







## SHORT REPORT

Gender equity in academic  
rheumatology: is there a gender gap at  
European rheumatology conferences?

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## ABSTRACT

**Objectives** To obtain an overview of gender equity at European rheumatology conferences.

**Methods** The proportion of women invited as either moderators or speakers to the European Alliance of Associations for Rheumatology (EULAR) annual congresses and national conferences in Europe was calculated from the published congress materials from EULAR annual congresses (2015–2019) and the 2019 national conferences of France, Germany, Italy, Spain and the UK. Data from EULAR congresses were further categorised by type of session. Significance testing was conducted using  $\chi^2$  tests with the level of statistical significance set at  $p < 0.05$ .

**Results** The proportion of combined women moderators and speakers at EULAR varied from 40% to 43% between 2015 and 2019 with no obvious trend over time. There were higher proportions of women in the Health Professionals in Rheumatology and People with Arthritis and Rheumatism sessions (>50% consistently). However, these sessions represent <25% of EULAR congress invitations. Representation of women at the EULAR congress in 2019 (39.6%) was significantly higher than at the national congresses in France (28.6%) and Germany (29.6%) but similar to that observed in Italy (33.7%), Spain (41.7%) and the UK (42%).

**Conclusion** Women account for less than half of invited moderators and speakers at the conferences reviewed. Compared with historical EULAR data in 2003 (16%) and in 2004 (19%), the gender gap at EULAR congresses has narrowed considerably, but there remains a need to monitor and improve women's representation.

## INTRODUCTION

Although increasing numbers of women are choosing a career in medicine,<sup>1,2</sup> they remain under-represented in academic medicine, particularly in senior leadership roles.<sup>3</sup> In the UK, women hold only 21.5% of all professorships in medical schools<sup>4</sup> despite 48% of medical school entrants comprising of women.<sup>1</sup>

## Key messages

## What is already known about this subject?

- ▶ Despite increasing numbers of women pursuing a career in rheumatology, women remain under-represented in academic rheumatology, particularly in senior leadership roles.
- ▶ Conferences offer an important platform to increase visibility of women leaders as role models and promote gender equity. However, data on gender representation across European rheumatology conferences are limited.

## What does this study add?

- ▶ Women represent only approximately 40% of invited moderators and speakers at European rheumatology conferences. Representation of women at national conferences in France and Germany is even lower at approximately 30%.
- ▶ There has been no improvement in representation of women at European Alliance of Associations for Rheumatology congresses between 2015 and 2019.

## How might this impact on clinical practice or further developments?

- ▶ There remains a need to monitor and improve representation of women at European conferences.

In the USA, 40.8% of the rheumatology workforce in 2015 were women.<sup>5</sup> This proportion is expected to rise, such that women are anticipated to comprise the majority (54.8%) of the rheumatology workforce in the USA by 2030.<sup>5</sup> A recent cross-sectional study of practising rheumatologists in the USA revealed that although the proportion of women entering academic rheumatology has gradually increased from 1965 (<10%) to 2014 (41.4%), fewer women are professors (12.6% vs 36.8% for men in academic rheumatology) or associate professors (17.5% vs 28%) and they continue to be awarded fewer grants. Data on academic advancement for women rheumatologists within Europe are limited



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but a recent study in Italy highlighted an even more stark disparity, with only 4.1% of women academic rheumatologists holding full professorships compared with 34.4% of men.<sup>6</sup>

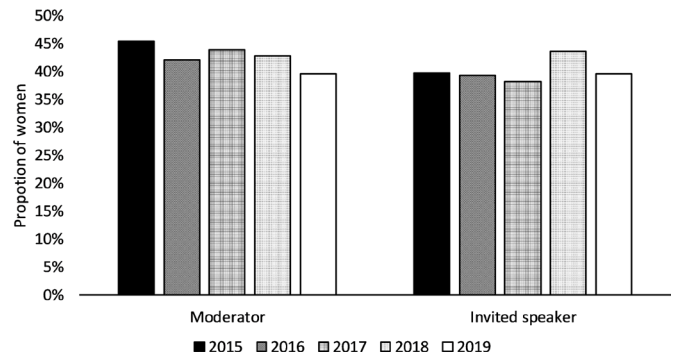
Increased visibility of women leaders as role models has been proposed as one of the solutions to improving gender equity.<sup>7</sup> National and international academic congresses provide an ideal platform for this.

In American College of Rheumatology (ACR) annual meetings, 42.8% of speakers and moderators were women in 2017, vs 47.0% in 2018.<sup>8</sup> A recent study examined the gender gap among speakers and moderators at European Alliance of Associations for Rheumatology (EULAR) annual congresses in 2018 and 2019, finding a substantial increase in proportion of female speakers (from 31.5% to 43.2%) and female moderators (from 44% to 48.6%).<sup>9</sup>

In 2019, EULAR commissioned the formation of a multidisciplinary taskforce to assess and address the unmet need for gender equity within academic rheumatology in Europe. One of the aims of this taskforce was to gain a better understanding of the gender gap at EULAR annual congresses, how this has changed over time and how this compares with gender representation at European national conferences. Consequently, this study aims to describe the proportion of women invited as moderators or speakers to the EULAR Annual Congresses and national rheumatology conferences in Europe.

## METHODS

Using published conference materials, we determined the proportions of women included as either moderators or invited speakers for EULAR annual congresses (2015–2019) and national conferences held in 2019 by rheumatology societies in the five largest European countries by population: France (Société Française de Rhumatologie), Germany (Deutsche Gesellschaft für Rheumatologie e.V.), Italy (Società Italiana di Reumatologia), Spain (La Sociedad Española de Reumatología) and the UK (British Society for Rheumatology). The gender of each individual was determined by one person using the author's name. If there was any uncertainty about the gender of an individual, an internet search using the author's name and institution was used to identify the author's gender using their stated gender pronoun and/or photograph. Individual speakers could be counted multiple times if they had multiple roles within each conference. For EULAR congresses, we further categorised by Clinical/Science, Health Professionals in Rheumatology (HPR) and People with Arthritis and Rheumatism (PARE) sessions. Our study included moderators and invited speakers in every EULAR session, including practical sessions and chairs of poster tours, but did not include speakers at industry-sponsored satellite symposia. Significance testing for the proportions of women at different conferences and over time was conducted on the absolute numbers on which these proportions were



**Figure 1** Proportion of women invited to moderate or speak at EULAR sessions, by year (2015–2019). EULAR, European Alliance of Associations for Rheumatology.

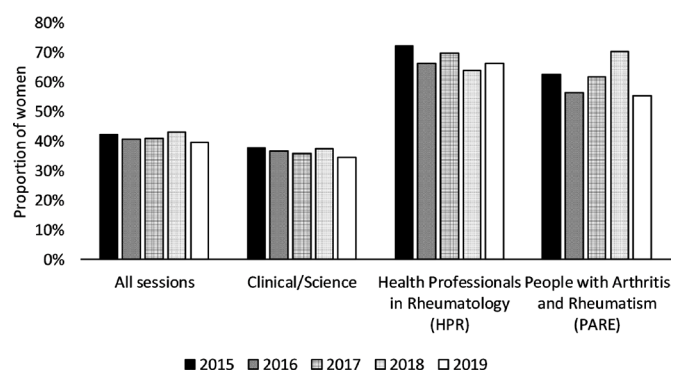
based using  $\chi^2$  tests. The level of statistical significance was set at  $p < 0.05$ .

## RESULTS

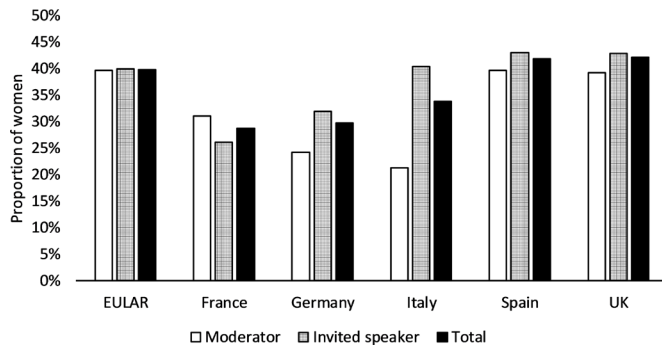
A total of 2216 moderations and 2622 invited presentations were performed at the EULAR and national congresses included in this study.

Between 2015 to 2019, the proportion of women moderators at EULAR varied from 45.3% (162/358 in 2015) to 39.6% (126/319 in 2019) ( $p=0.15$ ) (figure 1). The proportion of women invited speakers fluctuated between 39.7% (156/393 in 2015) to a peak of 43.5% (136/313 in 2018) ( $p=0.35$ ) (figure 1). The proportion of combined women speakers and moderators at EULAR varied from 39.6% (252/637 in 2019) to 43.1% (279/648 in 2018) ( $p=0.22$ ) with no obvious trend over time (figure 2). The proportion of women invited to participate in Clinical/Science sessions fluctuated from 37.6% (239/635 in 2015) to 34.4% (177/514 in 2019) ( $p=0.29$ ). In contrast, proportions of female speakers and moderators in the HPR and PARE sessions were consistently over 50% between 2015 and 2019 (figure 2). However, these sessions account for a much smaller proportion of invited speakers and moderators (18.3%–24.2%).

In 2019, the proportion of combined women moderators and speakers at EULAR (252/637, 39.6%) was significantly



**Figure 2** Proportion of women invited to participate in EULAR sessions between 2015 and 2019, by type of session. EULAR, European Alliance of Associations for Rheumatology



**Figure 3** Proportion of women invited as moderators or invited speakers at the EULAR Congress and national conferences in Europe in 2019. EULAR, European Alliance of Associations for Rheumatology.

higher than those at the national conferences of France (116/405, 28.6%) ( $p=0.00042$ ) and Germany (108/365, 29.6%) ( $p=0.002$ ) but similar to the national conferences of Italy (32/95, 33.7%) ( $p=0.33$ ), Spain (98/235, 41.7%) ( $p=0.62$ ) and the UK (103/245, 42%) ( $p=0.55$ ) (figure 3). The proportions of women moderators and invited speakers were similar within each conference, apart from in Italy where only 21.2% of moderators were women compared with 40.3% of invited speakers.

## DISCUSSION

Women accounted for approximately 40% of invited moderators and speakers at all the European congresses reviewed, while several national conferences invited even fewer women. Compared with historical data on women moderators at EULAR in 2003 (16%) and in 2004 (19%) there does appear to have been considerable narrowing of the gender gap at EULAR congresses over the last 15 years.<sup>10</sup> However, there has been no significant improvement in gender equity in recent years at EULAR congresses, in contrast to what was observed at the ACR meetings.<sup>8</sup>

The proportion of women in HPR and PARE sessions was consistently greater than men. This is likely to represent the underlying gender balance, with greater proportions of women in allied health professions and the female predominance of autoimmune diseases.<sup>11</sup> There are some differences in the numbers of moderators and invited speakers in 2018 and 2019 compared with those previously reported in another study.<sup>9</sup> This is likely to be due to differences in the methodologies employed to calculate gender representation in different roles and types of sessions and possible inaccuracies in assigning gender to speakers retrospectively. EULAR has recently introduced a requirement for authors to report their gender as part of congress abstract submissions. This provides a basis for establishing a standardised methodology for monitoring and reporting gender representation at EULAR congresses.

The proportion of women invited as speakers and moderators varied widely between the national conferences of different European countries. It is unclear why

representation of women at the national congresses of France and Germany is significantly lower than at EULAR, in contrast to what was observed with Italy, Spain and the UK. Standardised workforce data for how the proportions seen in these conferences correspond to the gender balance in the rheumatology workforce within those countries is limited. In the UK, women made up 47% of the rheumatology consultant workforce and 56% of all rheumatology higher specialty trainees in 2019. However, only 42% of moderators and invited speakers at the UK national conference in 2019 were women.<sup>12</sup> Similar under-representation has been observed at conferences within Europe across a wide range of medical specialties including dermatology and paediatrics.<sup>13</sup> Our study highlights a need for standardised data on the gender balance in the clinical and academic rheumatology workforce within Europe to establish the extent of gender disparity among speakers and chairs at European rheumatology conferences relative to the European rheumatology workforce.

The reasons for the ongoing gender disparity in academic rheumatology are likely to be multifactorial.<sup>14</sup> A systematic review of 52 studies between 1985 and 2015 suggested four consistent themes for women's choice or rejection of careers in academic medicine, including a lack of adequate role models and mentors to support academic career development, gender discrimination and unconscious bias during medical training.<sup>15</sup> A recent review in 2020 highlighted the persistence of these barriers and its detrimental impact on the extent of women's leadership in academic medicine.<sup>16</sup> Within rheumatology, women are less likely to be first authors on guidelines and recommendations or senior authors on original research articles.<sup>17 18</sup> All of these factors are likely to impact on retention and promotion within the academic career pathway, as well as visibility and invitation rates to national and international conferences.

This study highlights the gender inequity that remains within academic rheumatology conferences throughout Europe. In a recent survey conducted by this taskforce, increasing the visibility of women role models was the one of the highest-ranked interventions by women respondents in Europe.<sup>19</sup> From 2020 onwards, EULAR has collected gender of speakers on session proposals. This change—alongside potential for including monitoring and reporting of gender statistics at conferences, ensuring the representation of women on all panels, and developing new mentorship and peer support networks—can assist in the ultimate goal of achieving gender equity for all rheumatology health professionals and scientists in academic rheumatology.

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#### REFERENCES

- 1 General Medical Council. The state of medical education and practice in the UK 2020, 2020. Available: [https://www.gmc-uk.org/-/media/documents/somep-2020\\_pdf-84684244.pdf](https://www.gmc-uk.org/-/media/documents/somep-2020_pdf-84684244.pdf)
- 2 Association of American Medical Colleges (AAMC). 2018-2019 the state of women in academic medicine: exploring pathways to equity, 2019. Available: <https://www.aamc.org/data-reports/data/2018-2019-state-women-academic-medicine-exploring-pathways-equity>;
- 3 Kuhlmann E, Ovseiko PV, Kurmeyer C, *et al*. Closing the gender leadership gap: a multi-centre cross-country comparison of women in management and leadership in academic health centres in the European Union. *Hum Resour Health* 2017;15:2.
- 4 Medical schools Council clinical academic survey 2004-2019, 2019. Available: <https://www.medschools.ac.uk/clinical-academic-survey>;
- 5 Battafarano DF, Ditmyer M, Bolster MB, *et al*. 2015 American College of rheumatology workforce study: supply and demand projections of adult rheumatology workforce, 2015-2030. *Arthritis Care Res* 2018;70:617-26.
- 6 Bosello SL, Chimenti MS, Conigliaro P, *et al*. Gender equality in rheumatology. *Reumatismo* 2020;71:173-6.
- 7 Boylan J, Dacre J, Gordon H. Addressing women's under-representation in medical leadership. *Lancet* 2019;393:e14.
- 8 Monga K, Liew J. Gender gap in rheumatology: SPEAKER representation at annual conferences. *Ann Rheum Dis* 2020. doi:10.1136/annrheumdis-2020-217673. [Epub ahead of print: 13 May 2020].
- 9 Conigliaro P, Bosello SL, Iannuccelli C, *et al*. Correspondence to 'Gender gap in rheumatology: speaker representation at annual conferences' by Monga and Liew-gender discrepancies at annual EULAR congresses: towards the gap narrowing. *Ann Rheum Dis* 2020. doi:10.1136/annrheumdis-2020-218516. [Epub ahead of print: 04 Aug 2020].
- 10 Lundberg IE, Ozen S, Gunes-Ayata A, *et al*. Women in academic rheumatology. *Arthritis Rheum* 2005;52:697-706.
- 11 Gleicher N, Barad DH. Gender as risk factor for autoimmune diseases. *J Autoimmun* 2007;28:1-6.
- 12 Royal College of Physicians. 2018-19 census (UK consultants and higher specialty trainees), 2019. Available: <https://www.rcplondon.ac.uk/projects/outputs/focus-physicians-2018-19-census-uk-consultants-and-higher-specialty-trainees>
- 13 Arora A, Kaur Y, Dossa F, *et al*. Proportion of female speakers at academic medical conferences across multiple specialties and regions. *JAMA Netw Open* 2020;3:e2018127.
- 14 Andreoli L, Ovseiko PV, Hassan N, *et al*. Gender equity in clinical practice, research and training: where do we stand in rheumatology? *Joint Bone Spine* 2019;86:669-72.
- 15 Edmunds LD, Ovseiko PV, Shepperd S, *et al*. Why do women choose or reject careers in academic medicine? A narrative review of empirical evidence. *Lancet* 2016;388:2948-58.
- 16 Alwazzan L, Al-Angari SS. Women's leadership in academic medicine: a systematic review of extent, condition and interventions. *BMJ Open* 2020;10:e032232.
- 17 Adami G, Benini C, Vantaggiato E, *et al*. Gender disparity in authorship of guidelines and recommendations in rheumatology. *Ann Rheum Dis* 2020;79:1122-3.
- 18 Bagga E, Stewart S, Gamble GD, *et al*. Representation of women as authors of rheumatology research articles. *Arthritis Rheumatol* 2021;73:162-7.
- 19 Ovseiko PV, Gossec L, Andreoli L, *et al*. THU0580 Eular task force on gender equity in academic rheumatology: Preliminary survey findings. *Ann Rheum Dis* 2020;79:531.2-2.
- 20 Hassan N, van Mens L, Kiltz U. 1703: gender equity in academic rheumatology – is there a gender gap at European rheumatology congresses? *Arthritis Rheumatol* 2020;72:3435-6.