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LETTER TO THE EDITORS

Cardiology and cardiovascular research in Germany: 5 years of gender demographics

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Sirs:

In Germany, as in many other parts of the world, actions are underway to increase gender equity in medicine as well as in science, technology, engineering, and mathematics (STEM) more broadly. Programs to support scholars in reaching a post-graduate degree that proves research and teaching proficiency ('Habilitationsprogramme') were born with the goal of retaining women in academic medicine and increasing the number of females in higher academic ranks. Established and prestigious young investigator programs, like the Emmy-Noether program of the German Research Foundation (Deutsche Forschungsgemeinschaft, DFG), for example, updated their program to better accommodate researchers who have child rearing or other family responsibilities. They also particularly encourage women to apply.

Research has shown, however, that despite these efforts and the fact that women are relatively more likely to appear as first authors on published articles, underlining their early-career accomplishments, women remain underrepresented in more senior roles in academic medicine [1]. One important tool to advance the career of physicians and scientists is membership in professional societies, which usually offer professional education, opportunities to present ongoing research and to network. Conferences held by medical societies provide a particularly important platform for researchers to increase international visibility. Therefore, it is undoubtedly important for women who intend pursuing a career in academic medicine to become medical society members, attend meetings, but also be represented as speakers and panelists.

Recent research sparked much attention when showing that there was substantive gender inequity in speaking opportunities at the world's largest geoscience conference [2]. Female scientists were actively offered fewer speaking opportunities than their male colleagues [2]. Along those lines, the American College of Cardiology (ACC) recognized that more action needs to be taken to make cardiology and cardiovascular research more inclusive, and has consciously increased faculty diversity in the ACC meeting program, with a focus on international faculty, junior faculty, and women [3]. The American Academy of Physical Medicine and Rehabilitation takes defined measures to ensure effective improvement in inclusion within their own society but also released recommendations generally applicable to all medical societies [4]. Those measures include, but are not limited to, examining gender diversity and inclusion data and aligning it with the organization's mission, values and culture; reporting the results to members and other stakeholders in a transparent fashion; investigating potential causes of less than proportionate representation of women; implementing strategies designed to improve inclusion; tracking outcomes as a means to measure progress and inform future strategies; and publishing the results to engage community members in conversations about the equitable representation of women [4].

Heeding these recommendations, we want to take a first step and report gender demographics in cardiology and cardiovascular research in Germany. Interestingly, female physicians account for 39.3% of new 'Internal Medicine and Cardiology' board certifications in 2017, reflecting a steady increase from the respective 27.2% in 2014 [5]. These numbers appear high, given that 20% of cardiology fellows and only 17% of board certified cardiologists are women in the United States, for example [6]. Furthermore, the number of

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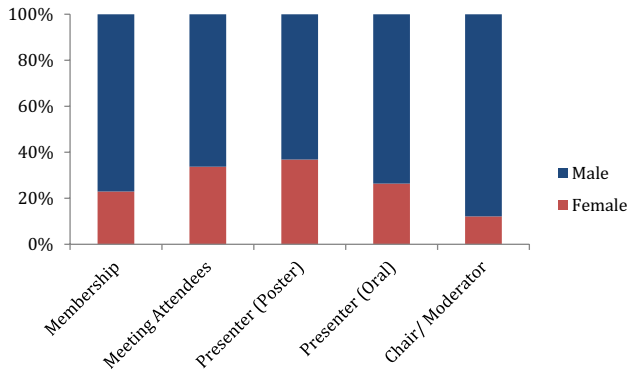

Fig. 1 Gender demographics—German Cardiac Society (DGK, Deutsche Gesellschaft für Kardiologie—Herz- und Kreislaufforschung e.V.). DGK Members, DGK Annual Meeting Attendees, Poster and Abstract Presenters, and Session Chairs/Moderators, average representation by gender for the years 2014–2018

female members of the German Cardiac Society (Deutsche Gesellschaft für Kardiologie—Herz- und Kreislaufforschung e.V., DGK) is steadily increasing. Today, 24.4% of all DGK members are women (Fig. 1) (a 3.1% increase since 2014). This number compares to 33% female members of the European Society of Cardiology (ESC) [7] and 15–20% of female ACC members [3]. Among attendees of the largest German cardiology and cardiovascular research conference—the DGK Jahrestagung (annual meeting)—33.5% are women (Fig. 1), a number that has remained fairly stable over the past 5 years. Women's representation in active roles at the DGK meeting appears, moreover, stratified by seniority, with women contributing more often in junior relative to senior roles. Women accounted for 36.9% of poster presenters over the last 5 years, on average (Fig. 1). However, the number of women with an oral presentation slightly declined since 2014, but was overall relatively stable—on average 26.5% (Fig. 1). Although the DGK recorded an increase of 2.7% compared to 2014, the representation of women as session chairs/moderators for both oral and poster sessions is still relatively low. Women represented 13.7% of session chairs/moderators in 2018 (Fig. 1).

Relative to the number of DGK members, women are 'overrepresented' at the annual meeting, most likely due to a relative overrepresentation in female students and young female investigators presenting their research in a poster format. The low number of women serving as session chairs/moderators reflects the low number of cardiology and cardiovascular research faculty positions held by women in Germany. These demographics, alongside the research findings alluded to, show that successful junior investigators "drip out" of the proverbial "leaky pipeline" towards senior ranks in academic medicine. A pronounced gender gap in early career transitions appears to be a pervasive phenomenon in the life sciences. Recent research has documented sex differences in career advancement, showing that women transition to principal investigator at a significantly lower rate than men in the United States [8]. A large portion of this gap appears to be explained by women being less visible than their male colleagues. For example, women do not receive the same recognition for comparable research [8].

In summary, by common measures of success, women contribute a vital part to academic medicine but are lost on the way to more senior roles. That also means that human capital, productivity, and innovation are lost [9, 10]. Therefore, it would appear critical to improve our efforts to retain women in our field [11]. In an unprecedented example, the ESC under the leadership of president Barbara Casadei launched a funding program for established female scientist and those who aspire to leadership to attend the prestigious 'Women Transforming Leadership Programme' offered by the Saïd Business School of Oxford University [7]. Also, the ESC, ACC, and AHA (American Heart Association), for example, regularly organize a meeting for female members at their major conferences. Following their example, it is our goal to introduce a 'Frauen in der Kardiologie' (Women in Cardiology) breakfast meeting at the DGK Jahrestagung as well, with the intention to learn from the physicians and scientists affected what it takes to retain their talent, and promote networking, camaraderie and mentorship opportunities. We hope that with combined efforts, transparency, and further supportive measures, we can address the persistent barriers women face in cardiology and cardiovascular research also in Germany and ultimately prevent the loss of talent for our field.

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Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

References

1. Lerchenmuller C, Lerchenmueller MJ, Sorenson O (2018) Long-term analysis of sex differences in prestigious authorships in cardiovascular research supported by the National Institutes of Health. Circulation 137(8):880–882. https://doi.org/10.1161/CIRCULATIONAHA.117.032325
2. Ford HL, Brick C, Blaufuss K, Dekens PS (2018) Gender inequity in speaking opportunities at the American Geophysical Union Fall Meeting. Nat Commun 9(1):1358. https://doi.org/10.1038/s41467-018-03809-5
3. Wood S (2017) My takeaways from ACC 2017: even with a sea change, the tide takes its time. TCTMD. https://www.tctmd.com/

news/my-takeaways-acc-2017-even-sea-change-tide-takes-its-time. Accessed 08 June 2018
4. Silver JK, Slocum CS, Bank AM, Bhatnagar S, Blauwet CA, Poorman JA, Villablanca A, Parangi S (2017) Where are the women? The underrepresentation of women physicians among recognition award recipients from medical specialty societies. PM R 9(8):804–815. https://doi.org/10.1016/j.pmrj.2017.06.001
5. Bundesärztekammer (2017) Ärztestatistik zum 31. Dezember 2017. http://www.bundesaerztekammer.de/fileadmin/user_upload/downloads/pdf-Ordner/Statistik2017/Stat17AbbTab.pdf. Accessed 08 June 2018
6. Blumenthal DM, Olenski AR, Yeh RW, DeFaria Yeh D, Sarma A, Stefanescu Schmidt AC, Wood MJ, Jena AB (2017) Sex differences in faculty rank among academic cardiologists in the United States. Circulation 135(6):506–517. https://doi.org/10.1161/CIRCULATIONAHA.116.023520
7. Wong S-W (2017) The European Society of Cardiology and the Oxford Women Transforming Leadership Programme. SAID Business School, Oxford University https://www.escardio.org/static_file/Escardio/Advocacy/Documents/Women-course-article-171217.pdf. Accessed 08 June 2018
8. Lerchenmueller MJ, Sorenson O (2018) The gender gap in early career transitions in the life sciences. Res Policy 47(6):1007–1017. https://doi.org/10.1016/j.respol.2018.02.009
9. O'Brien KR, Scheffer M, van Nes EH, van der Lee R (2015) How to break the cycle of low workforce diversity: a model for change. PLoS One 10(7):e0133208. https://doi.org/10.1371/journal.pone.0133208
10. World Economic Forum (2017) The Global Gender Gap Report 2017. http://www3.weforum.org/docs/WEF_GGGR_2017.pdf. Accessed 08 June 2018
11. Lau ES, Wood MJ (2018) How do we attract and retain women in cardiology? Clin Cardiol 41(2):264–268. https://doi.org/10.1002/clc.22921