

## A CROSS-SECTIONAL ANALYSIS OF THE CHALLENGES FACED BY HUNGARIAN WOMEN'S FIRST DIVISION FOOTBALL TEAMS BASED ON COACHES AND PLAYERS STATISTICS

### PRZEKROJOWA ANALIZA WYZWAŃ STOJĄCYCH PRZED WĘGIERSKIMI KOBIECYMI DRUŻYNAMI PIŁKARSKIMI W PIERWSZEJ LIDZE NA PODSTAWIE STATYSTYK TRENERÓW I ZAWODNICZEK

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Wkład autorów:  
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B. Data collection/entry  
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C. Data analysis/statistics  
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G. Funds collection  
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#### Summary

**Background.** The current situation experienced by football clubs in the Hungarian women's first division was analyzed. It was assumed that: one of the obstacles for the development is the presence of non-skilled sports experts (H1); all the foreign players achieve better results than the Hungarians (H2); and the foreign players are older than the Hungarians on average (H3).

**Material and methods.** In this study, the qualifications of the coaches in women's football were compared with those in the men's first division. The number of games played, performance statistics and average age amongst the players were studied as well. The data was analyzed using crosstab and two sample T-tests.

**Results.** H1 was confirmed by T-test and the significant result between the two groups was  $p=0.00$ . H2 was confirmed as well: the performance analysis was significant and the foreign players achieve better results ( $p=0.001$ ). The Hungarian players have better results in terms of the number of games, the number of performances in the starting lineup and the number of seasons played in the first division.

**Conclusions.** The examined problems in Hungarian women's football have been proven. All the areas of women's football considered in this study require development, especially in terms of the academic qualities of the coaches, which widely affect the team's performance.

**Keywords:** women's football, football players, soccer, coaching, football, coach

#### Streszczenie

**Wprowadzenie.** Przeanalizowano obecną sytuację, jakiej doświadczają kluby piłkarskie w węgierskiej pierwszej lidze kobiet. Założono, że jedną z przeszkód w rozwoju jest obecność niewykwalifikowanych ekspertów sportowych (H1), że wszystkie zagraniczne zawodniczki osiągają lepsze wyniki niż Węgierki (H2), a także, że zawodniczki zagraniczne są średnio starsze niż Węgierki (H3).

**Materiał i metody.** W niniejszym badaniu porównano kwalifikacje trenerów w piłce nożnej kobiet z kwalifikacjami ich odpowiedników w pierwszej lidze męskiej. Przeanalizowano również liczbę rozegranych spotkań, statystykę występów i średnią wieku wśród zawodniczek. Dane analizowano za pomocą crosstab oraz T-testów do porównania obu grup.

**Wyniki.** H1 potwierdzono T-testem, a wynik istotny pomiędzy obiema grupami wynosił  $p=0.00$ . H2 zostało również potwierdzone: analiza rozegranych spotkań dała istotny wynik, a zagraniczne zawodniczki osiągnęły lepsze wyniki ( $p=0.001$ ). Węgierki uzyskały lepsze wyniki pod względem liczby rozegranych meczy, obecności w pierwszym składzie oraz liczby sezonów rozegranych w pierwszej lidze.

**Wnioski.** Badane problemy w węgierskiej piłce nożnej kobiet zostały potwierdzone. Wszystkie przeanalizowane w niniejszym badaniu obszary piłki nożnej kobiet wymagają rozwoju, szczególnie w zakresie kwalifikacji naukowych trenerów, które w dużym stopniu wpływają na wyniki drużyn.

**Słowa kluczowe:** piłka nożna kobiet, piłkarze, piłka nożna, coaching, trener

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## Introduction

Sport plays an important role in people's lives for both professionals and amateurs who play for health reasons [1]. Sport is essential for disease prevention [2]. Football in our days is one of the fastest developing sports of the world [3]. Beside men's football, women's football has begun to play an important role in our society.

Although women's football has gained popularity in the 21st century, it is still a secondary sport to men's football. In Hungary, there is a significant trend in this direction, although internationally, the women's game has been gaining ground (USA, Germany). The women's side of the sport is still run by professionals who are very committed to its development. At present, most of the elite clubs in women's football are micro-organizations, and at each level of the sport, it is possible to identify a person whose departure could lead to the closure or a major decline of the women's division. In addition, there are a few flagship clubs where development is already a priority (MTK, Szeged). Funding problems are the main obstacle to the development of the organizational structure – i.e., in the women's section, the resources available for operations are often consumed by the competitive tendering process. The actual number of players in the first division women's clubs averages between 50 and 100, including the number of mandatory junior teams in addition to the adult teams. Moreover, pitch capacity is limited, with the men's game enjoying the upper hand in Hungary, leaving women's football in a difficult position overall.

Scientific research about women's football only began in the 21st century, that is why the data on the subject is so limited and mainly regarding the issues of injury and sport psychology. The management of the sport still has a long way to go [4]. This sport has developed enormously over the last 130 years from the national league to the world class events organized by FIFA. Experience shows that the major events such as the Champions League and World Championship are followed with more interest [5]. The spectator participation has shown an upwards tendency over the past decades [6]. A new sponsorship system was established in Hungary during the last decade and, as a result, more and more young children choose football. Thanks to the introduction of corporate tax, it has been possible to develop sport facilities and organize sport and training for young players in Hungarian football [7]. Nevertheless, women's football faces various challenges in different countries [8]. In America, female players start this sport too late, which presents a major problem [9]. Today there are more and more countries where women's football is approaching the professional level of men's football [10].

The main aim of our research was to analyze the current problems facing women's football. Hungarian women's football is far behind compared to other highly ranked nations. Currently there are 38,532 (adult and youth) licensed female players in the championships. In 2011 only 3,874 female players were licensed [3]. Currently in Hungary there exist two different championships for adults where players can challenge each other. In the women's first division there are 8 teams. Apart from the adult division, youth players have different championships as well. The Hungarian national team played its first match ever in 1985, and now it is ranked 45th according to FIFA [11].

In the first part of the research, the qualities and the skills of the coaches were examined. An obvious progress in the teams' technical staff can be observed, including higher education and number of people working on the field [12]. The academic level of coaches for women's football teams is increasing [13]. The Hungarian players lag behind foreign players in both athletic preparation and technical skills. A higher average age is recorded in the Hungarian players as well [14]. It is common to see foreign players in the Hungarian championship.

The aim of our study is to gain a better insight into the players and the coaches in the Hungarian championship and to compare their indicators. We believe, that if Hungarian women's football can develop in the area of club management as well, requiring more time and effort, then naturally the Hungarian teams can deliver a higher quality performance.

### *Hypothesis*

The aim of the study was to examine the qualifications of professionals, including the main coaches working in the Hungarian women's first division. It was assumed that the development of the sport is hampered by the participation of professionals with inadequate qualifications.

A further aim of the research was to determine the nationality composition of players in the Hungarian first division and to compare the players' indicators. The second hypothesis is that the performance statistics of the foreign players in the league, in terms of number of matches in the first division, number of starts, and number of seasons played, are higher than those of the Hungarian players.

### **Material and methods**

In the first part of the research, we reviewed the Hungarian and foreign literature and research that had already addressed a similar topic or sought answers to closely related questions. In the course of the study, there was examined national and international research that provided an overview of the characteristics of women's football, the preparation and qualifications of coaches and the factors that influence the sport. Unfortunately, the previous high-level research we analyzed did not provide any guidelines that could be adapted to the Hungarian league, so we looked for methods that could be used to characterize the specificities. The sources describing the different stages of an athlete's career and the selection process were examined, which is important for the training needed in team sports.

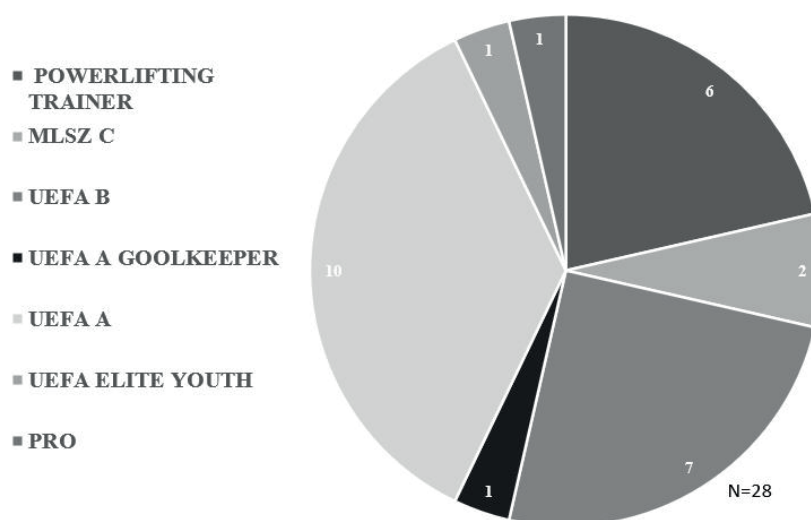
In the second part of the research the currently available data was analyzed based on a protocol that we designed. Our database was based on time series data from the women's section of the Hungarian Football Association. In addition, relevant indicators from the football coaching database were used. The research sample consisted of women's football clubs in the women's first division (N=8). During the data and document analysis, the special attention was paid to the analysis of players as well as professionals. The data collection from the teams and the areas to be investigated started at the beginning of 2021. Regarding the players, we looked at their age, performance statistics, number of Hungarian Football League (NBI) games played, number of performances in the starting lineup and number of active seasons as a player in the NBI. The performance indicator was an index calculated as the ratio of the number of performances in the starting lineup and the number of NBI games played. The players from the Hungarian first division teams were analyzed by nationality and an important segment of the analysis was the comparison of the indicators of the Hungarian and foreign players. Coaching qualifications were also processed using data from the Adult Education Institute of the Hungarian Football Association. We examined whether there is a difference between the qualifications of professionals in the men's and women's leagues.

The research was validated via an Independent Sample T test, because the significance level value ( $p < 0.05$ ) clearly indicates a difference between coaches' education and players' performance, thus mathematically confirming our hypotheses. In the statistical calculations, coaching qualifications were coded as UEFA B, UEFA A and UEFA PRO licenses. The statistical analysis was elaborated by differences and coherences which were presented in tables and figures.

### **Results**

The qualifications of the professionals working in women's clubs are divided into categories. Professional staff members in the eight women's premier league clubs numbered 28 (N=28). During the period under review, a total of 14 people were listed as head coaches in the minutes. Of the 14 head coaches, only one holds a UEFA PRO

license. The other 14 were involved in various roles within the professional staff (assistant coach, goalkeeper coach, strength and conditioning coach) (Figure 1).



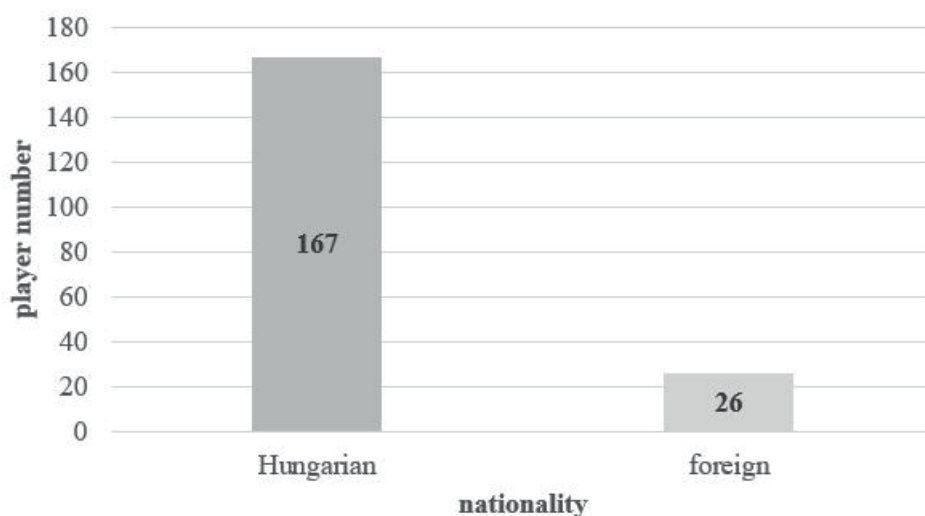
**Figure 1.** Distribution of coaching qualifications in women's teams

Table 1 presents the analysis of the differences in the qualifications of coaches working in the men and women's first division by using a 2 sample T-test. The number of population is 104 (N=104), of which 28 experts work in women's clubs and 76 in men's club. The results demonstrate that coaches working in women's clubs were exclusively male and there has never been a female head coach at any of the teams in the first division. During data elaboration, a significant difference was found in favor of men ( $p=0.00$ ). All the head coaches working for men's clubs have a PRO license; on the other hand, head coaches working for women's clubs only have an UEFA A or UEFA B license.

**Table 1.** Comparison of coaches' qualifications in men and women's first division

Coaches' qualifications	Number of experts		Mean
	women	28	3.50
	men	76	5.08
<b>2 sample t-test (p)</b>	$p<0.001$		

Figure 2 presents the players' nationality ratio in the Hungarian women's first division. During the examination period, there were 193 players in the championship. It can be seen that the Hungarian players outnumber the foreign ones by 167 (N=167) to 26 (N=26).



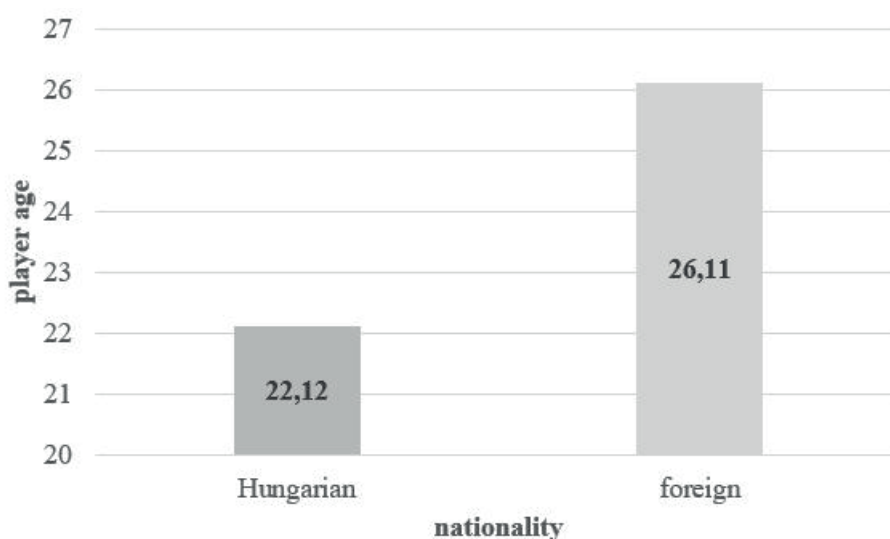
**Figure 2.** Ratio of the Hungarian and foreign players in the Hungarian women’s first division

Table 2 displays the results for the indicators by a 2-sample T-test. Apart from the physical performance, in all the other categories the Hungarian players have better results. As for the physical performance, foreign players have shown better results ( $p=0.009$ ), but in case of the number of games ( $p<0.001$ ), the number of performances in the starting lineup ( $p=0.006$ ) and the number of seasons played in the first division ( $p<0.001$ ), the Hungarians showed a significant difference.

**Table 2.** Results of the comparisons between the Hungarian and foreign players

	<b>Hungarian (N=167)±SD</b>	<b>Foreign (N=26)±SD</b>	<b>sig.</b>	<b>Dominance</b>
<b>Physical performance</b>	53.54±34.86	74.19±35.49	$p=0.009$	Foreign
<b>Number of games</b>	65.97±68.56	30.88±33.103	$p<0.001$	Hungarian
<b>Starting lineup</b>	49.06±60.28	27.08±31.19	$p=0.006$	Hungarian
<b>Seasons in the first division</b>	7.45±3.28	2.19±1.63	$p<0.001$	Hungarian

Figure 3 presents the results of the analysis of the average age of the Hungarian and foreign players (N=193). A significant difference can be found between the two groups ( $p<0.001$ ): the foreign players’ average age is much higher than the Hungarians.



**Figure 3.** Comparison of average age of the Hungarian and foreign players

## Discussion

According to the results, we can suppose that these phenomena are supported also by several other studies. Women's football has gained in popularity during the 21st century, but still cannot really find its own space beside men's football. This phenomenon is especially apparent in Hungary, even if the women's participation is becoming stronger and stronger internationally. Female players in traditional masculine sports such as football, handball, wrestling and judo can be successful worldwide, yet they still cannot compete with male competitors and players in terms of media coverage or sponsorship [15]. In his study, Béki states that the presence of female players is more common, but still cannot predominate and succeed alongside men's football [15]. It is visible in our study in relation to the coaches' qualifications: the coaches in women's clubs mainly had UEFA A licenses, while in men's club they all had UEFA PRO licenses.

Few Hungarian players play abroad, and in Croatia the participation is even lower than in Hungary [16]. It is also a problem that we can hardly find Hungarian experts in the area of players' transfers. There are no Hungarian club managers in any European teams. Likewise there are no main observers at leading teams or well-known Hungarian agents abroad [17].

A strategy that is capable of achieving both sport and economic success can therefore be attained by ensuring the right player pool. Nowadays in Hungary, women's football has become a popular demand on the market, which is truly visible with the presence of foreign players. Often it seems to be more economic and even easier to contract experienced players near to the end of their career rather than train a young Hungarian player from an early age. This generates an increasing number of foreign players and eventually the loss of talented young players as well. Moreover it becomes questionable to develop results at a national level.

The goal of our study was to evaluate, recognize and compare the indicators of the players and coaches in the Hungarian women's first division football. The academic qualities of sport experts working in the women's first division are lower than the experts working in the same first division for men. Head coaches, coaches and other staff on the bench play a key-role to make the team successful. Therefore, it is so important that all the coaches and experts working at the clubs have appropriate qualifications and diplomas that comply with the policy of the registration card issued by the Hungarian Football Federation (MLSZ) [18].

In the women's first division in the UK, male experts are in the majority [19]. Women's football originates from England, like men's football, but it had to overcome many difficulties, including the English Football Association (FA) ban in the past that stopped women from playing. It can be admitted that there is no gender discrimination in Hungary in taking coaches training courses. There is no gender discrimination either in the requirements for the admission exam. But on the contrary, in England there is a lot of criticism with regard to the coaches training courses [20]. The women's participation in Hungarian football is rare, while in England women working in football clubs have to face more challenges than their male colleagues. They have to fight for acceptance among their male colleagues, but another difficulty they have to deal with is the compulsion to conform [21].

Like men, women have career opportunities in this line of work [22]. According to the policy of the Registration Cards issued by the MLSZ, only those with a proper license can work in a certain position. In the women's first division, head coaches only need to have a UEFA A license. In the analyzed teams, all the coaches had diplomas that met the requirements, and in some cases we found head coaches who exceeded them. There are different stipulations for other regular jobs. An assistant coach has to have at least a UEFA B license or higher; a technical director has to have at least a UEFA A or higher; a goalkeeper's coach has to have a UEFA B or a Goalkeeper Coach Certificate issued by the MLSZ; and coaches for physical training have to obtain a proper certificate for physical training coaches issued by the MLSZ. There is a tendency in women's football clubs for the staff with inadequate qualities to hold positions where no licenses are required and participate in the players' training. They are technical directors and kit managers in the women's first division. Therefore, there was no possibility to analyze these sectors in our research and find a correspondent staff at a given role in men's football. In our research we did not analyze the situation in lower divisions, but after making the above mentioned observations, it can be supposed that there may be found the similarities in the second division coaches' qualifications. Although it is considered that female coaches bring a specific social factor to the team life, observing the positions taken by the coaches, it can be stated that there is a majority of male coaches and scarcity of female coaches in general [12]. Considering the Hungarian women's first division, it is a pure fact that 100% of coaches are male. Female coaches can be found mainly in youth development. However, there is a female manager for the national team and moreover many female coaches are available in the federation.

The number of the female football players has risen dramatically since the introduction of the corporation tax in Hungary, with more and more young people taking it up [7]. Foreign players are also more common. Hungarian men's football has undergone a major development as well. Balogh and Béki's study shows that progress is unquestionable, but the presence of foreign players is still what matters the most [23]. The distribution of the Hungarian and foreign players has confirmed the Hungarian dominancy. It would be interesting to see the number of foreign players after an extension of our research.

The physical performance of the foreign players is significantly better than Hungarians. The foreign players in Hungary are mainly those from countries where women's football is rather unpopular. The number of games played, number of games in the first division and performances in the starting lineup are significantly higher for the Hungarian players than foreign ones. While observing the foreign players, it was found that their stay in the Hungarian first division lasts one, or maximum two years in a row. The average age is a determining factor to the market value of the players [23]. Based on the analysis it can be said that the average age of the foreign players is higher than the Hungarian players. Usually more experienced and older players reach our country. The similar situation can be observed in the Turkish women's football first division [24]. The average age of the female players is between 19 and 20 years, but some of the players are younger than 19 years old [8]. As for the average age amongst African players, it can be concluded that it is very low. It can be explained by the difficulties of living conditions and other social factors, which do not exist in Europe or in Hungary.

## Conclusions

Behind the success of women's football lie many factors, but it is important to remember that it is necessary to guarantee an adequate number of players, head coaches and sport experts to sustain a successful outcome of the team [25].

The analysis of the player composition in women's football teams is very rare. Our cross-sectional study was complicated because of the difference in the number of elements between the two groups. This study should be repeated during the next championship seasons, due to the continuous change in the number of players.

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