Evaluation of Scoring Skills and Non Scoring Skills in the Brazilian SuperLeague Women's Volleyball

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A B S T R A C T

This study analyzed all the games (n=253) from the 2011/2012 and 2012/2013 Seasons of Brazilian SuperLeague Women's Volleyball, to identify the game-related factors that discriminate in favor of winning and losing teams. In the 2011/2012 Season, the Total Shares Setting (TAL) and Total Points Attack (TPA) were factors that discriminated in favor of a defeat. The factors that determined the victory were the Total Shares Serve (TAS), Total Shares Defense (TAD), Total Shares Reception (TAR) and Total Defense Excellent (TDE). In the 2012/2013 Season, the factor (TAD) most often discriminated in favor of victory and the factor that led to defeat was the Total Points Made (TPF). The scoring skills (TPA) and (TPF) discriminated against the final outcome of the game, but surprisingly are associated with defeat and the (TAS) supposed to victory. The non-scoring skills (TAD), (TAR) and (TDE) discriminate the end result of the game and this may be associated with the victory. The non-scoring skill (TAL) determines the outcome of the game and is supposedly associated with the defeat.

Key words: *Match Analysis, Statistics Related-Gaming and Volleyball.*

Introduction

Through an analysis of the game's structure and its performance indicators used in recent research on game analysis, basic rules emerge in the application of performance indicators for any sport (Sampaio, Janeira, Ibanez and Lorenzo, 2006). For different types of games, it is clear that the classification of the action variables to be used as performance indicators follow rules that transcend the various sports. According to Miskin, Fellingham and Florence (2010), the selection and use of these performance indicators depend on the research questions being posed, but of course certain guidelines will ensure a clear interpretation of these data needs.

The game analysis aims to quantify and analyze the events that occur during the competition and identify strengths and weaknesses of both, own team and the opponent, generating implications for the development of training and game tactics (Carling, Reilly and Williams, 2009). The analysis of game statistics is one method of understanding both individual and collective behavior during the competition (Hughes and Bartlett, 2002).

In the literature, studies of production areas made in this field are referenced from different denominations, including: observation of the game (game observation), game analysis (match analysis) and notational analysis (notational analysis). However, the expression most commonly used in the literature is match analysis (Garganta, 2001), which encompasses different stages of the process, namely the observation of events, the notation of the data, and their interpretation.

Notational analysts focus on the general set of indicators, tactical indicators and technical indicators, and have contributed to our understanding of the physiological, psychological, technical and tactical demands in many sports (Miskin, Fellingham and Florence, 2010; Zetou and Tsigilis, 2007). If presented separately, a single set of data (indicators for a performance of an individual or a team) can give a distorted impression of a performance, ignoring other more or less important variables (Hughes and Bartlett, 2002). In addition, the results should be viewed with caution, as those that are obtained by analyzing a limited number of teams, may not be applicable to all teams (Lago-Peñas et al., 2010).

Volleyball is an opposition-cooperation game (Mesquita, 1996), in which the action of a team develops in a separate space from that of the opponent. This condition promotes a systematic alternation between attack and defense (Paulo Greco and Souza, 2000). Thus, according to Mesquita (2005), the mode of play differs from other team sports (soccer, futsal, basketball, handball, water polo, etc.), as a volleyball team acts with the ball in defense, already in other ways the work is done with the ball on offense and without control of the ball on defense.

Palao, Santos and Ureña (2005) determined that the attack or complex 1 (K1) of a team aims to halt the serve of the other team by receiving and soon after arming the attack and then getting the point. Castro and Mesquita (2008) showed that a team can achieve victory by maintaining uniformity in Side Out or Complex 1. But the Counterattack, or Complex 2 (K2), is the set of actions by a team beginning with their own serve, and then organizing the blockade and the defense to abolish the op-

ponent's attack, organize the distribution to the setting and end with an attack (Palao, Santos and Ureña, 2002). The K2 is deeply linked to the success of the adversary attack. This sequence of actions is well explained by Marcelino and Mesquita (2007) and João Mesquita, Sampaio and Moutinho (2006).

Volleyball includes different indicators that make up the final result of the game, such as points of attack, block and serve, and opponents' mistakes, as well as the quality of implementation of those foundations that do not score, like setting, defense, and reception (João, Leite, Mesquita and Sampaio, 2010). Understanding the ideal combination of these indicators can help a team achieve athletic success in volleyball. The literature on volleyball commonly focuses on the study of statistics related to the game and its effect on team performance. For example, Server ((Marcelino, Mesquita and Afonso, 2008; Marcelino, Mesquita, Sampaio and Moraes, 2010), reception (Quiroga, García-Manso, Rodríguez-Ruíz, Sarmiento, De Saa and Moreno, 2010; Quiroga, Rodríguez-Ruíz, Sarmiento, Muchaga, Grigoletto and García-Manso, 2012), setting (Durkovic, Marelic and Resetar, 2008; Silva, Lacerda and João, 2014), attack (Mesquita and César, 2007; Bergeles, Barzouka, and Nikolaidou, 2009; Castro, Souza and Mesquita, 2011; Afonso and Mesquita, 2011), block (Buscà and Febrer, 2012; Afonso and Mesquita, 2011) e defense (Inkinen, Häyrinen and Linnamo, 2013; Marelić, Resetar and Jancovik, 2004).

Because of the possibility of directly earning points, the attack, block and serve, are considered "Shares Terminals", most frequently referenced in the literature as Scoring Skills. (Marcelino and Mesquita, 2007). In turn, defense procedures, like pass reception and setting are referred to as Non-Scoring Skills,

having in Portuguese, two translation possibilities: "Actions not Terminals" or "Continuity Shares" are foundations that do not generate points directly, but can efficiently build the Side Out.

There are several studies on game analysis in football (Lago-Peñas et al., 2010), American Football (Cohea and Payton, 2011), Rugby (Ortega, Villarejo and Palao, 2009), Water Polo (Escalante, Saavedra, Mansilla and Tella, 2011) among others. There are studies in volleyball, but with different samples (João et al, 2010). Compared to other major national competitions, little is known about Brazilian SuperLeague Volleyball.

The aim of the study was to analyze the games of the 2011/2012 and 2012/2013 seasons of Brazilian SuperLeague Women's Volleyball, to identify the factors related to the game that can discriminate in favor of victory or defeat.

Methods

Participants

We analyzed all the games (n=253) of the Brazilian SuperLeague Women's Volleyball 2011/2012 Season (n=148) and 2012/2013 Season (n=105).

Instruments and Variables

Data were collected from official scouts game through the official website of the Brazilian Volleyball Confederation (CBV), provided by SCConsultoria, a private company dedicated to the measurement of performance of the Brazilian SuperLeague Volleyball teams. Table 1 describes all the variables used and analyzed in this study.

Table 1. Description of Variables

Dependent Variable	Description
Match Result (MR)	Victory or Defeat
Independent Variables	Description
Total Points Made (TPF)	Total amount of all the points that the team made
Number of Substitutions (NS)	Substitutions count the team realized
Total Points Attack (TPA)	Total amount of direct points that the team won through specific attack actions
Total Share Attack (TAA)	Total number of specific actions that attack the team conducted
Total Points Block (TPB)	Total amount of direct points that the team won through specific block actions
Total Shares Block (TAB)	Total number of specific actions that block the team conducted
Total Points Serve (TPS)	Total amount of direct points that the team won through specific serve actions
Total Shares Serve (TAS)	Total number of specific actions that serve the team conducted
Opponent Errors (EA)	Total amount of direct points that the team obtained through any errors of the opposing team
Total Defense Excellent (TDE)	Total number of specific defense actions that the team successfully conducted
Total Shares Defense (TAD)	Total number of specific actions that defense the team conducted
Total Setting Excellent (TLE)	Total number of specific setting actions that the team successfully conducted
Total Shares Setting (TAL)	Total number of specific actions that setting the team conducted
Total Reception Excellent (TRE)	Total number of specific reception actions that the team successfully conducted
Total Shares Reception (TAR)	Total number of specific actions that reception the team conducted

Statistical Analysis

Reliability Analysis

The reliability of the observations was tested, with Cohen's Kappa (K) interobserver between 0.96 and 1. The analysis of data reliability was performed with "Statistical Package for Social Sciences (SPSS)" version 20.0, and with a degree of significance of 5%.

Statistical Treatment

Initially, were used Kolmogorov-Smirnov test to analyze the normal distribution of data. Like all independent variables are non-parametric data, were used Mann-Whitney U test to evaluate the differences between the overall averages of all victories with the general average of all defeats in the

2011/2012 and 2012/2013 Seasons. Finally, we used a discriminant analysis (DA) to assess the significance of the game statistics on the probability of staff leaving to winning or losing. It assesses the probability of obtaining a result given a set of independent variables (Tabachnick and Fidell, 2007).

The statistical significance of the obtained function was analyzed, and through the structural canonical coefficients |SC| the most powerful indicators were identified. Thus it was considered that the |SC| with relevant statistical significance would present values equal to or superior to 0.30, i.e. |SC|≥0.30 (Tabachnick and Fidell, 2007).

For all statistical analysis, we used "Microsoft Excel" 2010 to catalog and organize the data and "Statistical Package for Social Sciences (SPSS)" version 20.0 to conduct statistical analysis. For the significance level of p<0.05, the confidence level is 95%, and for p<0.01, the confidence level is 99%.

Results

Table 2 presents the comparison of the data of the victories and defeats of the 2011/2012 Season.

Table 2. Comparison of victories and defeats of the Brazilian SuperLeague Women's Volleyball 2011/2012 Season using the Mann-Whitney test

Factors	Victories (n=148) (M±SD)	Defeats (n=148) (M±SD)	(U)	(Z)	(p)
TPF	88.10 ± 13.62	74.06 ± 19.76	6320.00	-6.32	0.000*
NS	6.74 ± 3.19	8.78 ± 2.46	6657.00	-5.87	0.000*
TPA	49.50 ± 10.02	43.39 ± 12.72	7403.50	-4.82	0.000*
TAA	129.86 ± 32.60	135.65 ± 30.66	9605.50	-1.83	0.067
TPB	13.09 ± 4.40	9.03 ± 4.01	5423.00	-7.53	0.000*
TAB	56.11 ± 13.65	50.39 ± 16.78	8293.00	-3.61	0.000*
TPS	4.01 ± 1.98	2.94 ± 1.98	7421.50	-4.85	0.000*
TAS	86.87 ± 14.02	74.95 ± 19.24	6553.50	-5.98	0.000*
EA	21.30 ± 5.90	18.49 ± 6.09	7972.00	-4.05	0.000*
TDE	65.03 ± 17.64	61.23 ± 19.26	9485.50	-1.99	0.066
TAD	95.89 ± 25.94	98.24 ± 23.71	10248.50	-0.96	0.339
TLE	22.06 ± 9.32	18.45 ± 10.44	8483.50	-3.35	0.001*
TAL	123.28 ± 31.63	130.74 ± 29.39	9244.00	-2.32	0.020*
TRE	31.70 ± 11.79	33.26 ± 12.09	10086.50	-1.18	0.240
TAR	67.62 ± 18.26	80.03 ± 13.21	6401.00	-6.18	0.000*

Legend: * Level of Significance (p<0.05).

Significant differences were found in almost all variables, except for Total Share Attack (TAA) (p=0.067), Total Defense Excellent (TDE) (p=0.066), Total Shares Defense (TAD) (p=0.339) and Total Reception Excellent (TRE) (p=0.240).

Table 3, shows the results of discriminant analysis between wins and losses for the factors of all the games in the 2011/2012 Season.

Table 3. Values of function discriminant of factors between victories and defeats the all games of Brazilian SuperLeague Women's Volleyball 2011/2012 Season

Factors	Function 1 |SC|
Total Shares Setting (TAL)	1.00*
Total Shares Serve (TAS)	-0.83*
Total Points Attack (TPA)	0.61*
Total Shares Defense (TAD)	-0.40*
Total Shares Reception (TAR)	-0.39*
Total Defense Excellent (TDE)	-0.30*
Total Points Serve (TPS)	0.25
Opponent Errors (EA)	0.22
Total Shares Block (TAB)	0.20
Total Points Block (TPB)	0.15
Total Setting Excellent (TLE)	0.09
Total Points Made (TPF)	-0.07
Total Reception Excellent (TRE)	-0.06
Number of Substitutions (NS)	0.06
Total Share Attack (TAA)	-0.02
Wilks´ Lambda	0.10
Chi-Square	649.17
Eigenvalue	8.72
Canonical Correlation	0.95
Mean Centroid – Defeats	2.94
Mean Centroid – Victories	-2.94

Legend: * |SC|≥0.30

The values of |SC| factor (TAL) |SC|=1.00 and (TPA) |SC|=0.61 discriminated in favor of a negative match result (MR), i.e. a defeat. The factors that discriminated in favor of a positive (MR), i.e. a victory, included the (TAS) |SC|=-0.83, (TAD) |SC|=-0.40, (TAR) |SC|=-0.39 and (TDE) |SC|=-0.30.

The results of discriminant analysis between wins and losses for the factors of all the games during the 2011/2012 Season, was discovered to be a function responsible for 100% of the total variance integrated with Wilks Lambda (Λ=0.10) and the value of chi-square (x ²=649.17). In this role, the canonical correlation coefficient was 0.95.

Factors to score near a central average of 2.94 are consid-ered predictive factors that can influence the team to a negative (MR), in this case, a defeat. Factors to score near a central average of -2.94 are considered factors that influence the team to a positive (MR), meaning victory.

In the classification of the discriminant function of the confusion matrix between victories and defeats of the 2011/2012 Season, the success of DA adjustment quality was 100% in both game results. In measuring defeat, 100% of the games (148 of 148) were classified successfully. The measurement of victories was also 100%, with 148 of 148 games successfully classified.

Table 4 displays the comparison of the data of the victories and defeats of the 2012/2013 Season.

Table 4. Comparison of victories and defeats of the Brazilian SuperLeague Women's Volleyball 2012/2013 Season using the Mann-Whitney test

Factors	Victories (n=105) (M±SD)	Defeats (n=105) (M±SD)	(U)	(Z)	(p)
TPF	87.61 ± 13.97	71.36 ± 20.84	3096.50	-5.51	0.000*
NS	6.14 ± 3.46	8.49 ± 2.96	3144.50	-5.40	0.000*
TPA	47.89 ± 9.26	39.99 ± 13.03	3307.50	-5.01	0.000*
TAA	119.66 ± 33.15	125.43 ± 30.53	4902.00	-1.39	0.166
TPB	12.99 ± 4.22	9.71 ± 4.54	3107.00	-5.48	0.000*
TAB	51.71 ± 14.22	48.00 ± 16.78	4632.00	-2.00	0.055
TPS	5.54 ± 3.03	3.22 ± 1.92	2830.50	-6.15	0.000*
TAS	86.36 ± 14.26	72.40 ± 20.45	3233.00	-5.19	0.000*
EA	21.34 ± 6.33	18.50 ± 6.44	4203.50	-2.98	0.003*
TDE	59.68 ± 16.72	54.44 ± 18.84	4518.50	-2.26	0.024*
TAD	89.64 ± 27.02	89.57 ± 24.32	5400.00	-0.26	0.798
TLE	22.04 ± 14.34	17.60 ± 18.49	3506.50	-4.56	0.064
TAL	112.21 ± 34.87	118.09 ± 32.42	4888.00	-1.42	0.156
TRE	26.78 ± 14.48	27.47 ± 12.37	5265.50	-0.56	0.574
TAR	64.96 ± 18.95	79.17 ± 13.04	3209.00	-5.23	0.000*

Legend: * Level of Significance (*p*<0.05).

The analysis found significant differences in almost all variables, except for Total Shares Attack (TAA) (p=0.166), Total Shares Block (TAB) (p=0.055), Total Shares Defense (TAD) (p=0.798), Total Setting Excellent (TLE) (p=0.053), Total Shares Setting (TAL) (p=0.156) and Total Reception Excellent (TRE) (p=0.574).

Table 5. Values of function discriminant of factors between victories and defeats the all games of Brazilian SuperLeague Women's Volleyball 2012/2013 Season

Factors	Function 1 |SC|
Total Points Made (TPF)	-0.50*
Total Shares Defense (TAD)	0.43*
Opponent Errors (EA)	0.23
Total Points Serve (TPS)	0.18
Total Points Block (TPB)	0.15
Total Setting Excellent (TLE)	0.14
Total Defense Excellent (TDE)	-0.14
Total Shares Attack (TAA)	-0.13
Total Shares Setting (TAL)	0.13
Total Reception Excellent (TRE)	0.10
Total Points Attack (TPA)	0.07
Total Shares Block (TAB)	-0.06
Number of Substitutions (NS)	-0.02
Total Shares Reception (TAR)	0.01
Total Shares Serve (TAS)**	0.13
Wilks´ Lambda	0.10
Chi-Square	462.03
Eigenvalue	9.08
Canonical Correlation	0.95
Mean Centroid – Defeats	-2.99
Mean Centroid – Victories	2.99

Legend: * |SC|≥0.30, ** Unused variable in the analysis, because as failed tolerance test.

Table 5 outlines the results of discriminant analysis between wins and losses for the factors of all games during the 2012/2013 Season.

The values of |SC| factor (TAD) |SC|=0.43 discriminated in favor of a positive (MR), i.e. a victory. The factor that discriminated in favor of a negative (MR), i.e. defeat, was (TPF) |SC|=-0.50.

The results of discriminant analysis between wins and losses for the factors of all the games during the 2012/2013 Season was a function responsible for 100% of the total variance integrated with Lambda Wilks (Λ=0.10) and the value of chi-square (x^2=462.03). In this role, the canonical correlation coefficient was 0.95.

Factors to score near a central average of -2.99 are factors predicted to influence the team to a negative (MR), i.e. a defeat. Factors to score near a central average of 2.99 are factors predicted to influence the team to a positive (MR), meaning victory.

In the classification of the confusion matrix of the discriminant function between victories and defeats of the 2012/2013 Season, the success of DA adjustment quality was 100% in both game results. In measuring defeat, 100% of the games (105 of 105) were classified successfully. The measuring of victories was also 100%, with 105 of 105 games are successfully classified.

Discussion

As shown in Table 2, results from the Brazilian SuperLeague Women's Volleyball 2011/2012 Season demonstrate that significant differences emerged, where the winning teams had higher averages of Total Points Made (TPF), Total Points Attack (TPA), Total Points Block (TPB), Total Shares Block (TAB), Total Points Serve (TPS), Total Shares Serve (TAS), Opponent Errors (EA) and Total Setting Excellent (TLE) than losing teams, thereby leading to victory.

The Total Points Made (TPF) is the sum of the Total Points Attack (TPA), Total Points Block (TPB), Total Points Serve (TPS) and opponent errors (EA) (FIVB, 2012). If a team can maintain higher averages than the opponent in all of these factors, they obviously enhance their chances of winning the match. According to Martins (2010), and Matias Greco (2009), Esteves and Mesquita (2007), Durkovic, Marelic and Resetar (2008), Silva, Lacerda and João (2014) excellent setting is related to the setter to using a maximum speed change of balls, thus improving the chances of attack points. The attack is the most decisive variable in the advantage of the team, noted as determining the acquisition of points and team victories (Afonso and Mesquita, 2011; Castro, Souza and Mesquita, 2011; Bergeles, Barzouka, and Nikolaidou, 2009; Castro and Mesquita, 2008; Mesquita and César, 2007).

The losing teams had a higher average Number of Substitutions (NS), Total Shares Setting (TAL) and Total Shares Reception (TAR) than the winning teams, but still failed to achieve victory.

As shown in Table 3, the results of |SC| factor (TAL) |SC|=1.00 supported the notion that the highest average Total Shares Setting (TAL) of the defeated teams, along with the (TPA) |SC|=0.61, were discriminating in favor of a negative (MR), because scores near a central average of 2.94 will influence the team to earn a defeat. The average (TAA) of the defeated teams was higher than the winning teams, although there was a significant difference. However the average (TPA) of the winning teams was higher with significant differences, which

strangely means that the |SC| factor (TPA) discriminated in favor of defeat.

Costa, Barbosa, Freire, Matias and Greco (2014) evaluated 18 games (65 sets) of the 12 teams participating in the Brazilian SuperLeague Women's Volleyball during the 2011/2012 Season to identify possible predictors of victory and defeat in volleyball, and found that the variables related to the survey have no predictive power for any (MR), whether positive or negative. Despite being part of the same sample of our research, the difference in the number of analyzed games (18 games vs. 148 games) may be responsible for the disparity regarding the outcome of the factor (TAL).

The factors that determined a positive (MR) included the (TAS) |SC|=-0.83, (TAD) |SC|=-0.40, (TAR) |SC|=-0.39 and (TDE) |SC|=-0.30 because a score around a central mean of -2.94 influenced the team to victory. These discriminatory values say even more with the highest average Total Shares Serve (TAS) of the winning teams. The results also highlight the fact that the number of withdrawals that result in direct points (TPS) was very low, but higher in winning teams. Marcelino, Mesquita, Sampaio and Moraes (2010), Marcelino, Mesquita and Afonso (2008), Marelić, Reset and Jancovik (2004) found that the team with a better serve had a better chance of winning.

The benefit of the serve is not only the direct point, but rather that the serves has an influence on the further development of the game. Thus, it has been observed that running a good service, affects the receiving performance (Quiroga, Rodríguez-Ruiz, Sarmiento, Muchaga, Grigoletto and García-Manso, 2012; Ureña, Espa, Calvo Lozano Ferrer and Perez, 2002) and the attacking options the opposing team, reducing quick attacks (Papadimitriou, Pashali, Sermaki, Mellas and Papas, 2004; Palao, Manzanares and Ortega, 2009). This influence the serve in the attack of alternative causes an increase in the blocking action, which would facilitate the defense (Palao, Santos and Ureña, 2004).

As shown in Table 4, the results gathered from the Brazilian SuperLeague Women's Volleyball 2012/2013 Season, significant differences, showing that winning teams had higher averages of Total Points Made (TPF), Total Points Attack (TPA), Total Points Block (TPB) Total Points Serve (TPS), Total Shares Attack (TAS), Opponent Errors (EA) and Total Defense Excellent (TDE) than the losing teams, thereby leading them to earn the victory.

As Inkinen, Häyrinen and Linnamo, (2013), Marelić, Reset and Jancovik (2004) note, the defense and the reception are irrefutably valuable Volleyball structures for coaches, of such importance that a new player role was created. The libero is an expert in reception and defense. Maia and Mesquita (2006) first described the prominence of the libero. However, researchers have not pinpointed a challenge in the efficacy of libero reception in relation to the players which is the line of 1st touch in women's volleyball.

Instead, the losing teams had a higher average Number of Substitutions (NS) and Total Shares Reception (TAR) than the winning teams, but still failed to earn the victory. It should be noted that the positive reception led to more opportunities to win the set (Garcia-Hermoso, Davila-Romero and Saavedra, 2013; Quiroga, Rodríguez-Ruíz, Sarmiento, Muchaga, Grigoletto and García-Manso, 2012), while reception errors restricted the occasions to win a game (Patsiaouras, Moustakidis, Konstantinos and Kokaridas, 2011). According to Miskin, Fellingham and Florence (2010), this is especially true because it is more difficult to convert a point after a defense than after a pass. It is understood that, after a pass, the attack is already set up, while after a defense, the attack must usually be rebuilt.

As shown in Table 5, the results of |SC| factor (TAD) |SC|=0.43 discriminated for a positive (MR), because the scores near a central average of 2.99 influence the team to victory. Inkinen, Häyrinen and Linnamo (2013) analyzed adult women's volleyball games worldwide and European junior women's volleyball to clarify the differences between the winners and the losers. We analyzed four 2010 World Cup matches and four games of the 2010 Junior European Volleyball Championship and found that the defense level has an effect on the success of the attack, in which the winning teams registered 72.3% (TDE) and 18.1% defensive errors in the Total Shares Defense (TAD). We conclude, therefore, that defending is an important skill for earning victory in women's volleyball match thus confirming and reinforcing our investigation.

Surprisingly, the factor which caused the (MR) to be negative, was (TPF) |SC|=-0.50 because scores around a central mean of -2.99 influenced the team to defeat. As noted earlier, the factor Total Points Made (TPF) should lead the team to a positive (MR), but that was not the case in our findings.

Conclusions

According to the results obtained from this study, we can say that in Brazilian SuperLeague Women's Volleyball 2011/2012 Season, the Total Shares Setting (TAL) and Total Points Attack (TPA) are associated with defeat. The factors that best discriminated in favor of victory, included Total Shares Serve (TAS), Total Shares Defense (TAD) Total Shares Reception (TAR) and Total Defense Excellent (TDE). In Brazilian SuperLeague Women's Volleyball 2012/2013 Season, the Total Shares Defense (TAD) was the most important factor that discriminated in favor of victory, and the factor that most effectively discriminated in favor of defeat was the Total Points Made (TPF).

Thus, responding to the objectives of this study, Scoring Skills (TPA) and (TPF) discriminate the final outcome of the game but are surprisingly associated with defeat. The Scoring Skill (TAS) determines the final outcome of the game and is reportedly associated with victory. The Non-Scoring Skills (TAD) (TAR) and (TDE) discriminate the outcome of the game and may be associated with victory. The Non-Scoring Skill (TAL) determines the outcome of the game, probably due to the defeat.

With the results and data obtained in the present study, we suggest that these variables must be taken into account in the development of coaches, players, and teams who can use this valuable information to create better training procedures.

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