



## Clinical science

# Gender equity in rheumatology leadership in the Asia-Pacific

Tayyeba Khursheed <sup>1</sup>, Pavel V. Ovseiko <sup>2</sup>, Ghita Harifi<sup>3,4</sup>, Humeira Badsha<sup>5</sup>,  
Yew Kuang Cheng<sup>6,7</sup>, Catherine L. Hill<sup>8,9</sup>, Syed Atiqul Haq<sup>10</sup>, Debashish Danda<sup>11</sup>,  
Latika Gupta <sup>12,13,14,\*</sup>

<sup>1</sup>Department of Rheumatology, Pakistan Institute of Medical Sciences, Islamabad, Pakistan

<sup>2</sup>Radcliffe Department of Medicine, University of Oxford, Oxford, UK

<sup>3</sup>Department of Rheumatology, Mediclinic Parkview Hospital, Dubai, United Arab Emirates

<sup>4</sup>Mohammed Bin Rashid University of Medicine, Dubai, United Arab Emirates

<sup>5</sup>Dr. Humeira Badsha Medical Center, Dubai, United Arab Emirates

<sup>6</sup>Farrer Park Medical Center, Singapore, Singapore

<sup>7</sup>Yong Loo Lin School of Medicine, National University of Singapore, Singapore, Singapore

<sup>8</sup>Rheumatology Unit, The Queen Elizabeth and Royal Adelaide Hospitals, Adelaide, South Australia, Australia

<sup>9</sup>Discipline of Medicine, University of Adelaide, Adelaide, South Australia, Australia

<sup>10</sup>BSM Medical University, Dhaka, Bangladesh

<sup>11</sup>Department of Clinical Immunology and Rheumatology, Christian Medical College, Vellore, India

<sup>12</sup>Department of Rheumatology, Royal Wolverhampton Hospitals NHS Trust, Wolverhampton, UK

<sup>13</sup>City Hospital, Sandwell and West Birmingham Hospitals NHS Trust, Birmingham, UK

<sup>14</sup>Division of Musculoskeletal and Dermatological Sciences, Centre for Musculoskeletal Research, School of Biological Sciences, The University of Manchester, Manchester, UK

\*Correspondence to: Latika Gupta, Department of Rheumatology, Royal Wolverhampton Hospitals NHS Trust, Wolverhampton, West Midlands WV10 0QP, UK. E-mail: drlatikagupta@gmail.com

## Abstract

**Objectives:** This study aimed to explore gender equity in rheumatology leadership in the Asia-Pacific region as represented by the member national organizations (MNOs) of the Asia-Pacific League of Associations for Rheumatology (APLAR).

**Methods:** We conducted a retrospective cross-sectional review of gender representation among the presidents of MNOs of APLAR in April 2022. We used the official website of each organization to acquire names and terms in the office of current and past presidents of each organization. The binary gender of each president was estimated using the name-to-gender inference platform Gender API (<https://gender-api.com/>). Proportions of male and female presidents were estimated for each organization. Data were compared for presidencies commencing before and in/after the year 2000.

**Results:** We found a significant gap in gender parity, with most presidents in the region being men (210 of 252, 83%). More than one-third (7 of 19, 36.8%) of the MNOs had all male presidents, although the proportion of women improved from 7 to 25% in/after 2000 ( $P=0.0002$ ). A statistically significant increase in female representation was observed in Australia ( $P=0.0268$ , from 7 to 39%) and New Zealand ( $P=0.0011$ , where the proportion of female presidents increased from 0 to 45%), but not in other countries.

**Conclusion:** A significant gap in gender parity exists in rheumatology leadership in the MNOs of APLAR. Trends suggest improvement over the last two decades, although statistically significant improvement is limited to a small number of countries.

**Keywords:** gender equity, gender gap, rheumatology, leadership

### Key messages

- Our review suggests that gender inequity exists in rheumatology leadership positions in the Asia-Pacific.
- Trends to improvement in gender equity are observed in many countries; however, statistically significant improvement is limited to a small number of countries.
- To accelerate the advancement of women in rheumatology, we propose convening a global gender equity task force and offer our collaboration.

Received: 15 August 2022. Accepted: 20 October 2022

© The Author(s) 2022. Published by Oxford University Press on behalf of the British Society for Rheumatology.

This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial License (<https://creativecommons.org/licenses/by-nc/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited. For commercial re-use, please contact [journals.permissions@oup.com](mailto:journals.permissions@oup.com)

## Introduction

Gender equity in the global health workforce continues to be challenging despite the vision of the United Nations for an inclusive and diverse society [1]. Societal determinants often compound biological differences in the sexes that might potentially impede equitable opportunities for growth and leadership [2]. Women are under-represented in academic medicine, especially in leadership positions [3, 4]. With most of the evidence in the current literature coming from developed nations, it is assumed that the situation in developing countries could be even more unfavourable [2].

Although, in some parts of the world, the rheumatology workforce is becoming more gender equitable [5], gender equity in academic leadership has been far from achieved. A review of the authorship of rheumatology guidelines and recommendations published between 2004 and 2019 found that the two-thirds of first authors were males [6]. Likewise, a gender gap in speaker representation in rheumatology conferences was identified in several studies. These include the ACR meetings [7], EULAR annual congresses [8, 9] and national conferences in Europe [8]. Women are also under-represented on the editorial boards of rheumatology journals [10].

Asia-Pacific is large, diverse and heterogeneous, with several cultural, religious and social disparities. Beyond North America and Europe, there is a paucity of evidence on gender equity in rheumatology leadership. Therefore, it is an important and timely exercise to evaluate the gender gap in the Asia-Pacific region. The Asia-Pacific League of Associations for Rheumatology (APLAR) is an alliance representing rheumatology organizations from across the Asia-Pacific and with representation from certain Central Asian and Middle Eastern nations, inclusive of 33 member national organizations (MNOs) (Supplementary Tables S1–S10, available at *Rheumatology Advances in Practice* online).

## Methods

We conducted a retrospective cross-sectional review of gender representation among the presidents of MNOs of APLAR in

April 2022. An ethical review board approval for this study was not required because all the included data were publicly accessible and did not contain any protected information. We identified 33 MNOs from the official website of APLAR ([www.aplar.org](http://www.aplar.org)). We used the official website of each organization to acquire names and terms in the office of current and past presidents of each organization. We requested the secretariat of an organization to provide the information when not found on the website. Fourteen organizations for which information could not be accessed were excluded from the study. Nineteen organizations were included in the final analysis. Data were included for as many years as available.

The binary gender of each president was estimated using the name-to-gender inference platform Gender API (<https://gender-api.com/>) and cross-checked against the personal pronouns and photographs used on their institutional websites or social media profiles when available. Proportions of male and female presidents were estimated for each organization. Data were compared for presidencies commencing before and in/after the year 2000. Differences in female representation over time were tested using Fisher's exact test, with the level of statistical significance set at  $P < 0.05$ .

## Results

We obtained and analysed data for 252 presidents from 19 organizations. We found the overwhelming majority of presidents to be men (210 of 252, 83%). Strikingly, all current and past presidents were men in 7 out of 19 organizations (Bangladesh, Iraq, Japan, Jordan, Singapore, South Korea and the United Arab Emirates). In contrast, the highest proportion of female presidents was observed in Kuwait (two of four, 50%) and Malaysia (four of eight, 50%), followed by the Philippines (10 of 24, 42%) and Pakistan (4 of 10, 40%). The total number and proportion of male and female presidents in all the MNOs are represented in Table 1.

We compared the proportion of total male and female presidents in the MNOs for presidencies commencing before and in/after the year 2000. Overall, the proportion of female

**Table 1.** Number and proportion of male and female presidents in the national rheumatology organizations from the Asia-Pacific

National rheumatology organizations	Total (n)	Male [n (%)]	Female [n (%)]
Australian Rheumatology Association (Australia), 1956–2022	40	33 (83)	7 (17)
Bangladesh Society of Rheumatology (Bangladesh), 1997–2022	3	3 (100)	0
Chinese Rheumatology Association (China), 1985–2022	11	9 (82)	2 (18)
College of Specialists in Rheumatology and Rehabilitation (Sri Lanka), years not available	11	8 (73)	3 (27)
Emirates Society of Rheumatology (United Arab Emirates), 2012–2022	4	4 (100)	0
Indian Rheumatology Association (India), 1971–2022	21	20 (95)	1 (5)
Iraqi Society of Rheumatic Diseases (Iraq), 2012–2022	1	1 (100)	0
Japan College of Rheumatology (Japan), 1957–2022	34	34 (100)	0
Jordanian Society of Rheumatology (Jordan), 2002–2022	6	6 (100)	0
Korean College of Rheumatology (South Korea), 2016–2022	6	6 (100)	0
Kuwait Association of Rheumatology (Kuwait), 2012–2022	4	2 (50)	2 (50)
Malaysian Society of Rheumatology (Malaysia), 2004–2022	8	4 (50)	4 (50)
New Zealand Rheumatology Association (New Zealand), 1948–2022	37	32 (86)	5 (14)
Pakistan Society of Rheumatology (Pakistan), 1995–2022	10	6 (60)	4 (40)
Philippines Rheumatology Association (Philippines), 1964–2022	24	14 (58)	10 (42)
Saudi Society of Rheumatology (Saudi Arabia), 2010–2022	3	2 (67)	1 (33)
Singapore Society of Rheumatology (Singapore), 1976–2022	7	7 (100)	0
Taiwan Rheumatology Association (Taiwan), 1982–2022	15	14 (93)	1 (7)
The Hong Kong Society of Rheumatology (Hong Kong), 2004–2022	7	5 (71)	2 (29)
Total	252	210 (83)	42 (17)

**Table 2.** Comparison of gender representation among the member national organizations of APLAR, before and in/after the year 2000

Country of organization	Male [n (%)]	Female [n (%)]	P-value
Australia (1956–2001)	25 (93)	2 (7)	0.0268
Australia (2001–2022)	8 (61)	5 (39)	
Bangladesh (1997–2014)	1 (100)	0	1
Bangladesh (2014–2022)	2 (100)	0	
China (1985–2000)	3 (75)	1 (25)	1
China (2000–2022)	6 (86)	1 (14)	
India (1971–1999)	9 (100)	0	1
India (2000–2022)	11 (92)	1 (8)	
Japan (1957–2005)	29 (100)	0	1
Japan (2005–2022)	5 (100)	0	
New Zealand (1948–1999)	25 (100)	0	0.0011
New Zealand (2000–1999)	6 (55)	5 (45)	
Pakistan (1995–2001)	1 (50)	1 (50)	1
Pakistan (2002–2022)	5 (63)	3 (37)	
Philippines (1964–2000)	8 (62)	5 (39)	0.6968
Philippines (2000–2022)	6 (55)	5 (45)	
Singapore (1976–2005)	3 (100)	0	1
Singapore (2005–2022)	4 (100)	0	
Taiwan (1982–2001)	8 (100)	0	0.4667
Taiwan (2001–2022)	6 (86)	1 (14)	
All MNOs <sup>a</sup> (1948–2000)	113 (93)	9 (7)	0.0002
All MNOs <sup>a</sup> (2000–2022)	89 (75)	30 (25)	

<sup>a</sup> Except for College of Specialists in Rheumatology and Rehabilitation, Sri Lanka, for which the data on the terms of presidencies commencing before and in/after the year 2000 were not available. APLAR: Asia-Pacific League of Associations for Rheumatology; MNOs: member national organizations.

presidents increased from 7% before 2000 to 25% in/after 2000 ( $P=0.0002$ ).

We also compared the proportion of male and female presidents in each organization, where data were available for presidencies commencing before and in the year 2000 (Table 2). A statistically significant increase in the proportion of female presidents was observed in Australia ( $P=0.0268$ ), where the proportion of females increased from 7 to 39%, and in New Zealand ( $P=0.0011$ ), where the proportion of female presidents increased from 0 to 45%.

## Discussion

Our results highlight the gender gap in rheumatology leadership across the Asia-Pacific. Over a third of the organizations included in our analysis have no present or past female presidents. Although it is reassuring to see the proportion of female presidents rising in many countries, a statistically significant increase was observed only in Australia and New Zealand. These results are consistent with trends observed in a review of gender positions in regional rheumatology leagues including ACR, African League Against Rheumatism (AFLAR), APLAR, EULAR and Panamerican League of Associations for Rheumatology (PANLAR), where low female representation was found. Among the global rheumatology leagues, a statistically significant increase in the proportion of female presidents has been observed only in the ACR. In the same review, it was found that there has been no female president in the APLAR and PANLAR [11].

In line with the vision of the United Nations for gender equity as one of the key sustainable development goals, our review suggests a need for interventions to support women's career development and advancement to leadership roles in

rheumatology. The current gender leadership gap might reflect the under-utilization of women's talent and intellectual capital [12, 13]. There are likely to be unexplored areas in medical research, the benefits of which are unavailable to patients and society [13]. Remarkably, there are indications that advancing women in academic medicine is linked with advancement in women's health [14]. Given that rheumatology organizations in Asia-Pacific play an important role in setting and improving education, research and clinical care standards, greater gender equity in leadership can have a positive impact on the profession and patients.

Our data take an essential first step towards addressing the gender leadership gap in rheumatology in the Asia-Pacific by determining its extent and highlighting a need for interventions to support women's career development and advancement to leadership roles. Although the literature suggests a range of potential interventions, they are predominantly based on single-centre observational studies; best practices and expert opinions vary according to the study setting and context and often come from the fields of academic medicine other than rheumatology [15–17]. Therefore, in designing interventions to address the gender leadership gap in rheumatology in the Asia-Pacific, it will be important to assess the efficacy of available potential interventions and their transferability to rheumatology settings in different countries.

The present study is limited by its ability to explore gender parity in all MNOs owing to unavailability of data for some regions. However, further research can usefully explore gender parity in the excluded MNOs and ascertain whether the observed trends hold true for other leadership positions. Owing to the paucity of data, the baseline characteristics of the rheumatology workforce are not readily available from the countries included in the analysis. It is important to assess whether the lack of representation of women in presidential roles is attributable to the shortage of women in the rheumatology workforce or because of certain barriers to career development and advancement. To ensure the sustainability of the rheumatology workforce in the face of growing demand for high-quality care, it is necessary to recruit more women and men into rheumatology and to retain the current generation of rheumatologists, who might leave owing to a lack of opportunities for career development and advancement.

Importantly, efforts to support women's career development and advancement in rheumatology are already underway in different parts of the world. The EULAR Task Force on Gender Equity in Academic Rheumatology [18], the Association of Women in Rheumatology (AWIR) in the USA, and Reumatologhe Donne (ReDO) in Italy are paving the way for a more gender-equal environment in the rheumatology community [19]. In order to reduce the gender gap, the APLAR has recently articulated its ambition to increase female representation on executive committees to 50%. This is a praiseworthy initiative, which is likely to improve gender equity in the APLAR leadership and encourage the APLAR MNOs to implement similar policies. Given the common need to support women's advancement in rheumatology in different parts of the world, we propose convening a global gender equity task force and offer our collaboration.

## Conclusion

We found a significant gap in gender parity in rheumatology leadership in the MNOs of APLAR. Trends suggest

improvement, but significant inequity still exists. Active interventions from rheumatology organizations are required to address the gender gap in rheumatology leadership in the Asia-Pacific. Such interventions can be developed in a concerted effort with rheumatology organizations and colleagues from other parts of the world. To this effect, we propose convening a global gender equity task force and offer our collaboration.

### Supplementary data

Supplementary data are available at *Rheumatology Advances in Practice* online.

### Data availability statement

All the data included in this study are either open access or obtained from secretariat of each organization. The data used in the current review can be verified from the websites/secretariat of each organization. The present opinion does not represent the view of any particular rheumatology league and only reflect the authors' opinion. All data are included in the manuscript and as [supplementary material](#).

### Contribution statement

T.K.: validation, formal analysis, data curation, writing original draft, review and editing. P.V.O.: methodology, validation, software, resources, review and editing. G.H.: validation, resources, review and editing. H.B.: conceptualization, review and editing. C.Y.K.: resources, review and editing. C.H.L.: resources, review and editing. S.A.H.: resources, review and editing. D.D.: resources, review and editing. L.G.: conceptualization, validation, resources, review and editing, visualization, supervision, project administration.

### Funding

No funding was received for this study. P.V.O. is supported by the NIHR Oxford Biomedical Research Centre (grant BRC-1215–20008) and the European Union's Horizon 2020 research and innovation programme (grant agreement number: 872396).

*Disclosure statement:* D.D. is the current president of Asia-Pacific League of Associations for Rheumatology (APLAR). C.L.H. is the immediate past president of Australian Rheumatology Association and chairperson of APLAR education committee. S.A.H. is the immediate past president of APLAR and current president of Bangladesh Society of Rheumatology. C.Y.K. is the past Chairperson of APLAR young rheumatologists Committee. G.H. is the current vice-Chairperson of APLAR Young Rheumatologists Committee and member of the APLAR Education committee. H.B. is the vice-Chairperson of APLAR International Affairs Committee. L.G. is the APLAR Young Rheumatologists Committee webmaster, APLAR Young Rheumatologists Committee board member, APLAR International Affairs Committee, EMEUNET social media subcommittee.

### References

- Marmot M, Bell RJE. The sustainable development goals and health equity. *Epidemiology* 2018;29:5–7.
- World Health Organization. *Delivered by women, led by men: a gender and equity analysis of the global health and social workforce*. 2019.
- Lautenberger D, Dandar V, Raezer C, Sloane R; Association of American Medical Colleges. *The state of women in academic medicine: the pipeline and pathways to leadership, 2013–2014*. 2019.
- Bismark M, Morris J, Thomas L *et al.* Reasons and remedies for under-representation of women in medical leadership roles: a qualitative study from Australia. *BMJ Open* 2015;5:e009384.
- 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 (Hoboken)* 2018;70:617–26.
- 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.
- Monga K, Aotrd LJ. Gender gap in rheumatology: SPEAKER representation at annual conferences. 2020.
- Hassan N, van Mens LJ, Kiltz U *et al.* Gender equity in academic rheumatology: is there a gender gap at European rheumatology conferences? *RMD Open* 2022;8:e002131.
- 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* 2022;81:e169.
- Osveiko PV, Afsar AP, Fazal ZZ, Coates LC, Gupta L. Gender representation on editorial boards of rheumatology journals. *Lancet Rheumatol* 2022;4:E663–664.
- Khursheed T, Harifi G, Osveiko PV *et al.* Is there a gender gap in global rheumatology leadership? *Rheumatology* 2022;https://doi.org/10.1093/rheumatology/keac499.
- Shah DN, Volpe NJ, Abbuhl SB, Pietrobon R, Shah A. Gender characteristics among academic ophthalmology leadership, faculty, and residents: results from a cross-sectional survey. *Ophthalmic Epidemiol* 2010;17:1–6.
- Penny M, Jeffries R, Grant J, Davies SC. Women and academic medicine: a review of the evidence on female representation. *J Roy Soc Med* 2014;107:259–63.
- Carnes M, Morrissey C, Geller SE. Women's health and women's leadership in academic medicine: hitting the same glass ceiling? *J Womens Health (Larchmt)* 2008;17:1453–62.
- Laver KE, Prichard IJ, Cations M *et al.* A systematic review of interventions to support the careers of women in academic medicine and other disciplines. *BMJ Open* 2018;8:e020380.
- Alwazzan L, Al-Angari SS. Women's leadership in academic medicine: a systematic review of extent, condition and interventions. *BMJ Open* 2020;10:e032232.
- Tricco AC, Bourgeault I, Moore A *et al.* Advancing gender equity in medicine. *CMAJ* 2021;193:E244–50.
- Osveiko PV, Gossec L, Andreoli L *et al.* Gender equity in academic rheumatology, current status and potential for improvement: a cross-sectional study to inform an EULAR task force. *RMD Open* 2022;8:e002518.
- Andreoli L, Osveiko 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.