

The Relationship between Shot on Goal Level and the Final Results of Soccer Matches in the 2021 Indonesian League 3 Bali Zone

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Abstract *Background:* The last action of the offensive process in a game of soccer is shooting and scoring goals against the opponent. Victory in every game is the target of every soccer team competing in a competition both professional and amateur. It is important to know the extent of the relationship between the number of shots on goal and the victory or defeat in a competition. The purpose of this study is to reveal the relationship between shot on goal level and the final result of soccer matches. *Method:* This type of research is a correlation research using quantitative approaches. Observation was used as the data collection method on all matches of the Indonesian League 3 Bali Zone 2021 semi-finalist team consisting of Perseden Denpasar, PS Jembrana, Tunas Muda Ubud, and East Bali FC (n=32 matches). The data were analyzed using Pearson Product-Moment with a significance rate of 1%. *Results:* The results showed a Pearson correlation value of 0.531 and a sig value (2-tailed) of 0.002 which means that there was a significant and positive relationship between shot on goal and the final result of the match. *Conclusion:* The higher the shot on goal level, the higher the scoring opportunity and the higher the chance of victory obtained. This result can be used as a guideline for compiling an attacking exercise program by coaches at any level, especially in practicing shooting and its accuracy level.

Keywords Shot on Goal, Match Result, Soccer

1. Introduction

Indonesia is already known as one of the countries whose people are the biggest fans of soccer matches in the world. Not even a few people play the most popular sport in Indonesia. As of December 2021, the number of clubs affiliated with the Indonesian Soccer Federation (PSSI) is 682 clubs consisting of 18 clubs in League 1, 24 clubs in League 2, and 640 clubs competing in League 3. Spread over 34 provinces. The development of soccer that is carried out by PSSI regularly is rolling out a tiered and continuous competition. Competition is a place for coaches and players to practice their techniques and tactics [1]. Many methods are used today to achieve success on soccer. One of them is the use of technological developments in recent years and in the future [2]. Another purpose of carrying out the competition is as a forum for coaching. In the current era, the application of the scientific method with a sports science approach greatly affects the coaching process, especially for assessing and evaluating the performance of a soccer team [3]. One of the scientific methods in question is performance analysis, which has become popular in addition to psychological, physiological,

and anthropometric research [4].

Match analysis is an objective record and analysis of behavior that occurs during a match or competition [5]. The main purpose of the match analysis process is analyzing the weaknesses and strengths of the opposing team and our own team [6]. It was reaffirmed that performance analysis in soccer has the aim of increasing the coach's knowledge about team game performance and player performance [7]. Performance indicators that are revealed from the competition analysis and carried out with the right process will produce the correct data as well, thus contributing to the coach in making the right decisions [8]. The performance of each individual or player during the game is characterized by the quantity and quality of individual game performances and other elements of the player's own performance [9].

In the game of soccer, there are 3 general actions, namely attacking, transitioning and defensive actions [10]. One of the important actions that every player takes when attacking which will affect the final outcome of a match is shooting. Factors that affect the shot on goal level are strength and accuracy [11]. Nevertheless, in soccer sometimes there are different ways besides the high level of accuracy and shooting power that make it difficult for goalkeepers to prevent goals from being scored. The success of the player in shooting on goal depends on the ability of the player to be able to escape from the difficult pressure of the opponent and use the right shooting technique [12]. Shooting in soccer is also a synthesis of two inseparable aspects, namely technical and tactical aspects [11]. The technical aspect in question is the appearance of a complex dispositional structure of players, while the tactical aspect of shooting is influenced by factors resulting from the game situation related to rapid orientation, evaluation of the game situation, and the choice of optimal shooting methods [13]. Therefore, the last and most important action of the attacking process which is often mentioned in the scoring stage is shot on goal.

Based on the above review, in fact many previous researchers have revealed the performance of soccer at the elite or professional level namely, the playing style of a team when attacking and defending was analyzed [14], physical and technical performance in each different playing position in the English Premier League [15], identification of scoring opportunities and offensive and defensive strategies as indicators that can be distinguished between teams winning or losing matches in the 2012 European Soccer Championship [16], percentage of ball possession and successful passing of teams that were successful in 2014 FIFA World Cup [17], technical performance profiles of the teams involved in the 2016 European Soccer Championship [3], described how scoring opportunities arise and chances were executed in Major League Soccer by considering indicators of offensive and defensive tactics [18], measuring guard

performance goal in all matches at EURO 2016 [19], the level of centrality between playing positions in the national team that played in the 2014 FIFA World Cup [20], analysis of goalkeeper performance related to the role in the game [21], competitive profile of the best leagues in Europe such as the Spanish League, Italian League, English League, Germany League, Portuguese and French Leagues [22], the characteristics of the sequence of attacks in soccer that are most effective on the opponent's defensive area, and the distance between the defensive line and the goal [23], the situation of the game from the recovery of the ball to the goals scored by professional soccer players. men's and women's League 1 Portugal [24], identification of technical and tactical action at each player position during play in the Ukraine Premier League [25], characteristics of goal scoring passing networks during the 2016 European Soccer Championships [26], influence of small-sided games on the game performance of young soccer players [27], observation of the motor activities of Greece professional soccer players on this during one competitive season [28], analysis of the quality of the team in the ball recovery which is influenced by the quality of the opponent, the quality of the field and the status of the match [7], shooting characteristics and goal scoring in the 2019 Women World Cup Soccer Tournament [29], analysis of the goal process scored during Euro 2020 [30], and analysis of corner kicks during the 2018 FIFA World Cup [5].

However, it is very difficult to find an analysis of the performance of amateur or non-popular soccer teams. The current study approaches the problem and a different perspective. The difference in question is the data obtained based on amateur soccer competitions in Indonesian, especially the Bali Region. Second, the objective to be revealed is to show the relationship between the shot level of the semi-finalist team and the final result of the match in 2021 Indonesian League 3 Bali Zone. The author assumes that there is a significant relationship between the shot on goal level and the final result of the match. In order to answer this assumption, the author will reveal the shot on goal level of the semi-finalist team of 2021 Indonesian League 3 Bali Zone and the relationship between the shot on goal level and the final result of the semifinalist team's match.

2. Materials and Methods

2.1. Design of the Study

This type of research included correlation using a quantitative approach. This study was seeking to reveal the relation between shot on goal level and the final result of a soccer match (win-lose). The population of the research was the match of the semi-finalist team of the 2021 Indonesian League 3 Zone Bali consisting of Persedan

Denpasar, PS Jembrana, Tunas Muda Ubud, and East Bali FC with a total of 32 matches. The researchers used the observation method to collect data from 32 Indonesian League 3 matches in the Bali Zone in 2021. Observations were carried out directly and indirectly, namely through match recordings. The data from the observations are the number of shootings in each club, shots on goal and the final results of the match.

2.2. Statistical Analysis

To see whether or not there was a relation between the shot on goal level and the final result of the 2021 Indonesian League 3 Bali Zone semi-finalist team, the researchers analyzed using Pearson Product-Moment with a significance level ($p < 0.01$).

3. Result

3.1. Shot on Goal Level for the 2021 Indonesian League 3 Bali Zone Semi-Finalist Team

The comparison of the shot on goal level from the semi-finalist team of the 2021 Indonesian League 3 Bali Zone can be seen in Figure 1. Based on Figure 1 below, the highest shot on goal level is 74.07% from the East Bali FC. The second best shot on goal level was achieved by the PS. Jembrana (48.74%). Then followed by the Tunas Muda Ubud in third place (47.47%) and the team with the lowest shot on goal level was Perseden Denpasar which reached a shot on goal level of 40%.

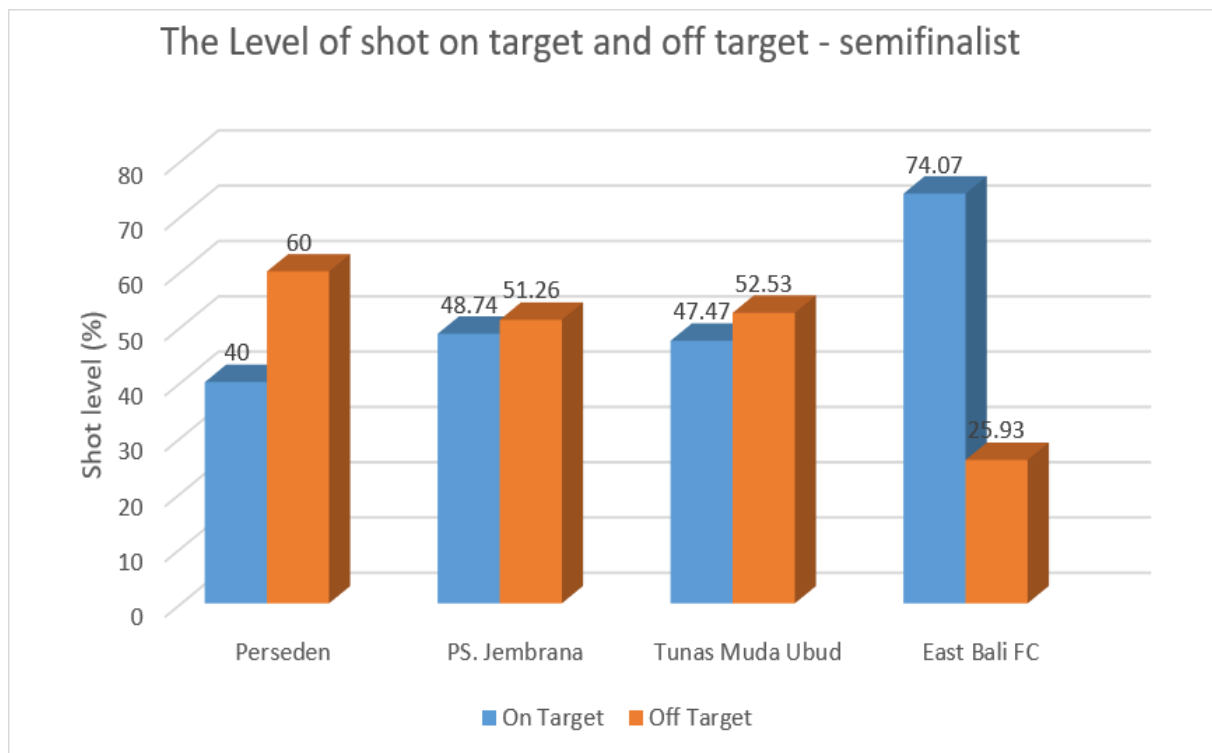


Figure 1. Shot On Goal Level of Semi-finalist Team

In addition to the comparison data on the shot on goal level for semi-finalist team above, Figure 2 also shows data on the comparison of the number of shots on goal for the semi-finalist team based on shooting distance from the opponent's goal (short or long). Penalty area includes

close range and outside the penalty area includes long distance. Perseden became the team with the highest shot on goal (64.4%), then in second place was PS. Jembrana (60.5%), Tunas Muda Ubud (51.1%), and East Bali FC (40.7%).

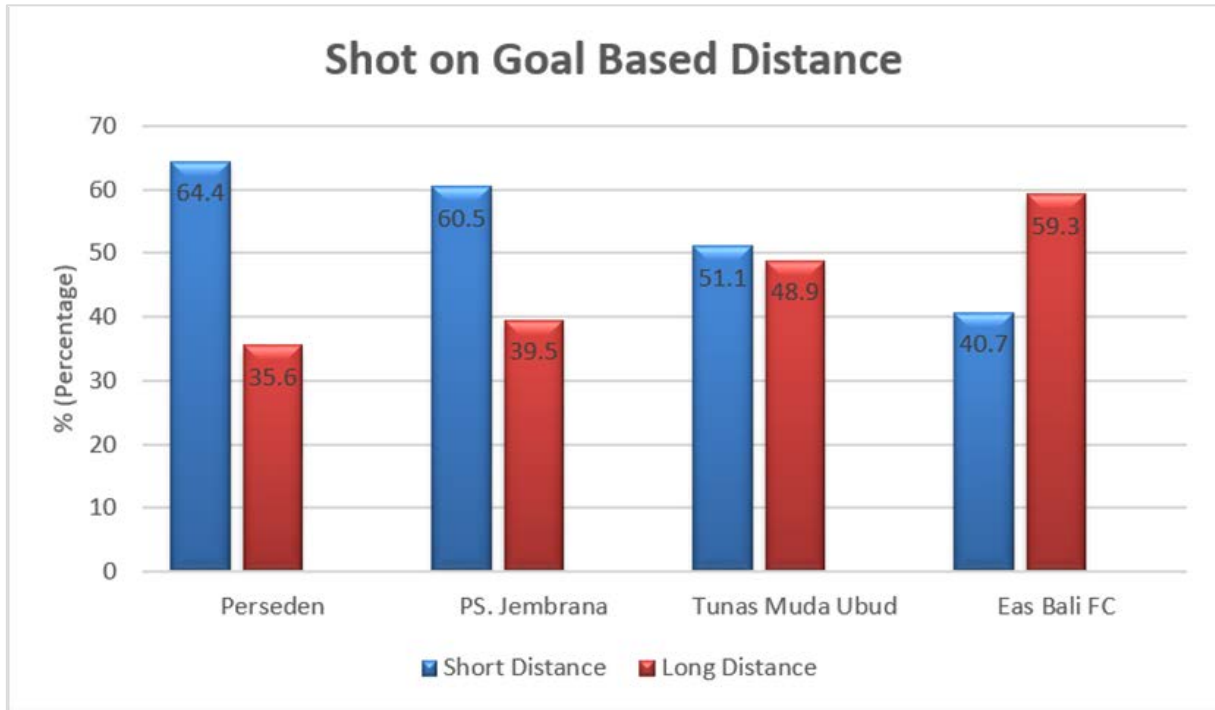


Figure 2. Shot On Goal Based Distance

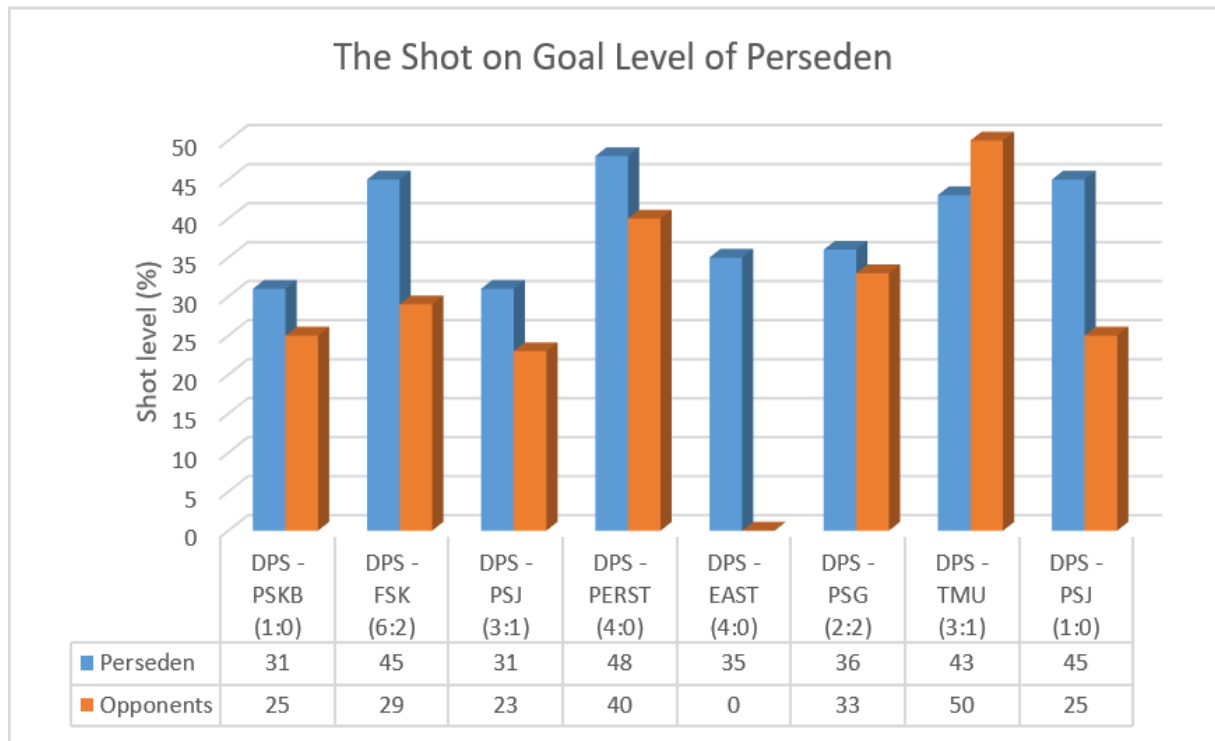


Figure 3. Shot On Goal Level of Perseden Denpasar

3.1.1. Perseden Denpasar

The analysis of the Perseden Denpasar team match during the 2021 Indonesian League 3 Bali Zone showed that their shot on goal level reached an average value of 40%. Figure 3 showed in the match against Perst Tabanan, the highest shot on goal score among all their matches during the 2021 League 3 Bali Zone is 48%. Their lowest shot on goal level occurred in the two group stage matches against Persekaba Badung and FSK Klungkung at 31%. During the three matches in the preliminary round, Perseden Denpasar was better than their opponent. In the next round, they only had one shot on goal lower than their opponent. When they faced PS Gianyar they got a 3% lower shot on goal level. One of the most interesting things when Perseden Denpasar faced East Bali FC, the difference in the shot on goal level was very far, which was 35%. In the semifinal faced Tunas Muda Ubud, their shot on goal level was better by 7%. Finally, in the final match they

achieved a much better shot on goal level with a difference of 20% with PS Jembrana.

3.1.2. PS Jembrana

PS. Jembrana in the 2021 Indonesian League 3 Bali Zone achieved a shot on goal level of 48.74%. Among the four semi-finalist teams, PS Jembrana was in second place for this achievement. Based on Figure 4 below, it showed that faced the Sahadewa Galapagos United, PS Jembrana's shot on goal level was the highest at 77%. Meanwhile, the lowest score when PS. Jembrana faced Perseden Denpasar was 23%. There were three matches that saw PS Jembrana's shot on goal level being lower than its opponent, namely when they faced the FSK Klungkung (26%) in the preliminary round, then faced the Tunas Muda Ubud (45%), and faced the Perseden Denpasar (20%) in the final round. While the rest of the other matches, PS Jembrana managed to excel in the shot on goal level, starting to meet Persekaba Badung, Undiksha FC and East Bali FC.

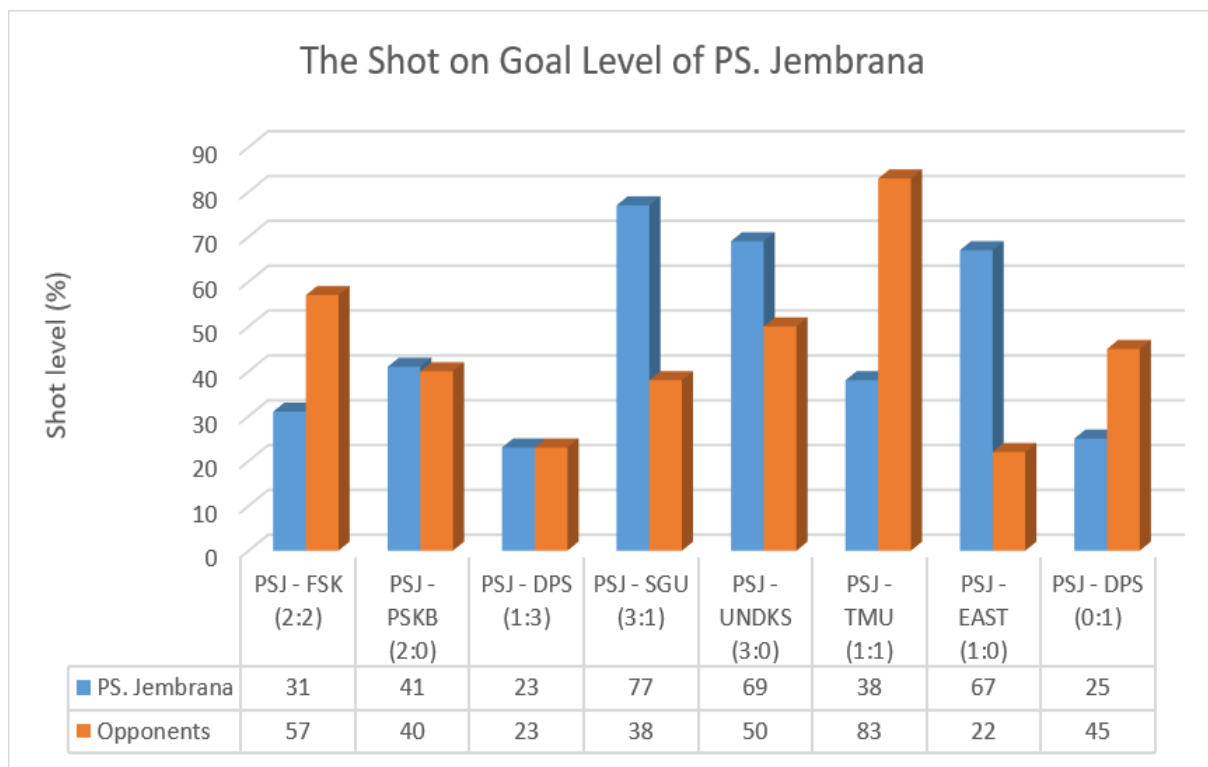


Figure 4. Shot On Goal Level of PS. Jembrana

3.1.3. Tunas Muda Ubud

Tunas Muda Ubud was ranked third among the other semi-finalist teams in terms of the shot on goal level in the 2021 Indonesian League 3 Bali Zone, which is 47.47%. During the league rolling, Tunas Muda Ubud only once won a shot on goal lower than its opponent (7%) namely when they met PS Gianyar in the final match of the group

stage. The first match in the group stage against Pro Kundalini was the highest achievement for their shot on goal level which reached 100%. Then in the next match in a row they recorded a higher score than their opponent, including the semifinal against Perseden Denpasar (7%) even though the final score of the match was won by Perseden Denpasar. More details, the results can be seen in Figure 5 below.

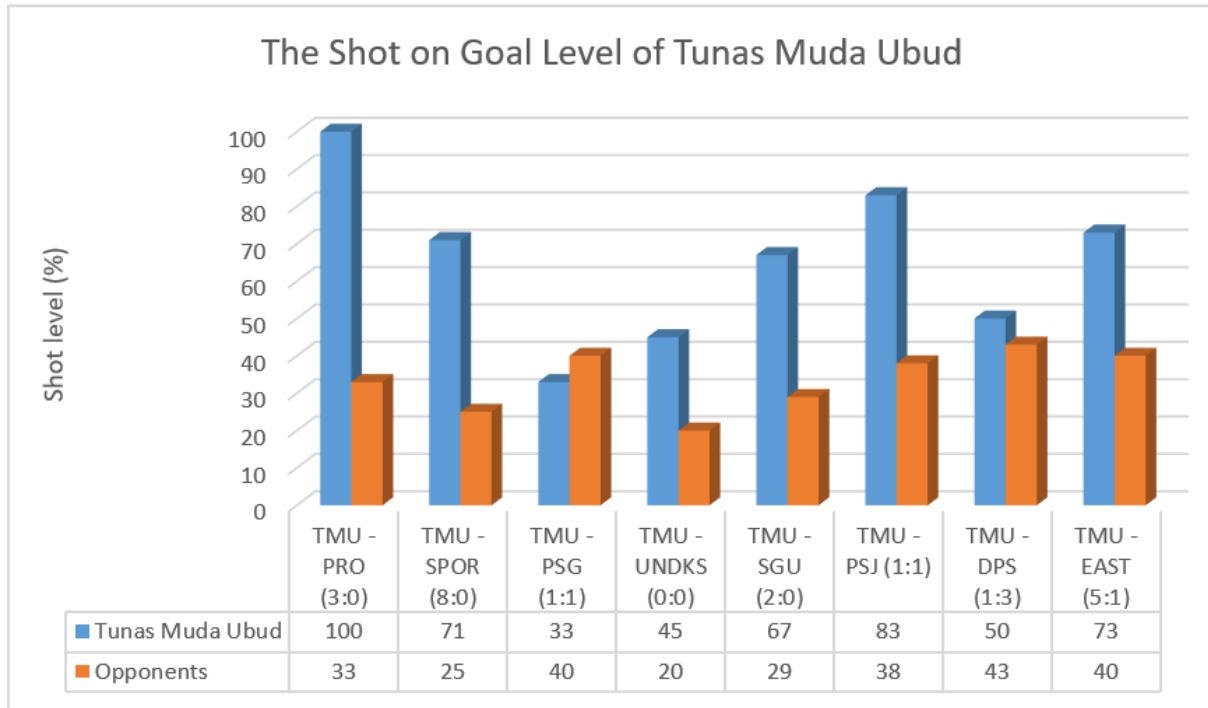


Figure 5. Shot On Goal Level of Tunas Muda Ubud

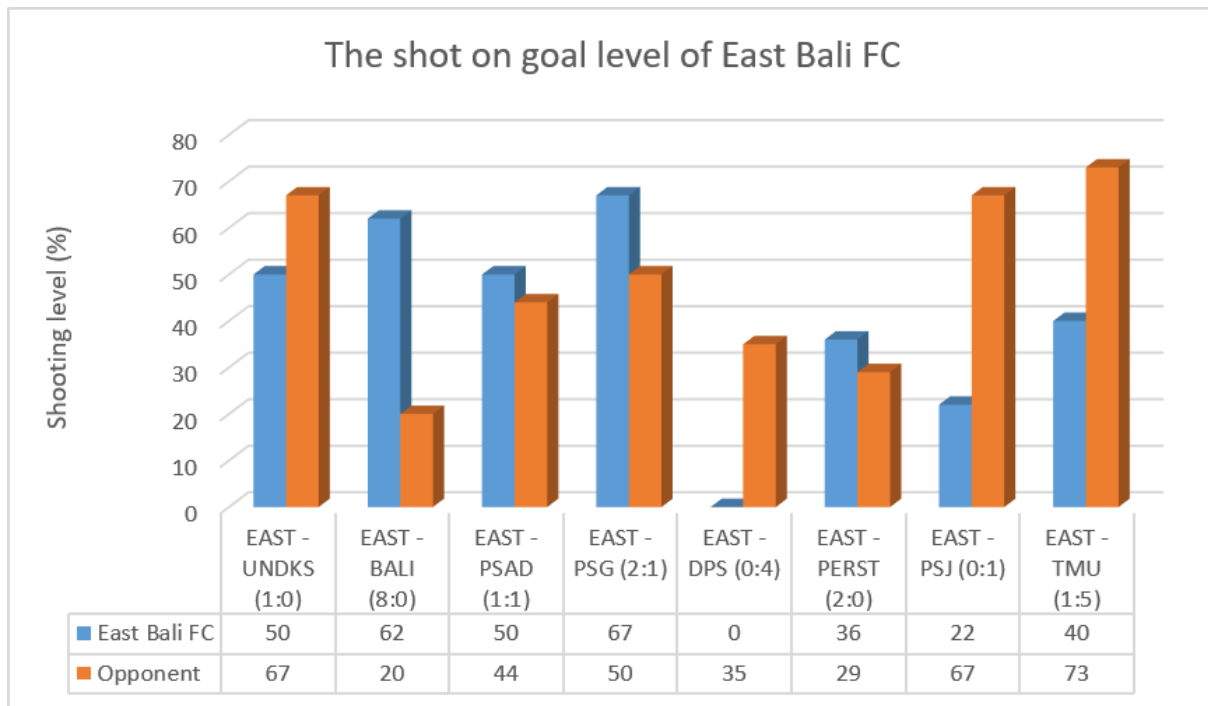


Figure 6. Shot On Goal Level of East Bali FC

Table 1. Correlation Analysis

		Shot on Goal	Final Result
Shot on Goal	Pearson Correlation	1	.531**
	Sig. (2-tailed)		.002
	N	32	32
Final Result	Pearson Correlation	.531**	1
	Sig. (2-tailed)	.002	
	N	32	32

**Correlation is significant at the 0.01 level (2-tailed)

3.1.4. East Bali FC

East Bali FC was the team with the highest shot on goal rate among the other semi-finalists. The value achieved reached 74.07% even though at the end of the league they were ranked fourth. Figure 6 showed the lowest shot-on-goal rate was obtained when East Bali FC faced Perseden Denpasar (0%). While the highest shot on goal level was achieved when East Bali faced PS Gianyar (67%). Three matches in the group stage, only against Undiksha FC his shot on goal level was lower than his opponent (17%). When East Bali faced Bali FC and PSAD Udayana, East Bali FC consecutively achieved a higher shot on goal level than their opponents. In the semifinals, the shot on goal level was much lower (45%) than PS Jembrana as its opponent. In the match for third place against Tunas Muda Ubud, they again achieved lower shot on goal (33%) than their opponent.

Figures 1 to 6 have described the percentage of shot on goal level and the final result of each match from the semi-finalists of the 2021 Indonesian League 3 Bali Zone. During the league, there were 422 shots from the semi-finalist team players with details of 205 shots on target (48.58%) and 217 shots off target (51.42%). To reveal the relation between shot on goal level and the final result of the 2021 Indonesian League 3 Bali Zone semi-finalist team, the researchers have analyzed it using the Pearson correlation coefficient which is 0.531 and sig value (2 tailed) of 0.002. This means that there was a significant and positive relation between shot on goal and the final result of the match (Table 1).

4. Conclusions

The trend of successful soccer teams in the world is very dynamic. Many indicators can be determined the success of a soccer team in each championship. Starting from the effectiveness of attack and possession of the ball [8, 31], to the success of passing and high ball possession were indicators of the success of a soccer team [17]. However, there were other factors that determine the final outcome of a match, namely shooting. The final action of an attacking process was shooting. At the 2014 World Cup in Brazil, it was noted that the effectiveness of shooting was the

difference between the winning team and the losing team [32]. These results were also in line with previous findings which stated that the shot on goal level was an indicator of the team's success in the 2010 World Cup South Africa [33].

The results of the researches have also shown that there was a relation between the shot on goal level and success (final result of the match) in 2021 Indonesian League 3 Bali Zone. Thus, reinforcing the fact that one of the factors that determine the victory or defeat of each team in a competition is shot on goal. Previous researchers also revealed that the number of shot and shot on goal was one of the important factors that affect the success rate of a team in a match [15, 20, 34, 35]. An increase in the number of shot on goal or shot accuracy brings a positive effect on increasing the chances of winning the match [36]. The team's ability to create more shot opportunities and shot on goal, both inside the penalty area and outside the penalty area, can be useful for the team in determining the final result of the match [37].

In order to be successful in creating more shots and shot on goal opportunities consistently in each match, it must be supported by excellent physical conditions obtained from a structured training process. Physical condition is a basic component of supporting the performance of every athlete [38]. Previous findings also stated that on average during the game, players run 9-14 km [39] with about 7-13% of the distance being done at high intensity and sprinting actions were also seen around 1-4% [15]. Before the shots process is created, there is a passing to dribbling action carried out by each player in the opponent's penalty area. So, in addition to focusing on shot techniques, players are required to practice passing qualities such as the game of cat and mouse [40], as well as small sided games exercises that can simultaneously increase the physiological capacity and performance of players [40, 41]. There are several principles that players need to pay attention to in shooting in order to have successfully become a goal [13]:

- If a player approaches the goal through the center area, it is more effective to shot to the side of the weaker goalkeeper,
- The height of the shot direction is an important concern, it is better to shot along the ground towards the corner of the goal post or the top corner of the goal,

- c) If a player is approaching the goal from the side, it is better to place the ball into the far corner of the goal which can make it difficult for the goalkeeper to intervene and allow a teammate to shot again after the ball is bounced by the goalkeeper,
- d) If the shot distance is very close to the goalkeeper, do it faster than when the shot distance is still far away,
- e) “Hide” shot moments and shot directions, for example when shot must be done with a quick and short movement process without visible preparation stages and without previous visual signals.

If it was observed at Figure 1 in the results above, it showed that Perseden, who was the champion in 2021 Indonesian League 3 Bali Zone, had the lowest shot-on-goal level (40%) among the other three semi-finalist teams, but if it observed on the total number of shots, Perseden was the owner of the highest score. (35.55%). PS Jembrana as the league runner-up scored 28.20%, followed by Tunas Muda Ubud as the third-ranked team in the league with a score of 23.46%, and East Bali FC as the fourth-ranked team in the league with a score of 12.80%. So, the greater percentage of shots on goal achieved was due to the quality factor of the opponents they faced both in the preliminary round to the final. In addition to the opponent’s quality factor, the distance and angle of the shot also affect the success of the shot on goal [43]. Further research is interesting to do to see the development of football in Bali. Such as research in the Chinese Super League, from 2012 to 2017 which has produced data on Chinese football trends from the physical, tactical, and performance aspects of each player [44]. The same thing needs to be done in Bali football to measure the progress of each team and Bali football can level up at the elite level of Indonesia football.

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