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Editorial

Is There a Gender Gap in Spanish Cardiology?

¿Existe brecha de género en la cardiología española?

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The changes demanded by women regarding their place in the world concern all settings, ranging from the artistic to the political and scientific. The field of medicine is naturally included, and by extension, cardiology. The feminization of medicine is a growing phenomenon that has been noted for some time worldwide, and it also involves highly specialized fields.[1–3] Cardiology, a traditionally a male-dominated specialty, has not been immune to this feminization process, particularly in the last few decades.[4,5] In 2017, 68% of physicians completing their specialty as resident medical interns (MIR, *médico interno residente*) in Spain were women.[4] According to data from the Medical Syndicate Study Center (CESM, *Centro de Estudios del Sindicato Médico*) of Granada, women accounted for 51% of those aspiring to complete an MIR in cardiology in 2016,[4] a value much higher than the 28% in France in 2015 and the 13% in the United States in 2014.[6–9] Nonetheless, although the number of women seeking to specialize in cardiology has grown in Spain, they are not climbing the ladder in their professional career as quickly as men. In the light of this situation, the Women in Cardiology Working Group of the Spanish Society of Cardiology (SEC) was created to reduce these inequalities. Another related shortcoming is the limited available knowledge on cardiovascular disease in Spanish women. Currently, this working group depends exclusively on the executive committee of the SEC, and its fundamental purpose is to promote gender equality in cardiology and improve knowledge of cardiovascular disease in Spanish women.

The results of a survey recently conducted by the SEC Women in Cardiology Working Group in 70 Spanish hospitals and recently published in *Revista Española de Cardiología*[10] show that women are poorly represented in the health care and educational hierarchy.

This study is the first to investigate the sex distribution in the various subspecialties, and the presence of women in all cardiology-related health and academic areas. This is an observational, descriptive study with significant participation among the hospitals surveyed (70/98), targeting department heads and speaking for 2353 cardiologists. On that basis, we believe that the sample is clearly representative of cardiology in Spain. The results show a disproportionate lack of parity between men and women in subspecialties and positions of responsibility.

First, the data show a horizontal gap where women cardiologists, unlike their male counterparts, tend to opt for less invasive cardiology subspecialties. This tendency of women to focus on clinical or noninvasive cardiology has also been analyzed in other countries.[2,7,9] Several studies focusing on the professional decisions of men and women in cardiology have reported that the more invasive practices require longer working hours and have a more irregular and difficult to control schedule.[7,11] As the National Statistics Institute data have shown,[12] these features are less compatible with balancing the family and professional lives of women, who carry a heavier burden of domestic responsibilities than men. Other explanations for this situation are related to discrimination, gender bias, and concerns about radiation exposure.[8,13] Regarding the latter, which often leads women to rule out invasive subspecialties, there are few data on how radiation protection measures can be effectively established for pregnant cardiologists working in cardiac catheterization and electrophysiology laboratories.[13]

Second, 40% of cardiologists are women, but the higher the rung on the health care and academic ladders, the fewer the women. The presence of women is especially low among clinical department heads (19%), division heads (11%), and tenured professors (7%), generating a vertical gap. These differences cannot be fully explained by the age bias (a higher presence of women in the younger age groups and a much lower presence in older ages). According to the survey, women comprise only one third of the 50- to 55-year-old group. However, assuming that the position of clinical department head requires a great deal of experience and is correlated with age, there is still quite a large gap between the above-mentioned 19% and the 30% of women in this age group according to the population distribution.[10]

Third, the presence of women by autonomous community is not uniform. Women hold positions of responsibility in a small number of autonomous communities, and their representation decreases as the category of the hospital where they work increases (among the 8 women who are department chiefs, only 1 is working in a fourth-level hospital).

Another example of interest regarding gender inequality is the participation of women cardiologists in the educational activities and representative positions of the SEC and its various scientific areas. In the latest national cardiology meetings, women have accounted for around 25% of the total number of speakers and moderators. Analysis of the number of women forming part of the SEC executive committee since it was founded in 1944 also shows

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very limited participation. A woman was elected member of an executive committee for the first time in 1999, in the position of general secretary. Since then, only 9 other women have been included (1 as president in 2007, 2 as vice presidents, 2 as general secretaries, 2 as treasurers, 1 as editor-in-chief of *Revista Española de Cardiología*, and 1 other as a representative member in subsidiary societies). In the last 25 years of the SEC, 15% of the general secretariat, treasury, and vice-presidency positions have been occupied by women, and only 8% of positions as editor of the journal, representative in subsidiary societies, and president of the SEC. Analysis of the directive boards of the sections and working groups shows a similar situation, although in the last few years, women's participation seems to be growing. In the same period mentioned, 20 women have served as presidents (22%) in the present 10 scientific sections of the SEC. Particularly highlighted are the vascular risk and cardiac rehabilitation sections with 4 (44%), and the cardiac imaging section with 3 (33%) women presidents. As to the 17 working groups, 17 women have held the position of president or coordinator in 10 of them (31% vs 69% of men). Notable is the Diabetes and Obesity Working Group with 3. Currently, 2 sections have an elected woman president, and in 6 of the 17 working groups, a woman is coordinator.

Several studies have investigated the external and internal barriers faced by women during their professional development in medicine. Two possible causes of their lower representation in high-ranking positions[5–7,9,10] may be the difficult balance between a professional career and personal responsibilities and the lower presence of women in academic posts. A recent study reported that only 25% of the communications submitted to scientific congresses and meetings over a 1-year period in Germany were authored by women.[14] Studies in other medical fields such as gastroenterology, oncology, and internal medicine also show that women's scientific output is less extensive than that of their male colleagues.[15]

Furthermore, the related literature notes that women who are associate professors produce fewer publications than men because of their greater dedication to family care and domestic activity[12]; nonetheless, the disparity disappears once they reach the level of tenured professor.[6,9] These differences are related to women's biological clock and the fact that a high percentage wait to complete their residency before starting a family. Therefore, the start of a research and teaching career may be slower. The lower percentage of women in high-ranking positions is also seen in the academic hierarchy.[5] A large study involving 91 073 physicians in the United States (9.1% of the total) observed that the percentage of women holding positions as tenured professors had not increased since 1980 and continued to be lower than that of men.[9] Women achieving the rank of associate professor have a significantly lower probability of being granted tenure than men, even after adjustment for factors such as age, productivity, and experience.[8] Specifically, data from a study performed in the United States in 2014 involving 3810 cardiologists showed that only 16% of women with positions in the faculty of medicine were tenured professors vs 30.6% of men.[8] The conclusion was that women are less likely to become full professors. Of note, these studies adjusted for several observable variables, such as age, subspecialty, years since residency, number of publications, success in achieving competitive funding, participation in clinical trials, and affiliation in a medical faculty highly qualified in research. Even so, women candidates were found to have a lower probability of being promoted than their male colleagues. Hence, it is not surprising that the small percentage of women in decision-making positions in the health care sector and medical academia has not changed overall in the last 20 years.[6,7,10,11]

Two conclusions emerge from these studies: 1) Changes in institutional structures do not occur spontaneously—specific policies are needed to trigger them; and 2) The limited representation of women cardiologists in Spain is similar to that of the United States, despite the institutional differences between the 2 health care systems.

One successful policy for reducing gender differences in academic life consists in having effective, dedicated mentors and tutors.[6,11] A recent study by Lewis et al.[7] described the positive effects of mentoring on involving women in research and helping in their professional choices, as mentors act as role models to follow. Having a mentor who provides equal opportunities for leadership and promotion is associated with greater job satisfaction, which translates into higher productivity. A flexible work schedule and less rigid environment also contribute to higher satisfaction and productivity. In contrast, isolation predicts dissatisfaction. A study conducted at the University of Michigan showed that satisfaction is higher when there is departmental leadership, followed by autonomy, meeting expectations, and a balance between family life and professional obligations. These factors are of vital importance for recruiting and retaining women in cardiology. A support network, and particularly a mentor, are crucial for physicians interested in an academic career, especially in traditionally male-dominated fields such as cardiology.

Additional effective policies that have been applied in other academic fields, such as economics and academic finance, include the following: first, guaranteeing the presence of women in internal seminars, conferences, panels, and working groups; second, re-examining the steps in the promotion process and internal evaluations to prevent a loss of talent, and evaluating the results without penalizing candidates for maternity leave; and third, promoting awareness of the implicit bias involved in the hiring and maintaining processes to achieve more equitable results. One controversial aspect for men and women is the possibility of establishing parity or positive discrimination quotas, which have not been applied in the academic setting, but could almost certainly be beneficial. Correction of the historical inequality could be a fast means for including women in the academic setting, with immediate benefits in satisfaction and productivity.

Gender inequality among Spanish cardiologists in their professional career not only concerns women; it affects the profession as a whole. There is a disproportionate hindrance to the advancement of women compared with their male counterparts, demonstrated over the years in various countries and in several studies.[5–10] In this line, recognition of gender inequalities by medical institutions is the first step toward helping women progress in their careers. In the university, the barriers preventing women from moving ahead should be broken and the "glass ceiling" effect reduced. The obstacles blocking women physicians can be implicit cultural beliefs regarding traditional gender roles, explicit prejudices based on gender, and inadequate mentoring. In general, job satisfaction is related to autonomy, department leadership, an understanding of professional advancement, and a balance between work and personal life. Other factors include the feeling that one is valued, having collaborative relationships, receiving an adequate salary, and having an effective mentor.

Cardiovascular disease is the leading cause of death in Spain and this situation is likely

to persist in the future[16]; hence, it is vital to maintain a stable, competent, collective of cardiologists. Increasing the presence of women in upper-level positions and areas of responsibility where they can participate in the decision-making process is essential in this endeavor.

Desirable leadership qualities include knowledge of the professional setting, communication skills, and proficiency in resolving conflicts and talent management. At the junior level, women tend to take on more administrative tasks than men (eg, a predominant role as area coordinator, without additional remuneration or curricular advantages), which may interfere with

participation in committees and projects, and limit leadership opportunities for more professionally relevant topics. Administrative tasks should be performed during dedicated time or have specific institutional support, and if this is not the case, women should weigh up the advantages of focusing on more rewarding pursuits, such as research or clinical activity.

In general, women have less instruction and experience in negotiating salaries and promotions.[17] This includes not only salary increases, but also additional resources, space and a flexible schedule for research tasks, dedicated administrative time, and other benefits, all of which can greatly improve the working environment. Women are more likely to believe that if they do their job well, they will be rewarded, but that is not always true.[18] Last, some studies have shown that women who negotiate are perceived in a more negative light by evaluators than their male peers, and they react to this by declining to negotiate again.[17–19]

Governmental initiatives to address the gender gaps in medicine will not suffice without institutional change. Strategies should be designed to remove obstacles to the professional advancement of women and the difficulties making them reluctant to participate in certain subspecialties where their presence would undoubtedly be highly beneficial. One example could be support policies for women during and after maternity leave and policies encouraging women to request promotions. This would evidently require a visible commitment and a change in social, managerial, and academic attitudes. The ultimate aim should be to ensure at all levels that access to positions of responsibility will depend on a person's qualifications and professional merits alone, and not on other factors, such as the person's sex.

CONFLICTS OF INTEREST

None declared.

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