Commentary

Accelerating the Bending Arc Toward Equality: A Commentary on Gender Trends in Authorship in Psychiatry Journals

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In this issue of *Biological Psychiatry*, Hart *et al.* (1) offer a compelling new analysis of gender trends in authorship in psychiatry journals over the past decade.

Hart *et al.* (1) offer both good news and bad news. Want the good news first? There has been a significant increase in the percentage of women, as both first and last authors, over the past decade. In fact, near parity in gender representation has been achieved for first authors. Now for the bad news: women exhibit slower rates of transition to senior authorship—5 years for men and 9 years for women, on average. Why? There is not an obvious single answer, but there are a few key takeaways.

Having Mentors Is Important. An important data point from Hart *et al.* (1) is that articles with a woman as the senior author were more likely to have a woman as first author compared with articles with a man as the last author. This is consistent with an analysis of scientific conferences, which showed a strong positive relationship between the number of female organizers and the number of female speakers at conferences. In other words, senior women are not "pulling up the ladder" when they reach the top (2). Collectively, these findings point to the importance of female role models. Increasing the visibility of prominent women in science and academia has a large effect on whether women are interested in pursuing careers in science. It is important to see people who look like us (and have likely undergone similar challenges) in these positions, in order to imagine the path forward.

Should We Insist on More Data? One other point bears mentioning: the software Genderize.io was used for probabilistic assignment of gender to the authors, but this necessitated omission of some information. In fact, 7 journals could not be included in the analysis because of ambiguity of the gender of ≥70% of the authors. This raises the question of how much personal data journals should request (or require) of the submitting authors—names and institutional affiliations are a given, but what about gender identity, ethnicity, academic rank, or disabilities? If we want to encourage diversity in publishing, we must do a better job collecting the data, to the extent that authors wish to disclose it. Similarly, for granting agencies and professional and scientific societies there is a fine line between collecting data and violating members' rights to not disclose personal information, and/or objections to binary classifications and dropdown menus.

A Broader Problem. In addition, Hart *et al.* (1) focused exclusively on publication in top psychiatry journals. What about other areas of science and medicine—is the story the same? Unfortunately, the answer is likely yes. A cross-disciplinary bibliometric analysis found that <6% of countries represented in the Web of Science come close to achieving gender parity in terms of articles published (3). One particularly troubling finding was that for the most productive countries, all articles with women in prominent author positions (first, last, or sole author) received fewer citations than those with men in the same positions. Of course, age may play a key role, because the senior ranks of science are heavily impacted by the barriers to advancement of women of previous generations. In short, the message is that it is getting better but not nearly as fast as it should.

A recent high-profile article found that >40% of women with full-time jobs in science, technology, engineering, and mathematics (STEM) left the sector or went part-time after giving birth to or adopting their first child (compared to 23% of new fathers) (4). This would suggest a need for structural and cultural changes to encourage women in particular, and parents in general, to stay in full-time STEM careers, such as paid leave. However, there has been some backlash against the view that the disproportionate rate of women versus men leaving STEM careers is a negative (and indeed, backlash against the leaky pipeline metaphor itself), because it could be viewed as an implicit judgement of alternative career paths as a loss (a "drip" out of a faulty pipe). This is a reasonable view when the metaphor is applied to the path from an early demonstrated interest in science to an advanced degree and full-time STEM job as the ultimate metric of "making it through the pipe." There are many reasons that any person may decide that this particular path is not appropriate for him or her. At the same time, it is unquestionable that women are well represented in the overall workforce in science and medicine, but not in positions of power. For example, while women may be on track to achieve equal gender representation of first authors, editorial boards of psychiatry journals are still >75% men, and almost 90% of journal editors in chief are men (5). Gender pay gaps persist in academia: in 2017, male full professors earned about $16,000 more than their female counterparts (6). Similarly, although women make up 80% of health care workers, only 11% are health care chief executive officers. Presumably

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SEE CORRESPONDING ARTICLE ON PAGE 639

women are not deciding to receive lower pay for the same work or deciding that they would rather take several more years to achieve leadership positions than their male counterparts.

The Role of Implicit Bias. All of us (regardless of gender identity) have implicit biases; interestingly, people who value their objectivity are more likely to fall prey to biases (7). Is there a gender bias in how manuscripts are reviewed? Considering the data on the effects of double-blind peer review—it turns out there is not compelling evidence that anonymized reviews make the process more fair. Double-blind review does not currently increase the incidence of female authorship and in fact decreases the overall likelihood of the manuscript's ultimately being accepted, regardless of the authors' gender identity (8). The gender disparities in academic publishing are not obviously accounted for by bias at the level of review. On the other hand, the "million tiny paper cuts" might be responsible for many of the drips along the pipeline to senior leadership. Every institution and organization, including journals, should work hard to identify and mitigate the micromechanisms that contribute to reproducing the status quo— for example, increasing the visibility of women and other underrepresented groups as reviewers, editorial board members, and journal editors.

These findings regarding anonymized peer review are an important reminder that some intuitive strategies for reducing bias can backfire. However, acknowledging that we have these biases is an important first step, and targeted interventions aimed at breaking gender bias "habits" have been shown to have a positive impact on hiring decisions (9).

Increasing Diversity in Science. In any profession, a decrease in the diversity of thought and perspectives is a loss. Diversity makes organizations better: it increases effectiveness, facilitates recruiting a diverse group of people, and sets a tone of broad-minded thinking. Having more women in leadership positions can also help address toxic cultures of harassment at the organizational level. How do we increase diversity, at all levels but particularly at the top?

When it comes to academic success and leadership, we often succumb to availability bias, and this manifests in various ways. For example, for distinguished lectures, awards, membership on editorial and scientific advisory boards, and other prestigious academic activities, the same people tend to get nominated over and over. Michelle Obama said it best: "What I know from working in professional environments…is that sameness breeds more sameness unless you make a thoughtful effort to counteract it" (10).

Resources—Making a Change. Resources like 500 Women Scientists (and their subsidiary 500 Women in Medicine) and the Association for Women in Science (available at https://www.awis.org) aim to improve gender equity in science and medicine by increasing the visibility and networks of women, both of which are important in academic career advancement. Consider these resources the next time you are considering speakers for your seminar series or considering a new member to join your organizing committee or editorial board.

Collectively, the data suggest that progress is being made, but the path is still long and full of obstacles. While we may take comfort in the notion that the arc toward equality is "bending in the right direction," it takes a concerted effort to do things differently. Together, we can provide ways for women and other traditionally underrepresented groups to improve visibility and advance in an imperfect system, but also take steps toward reimagining the system as a whole.

Article Information

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