

Gender differences in scientific productivity in health sciences in Spain

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Introduction

Although the incorporation of women into the world of work in Spain has nowadays been seen to be consolidated and their presence in the academic and scientific fields is ever greater, there are still educational, cultural and social factors that are holding them back from occupying positions of responsibility in the upper levels of the hierarchy, positions which would correspond to their professional development, thus creating a situation of inequality and an imbalance especially significant in the scientific field (European Commission. Research Directorate-General, 2000; Jagsi, et al., 2006). The aim of this paper is to analyse women's participation in Spanish scientific publications in four areas of health sciences: cardiology, microbiology, neurology and psychiatry.

Methods

Articles in the Web of Science were selected from the journals *Revista Española de Cardiología*, *Enfermedades Infecciosas y Microbiología Clínica*, *Revista de Neurología*, and *Actas Españolas de Psiquiatría* over the period 2002-2006. It was necessary to search for the name of each author through the staff directories of the organizations they belonged to (known through the institutional signatures of the works) or as a last resort, through the existing search engines in Internet and that faithfully demonstrated their correct allotment. Once the names were identified, gender was assigned, M (male) and F (female), as appropriate. After author gender assignment, the participation of women in publications of these four medical specialities was identified, as well as their annual development and their professional medical career in Spain.

Findings

Of the 11,227 authors identified, 62% were men and 38% women, while the number of professionals belonging to Professional Associations (Spanish organizations entrusted to control the legitimate practice of the profession) in 2003 was 60% and 40%, respectively. Differences due to gender have been observed according to the speciality, since the participation of women in neurology was 42%, while in cardiology it only reached 27% (table 1).

Table 1. Number and percentage of men and women by area (2002-2006)

Subject area	Men	%	Women	%	Total
Microbiology	1,716	59.4	1,179	40.7	2,895
Neurology	2,614	57.7	1,913	42.4	4,527
Cardiology	2,065	73	763	27	2,828
Psychiatry	587	60.1	390	40	977
Total	6,982	62.2	4,245	37.8	11,227

There was a progressive reduction in the percentage of female authors in all areas in line with the increase in the number of papers published. The percentage of women with nine or more articles was 33% in psychiatry, 17% in neurology, 4% in cardiology and no women were identified as having a high productivity in microbiology (figure 1). The diachronic evolution shows a moderate growth in the number of female researchers in all four areas, with percentages oscillating between 1% and 5% within the five year period analysed (figure 2).

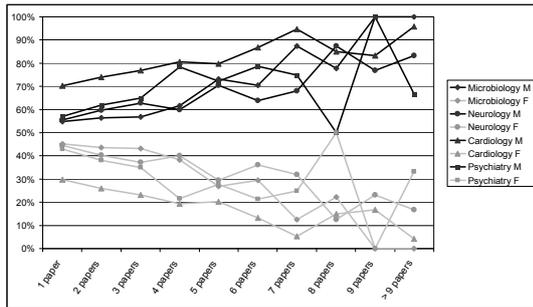


Figure 1. Distribution by gender according to productivity thresholds

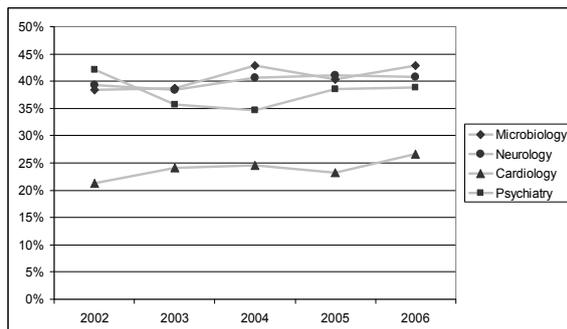


Figure 2. Annual evolution of the percentage of female researchers

Discussion

The imbalance between men and women observed in other works and other countries (Rees, 2002; Garfinkel, et al., 2004; Bordons, et al., 2003) also appears in health sciences in Spain and becomes increasingly sharper the longer the research life of a woman. The studies broken down by gender in the Spanish biomedical journals have the phenomenon known as «scissor effect», according to which the number of women decrease as the number of works published increase. However, despite the fact we only have analyzed 5 years of data, a slow but constant increase has been observed of the presence of women over time and this could lead to parity in the near future. The scientific activity studies broken down by gender aim to show the participation and know the true situation of the women, since they are a potential source of talent in Science and Technology. In this way, the analyses collected can help to strengthen and incorporate the skills, policies, programs and indicators aimed at extending the participation of the women in scientific research on an international, national and regional level (Alonso, et al, 2008).

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