Comparison between the WNBA and WEL: differences and key performance indicators in top women basketball leagues
Comparación entre WNBA y WEL: diferencias e indicadores de rendimiento en las principales ligas de baloncesto femenino

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Abstract

Introduction: This study focused on comparing performance between the WNBA and the Euroleague Women, identifying key variables to optimize key strategies in women's basketball. Objective: To establish a comparison between the Women's National Basketball Association (WNBA) and the Euroleague Women (WEL) in different phases of the season (regular season and playoffs). In addition, to obtain the main differentiating variables between these competitions and the "best teams" (those qualified for the playoffs) of each league. Methodology: Data were collected from the 2018/2019 season in the WNBA and 2019 for the WEL, collected from official statistics. Using Discriminant Analysis, the most relevant variables related to victory during the regular season were obtained. Results: Differences in play were observed between the two competitions (in 12 of the 19 variables during the regular season; and in 10 in the playoff sample). The results showed differences between the number of possessions per team, blocks and points between the leagues. Discussion: The comparison between the best teams showed differences in points, total rebounds and defensive rebounds. Only the WNBA teams had a higher percentage of 3-point success. Conclusions: The results of this research could be considered valuable information for coaches in these leagues in order to develop appropriate game strategies considering the importance of each variable in achieving victory. Thus, this work could contribute with new information related to women's basketball to the study of performance, due to the lack of specific research in this area.

Keywords

Basketball; Euroleague; performance analysis; WNBA; women.

Resumen

Introducción: Este estudio se centró en comparar el rendimiento entre WNBA y Euroliga Femenina, identificando variables clave para optimizar estrategias clave en el baloncesto femenino. Objetivo: Establecer una comparación entre la Asociación Nacional de Baloncesto Femenino (WNBA) y la Euroliga Femenina (WEL) en diferentes fases de la temporada (temporada regular y *playoffs*). Además, obtener las principales variables de diferenciación entre estas competiciones y los "mejores equipos" (aquellos clasificados para *playoff*) de cada liga. Metodología: se recopilaron datos de la temporada 2018/2019 en WNBA y 2019 para WEL, recogidos de las estadísticas oficiales. Mediante el Análisis Discriminante se obtuvieron las variables más relevantes relacionadas con la victoria durante la temporada regular. Resultados: Se apreciaron diferencias de juego entre las dos competiciones (en 12 de las 19 variables durante la temporada regular; y en 10 en la muestra de *playoffs*). Los resultados mostraron diferencias entre el número de posesiones por equipo, bloqueos y puntos entre las ligas. Discusión: La comparación entre los mejores equipos mostró diferencias en puntos, rebotes totales y rebotes defensivos. Únicamente los equipos de WNBA presentaron un mayor porcentaje de acierto de 3 puntos. Conclusiones: Los resultados de esta investigación podrían considerarse información valiosa para los entrenadores de estas ligas con el fin de desarrollar estrategias de juego adecuadas considerando la importancia que tiene cada variable en la obtención de la victoria. Así, este trabajo podría contribuir con nueva información relacionada con el baloncesto femenino al estudio del rendimiento, debido a la falta de investigación específica en esta área.

Palabras clave

Baloncesto; Euroliga; análisis del rendimiento; WNBA; mujeres.

Introduction

Basketball is one of the most analyzed sports concerning performance (Dogan & Ersoz, 2019; García et al., 2013; Mandić et al., 2019; Marmarinos et al., 2019; McGoldrick & Voeks, 2005; Melnick, 2001; Mikolajec et al., 2013; Özmen, 2016). Game statistics in leagues such as the NBA or the Euroleague (EL) and their influence over the outcome is a topic widely studied (Dogan y Ersoz, 2019; Melnik, 2001; Mikolajec et al., 2013).

Following the performance analysis literature, some important variables can be found, namely the win percentage during the season and in close games, offensive efficiency, third-quarter points per game, average fouls, and average steals are important for final ranking (Dogan y Ersoz, 2019; Marmarinos et al., 2016; Mikotajec et al., 2013). Moreover, the game pace became one of the most prominent variables for previous literature in the last years. For example, NBA and EL presented the largest difference in game pace variables (Mandić, 2019). Although a lot of performance indicators research can be found in elite basketball arouses great interest, women's basketball performance bibliography is still scarce comparing men's basketball.

Taking gender into account, the specific literature (Gómez et al., 2009; Ibáñez et al., 2015; McGoldrick & Voeks, 2005; Sampaio et al., 2004) described the most relevant statistics compared to men (McGoldrick & Voeks, 2005; Sampaio et al., 2004), analyzed performance between starters and nonstarters (Gómez et al., 2009), or established differences in free throws (FT) between women and men (Ibáñez et al., 2015).

In this way, differences between genders have been observed in-game pace among national leagues, where a higher performance was achieved by women due to higher values in the number of possessions (Romaris et al., 2019). However, team ball possessions (TBP) were also compared during world championships, and higher values of TBP were scored by men (Ibáñez et al., 2003). Recently, a women's senior continental championships study highlighted that Africa and America presented the highest game pace while the lowest were registered in Europe (Madarame, 2018c).

Focusing solely on women's basketball, the European and Asian players would have lower TBP and turnovers, and a higher number of scored field goals and assists. American style presented a lower percentage of field goals and assists; and a higher number of steals and turnovers. Finally, African women played with a lot of TBP, free throws, and turnovers; and they had fewer successful field goals (Madarame, 2018b). The European U18 women were similar to the European senior ones in those scores. However, the similarity is not as clear as in Asian depending on the age (Ibáñez et al., 2018; Madarame, 2018b; Madarame, 2018c). In addition, while the American style was different depending on gender and age (Ibáñez et al., 2018; Madarame, 2018b; Madarame, 2018c), the African style was clear, despite the age or gender: they presented the highest number of free throws per 100 possessions, turnovers, and the lowest percentage of field goals (Ibáñez et al., 2018; Madarame, 2018b; Madarame, 2018c).

Nevertheless, some common methodological issues can be observed in this kind of performance research. For example, the different statistical approach has been performed to differentiate between championships and season phase, such as regular season or playoff games (Dogan & Ersoz, 2019; García et al., 2013; Özmen, 2016). Also, other studies have been done differentiating balanced or unbalanced games (Conte & Lukonaitiene, 2018; Williams, 2014), in different tournaments such as continental championships (Conte & Lukonaitiene, 2018; Madarame, 2018a). As an example, some differences were observed in the EL, where the two-point conversion percentage (2P%) was the most important variable in the first round and the round of 16; while the three-point conversion percentage (3P%) was the most important in the playoffs and the final four (Dogan & Ersoz, 2019). Additionally, assists, defensive rebounds (DefReb), and turnovers (Özmen, 2016) were highly variable items, increasing or decreasing the win probability as these competition rounds went by (Marmarinos et al., 2019).

In addition, rules could influence the performance analysis (Štrumbelj et al., 2013). Rule changes implemented by FIBA during the 2010/2011 season affected some of the statistics between gender and category (Pérez-Ferreirós et al., 2018). Those changes were analyzed in women's basketball (U20 and U16) (Veleirinho & Tavares 2013), showing that statistical differences between these two youth categories become smaller.

Even the performance can be modified by the location of the match. In Spain, playing at home increased the game quarter outcome compared with playing away (Moreno et al., 2013). What is more, comparing WNBA, Spanish, Italian, and French leagues, there was a relevant advantage of playing at home, being WNBA and Italian leagues the ones with the highest percentages of wins at home (Gómez et al., 2009).

In this way, the previous literature about performance research and match types analyzed continental championships (Conte & Lukonaitiene, 2018; Madarame, 2018), Olympic Games (Leicht et al., 2018) or national leagues (Conte & Lukonaitiene, 2018; Gómez et al., 2006; Gómez et al., 2009; Romarís et al., 2016; Zhai et al., 2020); but as far as it is known, no study has examined which are the most relevant variables for obtaining victory in WEL and WNBA, the two top leagues in the world.

Considering the performance research impact on basketball, some of the methodological problems that must be considered (i.e. regular season or playoff matches), and the emphasising to develop the women's basketball field study, the purpose of this study was (i) to establish a comparison between leagues (WNBA and WEL) taking into account the season league phase and (ii) to find the most powerful variables on obtaining victory in the two highest women's basketball leagues

Method

Participants

Data were collected from the official box scores of WEL and WNBA. In total, 342 games were selected (n = 684 teams). The sample of the study included 110 from the regular season and 12 playoff games of the 2018/2019 WEL season, and 204 from the regular season and 16 playoff games of the 2019 WNBA season.

Procedure

Several variables were selected to analyze in this comparison: points, TBP, 2-point, 3-point, and free throws attempted, and each hit ratio (2PA, 2P%; 3PA, 3P%, and FTA%); assists, blocks, steals, turnovers; fouls Cm. and fouls Rv. (personal fouls committed and received, respectively); free throws attempted per personal fouls received (FT per foul); offensive rebounds, defensive rebounds, the total number of rebounds (OffReb, DefReb, TotReb), and offensive rebound percentage (OffReb%). TBP and OffReb% did not appear on the official box scores of the leagues, so they were obtained using the following equations:

$$TBP = 2PA + 3PA + 1/2\ FTA + turnovers \qquad (1)$$

$$OffReb\% = [(OffReb) / ((field\ goals\ attempted - field\ goals\ made) + (FTA - free\ throws\ made))] \times 100 \quad (2)$$

In addition, TBP was calculated using the same equation (1) as previous research [8], and it is a proxy number.

For WEL games, 2PA and 2P% were taken directly from the box scores. However, these two variables did not appear on the official statistics of WNBA, so these parameters were calculated them using (3) and (4):

$$2PA = field\ goal\ attempted - 3PA \qquad (3)$$

$$2P\% = [(field\ goals\ made - 3\ point\ shots\ made) / (field\ goals\ attempted - 3PA)] \times 100 \qquad (4)$$

Apart from these quantitative variables, there were also collected 4 dichotomous categorical variables. These variables were: the name of the competition (WEL or WNBA), the phase of the season (regular season or playoff), the outcome of the game (win or loss), and the quality of the team (best teams vs. worst teams). The best teams were considered those who qualified for playoffs, and the worst teams were those who did not classify for the playoffs in the season 2018/2019.

Data analysis

The performance variables were described using the mean and the standard deviation. The normal distribution of the variables was checked using the Kolmogorov–Smirnov test, and the homogeneity of variance was tested using Levene's test. A Student-t-test was carried out to analyze the differences

between both leagues, taking the regular season sample and playoff sample of each competition separately, in order to analyze differences depending on the season phase.

Additionally, a Discriminant Analysis (DA) was applied to find the variables that presented a stronger contribution to discriminate between the two groups (WEL and WNBA), and the best teams of each league during the regular season with the rest of the league teams (the best teams were considered those who qualified for the playoff). This method could help to identify a single variable that contributes to a difference between two groups. A *Box M's test* and *Lambda Wilks* were performed to check the suitability of the data set for this analysis. Then, the Structure Coefficients (SCs) of the different variables were analyzed with values ≥ |.30| meaning that the variables contributed to discriminate between the two competitions [24]. In addition, discriminant linear functions of Fisher2 were obtained. The validation of the discriminant models was conducted doing a reclassification of the original cases of the sample, also a cross-validation method was carried out with 10% of the sample. All the statistical analyses were performed using version 21.0 of the Statistical Package for Social Sciences (SPSS, Chicago, Ill) and RStudio (version 1.6) and significance was set at p ≤.05.

Results

Firstly, differences between the two leagues were presented discerning between the regular season and playoff (table 1). Secondly, the results of the DA were presented. On the one hand, DA between both leagues was performed (table 2). On the other hand, DA of the most important variables in obtaining victory in the best teams during the regular season was done in each league (table 3). The results will be shown by comparing both leagues and comparing the regular phase and playoffs.

Descriptive analysis

In order to perform a clearer analysis, results have been compared establishing different categories, such as pace and points (including the number of points per game and TBP), shooting (2PA, 3PA, and FTA and each ratio), assists, blocks, steals and turnovers, personal fouls (Fouls Cm., Fouls Rv. And FT for foul) and rebounding (OffReb, DefReb, TotReb, and OffReb%).

Table 1. WEL vs WNBA depending on the competitive stage.

| Variables | Regular season games | | | | | Playoff games | | | | |
| | WEL | | WNBA | | | WEL | | WNBA | | |
	Mean	SD	Mean	SD	p	Mean	SD	Mean	SD	p
Points *†	69.49	12.499	78.68	11.277	.000	69.25	12.248	85.38	11.647	.000
TBP *†	82.893	5.6895	90.694	6.0347	.000	85.833	6.0822	90.813	4.8172	.001
2PA *†	43.70	6.584	48.54	6.887	.000	46.79	5.861	50.88	6.762	.022
3PA *	17.94	4.252	20.03	5.110	.000	17.83	4.797	20.78	5.993	.053
FTA *	14.41	6.121	17.25	6.437	.000	15.25	5.885	15.75	5.471	.744
2P% †	46.344	8.9774	46.224	8.1352	.868	44.171	9.1208	49.906	5.7319	.006
3P%	33.930	12.1429	33.848	11.2850	.933	30.604	15.6295	36.481	10.7893	.102
FTA% * †	74.717	14.3879	80.232	11.1791	.000	71.988	16.8917	81.600	10.2443	.019
Assists * †	16.97	5.217	18.85	4.649	.000	15.92	5.332	20.97	4.388	.000
Blocks *	2.30	1.712	4.18	2.176	.000	3.46	1.978	3.97	2.163	.369
Steals	7.72	3.103	7.45	3.150	.296	7.67	3.060	6.41	2.434	.092
Turnovers †	14.05	3.874	13.49	3.774	.078	13.58	3.752	11.28	3.540	.023
Fouls Cm.	17.36	3.837	17.48	4.036	.709	16.75	3.529	16.38	3.358	.687
Fouls Rv.	17.36	3.837	17.48	4.036	.709	16.75	3.529	16.38	3.358	.687
FT per foul*	0.807	0.2327	0.976	0.2564	.000	0.902	0.2795	0.949	0.1962	.478
OffReb * †	10.48	3.972	9.03	3.366	.000	11.75	3.904	8.00	2.973	.000
DefReb	25.97	4.747	25.77	4.892	.616	27.67	4.869	26.00	4.494	.191
TotReb * †	36.45	6.618	34.80	5.975	.002	39.42	5.073	34.00	5.973	.001
OffReb% * †	26.625	8.1414	20.845	6.5830	.000	27.370	6.8874	19.313	6.7806	.000

Note: * = Significative differences between WEL and WNBA on regular season games (p≤.05). † = Significative differences between WEL and WNBA on playoff games (p≤.05).

Pace and points

It was appreciated in WNBA that teams scored a higher number of points per match than in the WEL during the whole season (*p* <.001 in both comparisons). Also, there were statistical differences in the TBP, being higher in WNBA in the regular season (*p* <.001) and playoffs (*p* =.001) (Table 1).
3.1.2. Shooting
There were differences in some of the variables related to shooting (see table 1). On the one hand, WNBA teams performed a higher number of 2PA, 3PA, and FTA in the regular season (*p* <.001 in all comparisons). Additionally, 2PA was also different during the playoff phase (*p* =.006).
Comparing both phases, differences were not observed in 3P% (*p* >.05). Differences were solely found in 2P% during playoff games (*p* =.006), where WNBA playoffs were outstanding. Contrary to field-goal

percentages, WNBA presented a higher number of FTA% in both the regular season ($p <.001$) and playoff ($p =.019$)

Assists, blocks, steals, and turnovers

WNBA teams presented a higher number of assists ($p <.001$ in all comparisons). Also, WNBA teams performed almost the double number of block shots per game in the regular season than WEL ($p <.001$). However, during the playoff, the blocks increased in the WEL. Therefore, the differences with the WNBA disappeared at this stage ($p >.05$). In fact, there were statistical differences in the number of turnovers during playoffs, being lower in the American competition ($p =.023$). Additionally, differences in the number of steals between both leagues were not founded ($p >.05$).

Personal fouls

There were no differences in the number of Fouls Cm. and Fouls Rv. among the two leagues ($p >.05$). However, FT per foul was higher for WNBA than WEL during the regular season phase ($p <.001$).

Rebounds

It was observed that DefReb was similar between both competitions, no matter the season phase ($p >.05$). Nevertheless, the amount of OffReb was statistically higher in the WEL *(p <.001* in both comparisons*)*. Therefore, OffReb% (both phases $p <.001$) and TotReb (regular season $p =.002$; playoff $p = .001$) were higher in the WEL compared to WNBA.

Discriminant analysis

Difference between both leagues

The analysis of game-related statistics showed that TBP (SC =.505), blocks (SC = .339), and points (SC=.325) were the ones that could discriminate more between both competitions (Table 2). The SCs of these three parameters were positive numbers, so that indicated that the WNBA was the group that presented higher values of these three parameters: TBP, blocks, and points.
In addition, considering the coefficients for the classification function, a discriminant linear function was obtained for each competition (Function one = WEL; Function two = WNBA).
Once the linear discriminant functions were obtained, a reclassification was performed with all the matches of the sample. 89.3% of the matches were classified in the correct group (reclassification = 89.3%).

Table 2. Discriminant analysis: WEL vs. WNBA

Variable	Function 1: WEL***	Function 2: WNBA***	Structure coefficients** (function one)
TBP*			.505
Blocks	-1.464	-1.053	.339
Points	-11.347	-11.382	.325
2PA	13.570	14.099	.275
FT per foul	277.524	281.472	.252
FT%	2.357	2.405	.186
OffReb	-1.109	-1.675	-.182
3PA	15.339	15.923	.175
Assists	-0.481	-0.523	.173
FTA	-5.743	-5.614	.167
TotReb*			-.128
Turnovers	3.170	3.546	-.070
Steals	-0.222	-0.467	-.044
DefReb	0.779	0.561	-.029
2P%	11.380	11.383	.017
3P%	6.255	6.268	.015
Fouls Rv.	14.894	14.933	.010
Fouls Cm.	0.995	0.910	.010
(Constant)	-725.967	-762.729	
Box M's test		F=2.743; p=.000	
Wilk's Lambda		.405; p=.000	
Eigenvalue		1.47	
Canonical correlation		.771	
Reclassification		89.3 %	

Note: *these variables were not included in the analysis; **Structure coefficients with values ≥ |.30| contribute to discriminate between the two groups; ***Discriminant linear function of Fisher; (variables 'coefficients for the classification function).

Discrimination between competitions on obtaining victory

In this comparison, Points (SC = .419 in WEL and .530 in WNBA), DefReb (SC = .366 in WEL and .417 in WNBA) and TotReb (SC = .347 in WEL and .352 in WNBA) contributed the most to obtaining the victory in the 2 competitions. However, the main difference between the 2 competitions was 3P%. Contrary to WEL (SC = .191), this variable was important in WNBA winning teams (SC = .368).

Reclassification was performed with all the matches of the sample. 90.0% of the matches were classified in the correct group in WEL (reclassification = 90.0%) and 87.5% in WNBA (reclassification = 87.5%).

Table 3. Most powerful variables in obtaining victory in WEL and WNBA.

Variable	WEL	WNBA
Points*†	.419	.530
TBP	.053	-.017
2PA	.044	.021
3PA	-.084	-.002
FTA	.182	.115
2P%	.278	.276
3P% †	.191	.368
FTA%	.023	.079
Assists	.297	.281
Blocks	.147	.042
Steals	.172	.059
Turnovers	-.052	-.158
Fouls Cm.	-.295	-.096
Fouls Rv.	.153	.099
FT per foul	.145	.089
OffReb	.141	.021
DefReb* †	.366	.417
TotReb* †	.347	.352
Box M's test	F=1.256; p=.024	F=1.199; p=.057
Wilk's Lambda	.429; p=.000	.455; p=.000
Eigenvalue	1.331	1.196
Canonical correlation	.756	0.738
Reclassification (original)	90.0%	87.5%
Reclassification (cross-validation)	84.5%	83.8%

Note: *SCs with values ≥ |.30| contribute to discriminating between winning or losing in WEL. † SCs with values ≥ |.30| contribute to discriminating between winning or losing in WNBA.

Discussion

The main purpose of this study was (i) to establish a comparison between leagues (WNBA and WEL) taking into account the season league phase and (ii) to find the most powerful variables in obtaining victory in the two highest women's basketball leagues. Some differences could be found between regions and league periods (playoff or regular league) in different categories, such as pace and points, shooting, assists, blocks, steals and turnovers, personal fouls, and rebounds. However, TBP, blocks, and points were the most contributed to differentiate them. In the comparison between the best teams with the rest of their league Points, DefReb, and TotReb were pointed out as the most discriminant variables. Additionally, WNBA presented differences between playoff teams in 3P%.

Previous research highlighted that continental women's elite basketball championships were played differently depending on the region (Madarame, 2018b) and the results of the present study have confirmed those differences in the style of playing (Zhai et al., 2020). Differences in TBP had previously been found in women during continental championships, being higher in American than in European continental championships (Madarame, 2018b; Madarame 2018c).

The different systems of competition between WEL and WNBA could be an explanation for the discrepancies in the TBP, as observed in NBA and EL (Ransdell et al., 2020). Some of the WNBA teams do not must win all the matches during the regular season; in addition, WEL teams play their national competitions of great demand. Therefore, the amount of time played per player was more distributed during the regular season period in WNBA. Considering that rest periods (principally timeouts) were longer in WNBA and that minutes were distributed more equally in the WNBA; less fatigue was accumulated by WNBA players, probably because your league lasts less time (Gómez et al., 2009). This could be a possible explanation for the higher TBP in WNBA. If TBP was higher, consequently, a higher number of points was performed by WNBA players, because the field goal percentages were similar.

Establishing a comparison between which league performed better in 2P% and 3P% is hard due to the defenders' level influences on the shooting percentage (Ransdell et al., 2020). However, there is a variable in which there is no defense, so could be considered similar in both leagues: the FT%, (higher in WNBA). These results suggested that WNBA presents a higher level, as it is shown by Spiteri et al. (2019), where the effectiveness of the shots increases with higher player levels and experiences (Zhai et al., 2020).

A lower ratio in WEL of FT per foul suggested that the defenses in WNBA are intense and aggressive, with lots of hand contact (Paulauskas et al., 2018). As in the case of men's basketball, these differences could be explained by the contrasts between the better athleticism of American players and more emphasis on tactical aspects in Europe (Delextrat et al., 2009; Ransdell et al., 2020).

The higher number of assists in the WNBA can be explained as a consequence of having more TBP and points. A plausible explanation for the higher number of blocks in the WNBA during the regular season (that was almost double) is the higher level of strength in this league, being very important the lower-body power, agility, and reduced lower-body imbalances to execute more proficient movements required on-court (McGoldrick & Voeks, 2005; Zhai et al., 2020). However, during playoffs, there were no differences between the leagues in the number of blocks. These results suggest that WNBA players have better physical condition than WEL, but differences are reduced when solely the best WEL teams are considered. May can be found higher physical fitness similarities between this kind of team and the WNBA (McGoldrick & Voeks, 2005; Spiteri et al., 2019).

Also, WNBA presented a greater number of blocks, TBP, FT per foul, and FT% during the regular season. These results could be compared to those obtained by NBA players in NBA - EL comparison (Mandić et al., 2019). However, contrary to men's comparison (Mandić et al., 2019), where EL teams managed more fouls Cm, our results showed no differences in this variable. It may be that these playing trends have become closer in recent years (Delextrat et al., 2015).

Additionally, there were differences in the OffReb%, which was higher in WEL. Considering the higher % of FT in WNBA and the pace of the game also higher, WNBA players could be focused on protecting their own rim to reduce opponent fast break actions. The OffReb% was previously analyzed in WEL and values similar to our study were obtained: around 27% of OffReb% in WEL (Ransdell et al., 2020). These values are confirmed in this research, and it was also found that the percentage is lower in WNBA.

Despite the differences in the statistical parameters, the 3 most important variables for obtaining victory were the same in both leagues: Points, TotReb and DefReb. The importance of DefReb as a performance indicator was also observed in previous studies during the Women's Olympic Games (Leicht et al., 2017), in men's EL during the first round (Dogan & Ersoz, 2019), in comparison to NBA and EL (Delextrat et a., 2015), in the game styles of the different FIBA competitions (Zhai et al., 2020) and also in the Spanish basketball women's league (Gómez et al., 2006). In men´s EL, the importance of DefReb decreased as the level of competition increased (Dogan & Ersoz, 2019). Further research at the statistical level as well as the physical (Zhai et al., 2021) in top women's elite basketball leagues in order to see if there are differences in the most important variables to obtain victory during playoff games.

The principal difference was the importance of 3P% to achieve victory in the WNBA, contrary to WEL. A possible reason for this could be that in this league lower OffReb% is performing comparing OffReb% in WEL, just as it is in men's (Delextrat et al., 2015). If a 3-point shot failed in WNBA, the OffReb was not performed as much as in WEL. As a consequence, the opponent can start a fastbreak or set offense. On the other hand, there are more possibilities of winning the match with a poor 3P% in the WEL, because they have higher OffReb%, having more second chances than in WNBA.

Contrary to our results, it was found (McGoldrick & Voeks, 2005) that the variable with the highest marginal effect on obtaining victory in WNBA was 2P%. In addition, 2P% was the most important variable in a DA done in EL during the first round and the top sixteen (Dogan & Ersoz, 2019).

Another difference amongst the leagues that was appreciated in the research was the importance of reducing fouls Cm. (Delextrat et al., 2015) in order to obtain victory in the WEL. This fact can be explained by the higher values of FT per foul in the WNBA. When a team has few fouls Cm. and is not in a bonus situation, in the WEL the teams would perform more frequently tactical fouls without free throws for the opponent team, taking more advantage than in the WNBA. This can be the explanation of the importance of reducing fouls Cm. in WEL to obtain the victory, compared to the WNBA.

As a principal limitation of this study, it can be found differences in the competition model by region, which could be difficult to compare data from different league rules; nevertheless, it can be found in the scientific literature with a similar comparison (Paulauskas et al., 2018). This fact makes it difficult to establish similar comparisons with other women's basketball studies, focused on international championships, but creates a research opportunity to improve and extend the performance analysis

area in this area (Simovic et al., 2020), so further investigations are required to confirm the findings of the present study.

Conclusions

Basketball rhythm playing is different in WEL and WNBA in 2018/2019 and 2019 season comparative: differences between both competitions were obtained in 12 of the 19 variables utilized during the regular season and in 10 at playoffs. DA showed TBP, blocks, and the number of points (all with higher values at the WNBA) as the variables that differ most between leagues. During playoffs, the differences in the number of blocks became smaller.

On the other hand, DA showed no differences in the field goal percentages between leagues, but WNBA players were able to shoot more time keeping the shooting percentage.

Although the 3 most important variables to obtain victory in the best teams were the same in both competitions: Points, TotReb, and DefReb, the 3P% in WNBA, is higher compared to WEL.

In this research, the importance of each variable in achieving victory was studied. However, due to the small playoff sample size, the analysis (DA) of the most important variables in obtaining victory was hindered. Further research needs to be conducted with the playoff samples from both competitions to determine if there are differences in the most influential variables for obtaining victory based on the phase of the season.

Knowing the importance of each variable in obtaining victory would be considered valuable information for WNBA and WEL coaches to develop game strategies, as well as to better understand the potential benefits for players.

A knowledge of these variables could help coaches and performance analysts adapt their training sessions and key performance indicators, focusing on the principal variables of each competition. However, these statistics are linked to different conditions, specifically the region and competition phase.

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