Closing the gender gap in authorship

Despite widespread acknowledgment of the problem, and initiatives to address it, the underrepresentation of women in science remains a reality. Advancing toward equal representation requires conscious and sustained efforts. Here, we assess and reflect on the representation of women among the authors of commissioned content in *Nature Aging*.

In 2019, the Institute for Statistics (UIS) of the United Nations Educational, Scientific and Cultural Organization (UNESCO) found that women accounted for a minority of the world's researchers[1]. According to this analysis, although women actively pursue bachelor's and master's degrees (slightly outnumbering men at 53%) and comprise 47% of PhD graduates, there is an important gender gap at the level of the global researcher workforce (only 30% women). This underrepresentation of women in science probably contributes, at least partially, to the fact that fewer women are featured as contributing and/or corresponding authors in the body of scientific literature[2]. There is a consensus that gender gaps in authorship are shrinking, at least for some disciplines[2], but recent evidence also suggests that women in research teams are significantly less likely to be credited with authorship than men[3]. Moreover, the COVID-19 pandemic has been associated with a decline in research publications from women relative to men (7% decline from 2019 to 2020)[4]. Given the importance of publications for career progression, there is a clear need for sustained efforts to support the inclusion and retention of women in research.

The Nature Portfolio is committed to promoting practices that support diversity in gender, race and ethnicity, geography and career stages to address the issues of diversity, equity and inclusion in science[5]. To contribute to these goals, *Nature Aging* decided very early in the history of the journal to aim toward equal representation of women and men as authors in our commissioned content, which comprises most of the review and opinion articles found in the journal and for which, unlike primary research content, editors have some control over the choice of authors. This has meant thinking about gender balance as a factor when choosing authors for these articles, being alert to the possible influence of unconscious biases on our selection of authors and reviewers, and also encouraging commissioned corresponding authors to consider looking for a diverse set of co-authors. We report below a first assessment of the journal's goal of gender parity for this type of content.

We focused our analysis on the 74 reviews, commentary and opinion articles published in the journal in 2021. Owing to the limitations of the available data, we estimated author gender in a binary way as woman or man based on their first name, our personal knowledge and online searches; this approach does not reflect the full spectrum of gender identities and may have introduced some errors. However, for the purpose of this analysis, we believe that our method provides useful information.

Overall, we found that 41% of all authors of commissioned content in *Nature Aging* in 2021 were women. Our analysis also showed that women made up 39% of corresponding authors and 42% of contributing authors. Looking at gender representation across different formats, we found a better representation of women authors in our shorter articles (47%) than the longer formats, which were more skewed toward men (33% women). Similarly, across all but one of our formats (News & Views), women were less well represented as corresponding authors than as co-authors.

Although some of these numbers are encouraging, in particular for our shorter formats, there is still some underrepresentation of women — in particular in our longer formats and as corresponding authors. This may reflect the added difficulty of commissioning articles from women authors in a pool that is likely to be biased toward men; or, despite our efforts, we might still let unconscious biases influence some our choices of commissioned authors. In any case, the results of this analysis show that we can and should do better, and they act as a reminder that we need to maintain our efforts and vigilance.

Our numbers are somewhat in line with data from a recent large-scale study that analyzed the persistence of gender gaps in authorship of publications in multiple scientific disciplines[2]. The interactive online tool associated with the study provided estimates that the proportions of women authors in some of the disciplines represented in *Nature Aging* ranged from 37% to 55% (for all authors) and 29% to 54% (for last authors) in 2016. The study noted that gender gaps were more pronounced in highly selective journals and suggested that the relatively lower contribution of women as last authors may be partly due to the fact that men were more likely to be invited to submit papers than women.

On the basis of this initial assessment of gender representation, we conclude that *Nature Aging* is on a promising trajectory to fulfil its aim to represent women and men equally in its commissioned content, but that more work is needed. It also sets high expectations for us to continue our efforts and maintain or improve these numbers so that they all sit within a 40–60% range in the future. Going forward, it will also be important and informative for us to apply a similar analysis to our primary research content so as to obtain a more comprehensive overview of gender diversity in our pages.

When *Nature Aging* was conceived, our goal was to create a journal that would enable different research communities to come together to discuss and exchange ideas to promote progress and innovation in aging research. We strongly believe that diversity in the people who contribute to the journal will help us to fulfil this goal. To facilitate the drive toward more diversity, equity and inclusion in science we call on our authors, readers and reviewers to help to raise awareness and strengthen actions to promote gender diversity — as well as other forms of diversity — in research and publishing practices. ❐

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References
1. UNESCO. *Women in Science* Fact Sheet No. 55 http://uis.unesco.org/sites/default/files/documents/fs55-women-in-science-2019-en.pdf (2019).
2. Holman, L., Stuart-Fox, D. & Hauser, C. E. *PLoS Biol.* **16**, e2004956 (2018).
3. Ross, M. B. et al. *Nature* https://doi.org/10.1038/s41586-022-04966-w (2022).
4. Madsen, E. B., Nielsen, M. W., Bjørnholm, J., Jagsi, R. & Andersen, J. P. *eLife* **11**, e76559 (2022).
5. *Diversity Commitment* https://www.nature.com/nature-portfolio/about/diversity-commitment (Springer Nature, 2021).