

Analysis of Goal Scoring in All Continent Soccer Tournament

Mohd Faridz Ahmad^{1*}, Sharifah Maimunah Syed Mud Puad²,
Aishah Nadirah Mohamed Alauddin³

¹ Faculty of Sports Science and Recreation, Universiti Teknologi MARA, 02600 Arau, Perlis, Malaysia

^{2,3} Faculty of Sports Science and Recreation, Universiti Teknologi MARA, 70300 Seremban, Negeri Sembilan, Malaysia

Authors' Email Address: *¹faridzahmad@uitm.edu.my, ²shari0971@uitm.edu.my,
³aisha8734@uitm.edu.my

Received Date: 30 April 2020

Accepted Date: 24 June 2020

Published Date: 31 July 2020

ABSTRACT

The objective of this study was to analyze and quantify the goals scored between first half and second half period in all continent soccer tournaments. This study performed quantitative study that examined 713 goals from 290 matches at seven different soccer tournaments been analyzed from FIFA official website, all continents official websites and by using the goals scoring highlights from YouTube. The results showed that majority of the tournaments score more goals during second half. According to tournament, Gold Cup 2019, World Cup 2018, EURO 2016, AFCON 2019, Copa America 2019 and lastly Asian Cup 2019 showed that more goals been scored during second half while in contrast only OFC Cup 2016 showed more goals had been scored in first half. As summary, as the time moving towards an end of the match, player's fitness components, mental aspect and coach's tactical become the main factor that needs to be focus by coaches and other coaching team as the players started to fatigue mentally and physically.

Keywords: soccer, FIFA, goals, first half, second half

INTRODUCTION

Soccer is one the most influential and attractive sports at the international level (Aguiar, et.al, 2012; Barengo, et.al, 2014; Qader, et.al, 2017) and is played by male, female and children of different classes of expertise (Stølen, et.al, 2005). Around 1.4 billion of world population have passion towards this sport (Giulianotti & Robertson, 2004) and the International Federation of Football Association (FIFA) estimated more than 270 million players (Brito, et.al, 2012; Turner & Stewart, 2014) including 29 million female players (Scott & Andersson, 2013) and 5 million officials are actively involved in the game (Kunz, 2007). Apart from that, the numbers of youth soccer players are increasing with the number of registered players as reported by Kunz (2007). It has been reported that FIFA World Cup tournament had attracted approximately more than 3 billion people to watch it (FIFA, 2015) with excitement (Phukan, Singh & Thapa, 2015).

FIFA is an organization that is responsible for organizing major soccer tournaments such as FIFA World Cup, the largest and highest sporting competition which is held every four years (<https://www.fifa.com/>)

and currently, the final phase of this tournament would involve 32 national qualified teams (Figueiredo, Gonçalves & Tessitore, 2014). Other tournaments also include the Asian Cup (Asian continent - every 4 years), Africa Cup of Nations / AFCON (Africa continent - every 2 years), Copa América (South America continent - every 2 years), CONCACAF Gold Cup / Gold Cup (North America continent - every 2 years), Oceania Nations Cup / OFC Cup (Oceania continent - every 4 years), and European Championship / EURO (Europe continent - every 4 years) (<https://www.fifa.com/>).

In soccer, goal can determine a winner as the team has to score consistently (Njororai, 2013) and has to score more than their opponents do. Scoring goals in soccer is the most stimulating and sensational aspects of the game (Muhammad, Norasrudin & Rahmat, 2013; Mal, 1982; Mayes, 1975) and one of the important elements for the teams to achieve victory (Cachay & Thiel, 2000). Goal scoring difference reveals the offensive and defensive efficacy of a team and directly determines its overall performance (Evangelos, Gioldasis, Ioannis & Georgia, 2018). Mombaerts (2000) stated that scoring the goal is the most important and can be considered as a peak point of the game as it can determine the winners of the match. Playing effectiveness in soccer is mainly about the way goals are being scored which become the most waited moment in the game and can differentiate between successful and unsuccessful teams (Reep & Benjamin, 1968; Carling et al., 2005; Hughes and Franks, 2005). In another point of view, soccer spectators love to see their favourite teams scoring goals and also watch on how the scorers celebrate their goals in their own style (Njororai, 2013). The world cup soccer tournament is the ultimate reflection of the development and level of modern soccer (Njororai, 2013).

To our knowledge, there is a lack of study that analyzes the goals between 1st and 2nd half throughout all continents. Therefore, this study aims to analyze and quantify the goals scored between first half and second half period in all continent soccer tournaments.

METHODOLOGY

In order to carry out the study, 713 goals from 290 matches in 7 different soccer tournaments namely FIFA World Cup 2018, Asian Cup 2019 AFCON 2019, Copa América 2019, Gold Cup 2019, OFC Cup 2016 and EURO 2016 were analyzed. The data were obtained from the database on the websites of the official federations that are Federation International Football Association – FIFA (www.fifa.com), Asian Football Confederation – AFC (www.the-afc.com), Confédération Africaine de Football – CAF (www.cafonline.com), Confederación Sudamericana de Fútbol – CONMEBOL (www.conmebol.com), The Confederation of North, Central America and Caribbean Association – CONCACAF (<http://www.concacaf.com>), Oceania Football Confederation – OFC (<http://www.oceaniafootball.com>), Union des Associations Européennes de football – UEFA (www.uefa.com), and using goals highlights from YouTube through official overviews of the games. All these tournaments were selected based on the current edition tournaments that were organized in their respective continents.

This study was developed through the variable analysis of the frequency of goals scored by game time between first and second half in all continent soccer competition (first half + injury time & second half + injury time). The goals scored after 90 minutes of match played had been ignored.

Then the results of this study used descriptive statistics, consisting of frequency distribution. Statistical data were reproduced with ratio of goal per match between half, number of goals between half and the percentage of goals between half across the continents.

RESULT

Table 1: Summary of goals ratio, goals scoring and goals percentage between half

	1 st Half	2 nd Half	After Extra Time (AET)	Total
Goals Ratio (per match)	1.03	1.40	0.03	2.46
Goals	298	407	8	713
Percentage	41.80%	57.08%	1.12%	100%

According to Table 1, it shows that goals ratio, goals scoring and goals percentage are higher at the second half compared to first half where goal ratio is 1.03 goals per match at first half, 1.4 goals per match at second half and only 0.03 goals per match during extra time. Goals scoring for second half was higher with 407 goals as compared to first half (298 goals) and AET (8 goals). For goals percentage, second half produce higher percentage with 57.08% compare to first half with 4.8 % and AET with 1.12%.

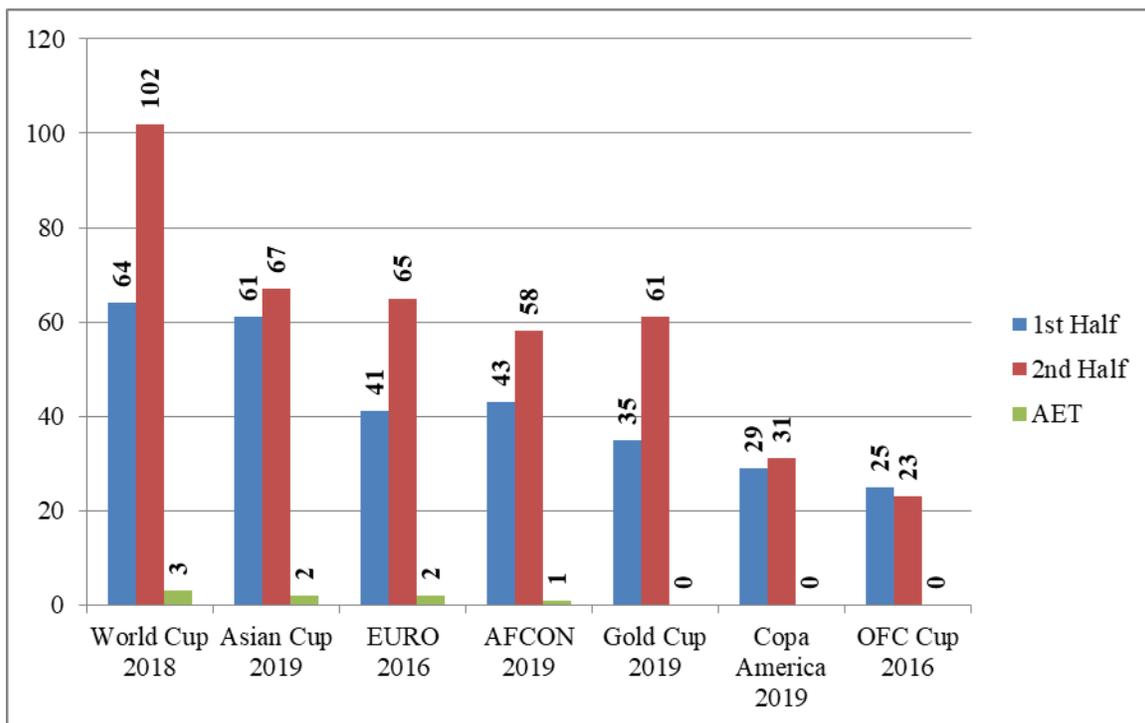


Figure 1: Goal scoring division between half according to tournament

Referring to Figure 1, World Cup 2018 tournament scored the most goals with 64 goal during 1st half, 102 goals during 2nd half and only 3 goals were scored during extra time (ET). This is followed by the Asian Cup 2019 tournament with a total of 130 goals (61 goals from 1st half, 67 goals from 2nd half and 2 goals during extra time), EURO 2016 with a total of 108 goals (41 goals from 1st half, 65 goals from 2nd half and 2 goals from ET), AFCON 2019 with a total 102 goals (43 goals from 1st half, 58 goals from 2nd half and 2 goals from ET), Gold Cup 2019 with a total of 96 goals (35 from 1st half and 61 goals from 2nd half), Copa America 2019 with a total of 60 goals (29 goals from 1st half and 31 goals from 2nd half), and the OFC Cup 2016 with a total of 48 goals (25 goals from 1st half and 23 goals from 2nd half).

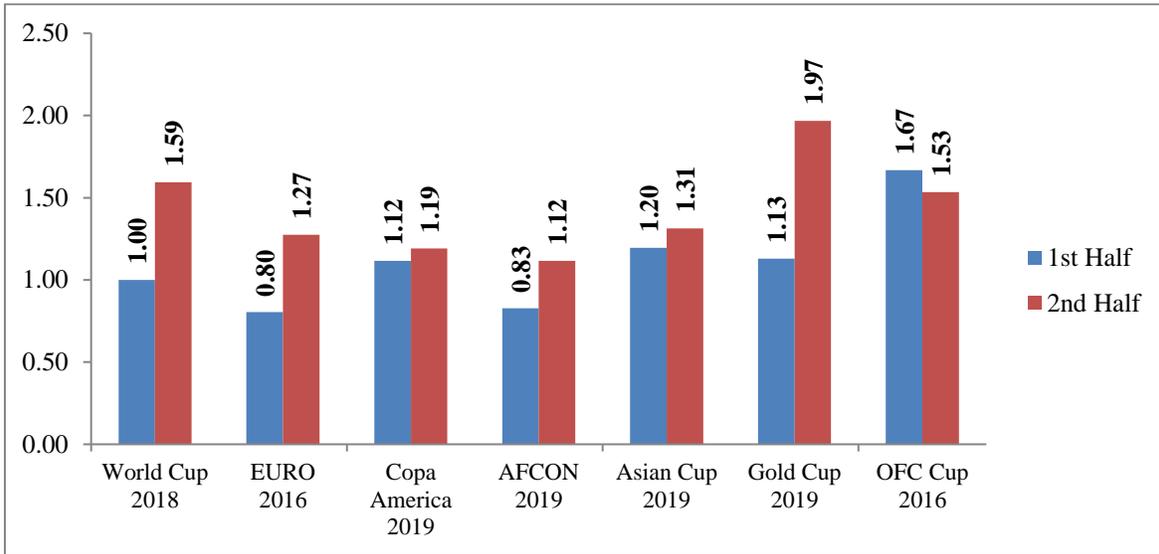


Figure 2: Goals per match between half according to tournament

Figure 2 shows the goal scoring per match at each half of all the competitions. The highest goal-scoring ratio per match for first half was OFC Cup 2016 with 1.67 goals per match. This is followed by Asian Cup 2019 (1.2 goals per match), Gold Cup 2019 (1.13 goals per match), Copa America 2019 (1.12 goals per match), World Cup 2018 (1 goal per match), AFCON 2019 (0.83 goal per match), and lastly EURO 2016 with 0.8 goal per match.

For the second half time, the highest goal ratio per match was recorded in Gold Cup 2019 with 1.97 goals per match, followed by World Cup 2018 (1.59 goals per match), OFC Cup (1.53 goals per match), Asian Cup 2019 (1.31 goal per match), EURO 2016 (1.27 goals per match), Copa America 2019 (1.19 goals per match), and lastly the AFCON 2019 (1.12 goals per match).

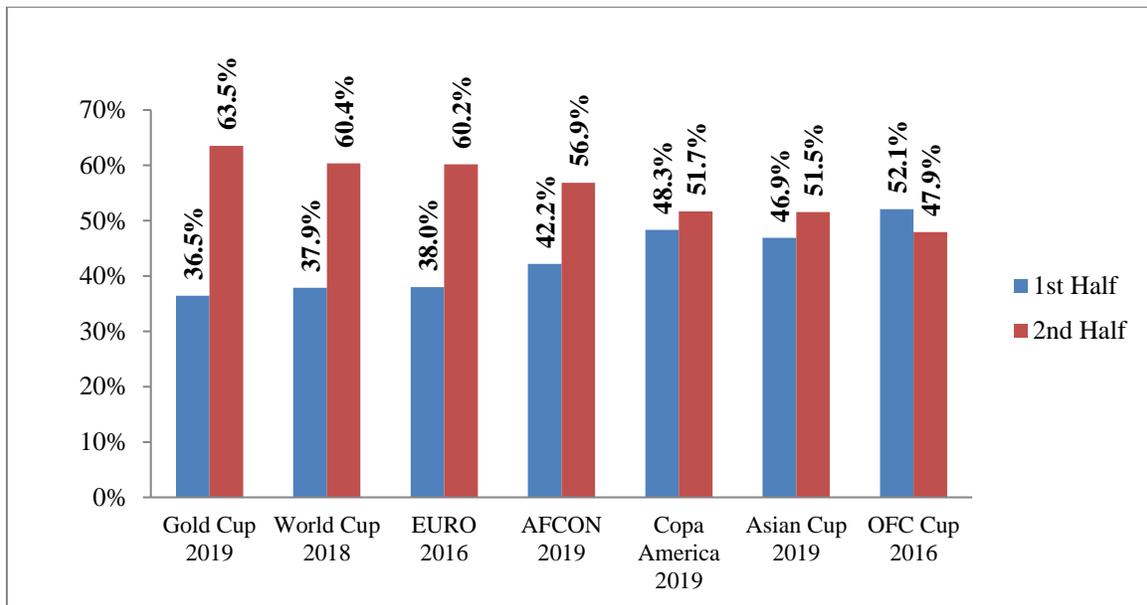


Figure 3: Percentage of goal scoring between half according to tournament

By referring to Figure 3, majority of the tournaments showed more goal scoring percentage at second half begin with Gold Cup 2019 with 63.5%, followed by World Cup 2018 (60.4%), EURO 2016 (60.2%), AFCON 2019 (56.9%), Copa America 2019 (51.7%), and lastly Asian Cup 2019 with 51.5% while only OFC Cup 2016 tournament showed more goals scored in first half with 52.1%.

DISCUSSION

The objective of this study is to analyze and quantify the goals scored between first half and second half period in all continent soccer tournaments. As mentioned in the result, majority of the tournaments such as Gold Cup 2019, World Cup 2018, AFCON 2019, Copa America 2019, and Asian Cup 2019 show that the teams scored more percentage of goals in the second half compared to the first half. The findings of this study are in line with previous study by Gral (2016) on u-20 World Cup 2013 tournament when previous study found that 53.94% of goals were scored during the second half of the matches. In addition, this study also found a similar finding with EURO 2012 tournament when most goals were scored during the second half of the game (Leite, 2013; Muhammad, Norasrudin & Rahmat, 2013). Surprisingly, only OFC Cup 2016 tournament showed that more goals come from first half compared to second half.

Soccer is characterized by its different types of activities, which include standing, walking, sprinting, low- and high-intensity movement (Nyber, et.al, 2016). During a 90 minutes match play, elite players covered approximately 10 - 11 km distance, change the activity on average every 5 seconds and perform approximately 1,300 actions, with 200 from that was high intensity movement (Mohr, Krusturp & Bangsbo, 2003). Due to that, as the time progress towards the end of the game player's physical and mental conditions started to fatigue. According to Muhammad, Norasrudin and Rahmat (2013), the reduction in physical and mental condition of the players will lead to poor physical performance and fatigue. Previous study also support that, the increments of goal scoring in second half of matches is attributed to pronounced physiological weakening of defenders as compared to forwards (Reilly, 1994;

Njororai, 1996a,c, 2004, 2007a,b). This is supported by the previous study which stated that as the game moving to second half defenders experienced larger amount of energy depletion (Armatas et al., 2007a, b; Reily, 2003). Another possible explanation was accumulated fatigue and urgency to score toward the end of game, especially if a team is drawing or a goal down (Alberti, et.al, 2013) lead more goal to be scored during second half. Study by Nepfer (1992, 1998) also attributed that scoring more goals towards the end of a match are related to good or poor physical condition, lack of concentration in defensive area due to mental and physical fatigue and all or nothing efforts to decisively influence the outcome. In addition, lack of concentration also lead to the highest goal scoring in second half where it can easily lead to defensive errors. Previous study also stated that lack of concentration throughout the match is one of critical factors that contributed to the increment of goal scoring during second half (Armatas et al., 2007a, b; Reily, 2003) where Leite (2015) stated that besides the physical exhaustion, it can certainly cause the psychological strain on the players.

Other than that, changing in tactical strategy can also contribute to goal scoring. The losing team will increase their effort to catch up on their goal scores. This would indirectly increase the intensity of the game and put heightened pressure towards opposing team to make defensive errors. Previous study stated that the tactical factors such as the role of the losing players plays an important role in this situation (Armatas et al., 2007a, b, Reily, 2003). Increasing the players' intensity to score a goal (Armatas et al., (2007a, b; Armatas, et.al, 2009) can also increase the defensive errors (Armatas et al., 2007a, b). As a result, this would create opportunities for the team to score a goal and for the opponent to concede more (Armatas, et.al, 2009). Previous studies by Bradley, Lago-Peñas and Rey (2014) concluded that high-intensity running was greater at substitutes players when been compared with other players who either playing a full-time or been substitute especially at the offensive area that covered more high-intensity running than their mates or their own performances when completing the entire match.

CONCLUSION

In summary, majority of major soccer tournaments in the world tend to score more goals during the second half of the match. Therefore, as the time goes nearer to the end of the match, players' fitness components, mental aspect and coaches' tactical plan become the main factor that needs to be the focus of the coaches as the players would start experiencing fatigue-ness, both physically and mentally. Future research needs to publish a discussion on how the goals have been scored.

ACKNOWLEDGEMENTS

This study is extremely grateful to UiTM Library E-Resources as the main search engine to find the articles.

REFERENCES

- Alberti, G., Iaia, F., M., Arcelli, E., Cavaggioni, L. & Rampinini, E. (2013). Goal scoring patterns in major European soccer leagues. *Sport Sci Health.*, 9(3):151-153.
- Armatas, V., Yiannakos, A., & Sileloglou, P. (2007a). Relationship between time and goal scoring in soccer games: Analysis of three world cups. *International Journal of Performance Analysis in Sport*, 7 (2), 48 – 58.

- Armatas, V., Yiannakos, A., Galazoulas, C. & Hatzimanouil, D. (2007b). RGoal scoring patterns over the course of a match: Analysis of Woman's high standard soccer matches. *Physical Training*, January, p.1, 1p.
- Bradley, P. S., Lago-Pe-as, C., & Rey, E. (2014). Evaluation of the match performances of substitution players in elite soccer. *International Journal of Sports Physiology and Performance*, 9(3), 415-424.
- Cachay, K. & Thiel, A. (2000). *Soziologie des Sports*. München: Juventa-Verlag.
- Carling, C., Williams, A. M., & Reilly, T. (2005). *Handbook of soccer match analysis. A systematic approach to improving performance*. London and New York: Routledge Taylor & Francis Group.
- Evangelos, B., Gioldasis, A., Ioannis, G. & Georgia, A. (2018). Relationship between time and goal scoring of European soccer teams with different league ranking. *Journal of Human Sport & Exercise*, 3(13), 518-529.
- FIFA. 2014 FIFA World Cup™ reached 3.2 billion viewers, one billion watched final- Recent findings, 2015. Available at <http://www.fifa.com/worldcup/news/y=2015/m=12/news>. Accessed on 20.06.2017
- Göral, K. (2016). FIFA U-20 World Cup 2013: Analysis and Evaluation of Goals Scored. *Revista Brasileira de Futsal e Futebol*, 8 (29-38.)
- Hughes, M. & Franks, I. (2005). Analysis of passing sequences, shots and goals in soccer. *Journal of Sports Sciences*, 23, 509-514.
- Lastella, M., Lovell, G., P. & Rampinini, E. (2018). Evaluation of Goal Scoring Patterns Between the 2016 Copa America and the 2016 European Championship. *Asian J Sports Med*, 9(1), 1-4.
- Leite, W. (2015). The influence of the first goal on the final result of the football match. *Baltic Journal of Sport & Health Sciences*, 3(98), 29–35.
- Mal, B. (1982). Scoring Ability in Football. *SNIPES Journal*, 5 (2), 19-23.
- Mayes, H. (1975). Goals are News. *Football News*, 1 (12), December, 36-37.
- Mohr, M., Krustup, P. & Bangsbo, J. (2003). Match performance of high-standard soccer players with special reference to development of fatigue. *J Sports Sci.*, 21(7), 519-528.
- Mombaerts, E. (2000). *Fútbol: del análisis del juego a la formación del jugador*. Barcelona: Inde.
- Nepfer, J. (1992). *Barcelona '92: Technical Report*. Zurich: FIFA.
- Nepfer, J. (1998). *Technical Report: FIFA World Cup France '98 10 June – 12 July*. Zurich: FIFA.
- Njororai W. W. S. (2007a). More than physical: Technical ability and personality traits also are factors in performance. *Soccer Journal*. September/October, 14- 18.
- Njororai W. W. S. (2007b). Scoring Goals: What the coach should know about the timing. *Soccer Journal*. November/December, 34- 36.
- Njororai, W. W. S. (1996a). Analysis of goals scored in the USA '94 World Cup soccer tournament. In L. O. Amusa, M. Wekesa & A. L. Toriola (eds). *The making of an African athlete: A multidisciplinary approach*. Proceedings of the 2nd Conference of the Africa Association for Health, Physical Education, Recreation, Sports and Dance, 8-13 September, 1995, pp. 129-134. Gaborone, Botswana: AFAHPER_S.D.
- Njororai, W. W. S. (2004). Analysis of the goals scored at the 17th World Cup Soccer Tournament in South Korea- Japan 2002. *AJPHRD*, 10(4), 326-332.
- Njororai, W., W., S. (2013). Analysis of goals scored in the 2010 world cup soccer tournament held in South Africa. *Journal of Physical Education and Sport*, 13(1), 6 – 13.
- Nyberg, M., Fiorenza, M., Lund, A., Christensen, M., Rømer, T., Piil, P., Hostrup, M., Christensen, P., M., Holbek, S., Ravnholt, T., Gunnarsson, T., P. & Bangsbo, J. (2016). Adaptations to Speed Endurance Training in Highly Trained Soccer Players. *American College of Sports Medicine*, 1355-1364.
- Phukan, S., Singh, O., J. & Thapa, S., K. (2015). Analysis of goal scoring pattern at Inter College Football Tournament. *International Journal of Applied Research*, 1(8), 219-220.

- Reep, C. & Benjamin, B. (1968). Skill and chance in association football. *Journal of Royal Statistical Society, Series A*, 131, 581-585.
- Reilly, T. (1994). Physiological Aspects of Soccer. *Biology of Sports* 11, 3-20.
- Reily, T. (2003) "Motion analysis and physiological demand". In T. Reilly, J.Bangsbo, and M. Hughes (Eds). *Science and Football III*. E. & F. Spon, London, pp. 64-81.