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EDITORIAL

Increasing the representation of women in *JGP* to reduce bias and sexual harassment

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The National Academies of Science, Engineering, and Medicine (NASEM) recently released a major report, "Sexual Harassment of Women: Climate and Consequences in Academic Sciences, Engineering, and Medicine," available for free download (National Academies of Sciences, Engineering, and Medicine, 2018). Based on decades of research on sexual harassment, two new quantitative research studies, and one qualitative research study, the ~300-page report presents and evaluates evidence on the prevalence and impact of harassment on science and scientists. It also addresses the effectiveness, or lack thereof, of existing efforts to curtail harassment. In this editorial, I will present a brief overview of the report, outline the connection between the underrepresentation of women in science and sexual harassment, and discuss the role of scientific journals like *JGP* in countering sexual harassment. I will conclude by describing our new policy in which we require every *JGP* review team to include at least one woman.

Overview of the NASEM report

The central metaphor of the NASEM report is that sexual harassment is like an iceberg with 10% of its mass easily observed above the waterline and 90% of its mass hidden from view below (Fig. 1). Above the waterline are unwanted sexual attention and sexual coercion, two types of harassment that are relatively rare, but that everyone recognizes as being unacceptable and harmful. The most common form of sexual harassment, termed gender harassment, is below the waterline and is often not recognized as being harassment. Yet, just like unwanted sexual attention and sexual coercion, gender harassment is behavior that systematically strips women of respect and power in the workplace. When pervasive and repeated, gender harassment is just as damaging to women's personal and professional health as forms of harassment above the waterline. In addition to contributing to the loss of women from scientific careers, gender harassment negatively impacts bystanders, team members, and institutions.

Incidents of sexual harassment are, like the solid phase of water in an iceberg, natural outcomes of the environment. According to the NASEM report, the core issue in academic science is the overall lack of civility and respect, with sexual harassment as a symptom, along with mistreatment of people from other marginalized groups. Although forms of harassment above the waterline clearly require intervention by vigilant administrators, improving civility and respect in everyday interactions between academic scientists is the only cure that addresses the core

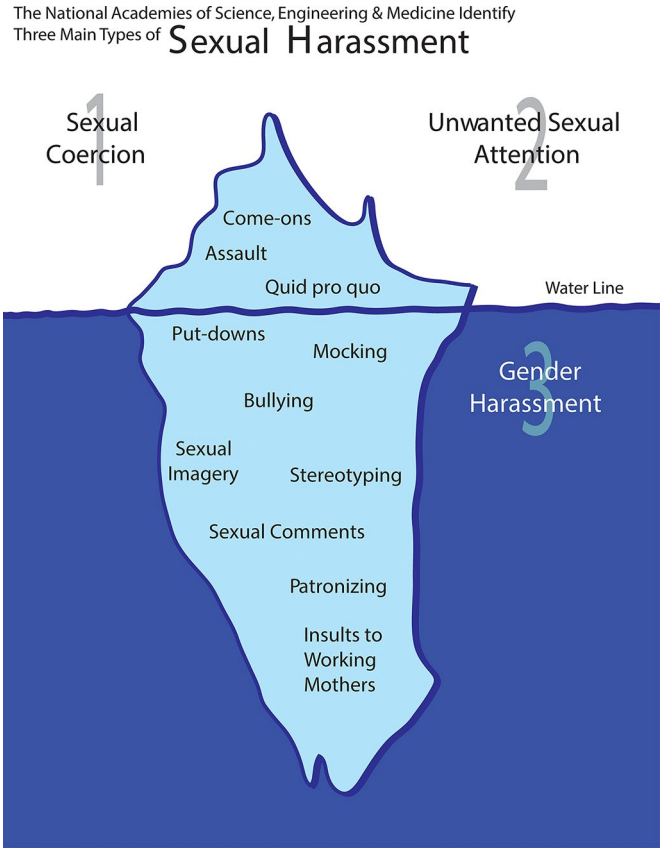

Figure 1. **Iceberg metaphor for sexual harassment.** Based on Figure 2-2 in the NASEM report (National Academies of Sciences, Engineering, and Medicine, 2018), with contributions from Karen Fleming (Johns Hopkins University).

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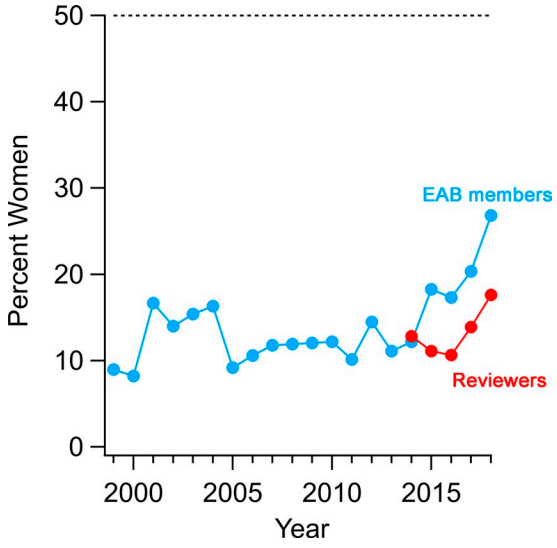

Figure 2. **Timeline for inclusion of women as members of the *JGP* EAB (blue) and as *JGP* reviewers (red).** The EAB data include Advisory Editors and Editorial Board members for the period in which these groups were separately identified (1999–2004). Beginning in 2005, they were combined into one EAB.

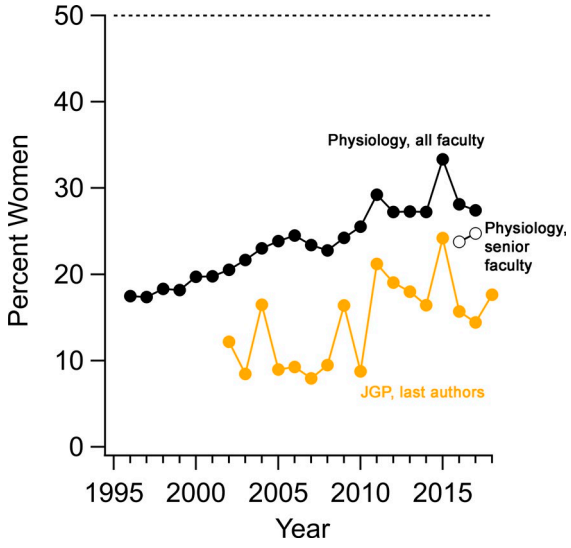

Figure 3. **Underrepresentation of women among faculty in U.S. departments of physiology and among last authors of articles published in *JGP*.** Black circles depict the percentage of women among all faculty ranks (filled) and among full and associate professors (open) in U.S. departments of physiology (Association of Chairs of Departments of Physiology, 2016). Gold circles depict the percentage of women among last authors of papers published in *JGP* (Holman and Lloyd, 2018).

issue upon which harassment is based. I will address the power of grassroots efforts to improve the environment and culture of academic sciences in a future editorial.

Perhaps the most surprising element of the NASEM report, to me, was the prevalence of sexual harassment in the academic sciences. Although I had, over the years, encountered, witnessed, and heard about many examples of sexual harassment, I had assumed the prevalence was on par with other professional workplaces. From the report, I learned that, when compared with other workplaces in the private sector, government, and the military, the prevalence of sexual harassment in academia rates second highest, behind only the military.

The high prevalence of sexual harassment in academic sciences is attributable to six factors described in the NASEM report: (1) hierarchical power structures; (2) isolation of many academic scientists within research laboratories or geographically remote field sites; (3) perceived tolerance of sexual harassment in academic sciences; (4) policies focused on protecting institutions from legal liability; (5) academic leaders who are uninformed about sexual harassment and uncommitted to reducing it; and (6) low representation of female academic scientists in leadership positions. Below, I will address how *JGP* can contribute to reducing sexual harassment by increasing the representation of women in leadership positions.

Sexual harassment undermines the integrity of science

The NASEM report states that sexual harassment, including gender harassment, undermines the integrity of science. Sexual harassment should thus be viewed as a threat to our individual scientific products and the products of the scientific enterprise as a whole. A 2017 report from the NASEM, "Fostering Integrity in Research," defines six values that must be upheld in order to preserve the integrity of science: objectivity, honesty, openness, accountability, fairness, and stewardship (National Academies of Sciences, Engineering, and Medicine, 2017). Accountable research supervisors are attentive to the educational and career development needs of trainees. A research supervisor, whose trainee experiences harassment (by a supervisor, peer, or other community member) and is forced to leave the laboratory or program as a result, has violated the value of accountability. A research supervisor who isn't paying sufficient attention to their laboratory environment and whose trainee misses out on opportunities because of harassment is not fulfilling their responsibility of good stewardship. The value of fairness requires that we make professional judgements based on appropriate criteria. When any of us judges a woman as not the right person for an opportunity because of her gender, we violate the value of fairness because gender is not an appropriate criterion. We need not be aware that our actions—or inactions—are violating these values for the violations to undermine the integrity of our science. Indeed, trainees often do not confide in their supervisors when the stress of harassment affects their career choices. The NASEM report on sexual harassment places the responsibility of preventing sexual harassment on all of us, with awareness of the environment in which we and our trainees operate as a positive mandate for everyone.

Sexual harassment and integrity in the *JGP* community

The ways in which sexual harassment undermines the integrity of the conduct of science may also undermine the integrity of the products of science, including manuscripts submitted for publication. To protect the integrity of the manuscripts published in a journal, that journal's leadership must consider sexual harassment as one of the elements that may, at times, enter into its purview for consideration. As Editor-in-Chief of *JGP*, it is my role to ensure the integrity of the research published in the journal. It is also my role to enforce the highest standards of behavior in our interactions with editors, authors, reviewers, and readers.

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JGP cannot be a standard bearer of integrity if we are complicit, or worse, in practices that disenfranchise women.

The NASEM report states that the environments in which men outnumber women pose a higher risk for sexual harassment. As leaders in the scientific community, journal editors can reduce the risk of sexual harassment by recruiting more women to serve on journal editorial boards. The *JGP* Editorial Advisory Board (EAB) comprises our most trusted, and most used, group of reviewers. In addition, we rely on the EAB for guidance on the scope and direction of the journal and programs in which we should invest. In 2000, when I was first appointed a member of *JGP*'s EAB, only 6 out of 73 EAB members were women (Fig. 2, blue symbols). Not much had changed by 2011, the year I became the first female Associate Editor, when only 8 out of 79 EAB members were women. Since 2014, when I was appointed the first female Editor-in-Chief, I have worked to increase representation of women in the EAB, in which women now make up almost 27%. Although this is far short of parity, it is on par with the representation of women among last authors of papers published in *JGP* (18% January through mid-July, 2018), faculty (31%), and senior faculty (25%) in U.S. departments of physiology (Fig. 3). Increasing the representation of women among *JGP's* leadership advances excellence and improves diversity, but we also expect it to reduce the risk of sexual harassment for all members of our community, a public good that also protects the integrity of the science we publish.

An additional reason for including women in editorial leadership teams has been recently demonstrated. The journal *eLife* released its submission and review data for a courageous study asking whether there is bias against female senior authors in their review process and whether the gender of those in decision-making roles has an impact on any bias that may be present (Murray et al., 2018). The study examined the review outcomes for manuscripts evaluated by all-male review teams and mixed-gender review teams, asking whether papers from male senior authors fared differently in either of these scenarios compared with papers from female senior authors. By examining decisions for over 24,000 submitted manuscripts, this work demonstrated that representation of women among reviewers is critical to the fairness of the peer review process. The analysis showed that work from male senior authors had an 11% higher rate of acceptance than did work from female senior authors when handled by all-male review teams. In contrast, a significant difference in outcomes was not found for papers evaluated by mixed-gender review teams. If this trend applies to other journals, representation of women on the *JGP* EAB and among our other reviewers has yet greater urgency.

I examined the representation of women among *JGP* reviewers and found the data shocking. As shown in Fig. 2 (red points), *JGP* reviewers are overwhelmingly male. Women made up 13% of *JGP* reviewers in 2014 and just 18% in 2018 (January through mid-July). As expected, the small uptick in representation in 2018 parallels the small increase in representation of women among our EAB members. Comparing representation of women among *JGP* reviewers to that of women among all faculty (Fig. 3, black filled symbols) and full professors (Fig. 3, black open symbols) in U.S. departments of physiology indicates that we are doing poorly in recruiting women, even compared with their numbers in our field.

New *JGP* policy to include women on every review team

As Editor-in-Chief, I am accountable for the fairness of every review and every decision made on behalf of *JGP*. Therefore, as of mid-July, 2018, *JGP* policy now requires that the review team of every paper includes at least one female reviewer. About half of all papers we review have two reviewers and half have three. Thus, by the end of 2018, our goal is to achieve 40% representation of women among *JGP* reviewers and to reach parity by the end of 2019. This is a significant change, doubling the participation of women in the *JGP* review process essentially overnight.

Our initial experience with this policy has been that it requires more work by the editors but yields excellent reviews. When an appropriate female reviewer is not immediately known to the editors, we typically reach out to EAB members and colleagues for suggestions. The commitment of reviewers to *JGP* is extraordinarily high: our reviewers almost always agree to review when asked. Every paper submitted to *JGP* is discussed, typically multiple times, at our weekly editors' meeting. Decisions are made collaboratively by the editors, ensuring that our criteria and processes are uniform. This collaborative decision-making process enables us to mentor new reviewers who may not be familiar with *JGP*'s expectations without compromising the high review quality to which we are committed. We will track how the new policy affects time to first decision, review outcomes, and reviewer and author satisfaction. Of course, as part of our analysis of whether/what sort of gender bias exists in our review process, we will determine whether the new policy affects any aspects of the experiences of authors and reviewers. As our goal is to broaden participation and not just increase the workload of women who already act as reviewers, we will continue our general policy of limiting review loads to no more than approximately six per year. Community members can help by suggesting reviewers from diverse backgrounds when they submit their work and, at any time, sending suggestions for great reviewers to the *JGP* office.

The NASEM report on sexual harassment is a rich text with many recommendations for reducing harassment that can be enacted by individuals, departments, schools, professional societies, funders, and other institutions that support academic science. Journals can play an important role in safeguarding all the members of our community, but work to reduce sexual harassment, including gender harassment, and to promote equity is required at every level. Decades of institutional efforts to reduce harassment have not yet led to the kind of improvements we need. As Editor-in-Chief of *JGP*, member of my university community, mentor to students and postdoctoral scholars, and colleague to scientists around the world, I take responsibility for identifying and addressing equity needs within my sphere of influence. I ask that each of you join me in this effort.

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