



## Gender (in)equality in Spanish handball: analysis of women's representation in governing and technical bodies of federations

*(Des)igualdad de género en el balonmano español: análisis de la representación de las mujeres en los órganos de gobierno y técnicos de las federaciones*

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### Abstract

**Introduction:** the underrepresentation of women in leadership positions remains a persistent phenomenon worldwide.

**Objective:** (i) to analyze the gender representation of the governing bodies (president and executive board) of regional handball federations in Spain; and (ii) to examine the gender composition of the technical staff (head coach and technical staff) of the youth teams of these federations.

**Methodology:** the composition of the presidency, executive boards, head coach positions, and technical staff of 19 regional handball federations in Spain was analyzed, including youth teams in the Under-18, Under-16, and Under-14 categories. Descriptive statistics were calculated. Chi-square ( $\chi^2$ ) goodness-of-fit and independence tests were used to examine gender differences across positions and categories, and odds ratios (OR) were estimated to assess the probability of women occupying different positions.

**Results:** all federation presidencies were occupied by men. Women were underrepresented on executive boards (32.8%,  $\chi^2 = 25.41$ ,  $p < 0.01$ ), with approximately half the probability of holding a position compared with men (OR=0.49,  $p < 0.001$ ). Women were also underrepresented in head coach positions (12.1%,  $\chi^2 = 25.34$ ,  $p < 0.001$ ). In technical staffs, women represented 31.8% ( $\chi^2 = 32.33$ ,  $p < 0.001$ ) although women had a 74% lower probability of holding a technical position (OR=0.26,  $p < 0.001$ ).

**Discussion:** The results follow patterns described in previous studies across sports and countries; however, this is the first study in handball adopting a gender perspective that examines both governing and technical bodies.

**Conclusions:** These findings highlight persistent gender inequalities in governing and technical positions and support the need for policies to improve gender balance in sports organizations.

### Keywords

Coaches; feminism; glass ceiling; pipeline; sport.

### Resumen

**Introducción:** La infrarrepresentación de las mujeres en puestos de liderazgo sigue siendo un fenómeno persistente a nivel mundial.

**Objetivo:** (i) analizar la representación de género en los órganos de gobierno (presidente y junta directiva) de las federaciones territoriales de balonmano en España; y (ii) examinar la composición de género del personal técnico (seleccionador y cuerpo técnico) de las selecciones de categorías de formación de dichas federaciones.

**Metodología:** Se analizó la composición de la presidencia, las juntas directivas, los puestos de seleccionador y los cuerpos técnicos de 19 federaciones territoriales de balonmano en España, incluyendo las categorías Under-18, Under-16 y Under-14. Se calcularon estadísticos descriptivos. Se aplicaron pruebas de chi-cuadrado ( $\chi^2$ ) de bondad de ajuste e independencia para examinar diferencias de género entre cargos y categorías. Se estimaron odds ratios (OR) para evaluar la probabilidad de que las mujeres ocuparan distintos puestos.

**Resultados:** Todas las presidencias estaban ocupadas por hombres. Las mujeres estaban infrarrepresentadas en las juntas directivas (32,8%,  $\chi^2 = 25,41$ ,  $p < 0,01$ ), con aproximadamente la mitad de probabilidad de ocupar un puesto respecto a los hombres (OR=0,49,  $p < 0,001$ ). También estaban infrarrepresentadas en los puestos de seleccionador (12,1%,  $\chi^2 = 25,34$ ,  $p < 0,001$ ). En los cuerpos técnicos las mujeres representaban el 31,8% ( $\chi^2 = 32,33$ ,  $p < 0,001$ ).

**Discusión:** Los resultados siguen patrones observados en estudios previos realizados en distintos deportes y países. No obstante, este es el primer estudio en balonmano que analiza la representación de género en órganos de gobierno y técnicos.

**Conclusiones:** Estos hallazgos ponen de manifiesto desigualdades de género persistentes en los puestos de dirección y técnicos, y respaldan la necesidad de desarrollar políticas que mejoren el equilibrio de género en las organizaciones deportivas.

### Palabras clave

Entrenadores; feminismo; techo de cristal, pipeline, deporte.

## Introduction

The underrepresentation of women in leadership positions remains a persistent phenomenon worldwide, despite significant progress in gender equality in education and labor market participation (Calsy & D'Agostino, 2021). Women continue to occupy a substantially smaller share of seats on corporate boards and strategic leadership positions. In this context, a study conducted across 1,424 companies in 11 countries (10 European countries and the United States) found that only 16% of board positions were held by women (Clark et al., 2022). At the institutional level in Europe, the European Union has made notable progress toward gender parity. The European Commission, currently led by a woman and includes 47% female commissioners, while the European Parliament reached 41% and 39% female representation respectively in 2010, marking the highest level of women's representation in the history of the Commission (Belova & Ivanova, 2023). In line with this commitment to gender balance, the European Union adopted Directive (EU) 2022/2381 of the European Parliament and of the Council on November 23, 2022. The directive aims to improve gender balance on the boards of listed companies in EU Member States, establishing mandatory targets to be met by June 30, 2026: 40% representation of women among non-executive directors or 33% representation of the underrepresented sex among all board positions (executive and non-executive) (European Parliament & Council of the European Union, 2022). However, institutional structures are not gender-neutral. Instead, they tend to reproduce historical hierarchies and power relations that favor men's continued presence in leadership positions (Acker, 1990). In this sense, organizations can function as "gendered organizations," where norms, informal networks, and promotion processes contribute to maintaining structural inequalities between men and women (Acker, 2006). The descriptive data from the studies referenced so far can be integrated into a joint theoretical perspective around gender inequalities that incorporates terms such as the glass ceiling, vertical segregation, horizontal segregation, or pipeline. Thus, the *glass ceiling* is a metaphor that was initially used to represent blocked promotion opportunities for women within the corporate hierarchy (Hymowitz & Schellhardt, 1986); subsequently, this concept evolved to differentiate it from other forms of discrimination in the workplace, being specified into four criteria where a gender difference is represented that (i) is not explained by other employee characteristics relevant to the job; (ii) is greater at higher levels of an organization than at lower levels; (iii) concerns opportunities for advancement to higher levels, not simply the proportions of each gender or race that are currently found at those higher levels; and (iv) increases over the course of a professional career (Cotter et al., 2001). Related to the concept of the glass ceiling is the phenomenon of segregation, with its two components, vertical and horizontal (Blackburn et al., 2002). *Vertical segregation* refers to the unequal concentration of men and women at different hierarchical levels within the same organization or sector, with men being overrepresented in decision-making bodies, while *horizontal segregation* refers to the unequal distribution of men and women across different sectors, occupations, or functional areas within the labor market. On the other hand, the *pipeline* is another metaphor that describes the educational or professional trajectory from the beginning to the highest possible level, with "leaks" occurring along this trajectory where individuals drop out for different reasons, these leaks affecting women to a greater extent (Blickenstaff, 2005).

Sport is no exception to the previously described patterns of gender inequality. Gender stereotypes and the perception of sport as a masculinized domain remain prevalent (Senne, 2016), contributing to what has been described as the "diversity paradox": although sports organizations often claim to value gender diversity, recruitment, selection, and appointment processes frequently continue to favor traditionally male profiles, limiting women's presence in governing bodies and decision-making structures (Mikkonen et al., 2021). Research on sport governance has consistently shown that sports organizations (including committees, federations, and clubs) have historically been dominated by men, both in leadership positions and in decision-making processes (Pfister, 2010). As a result, women's opportunities to access leadership roles in sport have traditionally been limited, even in contexts where female participation as athletes has increased significantly (Burton, 2015).

Sports federations (as well as sports clubs) may adopt different organizational structures, but they can generally be divided into governing bodies and technical staff. The former typically include the president and the executive board, while the latter include positions such as the technical director or general sports manager, the head coach, and the technical staff (head coach, assistant coaches, strength and con-

ditioning coaches, doctors, physiotherapists, etc.) (Ghodhbani & Souissi, 2025). With regard to governing bodies, a systematic review covering more than 1,600 sports organizations (including governing bodies, federations, and clubs) from 45 countries across Europe, Africa, and the Americas found that women represented only 19.7% of leadership positions (Evans & Pfister, 2021). Similarly, a later study analyzing 70 international federations reported that women held 21.3% of executive board positions in 2021, an increase compared with 11.4% in 2012 and 15.0% in 2016. Nevertheless, women occupied only 8.6% of presidential positions (Adriaanse, 2024). In 2023, women held just 22% of leadership positions in the national federations of the ten most popular sports in the European Union. A similar pattern can be observed in national Olympic committees within the EU, where only 14.8% were chaired by women in the same year (Zamfir, 2024). These inequalities do not simply reflect individual differences in leadership aspirations or opportunities. Rather, they are closely linked to structural factors embedded within traditional organizational cultures in sport, where informal networks, career pathways, and co-optation processes tend to favor the continued dominance of men in leadership positions (Burton, 2015). The Spanish context reflects a similar situation. A study analyzing women's presence on the executive boards of Spanish sports federations found that female representation increased from 12% in 2013 to 25% in 2018. However, during the same period, there was no significant increase in the number of women serving as federation presidents (Valiente, 2020). The Spanish Sports Council (Consejo Superior de Deportes), the highest governing authority overseeing national sports federations, has attempted to address this imbalance by linking eligibility for certain public subsidies to compliance with a minimum threshold of 40% representation of each sex on executive boards (Consejo Superior de Deportes, 2019). Gender inequality was even more pronounced in the presidency of Spanish sports federations in 2020, while the body responsible for electing the president (the General Assembly) included only 14% women among its members (Gómez-González & Suárez-Fernández, 2023). Subsequently, the Spanish Sports Law of 2022 explicitly incorporated a gender representation quota, establishing the principle of balanced representation in the governing bodies of national sports federations and setting a benchmark whereby neither sex should represent less than 40% of executive board members (BOE, 2022). It should also be noted that Spain's decentralized political structure grants autonomous communities the authority to develop their own sports legislation. At this regional level, the data reveal similar patterns. For example, a study examining Catalan sports federations found that women accounted for only 24% of executive board members (Muñoz et al., 2023). However, a recent study analyzing federations across all sports disciplines in the Valencian Community reported that women represented 37.6% of executive board members, although these women were generally younger and more highly educated than their male counterparts (Hinojosa-Alcalde et al., 2026).

Gender disparities are also evident in technical positions (head coaches, assistant coaches, strength and conditioning coaches, doctors, physiotherapists, etc.). This inequality is particularly striking because it persists even in sports where female participation as athletes has reached high levels (Hinojosa-Alcalde et al., 2018). A study examining the coaching staff of the Brazilian Olympic team at the Tokyo 2020 Olympic Games found that although women represented 46.7% of the athletes, only 4.9% of the technical staff were female coaches (Dos Santos & Pereira, 2023). At the club level, similar patterns emerge. A study conducted in Brazilian athletics clubs found that while women represented 42% of athletes, only 19% served as coaches (Assis et al., 2024). The same trend appears in basketball: in the Brazilian women's basketball league, only 24% of team leadership positions were held by women (Passero et al., 2019). Likewise, a study conducted in Bosnia and Herzegovina found that more than half of the clubs analyzed (52.8%) across eight sports had exclusively male coaching staff (Ljubojević et al., 2024). In Spain, research points in the same direction. A study involving 1,685 coaches in Catalonia found that only 17.7% were women (Hinojosa-Alcalde et al., 2018). The study also identified vertical segmentation, as women were more likely to occupy assistant roles and to work fewer paid hours. Female coaches reported more precarious working conditions and greater work-life balance challenges compared with their male counterparts, factors that can affect the long-term sustainability of their professional careers (Solanas et al., 2022). In addition, women working in environments dominated by male informal networks often report feeling the need to make an additional effort to legitimize their professional competence (Walker & Bopp, 2010).

Moreover, coaching and head coach positions often depend directly on the federation presidency (which is almost exclusively held by men) or, alternatively, on executive boards where men are also overrepresented. A study conducted with 660 Portuguese female coaches using the Sports Coaching Questionnaire



for Women (Kubayi et al., 2020) identified several major barriers to becoming a coach, including limited promotion opportunities, inflexible working schedules, gender discrimination, the absence of female role models, perceived lack of competence, and athletes' preference for male coaches (Bessa et al., 2026). Consequently, female coaches themselves often describe their pathway toward high-performance leadership roles as a "maze," shaped by structural barriers and limited institutional support (Borrueco et al., 2022). These challenges are already perceived by sport science students early in their academic careers. Research shows that first-year university students in sport science programs already recognize the low presence of women in coaching as a structural issue that has become normalized within the field (Schailée et al., 2021). Furthermore, the transition from athlete to coach appears to be marked by a progressive decline in female participation, suggesting the existence of a professional "pipeline" that restricts women's access to technical leadership positions (Hovden & Tjønndal, 2019). These dynamics have been described as part of broader processes of vertical and horizontal segregation in sport. Vertical segregation refers to the lower presence of women in positions of leadership or greater responsibility, while horizontal segregation describes the tendency for men and women to be concentrated in different roles within the same organization (Burton, 2015).

Despite the growing interest in promoting gender equality in sports governance, most studies have focused on international and national federations, committees, and clubs, while regional federations have received far less attention. However, these organizations play a crucial role in the development and promotion of sport, as they oversee local and regional competitions, training programs, and technical structures that influence future career trajectories within both governing and technical bodies.

In this context, the objectives of the present study were: (i) to analyze the gender representation of the governing bodies (president and executive board) of regional handball federations in Spain in order to explore the presence of vertical segregation and glass ceiling effects; and (ii) to examine the gender composition of the technical staff (head coach and technical staff) of the youth teams of these federations in order to identify potential patterns of horizontal segregation and pipeline dynamics in access to technical leadership positions.

## Method

### *Participants*

The responsibility for promoting sport in Spain has been transferred from the central government to the autonomous communities (17) and autonomous cities (2), which operate through regional federations. The composition of the presidency, executive boards, head coach positions, and technical staff of 19 regional handball federations in Spain was analyzed. The data were obtained from a maximum of 17 federations, 15 of them through their own websites and two via email request. However, the available data varied depending on the position analyzed. Thus, for the presidency and executive board, 17 federations were analyzed, whereas head coach positions and technical staff could only be analyzed in 14. Handball was selected for this study due to its strong federative structure, its competition system based on regional representative teams, and because it is one of the ten most practiced sports in Spain and the team sport that has won the highest number of medals when combining both the Olympic Games and the World Championships in men's and women's competitions.

From a study design perspective, the study carried out was a descriptive cross-sectional study (Bishop, 2008), where the grouping variable in the present study was gender (a dichotomous variable: men/women), while the outcome variable was the different positions analyzed (a dichotomous variable, presence or absence in the position; or a categorical variable when the men/women distribution was examined) within each organizational structure.

### *Procedure*

A systematic search for information was conducted on the websites of each regional federation, from which the following data were extracted: presidency (man or woman); number of men and women on the executive board; head coach of the regional teams in the Under-18, Under-16, and Under-14 categories; and the number of men and women in the technical staff of the regional teams. The technical staff was defined as consisting of the head coach, coach, team delegate, doctor, and physiotherapist. After



extracting all the information, the search was repeated in order to verify the data initially obtained. If the information was not publicly available on the website, an email was sent requesting the data. Data extraction was carried out between October and November 2025.

### Data analysis

Descriptive statistics (absolute frequencies and percentages) were calculated to describe the distribution of men and women across the different positions analyzed. Subsequently, chi-square ( $\chi^2$ ) goodness-of-fit tests were applied to examine whether the distribution between men and women differed significantly from an expected equal distribution (50%–50%), used as a theoretical benchmark for gender parity in representation. In addition, chi-square tests of independence were used to analyze possible differences in the distribution of men and women across the different categories analyzed. To determine the precision of the estimates, 95% confidence intervals were calculated for the observed proportions. Finally, effect sizes were estimated using the  $\phi$  (phi) coefficient in order to assess the magnitude of the observed differences. The values of this statistic were interpreted according to the following recommendations:  $>0.1$  small,  $>0.3$  moderate,  $>0.5$  large (Cohen, 1988). Odds ratios (OR) were also estimated to determine the relative probability of women occupying executive board positions, head coach positions, or technical staff roles. The level of statistical significance was set at  $p < 0.05$ . Statistical analyses were conducted using Python (pandas, numpy, scipy, and statsmodels libraries), including chi-square tests and the calculation of odds ratios to evaluate the association between variables.

## Results

Table 1 shows the gender representation (men and women) of the presidencies and executive boards of the regional handball federations. The presidencies were held entirely by men (100%). Regarding the executive boards, the results indicated an unequal distribution, with men representing 67.2% and women 32.8% ( $\chi^2(1) = 25.41$ ,  $p < 0.001$ ,  $\phi = 0.35$ , 95% CI [25.9%, 38.8%]). The probability analysis showed that the likelihood of a woman occupying a position on the executive board was approximately half that of a man (OR = 0.49;  $p < 0.001$ , 95% CI [0.35, 0.69]).

Table 1. Shows the gender representation (men and women) in the presidencies and executive boards of the regional handball federations.

Federation	Presidency	Men		Women	
		n	%	n	%
Andalusia	Man	11	64.7	6	35.3
Aragón	Man	7	87.5	1	12.5
Asturias	Man	7	58.3	5	41.7
Basque Country	Man	6	50	6	50
Canary Islands	Man	5	55.6	4	44.4
Cantabria	Man	4	100	0	0
Castilla-La Mancha	Man	9	75	3	25
Castilla León	Man	16	76.2	5	23.8
Catalonia	Man	12	63.2	7	36.8
Ceuta	Man	10	83.3	2	16.7
Extremadura	Man	6	75	2	25
Galicia	Man	8	57.1	6	42.9
La Rioja	Man	7	77.8	2	22.2
Madrid	Man	6	66.7	3	33.3
Murcia	Man	12	44.5	6	55.5
Navarra	Man	8	66.7	4	33.3
Valencia	Man	4	50	4	50
Total	100% Men	135	67.2	66	32.8

Note: The names of the federations are presented in English for clarity. The official names in Spanish correspond to the respective regional handball federations (e.g., Federación Andaluza de Balonmano, Federación Aragonesa de Balonmano, Federación Catalana de Balonmano, etc.).

Table 2 shows the distribution of men and women in the head coach position for each of the regional teams (Under-18, Under-16, and Under-14), for both men and women's teams. This distribution revealed a clear overrepresentation of men. Overall, men accounted for 87.9% of head coaches, compared to 12.1% of women ( $\chi^2(1) = 52.34$ ,  $p < 0.001$ ,  $\phi = 0.76$ , 95% CI [5.4%, 18.8%]). In men's teams, the presence of women was almost nonexistent, at 2.3% ( $\chi^2(1) = 41.09$ ,  $p < 0.001$ ,  $\phi = 0.96$ , 95% CI [0.1%, 6.5%]), whereas in women's teams it was higher, reaching 21.7% ( $\chi^2(1) = 14.70$ ,  $p < 0.001$ ,  $\phi = 0.57$ ,



95% CI [9.8%, 33.6%]). Significant differences were also observed in the distribution between men and women's teams ( $\chi^2(1) = 9.37$ ,  $p = 0.002$ ,  $\phi = 0.32$ , 95% CI [6.9%, 32.2%]). The probability analysis showed that the likelihood of a woman occupying a head coach position was 86% lower than that of a man (OR = 0.14;  $p < 0.001$ ; 95% CI [0.07, 0.27]).

Table 2. Shows the distribution (men and women) of the head coach position in each regional team (Under-18, Under-16, and Under-14), for both men's and women's teams.

Federation	Men's teams								Women's teams								Total	
	Under-18		Under-16		Under-14		Total		Under-18		Under-16		Under-14		Total			
	H	M	H	M	H	M	H	M	H	M	H	M	H	M	H	M	H	M
Andalusia	2		2		2		6		1	1	1	1	2		4	2	10	2
Aragón	1		1		1		3		1		1		1		3		6	
Asturias	1		1		1		3		1		1		1		3		6	
Basque C.	1		1		1		3		1		1	1	1		2	1	5	1
Canary I.	1		1		1		3		1		1		1		3		6	
Castilla L.		1	1		1		2	1	1		1		1		3		5	1
Catalonia	1		1		1		3		1		1			1	2	1	5	1
Extremadura	1		1		1		3			1	1		1		2	1	5	1
Galicia	1		1		1		3		1		1		1		3		6	
La Rioja	1		1		1		3		1		1		1		3		6	
Madrid	1		1		1		3		1		1	1	1		2	1	5	1
Murcia	1		1		1		3		1		1		1		2	1	5	1
Navarra	1		1		1		3		1		1	1	1		3	1	6	1
Valencia	1		1		1		3		1		1		1	1	2	4	4	2
Total	14	1	15	0	15	0	44	1	13	2	11	5	12	3	36	10	80	11
%	93.3	6.7	100	0	100	0	97.7	2.3	86.7	13.3	68.8	3.3	80	20	78.3	21.7	87.9	12.1

Note: The names of the federations are presented in English for clarity. The official names in Spanish correspond to the respective regional handball federations (e.g., Federación Andaluza de Balonmano, Federación Aragonesa de Balonmano, Federación Catalana de Balonmano, etc.). C, country, I, Islands, L. León.

Table 3 shows the distribution of men and women in the technical staff of each regional team (Under-18, Under-16, and Under-14), for both men and women's teams. Overall, men represented 68.2% of the total technical staff, compared with 31.8% women ( $\chi^2(1) = 32.33$ ,  $p < 0.001$ ,  $\phi = 0.66$ , 95% CI [25.4%, 37.6%]). In men's teams, the presence of women was 17.6% ( $\chi^2(1) = 52.49$ ,  $p < 0.001$ ,  $\phi = 0.65$ , 95% CI [10.9%, 24.3%]), whereas in women's teams it reached 46.7%, with no significant differences between men and women ( $\chi^2(1) = 0.53$ ,  $p = 0.468$ ,  $\phi = 0.07$ , 95% CI [37.7%, 55.7%]). Significant differences were also observed in the distribution between men and women's teams ( $\chi^2(1) = 22.41$ ,  $p < 0.001$ ,  $\phi = 0.30$ , 95% CI [18.2%, 40.0%]). The probability analysis showed that the likelihood of a woman occupying a position on the technical staff was 74% lower than that of a man (OR = 0.26;  $p < 0.001$ ; 95% CI [0.18, 0.38]). At the same time, the probability of belonging to the technical staff of women's teams was four times higher than that of men's teams (OR = 4.10;  $p < 0.001$ ; 95% CI [2.26–7.43]).

Table 3. Shows the distribution (men and women) of the technical staff in each regional team (Under-18, Under-16, and Under-14), for both men's and women's teams.

Federation	Men's teams								Women's teams								Total	
	Under-18		Under-16		Under-14		Total		Under-18		Under-16		Under-14		Total			
	H	M	H	M	H	M	H	M	H	M	H	M	H	M	H	M	H	M
Andalusia	2		2		2		6		2	1	1	1	1	4	2	10	2	
Aragón	3		2		1	1	6	1	2	1	1	1	1	4	3	10		
Asturias	5	2	5	2	5	2	15	6	2	5	3	4	3	4	8	13	23	
Basque C.	3		2		3	1	8	1	1	1	0	2	1	1	2	4	10	5
Canary I.	2		2		2		6		2	0	2	0	2	0	6		12	
Castilla L.	2	1	3		3		8	1	2	1	2	1	2	1	6	3	14	4
Catalonia	2	1	2	1	2	1	6	3	1	2	2	1	0	3	3	6	9	9
Extremadura	2		1		1	1	4	1	0	2	1	1		1	3	5	4	
Galicia	3		1	2	2	1	6	3	2	1	2	1	2	1	6	3	12	
La Rioja	3		3		1	1	7	1	1	2	1	1	2	2	4	5	11	
Madrid	2		1	1	2		5	1	2	0	1	1	1	1	4	2	9	3
Murcia	3		3		3		9		1	1	1	1	1	1	3	3	12	3
Navarra	4	1	3	2	4	1	11	4	3	2	3	2	3	3	9	7	20	11
Valencia	2		2		2		6		2	0	1	1	1	1	4	2	10	2
Total	38	5	32	8	33	9	103	22	23	18	21	18	20	20	64	56	167	43
%	88.4	11.6	80	20	78.6	21.4	82.4	17.6	56.1	43.9	55	45	50	50	55.3	44.7	68.2	31.8

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## Discussion

The objectives of the present study were: (i) to analyze the gender representation of the governing bodies (president and executive board) of regional handball federations in Spain in order to explore the presence of vertical segregation and glass ceiling effects; and (ii) to examine the gender composition of the technical staff (head coach and technical staff) of the youth teams of these federations in order to identify potential patterns of horizontal segregation and pipeline dynamics in access to technical leadership positions. Overall, the results show that 100% of the federation presidencies were held by men, while women were underrepresented on executive boards (32.8%). This underrepresentation was also present in the position of head coach (12.1%), although it was more pronounced in men's teams (2.3%) compared with women's teams (21.7%). Within the technical staff, underrepresentation was observed only in the overall data (31.8%) and in men's teams (17.6%). To the best of the author's knowledge, this is the first study to analyze the gender representation of governing bodies and technical leadership positions in handball. The results obtained may serve as a basis for proposing strategies aimed at reducing the underrepresentation of women in these positions. These findings are broadly consistent with patterns observed in sport governance, where the presence of women tends to decrease as the level of organizational responsibility increases (Burton, 2015; Pfister, 2010). In sport, these barriers may take different forms, including potentially male-dominated informal networks of power, less transparent selection processes, or the persistence of stereotypes that associate sports leadership with traditionally masculine characteristics (Shaw & Frisby, 2006).

Women's representation in the presidency is nonexistent, as 100% of the presidencies are held by men (Table 1). The complete absence of women in presidential positions suggests the presence of structural and invisible barriers that limit women's access to leadership positions (glass ceiling) (Cotter et al., 2001). The results of the present study are even more extreme than those reported in other studies conducted on national Olympic committees (Zamfir, 2024) and international federations (Adriaanse, 2024), where 14.8% and 8% of presidential positions, respectively, were held by women. This appears to suggest that the underrepresentation of women in presidential positions may be independent of the scope of the federation's activity (international or national). This underrepresentation may be partly explained by the fact that the body responsible for electing the president (the general assembly) is already highly masculinized. A study examining the general assemblies of Spanish national sports federations found that only 14% of their members were women (Gómez-González & Suárez-Fernández, 2023). Regarding women's presence on executive boards, women accounted for 32.8% of members and had approximately half the probability of serving on these boards compared with men (Table 1). Although still far from parity, this representation is higher than that reported in other studies conducted on international federations (21.3%) (Adriaanse, 2024), national federations in European Union countries (22%) (Zamfir, 2024), Catalan federations (24%) (Muñoz et al., 2023), and Spanish federations (25%) (Valiente, 2020). However, although the representation of women in the present study is similar to that observed in a study conducted on federations in the Valencian Community (37.6%) (Hinojosa-Alcalde et al., 2026), vertical segregation remains evident. When examining the distribution of responsibilities within executive boards in federations where women represent 33% or more of board members, vice-presidential positions continue to be predominantly occupied by men (58%, 11 of 19 vice-presidencies). As previously mentioned, presidencies are held exclusively by men. This pattern is consistent with previous studies showing that women tend to be more present in positions with less decision-making power within leadership structures, while positions with greater strategic influence remain predominantly occupied by men (Adriaanse, 2016; Burton, 2015). This vertical segregation is also present in the Royal Spanish Handball Federation. Although the federation exceeds the minimum 40% representation threshold for one sex required by law in executive boards (BOE, 2022) (with gender parity of 50% men and women) 66.7% of the vice-presidential positions are held by men (two out of three). In addition, the position of treasurer is held by a man, while women mainly occupy positions with lower decision-making power, such as board member roles (60%, 9 out of 15) (Royal Spanish Handball Federation, n.d.). Based on the evidence presented above, sports federations may be considered as "gendered organizations" (Acker, 1990).

Regarding technical staff, specifically the position of head coach, the underrepresentation of women is again evident. Overall, women account for 12.1% of head coaches, although this percentage is almost negligible in men's teams (2.3%) compared with women's teams (21.7%). In addition, women are 86% less likely to hold the position of head coach (Table 2). The greater presence of women in women's teams (although still far below parity) could be interpreted as a form of horizontal segregation, in which women tend to concentrate in spaces that are socially considered more appropriate or accessible to them (Burton, 2015; Norman, 2010). The underrepresentation of women in the head coach position observed in the present study is consistent with the findings of previous research. For example, at the Tokyo 2020 Olympic Games, only 4.9% of the coaches of the Brazilian team were women, despite the fact that 46.7% of the athletes were women (Dos Santos & Pereira, 2023). Similarly, several studies conducted in specific sports such as athletics (19%) (Assis et al., 2024) and basketball (24%) (Passero et al., 2019), as well as research analyzing multiple sports disciplines (17.7%) (Hinojosa-Alcalde et al., 2018), also show a low representation of female coaches. However, a study conducted in Australia with 8,016 individuals involved in at least one non-player role in sport during the previous 12 months found that in 2018, 44% of coaching positions were held by women (Eime et al., 2021). If technical staffs (head coach and/or team manager, assistant coaches, strength and conditioning coaches, doctors, physiotherapists, etc.) are analyzed as a whole, men represented 68.2% of the total technical staff compared with 31.8% women (17.6% in men's teams), while in women's teams there were no differences between men and women (Table 3). The fact that women's representation is higher in technical staffs than in head coach positions may suggest that women may have greater access support roles or intermediate technical positions more easily, but may face greater difficulties in reaching positions of higher responsibility within sports structures, which may contribute to professional segmentation and structural inequalities (Norman, 2010; Burton, 2015). The causes of women's underrepresentation in technical bodies are varied. Some of the most commonly identified factors include precarious working conditions and difficulties in balancing professional and personal life (Solanas et al., 2022); the need to make greater efforts to legitimize their competence compared with men (Walker & Bopp, 2010); difficulties in being respected and the frequent need to adopt "masculine characteristics" in order to succeed (LaFountaine & Kamphoff, 2016); athletes' preference for being coached by men; and limited opportunities for promotion (Besa et al., 2026). The latter may be partly explained by the fact that head coach and technical staff positions often depend largely on the decision of the federation president, frequently without clearly defined selection processes. In this sense, selection and promotion processes within sports organizations could be influenced by dynamics of "homologous reproduction," that is, the tendency of individuals in positions of power to select or promote people with profiles similar to their own (Kanter, 1977), a phenomenon that may be related to homophily within organizational networks (Ertug et al., 2021).

The present study had several limitations. First, the study focused on a single sport within a specific geographical context and used a cross-sectional design. However, handball is the tenth most practiced sport in Spain in 2024, with 102,933 national licenses, and the team sport with the highest number of medals in the Olympic Games and World Championships combined (nine medals), which gives it considerable relevance and interest for research. Second, the data were self-reported (through websites or email), which may introduce potential bias; similarly, there is a risk that some websites were not fully updated. Third, the response rate could be considered good (73.7%, 14 out of 19 federations) for head coach and technical staff but not excellent, as five federations did not provide their data. Fourth, access to the number of coaching licenses was not available. Fifth, the cross-sectional design of the study limits the possibility of analyzing temporal dynamics such as potential pipeline links or the evolution of gender representation over time. Therefore, the results should be interpreted with caution as a "snapshot" of the situation at a given point in time, from which unequivocal causes explaining why this occurs cannot be drawn.

## Conclusions

The conclusions of this study were: (i) all federation presidencies were held by men; (ii) women were underrepresented on executive boards (32.8%), having approximately half the probability of holding a position on these boards and tending to occupy roles with lower levels of responsibility (vertical segregation); (iii) the underrepresentation of women was also present in the position of head coach (12.1%),



with an even lower presence in men's teams (2.3%), and women were 86% less likely than men to hold this position; (iv) in the composition of technical staffs, the underrepresentation of women was lower (31.8%), with parity observed in women's teams. Nevertheless, women were still 74% less likely than men to occupy a technical position.

This study shows that clear inequalities exist between men and women in both governing bodies and technical structures, and these results may serve as an objective starting point for reversing this situation (Cooper et al., 2020). Thus, the gender gap is not only numerical but also structural, which requires deeper interventions aimed at transforming organizational cultures, informal power networks, and selection processes within Spanish sport. Some potential measures could include: (a) the legal establishment of gender representation quotas, as already implemented in the Valencian Community (Comunitat Valenciana, 2022); (b) the introduction of incentives and sanctions to ensure that federations actively work toward gender equality (Cooper et al., 2020); (c) the mandatory use of zipper lists for executive boards (Hinojosa-Alcalde et al., 2026); and (d) the promotion of anonymous and objective selection processes in the recruitment of coaches. On the other hand, and given the greater underrepresentation of women in technical bodies, further research on female coaches is needed (Myers et al., 2017), including critical analyses to understand how male hegemony contributes to the relative vulnerability of women as coaches (Norman, 2010). In any case, future research could incorporate, on the one hand, more complex analytical approaches (e.g., multivariate analyses or longitudinal studies) and, on the other, qualitative methodologies (such as semi-structured interviews) to gain a deeper understanding of the causes of gender inequality in the governing and technical bodies of sports federations.

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