

# Gender and Leadership Positions in Spanish Dentistry

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## Abstract

Dentists in Spain reached equal gender representation in 2012 and the number of female dentists has continued to grow (until 57.3% in 2020). This study aims to increase evidence about the gender distribution on the high responsibility positions and opinion leaders of the dental profession and academia. Composition of the executive committees of the main dental institutions of Spain (regional professional associations, national dental association, and scientific societies), members of the Faculty of Dentistry of the University of Granada in 2020 and speakers of the main dental congresses of 2019 (due to the lack of congress in 2020) were recorded and analyzed by genders using chi-squared test ( $P < .05$ ). Mean representation of female dentists in executive committees of professional associations was 35.6%. More than 70% of presidents and vice-presidents of professional colleges and more than 60% of these positions in scientific societies were occupied by male dentists. None of dental congresses of 2019 reached equal gender participation, being 81.3% of lecturers presenting on main auditoriums male dentists. Although dental workforce in Spain is slightly overrepresented by females, leadership positions and figures among Spanish dentists doesn't seem to reflect the gender distribution of the collective. There is a lack of women occupying high-level positions in dentistry that proves the existence of the so-called “glass ceiling effect” on the profession. Further studies about sociodemographic aspects of dental workforce are needed to develop evidence-based policies for the collective.

## Keywords

dentists, gender equity, leadership, workforce, glass ceiling, Spain, dentistry

### What do we already know about this topic?

In dentistry, as in other health professions, gender differences in the number of professionals are decreasing or non-existent. However the gender gap tend to prevail among high-level positions, creating the so-called “glass ceiling effect.”

### How does your research contribute to the field?

The study proves that senior positions and opinion leaders in the dental profession are mainly held by male dentists, perpetuating the gender gap in the profession.

### What are your research's implications toward theory, practice, and policy?

Dental institutions should be involved in reducing the gender glass ceiling effect in the profession by establishing data-driven policies in their committees and events.

## Introduction

Dentistry as other healthcare professions such as medicine or veterinary, has traditionally been a male dominated discipline. This gender trend is shifting due to the increasing number of women graduating from medical and dental schools in recent years.<sup>1</sup> For example, first-year dental students in the United States reached gender parity (52%) in 2019, while in countries such as Spain or Germany female dental graduates were more than 65% of them.<sup>2,3</sup>

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These changes in the profile of dental students are translating into the workforce,<sup>1</sup> with the proportion of female dentists increasing and in some countries such as India or Brazil even surpassing gender parity.<sup>4,5</sup> In Spain, since 2012 there are more women practicing dentistry than men, currently representing 57.3% of dental professionals.<sup>6</sup>

However, in dentistry, as in other professions, equal representation may not have achieved gender equity,<sup>7</sup> a term that encompasses changes in more cultural aspects, such as equal access to resources and opportunities, minimizing unconscious gender bias, enhancing work-life balance, and leadership engagement.<sup>8</sup> Differences between female and male dentists may be prevailing in high-level academic and leadership positions creating the so-called “glass ceiling effect.”<sup>3,4,9</sup> This term refers to invisible barriers that women could be facing and that may be slowing down their professional advancements in research, leadership, or incomes.<sup>10</sup>

An unequal gender representation of leaders in the dental workforce could be limiting the development and performance of the profession. Due to some of the most talented professionals could not be having the opportunity to access the highest academic positions.<sup>7</sup> Opinion leaders in the health workforce also have major influences on future trends of disciplines such as medicine or dentistry through guiding research or education.<sup>11</sup> Therefore, ensuring gender equity and policies to redress the undervaluation of female workers in dentistry will improve the effectiveness of the sector and, consequently, the oral health status of the population.<sup>7,12,13</sup>

The Spanish dental workforce has undergone major changes in the last 3 decades, being the health profession of the country with the greatest increase in number of professionals,<sup>14</sup> accounting for an increase of 745% (from 3946 to 33 346) in the period from 1980 to 2014<sup>15</sup> and having a dentist/population ratio of 1/1200 in 2019 (the WHO recommends a ratio of 1/3500).<sup>16</sup> The outnumbering of dentists and their rapid proliferation is the result of the lack of regulation of the profession by the country’s health authorities and professionals associations, leaving the organization of the sector to market forces.<sup>14</sup> The impact of this labor market deregulation could be leading to a degradation of working conditions for dentists, such as reduced working hours, underemployment as hygienists, unemployment, as well as leading to overtreatment or lower quality of patient care.<sup>15,17</sup> This degradation of working conditions could be affecting the workforce unequally, affecting Spanish female dentists more, as they reported feeling more dissatisfied, less valued and earning less than their male counterparts.<sup>18</sup> Women, also tend to accept lower salaries, work more part-time, take career breaks or devote more hours to family life and less time to continuing education.<sup>1,5,17</sup> All this could be enlarging the gender differences on the highest positions of the profession and complicating the achievement of gender equity among dentists.

In this way, it is necessary to have a correct appreciation of the panorama of dentists to develop future policies, based

on scientific evidence, for the improvement of the workforce and, therefore, of the oral healthcare of the Spanish population. It will also contribute to the achievement of the Sustainable Development Goals adopted for Spain and 192 countries in the world for the year 2030, such as goal number 3 (health and wellbeing) or goal 5 (gender equity).<sup>19,20</sup>

This cross-sectional study aims to increase the knowledge about the characteristics of the dental workforce in Spain by focusing on of the gender distribution of academic and professional leaders, and high-level positions of dental institutions.

## Material and Methods

To investigate gender trends among leaders of the dental sector in Spain, in this cross-sectional study we focused on the composition of the direction boards of the main dental institutions of Spain (professional associations and scientific organizations), on the speakers of the main dental congresses of 2019 (due to the lack of congress in 2020 because of the outbreak of the covid-19 pandemic) and on the members of our Faculty of Dentistry (University of Granada) in 2020.

To obtain the institutional boards committee’s information, first of all, the website of the General Council of Dentists was accessed and a list of the scientific and regional organizations ascribed to this institution was obtained. Subsequently, the official websites of each dental institution were accessed and the details of their board of directors were obtained. The general composition and the 4 main positions (president, vice-president, treasurer and secretary) of the General Council of Dentists, of all Regional Professional Associations and of the Scientific Societies (ascribed to the council and which organized a congress or annual meeting in the last 4 years) were studied. One of them was excluded because the composition of its executive committee did not appear on its official website.

To obtain the information about the main congresses held in 2019, we examined the schedule of scientific activities for this year in the official website of the main dental organization (General Council of Spanish Dentists).<sup>21</sup> We obtained the scientific programs from the organizations’ websites, however some of them were no longer available online, for these cases we contacted the organizers and they emailed them to us. Two of them, scheduled by minor scientific organizations, were excluded because (1) we could not find any information about them, so we suspect it was not finally accomplished or (2) the organization did not forward us the program. All lectures from the 2019 Scientific Dental Programs were reviewed and classified according to the type of stage where they were performed: principal hall, secondary hall, hygienist course, workshop, or short oral communication. Pre-congress sessions, special guests, discussions, awards, and poster sessions were excluded. Time length, dental subspecialty, type (one or multiple presenters), gender, and country of precedence of

the speaker (national or international) were recorded. As there are not legally recognized dental subspecialties in the country, we established a simple division in 5 main categories: Oral surgery/Periodontics, Orthodontics, Pediatric Dentistry and Restorative Dentistry (including Endodontics and Prosthodontics), and Others.

Lastly, the information about the Faculty of Dentistry was obtained from the University website and divided into 3 categories: Head Professor, Full Professor, Associate Professor (corresponding to Catedrático, Profesor Titular, and Profesor Asociado), and the composition of the dean's board.

The gender and country of precedence of dentists was determined from the website or the conference program using their name and title. If it was not available or it was unclear an internet search was conducted and gender was determined using public photographs and information such as title, name and country of practice. All information was as recorded using Microsoft Excel (Microsoft, USA).

### Statistical Analysis

Data treatment and descriptive analysis were performed using SPSS version 25.0 (IBM-SPSS Inc., Chicago, USA). Chi-squared test was used to compare frequencies between positions and genders, and significance was considered with a  $P$  value  $< .05$ .

## Results

### Gender Distribution of Board Committees in 2020

The composition of the boards of the 37 regional professional associations of dentists of Spain and the General Council of Dentists (Consejo General de Dentistas de España) has been evaluated. The average gender percentages on the executive boards of regional associations are 62.6% male and 37.4% female and there are only 2 female dentists on the board of the General Council (15.3%) (Figure 1). Female representation on direction boards of the 18 scientific societies evaluated ranged from 0.0% to 80.0% (Figure 2).

The gender distribution of the main institutional board positions (president, vice-president, secretary, and treasurer) was analyzed, revealing that more than 70% of the presidents and vice-presidents of professional associations and more than 60% of scientific societies are male dentists (Table 1). In the General Council, none of them were held by women.

### Gender Distribution of Speakers in 2019 Dental Congresses

Female lecturers in main auditoriums of dental congresses held in Spain in 2019 ranged from 0.0% (SEPES Primavera) to 40.9% (SEDCYDO-SEMO Congress), showing statistically significant differences by gender differences ( $P < .001$ ) (Figure 3).

Less than 20% of the main dental conferences in 2019 in Spain were presented by female dentists. The mean percentage of female speakers increased for conferences given for dental hygienists (44.9%) and among speakers presenting short oral communications (66.3%) ( $P < .001$ ) (Table 2).

Male and female dentists presenting on main lectures of dental congresses were analyzed by organizing society (Figure 3), subspecialty (Figure 4), country of origin (national or international speaker), and type of conference (one or multiple speakers).

In all the congresses held in 2019, more than 50% of the lecturers were male dentists and in the 2 most important congresses of the year (with the highest number of international speakers) which were SEPA Valencia 2019 and SEPES-IFED Barcelona 2019, female speakers represented less than 10% (8.50% and 7.60%, respectively) ( $P < .005$ ) (Figure 3).

The congresses were classified into 4 main specialties, grouping several interrelated sub-disciplines, and a fifth group with other less common dental disciplines or those that could not be classified into a single category. Statistically significant differences were found between the genders of speakers by subspecialty, with Pediatric Dentistry having the highest proportion of women (36.9%,  $P < .005$ ) and Oral Surgery and Periodontology the least represented by women (7.7%,  $P < .005$ ) (Figure 4).

At the 2019 Dental Congresses in Spain, foreign speakers were more likely to be male dentists than national speakers (85.5% vs 79.1%) and group lectures were more likely to be delivered by women than men (25.3% vs 17.4), however the gender differences were not significant ( $P = .27$  and  $P = .20$ ).

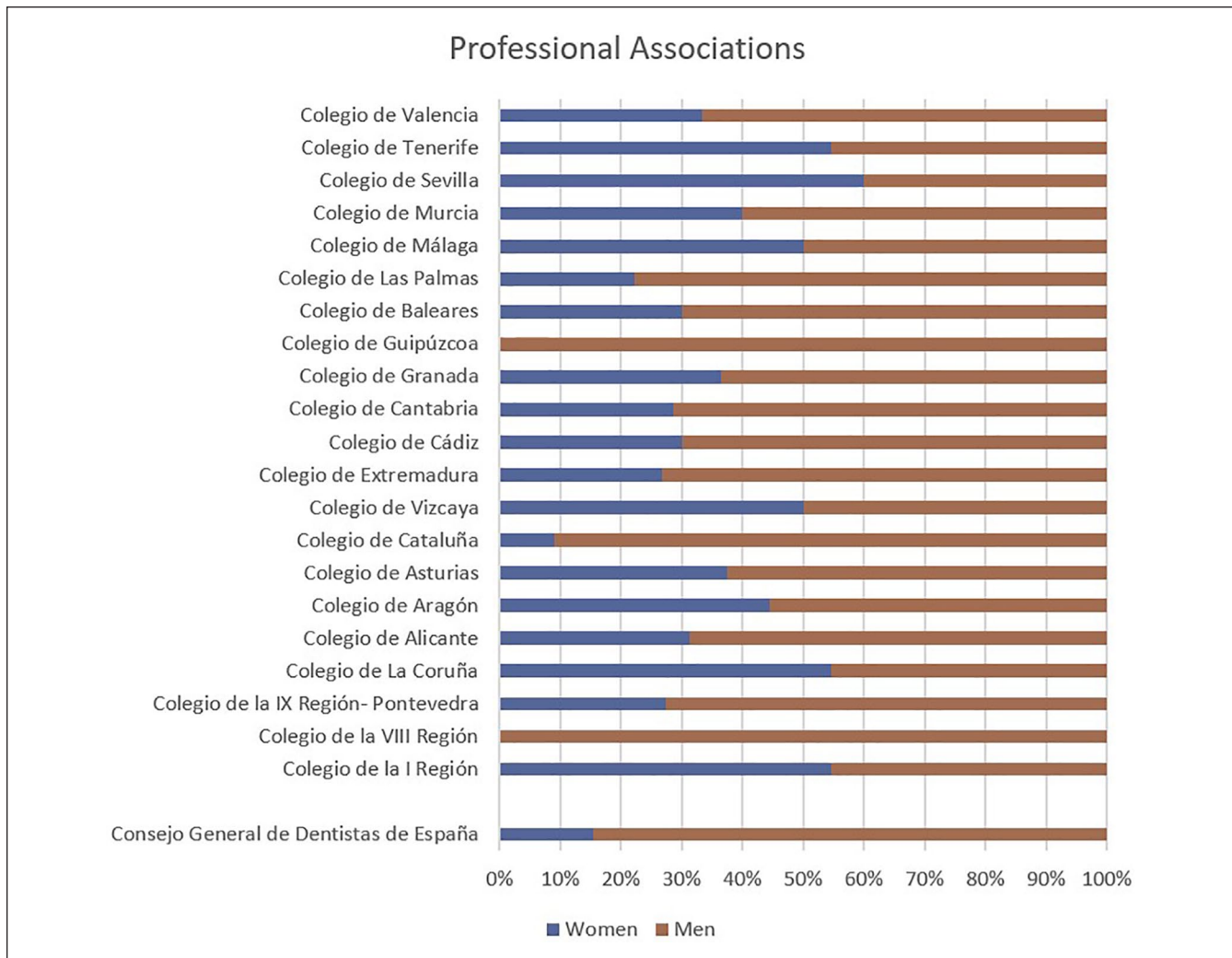
### Gender Distribution of Faculty Members in 2020

Data of Faculty of Dentistry of University of Granada show that of Full Professors 48.0% are men and 52.0% are women, however only 4 out of 11 are women Head Professors (36.4%) and the Dean Board is composed of 6 men and 1 woman.

## Discussion

To practice as a dentist in Spain it is necessary to be associated to a regional professional association (regional college of dentists) of where you are actively working, and all these colleges are grouped together and belong to the General Council of Dentists, which is the main representation institution of the profession in the country. In 2020, 57.3% of the country's registered dentists were women and 42.7% were men.<sup>6</sup> As these institutions may defend the interests and rights of dental professionals, they should be led by dentists who fairly represent the diversity of their members (in age, gender, ethnicity, etc.).<sup>22,23</sup>

This research focused on the gender distribution on leadership positions among Spanish dentists. A field that has been studied previously in other health professionals.<sup>22-24</sup> but it's the first this collective. It showed that they are not equally



**Figure 1.** Proportion of women and men among the board committees of Spanish regional professional associations with more than 500 dentists and the General Council of Spanish Dentists (Consejo General de Dentistas de España). Colegio de la VIII Región is the association representing the provinces of Burgos, Palencia, Soria, Valladolid and Zamora; Colegio de la I Región represents the provinces of Madrid, Ávila, Ciudad Real, Cuenca, Guadalajara, and Toledo. Data were reported from the website of each organization.

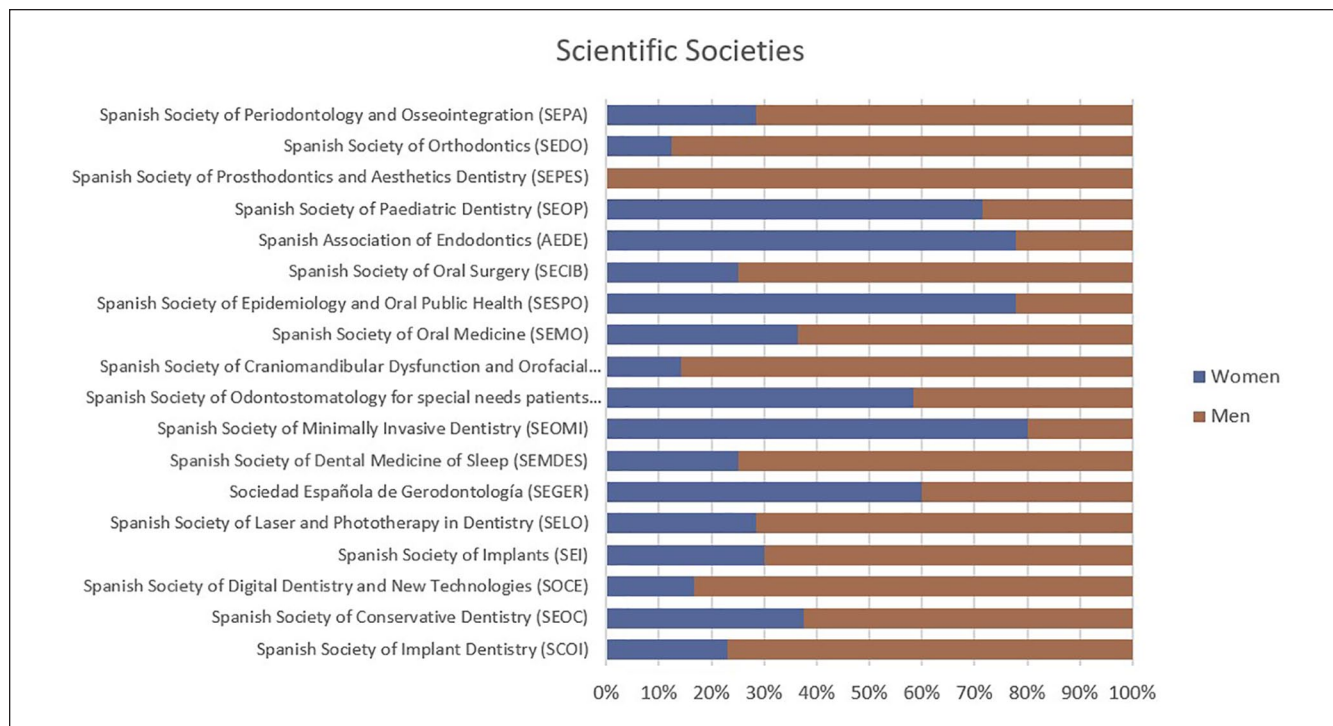
represented by gender in the main positions (president, vice-president, treasurer, and secretary) of the board committees of the professional associations. None of these positions on the General Dental Council were held by women, and the 2 female dentists out of 13 (15.3%) on the executive board have the position of “supernumerary member.” At the regional colleges the proportion of president and vice-president chairs is far from resembling the gender composition of the profession, with men holding these positions in more than 70% of the cases.

Gender representation has also been studied in scientific societies, which are, as in other fields of medicine, powerful institutions that speak for the present and the future of the profession, representing and supporting different dental sub-specialties.<sup>23</sup> They have a major influence on research, post-graduate education, and professional recognition, among

others.<sup>11</sup> The proportion of female presidents, vice-presidents and secretaries are higher in these scientific institutions than in professional colleges, however none of them reaches at least a 50% of female representation.

Moreover, Dental Societies are responsible for organizing scientific congresses and meetings, which pursue the advancement of research, higher education and evidence-based policy making.<sup>25</sup> As these conferences continue being one of the most important ways for professionals to learn about advances in the profession, the gender distribution of opinion leaders invited to give a lecture was analyzed. More than 80% of speakers who presented in main auditoriums, secondary auditoriums and in the practical workshops were male dentists. These professionals are invited to give a lecture by the congress organizers, but the criteria for choosing them remain unclear, making it difficult to address the causes





**Figure 2.** Proportion of women and men among the board committees of Dental Scientific Societies in Spain. The societies analyzed are ascribed to the General Council of Dentists and they have had organized a congress/reunion in 2019 or 2018. Data were reported from the website of each organization.

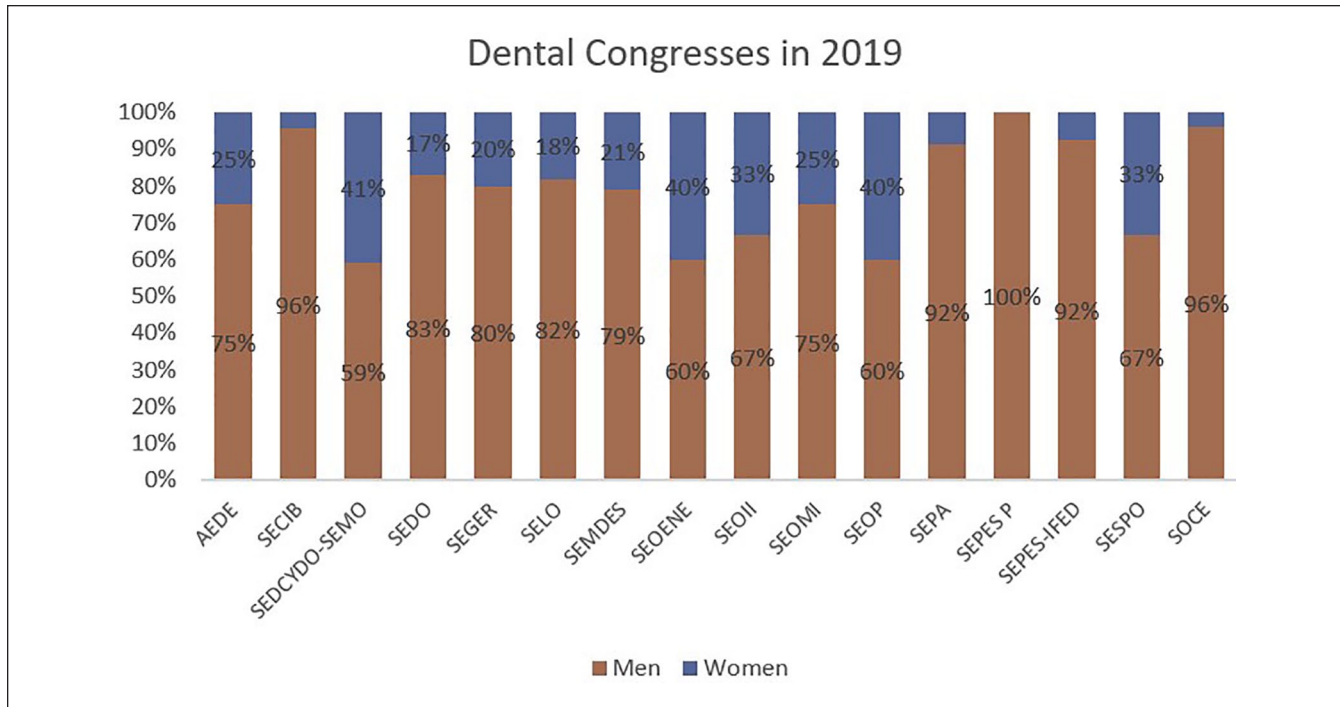
**Table 1.** Number and Proportion of Main Board Positions (president, Vice-President, Secretary and Treasurer) Held by Women and Men in Professional Colleges and Scientific Societies in Spain in 2020.

Institution	Position	Women		Men	
		N	%	N	%
Professional colleges	President	8	20.5	31	79.5
	Vice-president	10	27.0	27	73.0
	Secretary	16	42.1	22	57.9
	Treasurer	14	35.9	25	64.1
Scientific societies	President	6	33.3	12	66.7
	Vice-president	6	35.3	11	64.7
	Secretary	8	44.4	10	55.6
	Treasurer	6	35.3	11	64.7

of the gender gap among speakers.<sup>25</sup> On the other hand, when dentists apply to present in a congress instead of being invited, as in the case of short oral communications, our findings show that 66.3% of those who present are women, suggesting that the under-representation of women among speakers is not due to lower interest, attendance or training of female dentists.<sup>26</sup>

Women in Spanish dentistry represent more than 50% of the professionals registered since 2012,<sup>6</sup> and among those working as pediatric dentists there were 5 times more than men in 2020.<sup>18</sup> Nevertheless, female dentists were under-represented in all conferences, despite the subspecialty of the

congress. The lack of female speakers in dentistry could be related to the previously explained under-representation of female dentists in the board committees of the scientific societies. As others authors have previously shown, the narrower the gender gap is in the organizing committees, the greater number of women that are invited to give a lecture.<sup>27-29</sup> Another reason could be the existence of less female dentists that are considered top opinion leaders in the discipline, due to what has been called “leaky pipeline effect,”<sup>28,30</sup> where women scientists or academics tend to progress less or slower in the discipline than men. This could also explain the higher proportion of female speakers found in the short oral

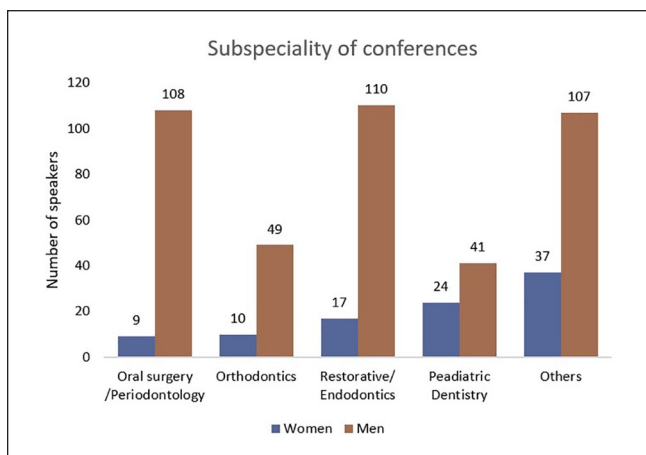


**Figure 3.** Gender distribution of lecturers presenting on Scientific Dental Congresses in 2019 in Spain. Abbreviations are from the Organizer Scientific Society, previously described in Figure 2, except SEOII (Spanish Society of Integrated Paediatrics Dentistry).

**Table 2.** Number and Proportion of Lectures Given in 2019 Scientific Dental Congresses Classified by Type of Audience and Gender.

Type of conference	Total	Men (%)	Women (%)	Significance (P)
Main Auditorium Presentation	400	325 (81.3)	75 (18.8)	<.001
Secondary Auditorium Presentation	112	90 (80.4)	22 (19.6)	<.001
Workshops	109	95 (87.2)	14 (12.8)	<.001
Hygienist Session	49	27 (55.1)	22 (44.9)	<.001
Short Oral Communication	92	31 (33.7)	61 (66.3)	<.001

Note. Short oral communications were recorded only for 2 congresses (SEDO and SESPO) because the others didn't give details about the communications and their speakers.



**Figure 4.** Number of lecturers in congresses held in 2019 in Spain, divided by dental disciplines and gender.

communications presentations or in the hygienists' congress sessions than in the main auditoriums or the lower quantity of female full professors of the Faculty of Dentistry of the University of Granada than associate professors (36.4% vs 52.0%).

The findings of this study demonstrated the unequal gender distribution among Spanish dentists, showing that although there is an over-representation of registered female professionals, responsibility roles in institutions and opinion leaders in the profession are over-represented by male dentists. The lack of promotion of women to high-level positions in dentistry, demonstrates the existence of a “glass ceiling effect,” where social structures and roles may be hindering access to leadership positions.<sup>31,32</sup> To overcome these invisible barriers that are occurring in the careers of women dentists, institutions such as scientific societies, professional colleges, and the General Council of Dentists should

advocate for gender equity in their committees and events.<sup>33</sup> Actions are also needed at academic institutions to encourage women dentists to reach and hold positions of responsibility, using evidence-based policies, and data-driven approaches.<sup>32-34</sup> Increasing gender equity among dental leaders is necessary to improve the discipline through improved research, workforce or training among others. Otherwise, valuable intellectual capital in dentistry may be lost.<sup>7,22</sup>

Further research among the dental workforce needs to examine the distribution of societal characteristics such as gender, age, religion, or race, among others. To determine other possible associations between personal characteristics and professional roles, detailed demographic data of the collective, and other similar studies (in more countries or international) would also be needed to compare these findings. In addition, longitudinal studies and qualitative studies would be needed to shed light on the causes of these patterns. It would also be necessary to establish evidence-based policies on the collective that increase the participation of women in positions of responsibility, so that dental institutions have a more equitable representation.

## Conclusion

Within the limitations of this study, influential and high responsibility positions in the Spanish dental profession were over-represented by men in 2020. The largest gender gap was observed in presentations at main dental congresses (more than 80% of speakers were men) and among presidents and vice-presidents of dental associations, which were held by them in more than 7 out of 10 cases. In order to reverse these social patterns and improve gender equity in the profession, it is advisable to develop future studies, especially longitudinal ones, and dental institutions should develop policies that promote greater participation of women dentists in their committees and scientific events.

## Data Availability

The data that support the findings of this study are available from the corresponding author upon request.

## Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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## Ethical Statement

The Research Ethics Committee of the University of Granada issued a favorable report in relation to the present research under number 2430/CEIH/2021.

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