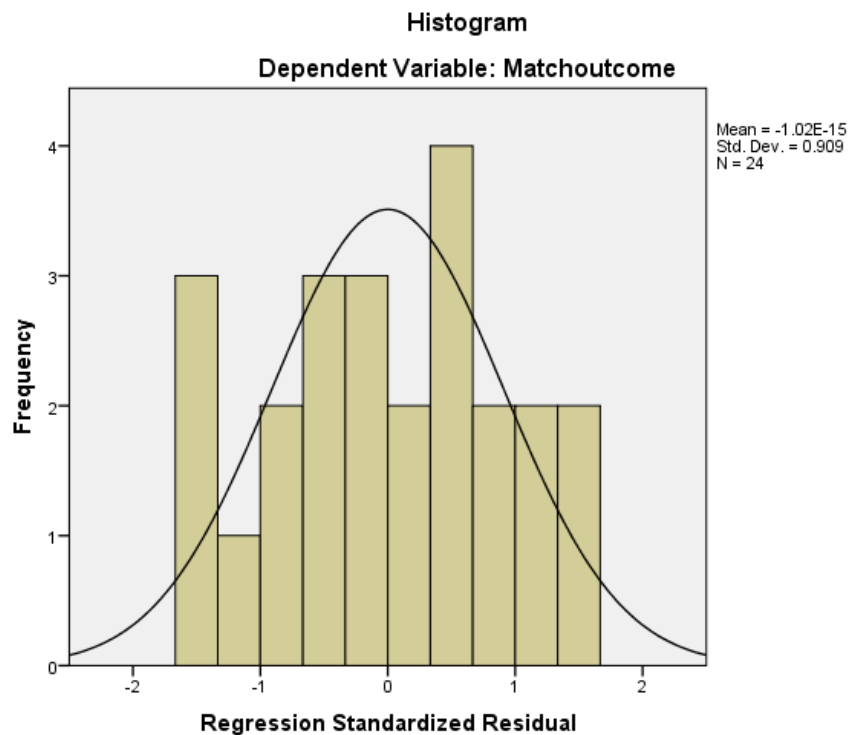

Figure **1**: Histogram of regression standardized residual

The error term is normally distributed with mean μ and variance sigma squared (Figure 1). Thus, the assumption of normality is satisfied.

Test of Linearity

It indicates the relationship between dependent and independent variables should be linear.
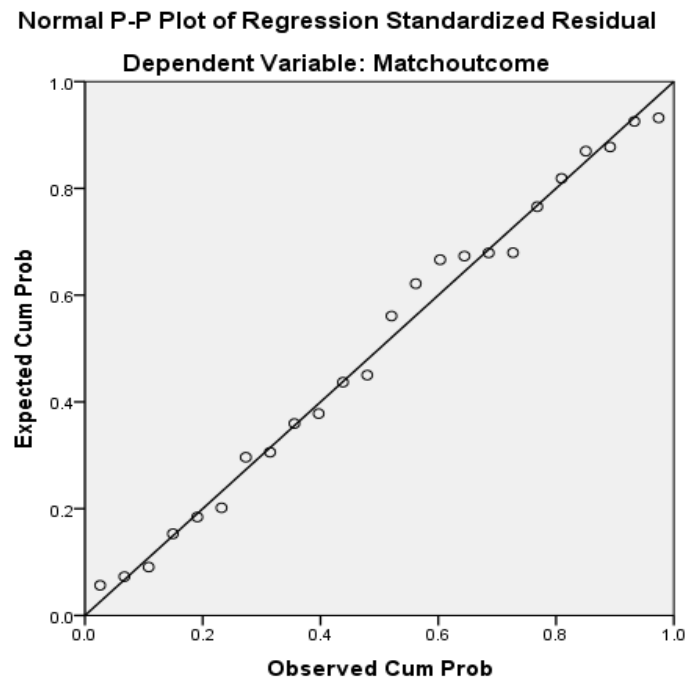

Figure 2: Normal probability plot of standardized residual

The P-P plot graph indicates that all observations are the lies approach to the line which means the relationship between dependent and independent variables is linear (Figure 2). Due to this reason linearity assumption of the data was approximately satisfied.

Test of no Multi-co linearity

The study uses the VIF as an indicator of multi-co linearity. The larger values of VIF the more collinear the variables. As the rule of thumb, if the VIF of a variable exceeds 10, that variable is said to be highly collinear. That means VIF is greater than 10 in the presence of multi-co linearity The VIF of all independent variables is less than 10, which indicates that no multi-co linearity between them, so from this, we conclude that the assumption of no multi-co-linearity was fulfilled (Table 9).

CHAPTER FIVE

DISCUSSION AND IMPLICATION

5.1. Discussion

The purpose of this study was to gain a better understanding of technical-tactical proficiency and its linkage with match outcome. Quantitative analysis of game actions can play an important role in detecting priority areas in the training of the team, and is a crucial step in observing their team players' and opponent's team performance with an objective-based measurement.

In recent years, determining the success criteria for soccer teams has been one of the prominent research topics in the scientific community (Bilek & Ulas, 2019; Kubayi & Toriola, 2020a; Young et al., 2019; Zhou et al., 2020). One of the main goals of sports science is to clarify the strategic performance objectives of teams and examine the indicators that improve their competitive outcomes (McGarry, 2009; Rizvandi et al., 2019). In this context, statistical analysis of team performance will provide soccer players and coaches with the opportunity to re-evaluate their performance (Kubayi & Toriola, 2020a; Liebermann et al., 2002). In the past decade, some authors tried to identify a winning profile, but all of those studies were restricted to observing and comparing single factors across winning and losing teams.

Technical-tactical elements are vital for soccer. Even though other issues are there like the physical and psychological which are not discovered in the current study, the study discovered technical-tactical elements and success, success in terms of match outcomes, a total of 17 variables were discovered and analyzed by grouping the variables as goal-related, offensive-related and defensive related technical-tactical actions. The analysis was done by dividing the games into the group stage and knock-out games. This was done because of the different number of games played by the teams as some teams goes to the knock-out stage and some left there in

the group stage. At the group stage level, the total numbers of games were 36 and all the games starting from the knock-out stage up to the final games were grouped into one as knock-out games, totally 15 matches. It was critical to divide the games as group stage and knock-out stage, because the playing style at the group stages and the knock-out games might not be the same. Relationships between match performance statistics and the match outcome in games of the AFCON 2021 tournament matches were identified by using the person's correlation coefficient, and their prediction capacity was also analyzed using multiple linear regression model.

The discussion part has subdivisions based on the study objectives and considering the study variables as goal-related, offensive-related, and defensive-related. This part of the paper also considers how these aforementioned variables relate with match outcome at the group stage games and also at the knock-out stage games.

There is a correlation between match outcome and shot on target. But, no correlation between match outcome and total shot. To this point of view, any attempt to shot has no correlation with match outcome unless it's on target. This finding goes in parallel with the previous study that confirm on-target shot (Moura et al., 2013) is a parameter that discriminate winning and losing. Similar studies, shots on-target were associated with the winning in soccer matches (Castellano et al., 2012; LagoPeñas et al., 2010, 2011; Liu et al., 2015; Yue et al., 2014). On the contrary, Winning teams had more shots and shots on target than losing and drawing teams (kubayi & ToriOla, 2020). These findings corroborate those of Lago-Peñas et al. (2010). Also, Szwarc (2004) found that finalist teams made more shots than unsuccessful teams during the 2002 FIFA World Cup in Korea/Japan. Similar results have been reported by Armatas et al. (2009), who found that top teams made more shots compared to the bottom teams in the Greek First Division. To this end, the null hypothesis is rejected.

Cross Accuracy has a significant correlation with match outcome. But, the variables Shot Accuracy, Possession, Total Pass, Pass Accuracy, Crosses, and Corners do not significantly correlate with match outcome. This indicates that the in the AFCON 2021 championship direct play was more successful than a possession based indirect/build up play. However, in previous studies, Kubayi & Toriola (2019) reported that the losing teams had higher ball possession than the winning teams in the South African Premier Soccer League. On the other study, no significant differences were found between the winners and losers in terms of the accuracy of passes and ball possession (Kubayi & Larkin, 2022).While a previous study has found that for the European teams, passing accuracy is strongly linked with holding on to the ball (Collet, 2013), for African matches, the ball possession does not define the successful team performance (Kubayi & Toriola, 2019). Bradley et al. (2014) also found that dominant teams in the European competitions have adopted a possession style of play, suggesting that they prefer to "control" the game by dictating the play, but if a team is unable to retain the ball possession, a "direct" style of play might be a more appropriate game tactic. This direct style quickly takes the ball into shooting positions, thereby possibly creating more goal-scoring opportunities (Kite & Nevill, 2017). On the contrary, another study that found a poor relationship between ball possession and success was the work of Gama et al. (2016) discovered that in the Portuguese Premier League of 2010/2011, the amount of ball possession did not correlate with match outcomes.

when observing two teams of different skill levels, the weaker ones perform more passes and less dribbling Possession and passing success (Castellano et al., 2012), passing (Moura et al., 2013) are the common parameters that distinguish winning and losing teams. Furthermore, the number of crosses and the success rate of crosses are among those success predicting variables. Successful passing in modern soccer has been noted as one of the crucial preconditions in

becoming a successful team at the highest levels of the game (Jankovic & Leontijevic, 2006). Match statistics related to winning in national team competitions were slightly different from those previously identified for club competitions (Lago-Peñas et al., 2010, 2011; Tenga et al., 2010a, 2010b, 2010c; Yue et al., 2014). This finding supports the current study findings. Finally from the offensive–related variables cross accuracy has relation with match outcome at the group stage games at AFCON 2021 games (both for group stage and knock-out stage). To this end, the null hypothesis is rejected.

Tackles, Tackles Success rate, Interception, Clearance, Total Duels, Duels success rate, and Recoveries, these variables has no correlation with match outcome. On the contrary, the winning team performed more interceptions, clearances, aerial challenges (Sarmento et al., 2014). On the other hand, Aerial Duels won, has a significant correlation for knock out stage games but not for group stage games. Similarly previous research findings, the great amount of clearance is not a sign of success in soccer game pattern rather the inverse one (Liu et al., 2016). Furthermore, winning teams were more likely to dominate the defensive actions which led to more controlled possessions with tactical clearances with fewer tackle action. On the contrary, the larger the number of clearances; the larger chance of winning (Almeida et al., 2014; Taylor et al., 2008). To this end, the null hypothesis is rejected. .

As Aerial duels won increased by one unit the winning status of the team was increased by .04 (4%) when the other factor was considered constant. When the Shot on-target increased by one unit the winning status (match outcome) of the team was increased by .268 (28.6%) when the other factor in the model becomes constant. Adjusted R^2 value was 38.6% indicates that the dependent variable of winning status (match outcome) of the game, in AFCON 2021 is well explained by the independent variables. These results are in agreement with those of Liu et al.

(2015), who found that winners at the 2014 FIFA WC showed that shots on target increased the chance of victory by 48%. In addition, a previous study found similar results, suggesting that both shots on target are crucial to winning in 2002, 2006, and 2010 FIFA WC competitions (Castellano et al., 2012).

The current study finding goes parallel with; technical indicators more accurately predict the success of a team (Carling, 2013). Aerial Advantage showed a clearly positive effect (26%) on the probability of wining for all the games and a trivial effect for close games. Aerial duels are fighting for long passes and crosses (Liu et al., 2013); more aerial duels occurs means that there were more long passes and crosses in match. The present result may reflect that dominating the aerial duels in long passes and crosses can bring a higher probability of winning in general, but this "winning formula" in aerial duels does not work in close matches probably because the closer the match was, the lower frequency of long passes and crosses occurred. To this end we reject the null hypothesis.

5.2. PRACTICAL IMPLICATION

The research finding has a practical implication on the Africa's soccer system and the playing styles of the national teams to suggest working on the development of Shot on-Target, cross accuracy, and aerial duels to get the better result from the game. To make this real and to be successful in soccer the coaches and coaching those works under performance analysis and technical-tactical analysts should give emphasis for such issues.

The research gives evidence –based findings for the coaches and performance analysts about the national the game related actions and their relation with match results and the playing style of national teams in Africa.

CHAPTER SIX

CONCLUSION

6.1. Conclusion

Shot on-target, Cross accuracy, and Aerial duels won have correlations with soccer match outcome but most of the variables were not correlated with match outcome as we seen in the correlated variables African soccer cultures are most dominantly playing with direct style of play. As a result most of the African soccer matches are dominated by physical qualities. And also the variables shot on-target, and aerial duels won have the prediction capacity of soccer match outcomes. So, the match outcomes are dependent on the actions happened in the actual time.

Finally, to be successful in soccer matches efficiency is the most important issue than just scoring higher numbers in game related technical-tactical actions. In addition, AFCON 2021 championship games are different in many aspects than European leagues or their national team's matches. This might be happens because of the level, style of play, and cultural differences of soccer

6.2. Limitation of the Study

Due to the lack of the accessible data this study has limitations of not taking into consideration the physical fitness/exertion and psychological variables as determinants of soccer match outcomes. And taking only males AFCON 2021 matches which limit its generalization for other settings and contexts.

6.3. Recommendation

Technical-tactical elements are vital for soccer. Coaches and performance analysts should give enough emphasis for shot on target, cross accuracy, and to win aerial duels because the results show these variables have the significant association and capacity to predict the match outcomes. The researcher suggests to future researchers to fill the gaps in the area of performance analysis and success predictors in Africa's' soccer based in scientific evidence and practical works.

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Appendix

Due to the nature of the data the researcher couldn't put the raw data in the appendix. However, all the

data are available here on the following website which is the official OPTA sports data company. If any

one want to get the data click the attached link and go to match center then you can access the data.

https://the analyst.com/na/2022/01/afcon-2021-stats-hub/