Gender equality in national cardiology societies: a cross-sectional study

Svenja Ravioli M.D. , Jolanda Oberle , Michael Haidinger M.D. , Gregor Lindner M.D.

PII: S0002-9343(23)00148-1
DOI: https://doi.org/10.1016/j.amjmed.2023.02.012
Reference: AJM 17082

To appear in: *The American Journal of Medicine*

Received date: 3 February 2023
Accepted date: 3 February 2023

Please cite this article as: Svenja Ravioli M.D. , Jolanda Oberle , Michael Haidinger M.D. , Gregor Lindner M.D. , Gender equality in national cardiology societies: a cross-sectional study, *The American Journal of Medicine* (2023), doi: https://doi.org/10.1016/j.amjmed.2023.02.012

Title:

Gender equality in national cardiology societies: a cross-sectional study

Svenja Ravioli M.D. [1], Jolanda Oberle [2], Michael Haidinger M.D. [2] and Gregor Lindner M.D. [3]

(1) Department of Emergency Medicine, King's College Hospital NHS Foundation Trust, London SE5 9RS, UK
(2) Department of Internal and Emergency Medicine, Buergerspital Solothurn, Switzerland
(3) Department of Emergency Medicine, Inselspital, University Hospital Bern and University of Bern, Switzerland

Running Head: Equality in Cardiology Societies

Article Type: Clinical Research Study

Funding sources: No funding to declare.

Conflict of interest: None to report for all authors.

Acknowledgments: None

Data availability statement: The data underlying this article will be shared on reasonable request to the corresponding author.

Ethics approval: Not applicable

Authors' contributions: SR, JO and GL were involved in data collection, statistical analysis and performed the manuscript draft. All authors critically revised the manuscript draft.

Electronic word count: 1981 (Abstract 215)

Key words: gender, equality, cardiology, esc, diversity

Correspondance:

Prof. Dr. Gregor Lindner on behalf of the authors
Dept. of Emergency Medicine
Inselspital University Hospital Bern
3010 Bern, Switzerland
T: +41 79 874 6030
E: lindner.gregor@gmail.com

Abstract

Background

Higher productivity and team stability has been shown for gender diverse teams. However, there is a relevant and well-known gender gap in clinical and academic cardiovascular medicine. So far, no data concerning gender distribution in presidents and executive boards of national cardiology societies exist.

Methods

In this cross-sectional analysis, gender equality in presidents and representatives of all national cardiology societies, which are members of or affiliated with the European Society of Cardiology (ESC) in 2022 was analyzed. In addition, representatives of the American Heart Association (AHA) were evaluated.

Results

A total of 106 national societies were screened of which 104 were included in the final analysis. Overall, in these 104 societies, 90 out of 106 (85%) presidents were men while 14 (13%) were women. In the analysis of board members and executives, a total of 1128 individuals were included. Overall, 809 (72%) board members were men, 258 (23%) women and 61 (5%) of unknown gender. Except for society presidents in Australia, women were relevantly outnumbered by men in all world regions.

Conclusion

Women were globally underrepresented in leading positions of national cardiology societies in all world regions. As national societies are important regional stakeholders, improving gender equality in executive boards might create women role models, help foster careers and narrow the global cardiology gender gap.

Declarations

Ethics approval and consent to participate:	Not applicable
Consent for publication:	Not applicable
Data availability statement:	The data underlying this article will be shared on reasonable request to the corresponding author.
Competing interests:	None to report for all authors.
Funding sources:	No funding to declare.
Authors' contributions:	SR, JO and GL were involved in data collection, statistical analysis and performed the manuscript draft. All authors critically revised the manuscript draft.

Abbreviations

ACC	American College of Cardiology
AHA	American Heart Association
ESC	European Society of Cardiology

Introduction

Gender gaps have been described for various medical specialties. They are growingly subject of research and global strategies to increase diversity and equality in medicine. Despite the growing number of working women physicians, there is a historic gender gap in cardiovascular medicine with few women choosing cardiology for their post-graduate training (1, 2). In Canada for example, only 22% of cardiologists were women, while even fewer entered interventional specialties and less than 10% of cardiac surgeons were women in 2018 (3). This gender gap in cardiology not only affects the physician workforce, but also extends to academics and research. Recently, a significant gender disparity was found in authorships of international cardiology guidelines from 2006 to 2020 (4). Interestingly, in the American College of Cardiology (ACC), American Heart Association (AHA) and European Society of Cardiology (ESC) Guidelines, women authorship increased when women cardiologists were chairs (4). Similar results were found in an analysis of 33 ACC clinical guidelines from 2008 to 2018 with a median proportion for women authors of 22%, however, 76% of all guidelines contained sex- and gender-specific content (5). Furthermore, in a cross-sectional analysis of first authors of randomized clinical trials in cardiology over ten years, the proportion of women authors was markedly low, but an upward trend from 22% in 2011 to 35% in 2020 was noted (2).

Why is underrepresentation of women pronounced among cardiologists? According to a recent narrative review on the topic, current evidence suggests the presence of gender and pregnancy discrimination, racial bias as well as sexual harassment in cardiology (3). These circumstances might already be experienced by medical students and influence their selection of post-graduation training programs away from cardiology. In terms of radiation exposure, particularly relevant for women of childbearing age, knowledge and standardized safety measures still appear to be lacking (3). Finally, significant gender-based salary discrepancies also exist in cardiovascular medicine among specialists as well as residents (6).

Role models, peer-supporting and specified teaching programs might help narrow the gender gap in cardiology. National societies are important regional stakeholders to support training programs, foster academic careers and ensure equality on a national level. However, in 2021, women underrepresentation in presidents and board members of national societies was detected for example in intensive care and emergency medicine (7, 8). In view of these results, it was the aim of this study to analyze gender distribution of executive board members and presidents of national cardiology

societies affiliated with the ESC in 2022 in order to identify another aspect of the cardiology gender gap and potential to improve equality.

Material and Methods

Study Design and Objective

In this cross-sectional analysis, gender distribution of executive board members and presidents of national cardiology societies affiliated with the ESC was analyzed in 2022 to assess another aspect of the well-known gender gap in cardiology. In addition, data concerning the executive board of the AHA was obtained.

Participant Selection and Data Preparation

The executive boards of all national cardiology societies affiliated with the ESC as published on the official ESC website (see below) and of the AHA were eligible for study inclusion. Data for AHA were pooled together with ESC associated national societies. First and last names of board members were gathered either from the official website of each national cardiology society or, in absence of an official individual website, from information published on the official ESC website in August and September 2022. Listed cardiology societies with no evaluable online information were excluded from the analysis. According to the official ESC statement, the "Belorussian Scientific Society of Cardiologists" and the "Russian Society of Cardiology" were suspended from the ESC membership during the study period and were therefore excluded from this analysis.

All data was obtained by the same three persons (SR, JO and GL). “Google translate” was used to translate online information in languages other than English, German, French, Italian or Spanish. Executive board members were identified by information provided online and classified into “president” and “board member”. Specific positions such as “vice president”, “treasurer” or “secretary” were also classified as “board member” if staffed by physicians.

The term “gender” refers to an individual’s social identity and not their biological “sex” assigned at birth and naturally both terms include more than two entities. For reasons of simplicity the term “gender” will be used throughout this paper. Gender categorization was performed based on provided professional profiles including first and last name or even pictures on the official websites. In ambiguous cases, internet research on the individual was performed with “Google” Search Engine considering workplace information or associated hospitals/universities. If gender was not beyond doubt determinable with the above-stated methods, the individual's gender was classified as "unknown". Gender determination was performed by two independent study team members to achieve a high level of accuracy.

Statistical Analysis

After completion of data collection, data was exported to a statistical software package (SPSS for Mac version 28) for analysis. All data are presented in absolute numbers as well as percentages. Chi-square tests were used in order to analyze global differences in gender distribution. A p-value < 0.05 was considered statistically significant.

Ethical Considerations

All extracted data was publicly available online and no patient related data was used, therefore no ethics committee approval was required. There was no patient or public involvement in the design, conduct, reporting or dissemination of this research. There was no funding for this study.

Results

In total, 106 national cardiology societies were eligible for analysis, of which 57 listed as national societies and 49 as affiliated with the ESC in 2022. Table 1 provides a list of all ESC member and affiliated national cardiology societies as published online. Data concerning the Russian Federation and Belarus were not considered for the analysis due to suspension of the respective national societies by the ESC at the time of data analysis - leaving a total of 104 national societies for the final analysis.

Presidents of national cardiology societies

In the analysis of presidents of national cardiology societies, 90 out of 106 (85%) presidents were men while 14 (13%) were women. For two presidents, gender could not be identified. In the subgroup of ESC member societies, 44 (80%) presidents were men, while 10 (18%) were women. One president's gender could not be identified. Regarding ESC affiliated national societies, 46 (90%) presidents were men and four (8%) were women. Again, one president's gender could not be determined for analysis. There was no significant difference in the proportion of women between ESC national societies and ESC affiliated societies (chi-square 2.5; p=0.12). Large discrepancies were found in the proportions of women presidents of national societies between different world regions: while Australia had only one president, a woman, 100% of presidents were men in national cardiology societies of South America. Table 2 gives an overview on gender distribution in presidents of national cardiology societies stratified for world regions. Figure 1 shows the proportion of women presidents of national cardiology societies stratified for different world regions.

Board members of national cardiology societies

In the analysis of board members and executives, a total of 1128 individuals were included. Overall, 809 (72%) board members were men, 258 (23%) women and 61 (5%) of unknown gender. In the subgroup of ESC national societies, 411 (70%) were men, 161 (27%) women and 16 (3%) of unknown gender, while in ESC affiliated societies 398 (74%) were men, 97 (18%) women and 45 (8%) of unknown gender. There was a significantly higher proportion of women board members in ESC affiliated national societies than in ESC national societies (chi-square 10.6; p=0.001). Comparing national cardiology societies of different world regions, the highest proportion of women board members was found in North America with 32%, while Asia had the smallest proportion with 9%. Table 3 gives an overview on gender distribution in board members of national cardiology societies in

different world regions. Figure 1 shows the proportion of women board members for different world regions.

Comparison to national societies in other specialties

Comparing the proportion of women presidents of national cardiology societies (13%) to other medical specialties as previously published by our study group (8, 9, 7, 10) for presidents of national emergency medicine (18% women presidents), internal medicine (20%), intensive care medicine (15%) and nephrology societies (45%), only nephrology has a significantly higher women representation (chi-square 36.5, $p<0.001$). However, cardiology societies appear to have the lowest proportion of women presidents as compared to other specialties. In terms of board members, no significant difference in the proportion of women representation was found between the national societies for cardiology (23%), emergency medicine (30%), internal medicine (27%), intensive care medicine (28%) and nephrology (37%) (chi-square 4.4, $p=0.35$).

Discussion

In the present cross-sectional analysis on gender equality in national cardiology societies, women were highly outnumbered by men as presidents. In addition, the proportion of women board members was also relevantly lower. While regional differences were identified, men outnumbered women presidents in every world region except for Australia.

These findings stand in line with results from previous studies, in which gender disparities were identified in executive boards of national societies of emergency medicine, internal medicine and intensive care medicine (8, 9, 7).

Gender inequality in cardiology is no news but rather historic: Burgess and coworkers showed a dramatic gender gap in interventional cardiology in 2018 with a proportion of women interventionalists of only 9% (11). In a commentary from 2019, Prof. Alpert, editor in chief of the American Journal of Medicine, mentioned potential causes of women underrepresentation in cardiovascular medicine (1). Among other, frequent night shifts as well as the culture in cardiology training programs were discussed. Moreover, a gender gap is also present in academic cardiology: In an analysis in Germany, women were underrepresented as meeting attendees, presenters and chairs or moderators at the Annual Meeting of the German Society for Cardiology (Deutsche Gesellschaft für Kardiologie) during a five-year period (12). Similar results were published for scientific sessions at meetings in North and South America (13). Women were also described to be largely outnumbered by men as authors of publications of randomized clinical trials in cardiology (2) as well as of international cardiology guidelines (4).

The present findings together with previous evidence of gender imbalance not only are precarious for matters of equality, fairness and justice. There is also strong evidence that mixed teams produce better results in research (14) and are less prone to conflicts in the team (15). The necessity to reach progress in diversity in cardiovascular medicine has also been pronounced by a specific task force of the ACC, which acknowledged the benefits of a diverse team (16). However, even though some progress was observed in cardiology training programs by specifically paying attention to diversity, the effects appeared to be limited (16). Alternative strategies such as establishing coaching programs to improve gender diversity in cardiology were also suggested (17).

The present study has several limitations: Firstly, only member and affiliated societies of the ESC and in addition the AHA were evaluated which might cause a selection bias. Secondly, the quality of the

results depended on the timeliness of the information provided by the national societies on their respective websites. However, we feel that the large number of included societies worldwide should limit this potential bias. Finally, the binary approach in gender classification, namely “man”, “woman” or “unknow”, does not cover all gender entities but was chosen to simplify statistical analysis. Even though gender identification was performed by two individual authors, the possibility of incorrect gender attribution remains.

In conclusion, the gender gap in national societies of cardiology is a large global issue and affects both presidents as well as board members. As the need for more diversity in cardiovascular medicine appears to be recognized by a broad audience, specific measures to create women role models and foster women careers must be developed, implemented and narrowly evaluated for their effectiveness until gender diversity can finally become reality.

References

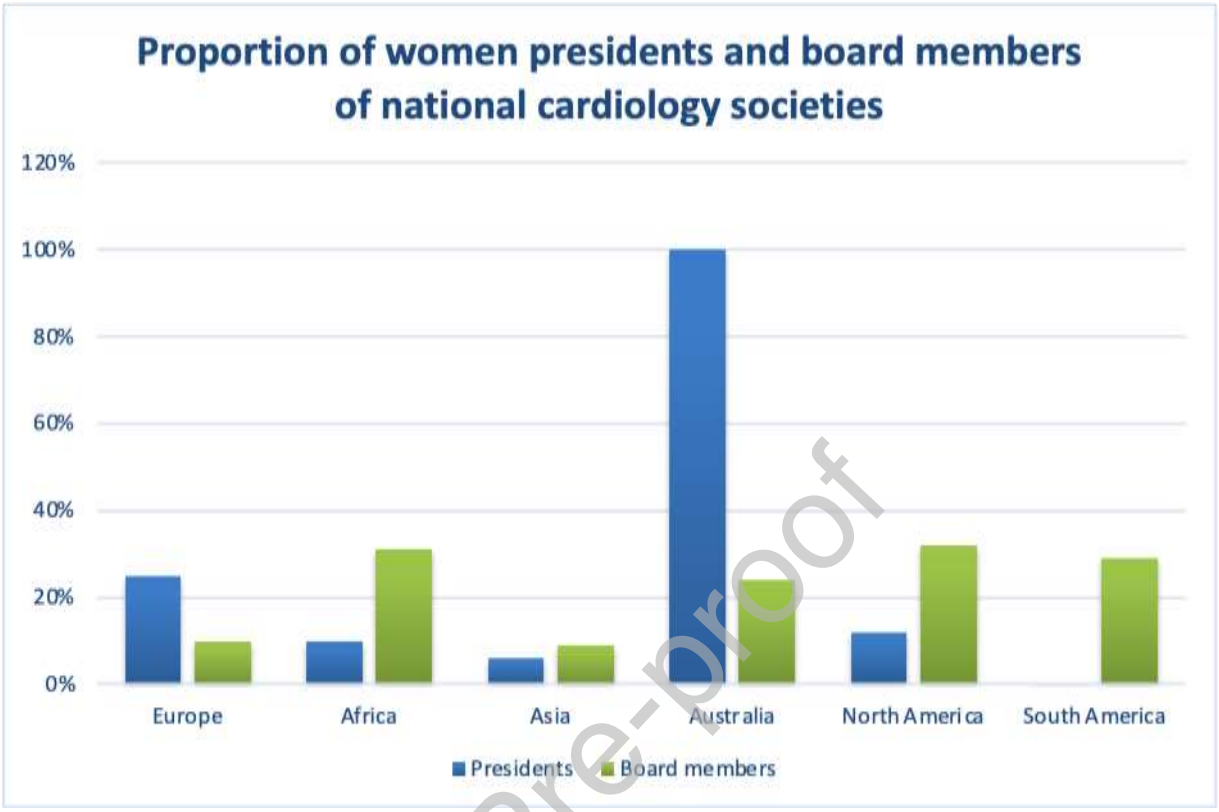
1. Alpert JS. Why are women underrepresented in cardiology? Am J Med. 2020 Mar; 133(3): 255-256. doi: 10.1016/j.amjmed.2019.10. 32113521
2. Mehran R, Kumar A, Bansal A, Shariff M, Gulati M, Kalra A. Gender and Disparity in First Authorships in Cardiology Randomized Clinical Trials. JAMA Netw Open. 2021 Mar 1;4(3):e211043. doi: 10.1001/jamanetworkopen.2021.1043. 33687441
3. Keir M, McFadden C, Ruzycki S, Weeks S, Slawnych M, Scott McClure R, Kuriachan V, Fedak P, Morillo C. Lack of Equity in the Cardiology Physician Workforce: A Narrative Review and Analysis of the Literature. CJC Open. 2021 Sep 28;3(12 Suppl):S180-S186. doi: 10.1016/j.cjco.2021.09.019. 34993447
4. Rai D, Kumar A, Waheed SH, Pandey R, Guerriero M, Kapoor A, Tahir MW, Zahid S, Hajra A, Balmer-Swain M, Castelletti S, Maas AHEM, Grapsa J, Mulvagh S, Zieroth S, Kalra A, Michos ED, Gulati M. Gender Differences in International Cardiology Guideline Authorship: A Comparison of the US, Canadian, and European Cardiology Guidelines From 2006 to 2020. J Am Heart Assoc. 2022 Mar; 11(5):e024249. doi: 10.1161/JAHA.121.024249. 35189693
5. Tong I, Griffin B, Trott J, Romano M, Stein AB, Madsen TE. The Proportion of Women Authors and the Inclusion of Sex and Gender Content Among the American College of Cardiology Clinical Practice Guidelines, 2008-2018. J Womens Health (Larchmt). 2021 Nov;30(11):1616-1625. doi: 10.1089/jwh.2020.8454. Epub 2020 Nov 27. 33252297
6. Dettmer S, Wenzel A, Trenkwalder T, Tiefenbacher C, Regitz-Zagrosek V. Gender and career in cardiology-a cross-sectional study. Herz. 2021 Mar;46(2):150-157. English. doi: 10.1007/s00059-021-05027-0. Epub 2021 Feb 18. PMID: 33599803.
7. Ravioli S, Moser N, Ryser B, Pfortmueller CA, Lindner G (Epub 2021 Nov 23). Gender distribution in boards of intensive care medicine societies. J Crit Care. doi: 10.1016/j.jcrc.2021.11.006. PMID: 34836749
8. Lindner G, Rupp A, Exadaktylos AK, Ravioli S (Epub 2021 Apr 18). Gender distribution in board memberships of emergency medicine societies. Am J Emerg Med. doi: 10.1016/j.ajem.2021.04.042. PMID: 33892332
9. Ryser B, Ravioli S, Lindner G. Gender distribution in boards of internal medicine societies. Eur J Intern Med. 2021 Aug;90:122-124. doi: 10.1016/j.ejim.2021.05.019. Epub 2021 Jun 1. PMID: 34083093.

10. Ravioli S, Lindner G, Haidinger M. Gender distribution in presidents and board members of European nephrology societies. Clin Kidney J. 2021 Dec 9;15(5):1017-1018. doi: 10.1093/ckj/sfab259. PMID: 35498892.
11. Burgess S, Shaw E, Ellenberger K, Thomas L, Grines C, Zaman S. Women in Medicine: Addressing the Gender Gap in Interventional Cardiology. J Am Coll Cardiol. 2018 Nov 27;72(21):2663-2667. doi: 10.1016/j.jacc.2018.08.2198. PMID: 30466523.
12. Lerchenmüller C, Hilfiker-Kleiner D. Cardiology and cardiovascular research in Germany: 5 years of gender demographics. Clin Res Cardiol. 2019 Feb;108(2):218-220. doi: 10.1007/s00392-018-1335-y. Epub 2018 Jul 26. PMID: 30051180.
13. Burgos LM, Farina J, Sauce Perez AL, Ortiz Lopez HIA, Gupta SD, Baranchuk A, Saldarriaga Giraldo CI; Interamerican Society of Cardiology (IASC), Emerging Leaders (EL) Group. Gender Equity Imbalance in Cardiology Scientific Sessions in the Americas. Curr Probl Cardiol. 2021 Apr;46(4):100785. doi: 10.1016/j.cpcardiol.2020.100785. Epub 2021 Jan 7. PMID: 33516090.
14. Yang Y, Tian TY, Woodruff TK, Jones BF, Uzzi B. Gender-diverse teams produce more novel and higher-impact scientific ideas. Proc Natl Acad Sci U S A. 2022 Sep 6;119(36):e2200841119. doi: 10.1073/pnas.2200841119. Epub 2022 Aug 29. PMID: 36037387; PMCID: PMC9456721.
15. Jones LK, Jennings BM, Higgins MK, de Waal FBM. Ethological observations of social behavior in the operating room. Proc Natl Acad Sci U S A. 2018 Jul 17;115(29):7575-7580. doi: 10.1073/pnas.1716883115. Epub 2018 Jul 2. PMID: 29967170
16. Capers Q 4th, Johnson A, Berlacher K, Douglas PS. The Urgent and Ongoing Need for Diversity, Inclusion, and Equity in the Cardiology Workforce in the United States. J Am Heart Assoc. 2021 Mar 16;10(6):e018893. doi: 10.1161/JAHA.120.018893. Epub 2021 Mar 9. PMID: 33686869
17. Raber I, Corley AM, York M. A Call to Action: A Resident Coaching Program to Improve Gender Diversity in Cardiology. JACC Case Rep. 2021 May 19;3(5):839-841. doi: 10.1016/j.jaccas.2021.03.016. PMID: 34317637

Clinical significance

- A relevant gender gap has been shown in boards of national societies of medical specialties, but is unknown for the field of cardiology.
- Of 104 societies worldwide evaluated, 85% of all presidents of national cardiology societies were men, while only 14% were women.
- 72% of board members were men while 23% were women.
- Women were relevantly outnumbered by men in national cardiology societies in all world regions with the exception of presidents in Australia.

Figure 1. Proportions of women presidents and board members of national cardiology societies.



Tables

ESC National Societies			
Country	**World Region**	**Society**	**Access Date**
Albania	Europe	Albanian Society of Cardiology	26.07.2022
Algeria	Africa	Algerian Society of Cardiology	26.07.2022
Armenia	Asia	Armenian Cardiologists Association	26.07.2022
Austria	Europe	Austrian Society of Cardiology	26.07.2022
Azerbaijan	Asia	Azerbaijan Society of Cardiology	26.07.2022
Belgium	Europe	Belgium Society of Cardiology	26.07.2022
Belarus	Europe	Belorussian Scientific Society of Cardiologists	suspended
Bosnia and Herzegovina	Europe	Association of Cardiologists of Bosnia & Herzegovina	26.07.2022
Bulgaria	Europe	Bulgarian Society of Cardiology	26.07.2022
Croatia	Europe	Croatian Cardiac Society	27.07.2022
Cyprus	Europe	Cyprus Society of Cardiology	08.08.2022
Czechia	Europe	Czech Society of Cardiology	26.07.2022
Denmark	Europe	Danish Society of Cardiology	26.07.2022
Egypt	Africa	Egyptian Society of Cardiology	19.08.2022
Estonia	Europe	Estonian Society of Cardiology	26.07.2022
Finland	Europe	Finnish Cardiac Society	26.07.2022
France	Europe	French Society of Cardiology	26.07.2022
Georgia	Europe	Georgian Society of Cardiology	19.08.2022
Germany	Europe	German Cardiac Society	26.07.2022
Greece	Europe	Hellenic Society of Cardiology	26.07.2022
Hungary	Europe	Hungarian Society of Cardiology	26.07.2022
Iceland	Europe	Icelanian Society of Cardiology	19.08.2022
Ireland	Europe	Irish Cardiac Society	26.07.2022
Israel	Asia	Israel Heart Society	19.08.2022
Italy	Europe	Italian Federation of Cardiology	26.07.2022
Republic of Kosovo	Europe	Kosovo Society of Cardiology	26.07.2022
Kazakhstan	Asia	Association of Cardiologists of Kazakhstan	26.07.2022
Kyrgyzstan	Asia	Kyrgyz Society of Cardiology	26.07.2022
Latvia	Europe	Latvian Society of Cardiology	19.08.2022
Lebanon	Asia	Lebanese Society of Cardiology	27.07.2022
Libya	Africa	Libyan Cardiac Society	27.07.2022
Lithuania	Europe	Lithuanian Society of Cardiology	27.07.2022
Luxembourg	Europe	Luxembourg Society of Cardiology	27.07.2022
Malta	Europe	Maltese Cardiac Society	27.07.2022
Moldova	Europe	Moldavian Society of Cardiology	27.07.2022
Montenegro	Europe	Montenegro Society of Cardiology	27.07.2022
Morocco	Africa	Moroccan Society of Cardiology	27.07.2022
Netherlands	Europe	Netherlands Society of Cardiology	27.07.2022
North Macedonia	Europe	North Macedonian Society of Cardiology	27.07.2022

Norway	Europe	Norwegian Society of Cardiology	27.07.2022
Poland	Europe	Polish Cardiac Society	27.07.2022
Portugal	Europe	Portuguese Society of Cardiology	27.07.2022
Romania	Europe	Romanian Society of Cardiology	27.07.2022
Russian Federation	Europe	Russian Society of Cardiology	suspended
San Marino	Europe	San Marino Society of Cardiology	19.08.2022
Serbia	Europe	Cardiology Society of Serbia	27.07.2022
Slovakia	Europe	Slovak Society of Cardiology	27.07.2022
Slovenia	Europe	Slovenian Society of Cardiology	27.07.2022
Spain	Europe	Spanish Society of Cardiology	27.07.2022
Sweden	Europe	Swedish Society of Cardiology	27.07.2022
Switzerland	Europe	Swiss Society of Cardiology	27.07.2022
Syrian Arab Republic	Asia	Syrian Cardiovascular Association	27.07.2022
Tunisia	Africa	Tunisian Society of Cardiology and Cardiovascular Surgery	27.07.2022
Turkey	Europe	Turkish Society of Cardiology	27.07.2022
Ukraine	Europe	Ukranian Association of Cardiology	19.08.2022
United Kingdom of Great Britain & Northern Ireland	Europe	British Cardiovascular Society	27.07.2022
Uzbekistan	Asia	Association of Cardiologists of Uzbekistan	19.08.2022
ESC Affiliated Societies			
Country	**World Region**	**Society**	**Access Date**
Afghanistan	Asia	Afghanistan Cardiovascular Association	19.08.2022
Argentina	SA	Argentine Society of Cardiology	09.08.2022
Australia	Australia	Cardiac Society of Australia and New Zealand	09.08.2022
Bangladesh	Asia	Bangladesh Cardiac Society	09.08.2022
Brazil	SA	Brazilian Society of Cardiology	22.09.2022
Canada	NA	Canadian Cardiovascular Society	09.08.2022
Jamaica	NA	Caribbean Cardiac Society	19.08.2022
Chile	SA	Chilean Society of Cardiology and Cardiovascular Surgery	11.08.2022
China	Asia	Chinese Society of Cardiology	12.08.2022
Colombia	SA	Colombian Society of Cardiology and Cardiovascular Surgery	11.08.2022
Costa Rica	NA	Costa Rican Association of Cardiology	11.08.2022
Cuba	NA	Cuban Society of Cardiology	11.08.2022
Dominican Republic	NA	Dominican Society of Cardiology	11.08.2022
Ecuador	SA	Ecuadorian Society of Cardiology	12.08.2022
Guatemala	NA	Guatemalan Assciation of Cardiology	11.08.2022
United Arab Emirates	Asia	Emirates Cardiac Society	11.08.2022
United Arab Emirates	Asia	Gulf Heart Association	11.08.2022
Hong Kong	Asia	Hong Kong College of Cardiology	11.08.2022
India	Asia	Cardiological Society of India	19.08.2022
Indonesia	Asia	Indonesian Heart Association	12.08.2022
Iran	Asia	Iranian Heart Association	19.08.2022
Iraq	Asia	Iraqi Cardiothoracic Society	11.08.2022
Japan	Asia	Japanese Circulation Society	07.09.2022

Jordan	Asia	Jordan Cardiac Society	19.08.2022
Kenya	Africa	Kenya Cardiac Society	11.08.2022
Korea	Asia	Korean Society of Cardiology	07.09.2022
Macao	Asia	Macau Cardiology Association	07.09.2022
Malaysia	Asia	National Heart Association of Malaysia	11.08.2022
Mauritius	Africa	Cardiovascular Society of Mauritius	12.08.2022
Mexico	SA	Mexican Society of Cardiology	11.08.2022
Mongolia	Asia	Mongolian Society of Cardiologists	07.09.2022
Nigeria	Africa	Nigerian Cardiac Society	19.08.2022
Oman	Asia	Oman Heart Association	19.08.2022
Pakistan	Asia	Pakistan Cardiac Society	11.08.2022
Panama	SA	Panamanian Society of Cardiology	12.08.2022
Paraguay	SA	Paraguayan Society of Cardiology	11.08.2022
Peru	SA	Peruvian Society of Cardiology	11.08.2022
Philippines	Asia	Philippine Heart Association	11.08.2022
Saudi Arabia	Asia	Saudi Heart Association	11.08.2022
Singapore	Asia	Singapore Cardiac Society	19.08.2022
South Africa	Africa	South African Heart Association	11.08.2022
Sri Lanka	Asia	Sri Lanka College of Cardiology	11.08.2022
Sudan	Africa	Sudan Heart Association	19.08.2022
Taiwan	Asia	Taiwan Society of Cardiology	22.09.2022
Thailand	Asia	The Heart Association of Thailand under the Royal Patronage of H.M. the King	11.08.2022
Uruguay	SA	Uruguayan Society of Cardiology	11.08.2022
Venezuela	SA	Venezuelan Society of Cardiology	07.09.2022
Viet Nam	Asia	Vietnam Heart Association	07.09.2022
USA (not ESC affiliated)	NA	American Heart Association	08.09.2022

Table 1. ESC member and affiliated societies worldwide. SA: South America; NA: North America

World region	Societies	Men	Women	Unknown
Europe	42	33 (75%)	9 (25%)	0
Africa	10	8 (80%)	1 (10%)	1 (10%)
Asia	33*	31 (91%)	2 (6%)	1 (3%)
Australia	1	0	1 (100%)	0
North America	7	7 (88%)	1 (12%)	0
South America	11	11 (100%)	0	0

Table 2. Proportions of men and women presidents of national cardiology societies stratified for world region. * The Korean Society of Cardiology has 2 presidents.

World region	Societies	Men	Women	Unknown
Europe	42	342 (87%)	39 (10%)	10 (3%)
Africa	10	59 (64%)	28 (31%)	4 (5%)
Asia	33	256 (77%)	30 (9%)	46 (14%)
Australia	1	19 (76%)	6 (24%)	0
North America	7	38 (68%)	18 (32%)	0
South America	11	95 (70%)	39 (29%)	1 (1

Table 3. Proportions of men and women board members of national cardiology societies stratified for world region.