



Review

Representation of women as editors in dermatology journals: A comprehensive review, ☆



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ARTICLE INFO

Article history:

Received 15 July 2019

Received in revised form 4 September 2019

Accepted 5 September 2019

Keywords:

Academic medicine

Editorial boards

Women in medicine

ABSTRACT

Background: Despite a substantial increase in the number of women matriculating into medical school, a gender gap still exists with respect to academic leadership positions. This gap is apparent in the field of dermatology, particularly in the composition of dermatology journal editorial boards. To address this gap, we must first acknowledge its existence, examine potential reasons for its existence, and propose strategies to narrow the gap.

Objective: Our objective is to determine the representation of women as editors in dermatology journals.

Methods: A comprehensive search was performed for dermatology journals indexed in Medline, Journal Citation Reports, Scopus, and Embase in August, September, and October 2018. The editorial board of each journal was analyzed for the number and percentage of male and female editors in four different positions. We verified the accuracy of editorial boards listed on publisher websites by emailing administrative personnel. We also recorded the number of years from terminal degree for editorial board members of the 10 journals with the highest impact factors using SCImago Journal Rankings.

Results: Women occupied 18% of editor-in-chief positions, 36% of deputy editor roles, 22% of overall editorial board positions, and 22% of other board roles. The average number of years since terminal degree was not statistically different between women and men, with women averaging 30.2 years and men averaging 28.0 years since completion of terminal degree ($p = .27$).

Conclusions: Our findings suggest that women are underrepresented as editors at all levels in dermatology journals. This supports prior findings reporting a minority of women in academic leadership roles. Thus, although women have made major advancements in the medical field over the past century, there remains room for progress with regard to equal representation in academic leadership roles, including editorial positions, professorships, and department chair roles.

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☆ No human subjects were included in this study. No animals were used in this study.

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Introduction

The percentage of women in medicine has increased from 5% of the physician workforce in 1900 to 35.2% in 2017 (Association of American Medical Colleges [AAMC], 2018). Similarly, women comprised 5.5% of matriculants to medical school in 1950 and 51.6% of matriculants to medical school in 2018 (AAMC, 2018). In dermatology, 64.5% of residency positions were filled by women in 2017; to date, 48.9% of practicing dermatologists are women (AAMC, 2018).

Women have also experienced increased representation as authors of peer-reviewed scientific journal articles. A 2009 retrospective review reported that women authored 12% of manuscripts in the top three dermatology journals in 1976 compared with 48% in 2006 (Feramisico et al., 2009). Furthermore, another retrospective study analyzed female authorship in 23 Q1 (top-quartile-ranked journals using SCImago Journal Rankings) dermatology journals from January 2008 to May 2017 and found that 43% of all authors and 50.2% of first authors were women (Bendels et al., 2018). However, editorial boards within the field of dermatology have not demonstrated similar advancements in representation. A 2017 study by Gollins et al. (2017) reported that <19% of dermatology editors-in-chief were women.

Women have had a relatively smaller presence in other forms of leadership as well, with only 12% as full-time medical school professors in 2014 (Jen et al., 2015). In 2013, women represented 15% of department chairs and 16% of medical school deans (Fig. 1; Lautenberger, 2013). Thus, despite great progress in recent years with regard to the presence of women in academic medicine, inequities remain. The aim of this review is to provide current and comprehensive data on the percentage of women in editorial board leadership roles within dermatology, to examine the potential reasons for this trend, and to propose strategies to narrow this gap between women and their male counterparts.

Methods

In collaboration with university librarians at the University of Nebraska Medical Center, a comprehensive search was performed for journals indexed in Journal Citation Reports, EMBASE, MEDLINE, and Scopus. Journals were initially screened for relevance to dermatology; this yielded 104 journals. After additional screening for current publishing activity and availability in the English

language, 87 journals remained for inclusion. Editorial teams from the 87 journals were categorized into four groups: 1) editor-in-chief, 2) deputy editor, 3) general editorial board, and 4) other member of the editorial team. The editor-in-chief is the lead editor, with deputy editor assisting or acting on the editor-in-chief's behalf when the editor-in-chief is absent. The general editorial board is composed of editors responsible for reviewing and filtering all manuscripts submitted to the journal. Members of the editorial board in this manuscript were only those persons who were specifically listed under the heading Editorial Board Members. The Other Board Members category included any other editors aside from the editor-in-chief, deputy editor, and editorial board. Examples of Other Board Members are section and associate editors.

E-mails were sent to the respective journals for verification of the editorial board members listed online. Gender was assigned for editorial board members when possible (7893 of 8158 members; 97%). To account for possible variation in age between male and female board members due to evolving trends in gender representation, we performed a subset analysis of average ages of board members by gender in journals with top impact factors ($n = 9$). To do this, we used time from terminal degree for each board member as a surrogate marker for age/stage in career, which was determined from searches of affiliated hospital or university websites, LinkedIn, or uploaded curricula vitae. These dates were verified and cross-referenced on multiple sites. These data were collected between November 2, 2018 and December 12, 2018.

Results

Overall, women occupied the minority of positions in all four included editorial roles. Seventy-two of the 87 journals (82.8%) reported an editor-in-chief: 19% ($n = 14$) were women and 81% ($n = 58$) were men (Fig. 2). Thirty-one of 87 journals (35.6%) reported a single deputy editor: 42% ($n = 13$) were women and 58% ($n = 18$) were men (Fig. 2). Of the 5838 editorial board members reported, 22% ($n = 1284$) were women and 78% ($n = 4554$) were men (Fig. 2). Of the 1952 other board members reported, 21% ($n = 418$) were women and 79% ($n = 1534$) were men (Fig. 2). Data for the top 20 journals according to Scimago journal rankings are provided in Table 1.

For the subset analysis evaluating the age of board members, three parameters were evaluated for some of the top journals

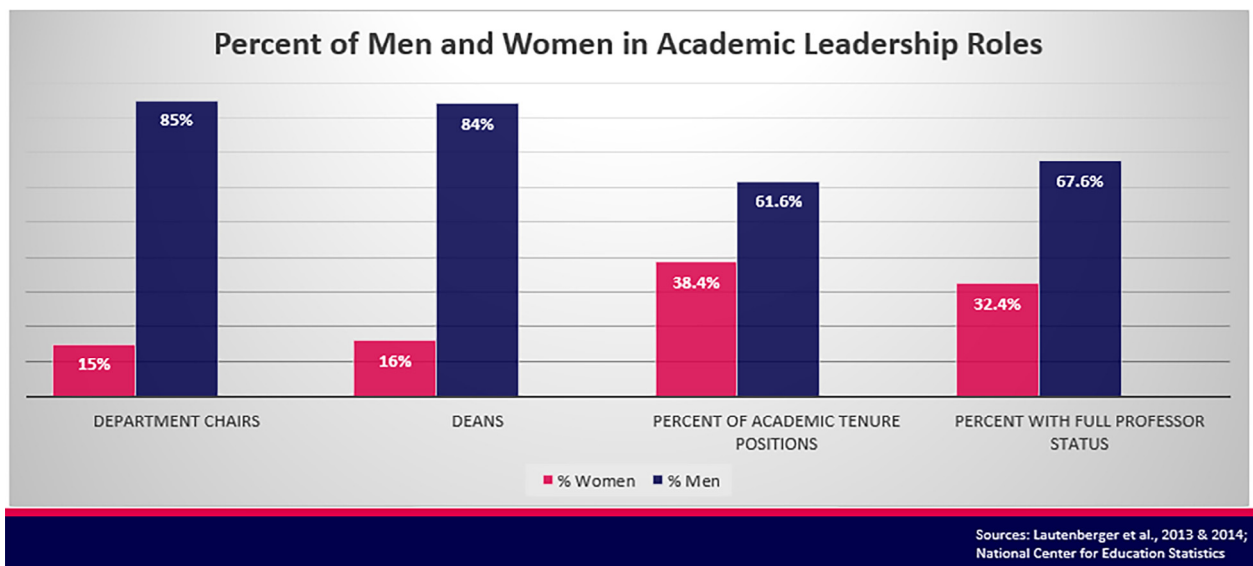


Fig. 1. Percentage of men and women in various academic leadership roles.

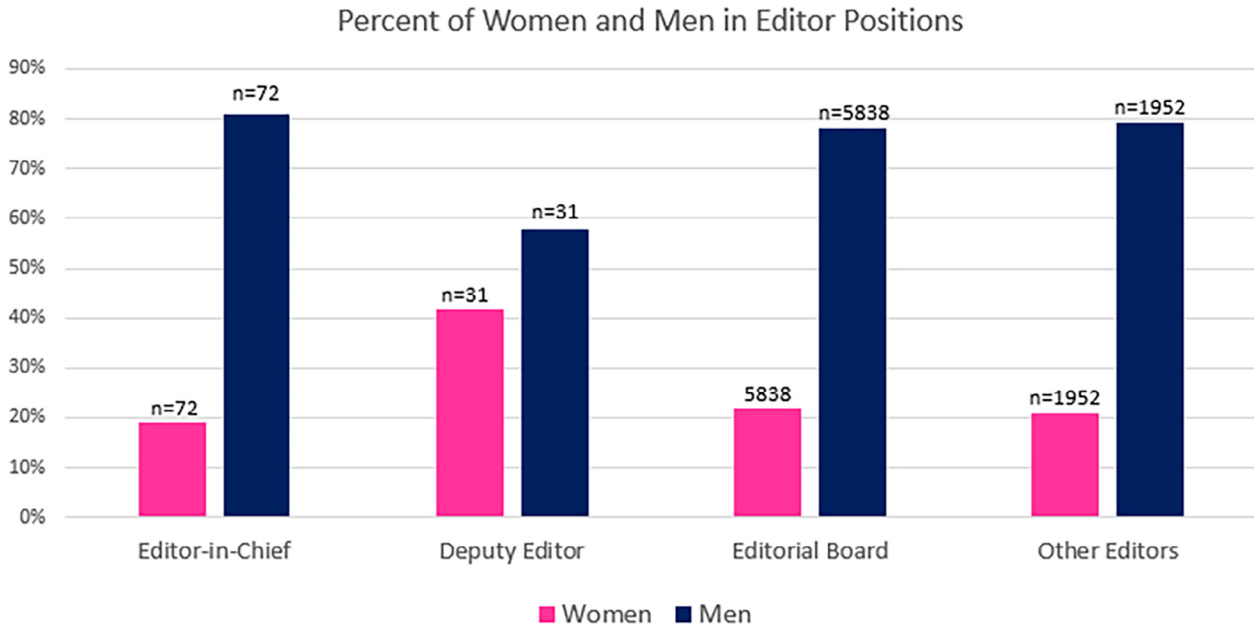


Fig. 2. Percentage of women and men as editors-in-chief, deputy editors, editorial board members, and other board members in dermatology journals.

Table 1
Editor composition of top journals (2018, SciMago Rankings).

Journal	Editor-in-chief	Deputy editor	Editorial board (% female)	Other board members (% female)
<i>JAMA Dermatology</i> *	Female	Male	25.00	50.00
<i>Pigment Cell and Melanoma Research</i>	Male	–	32.08	100
<i>British Journal of Dermatology</i>	Male	Male	43.10	43.90
<i>Journal of Investigative Dermatology</i>	Male	Male	32.89	37.14
<i>Journal of the American Academy of Dermatology</i>	Male	Female	42.00	40.74
<i>Journal of the European Academy of Dermatology and Venereology</i>	Male	–	14.89	50.00
<i>American Journal of Clinical Dermatology</i>	Female	–	20.59	0
<i>Dermatology</i>	Male	–	40.00	21.05
<i>Dermatology and Therapy</i>	Male	–	32.14	–
<i>Dermatologic Clinics</i>	Male	–	–	–
<i>Journal of Dermatologic Science</i>	Male	–	26.83	11.76
<i>Dermatologic Surgery</i>	Male	Female	28.57	24.00
<i>Experimental Dermatology</i>	Male	–	25.66	16.67
<i>Clinical, Cosmetic, and Investigational Dermatology</i>	Male	–	36.84	–
<i>Melanoma Research</i>	Male	–	19.05	0
<i>Journal of Dermatology</i>	–	–	4.35	15.79
<i>Archives of Dermatological Research</i>	Male	–	8.33	11.11
<i>Skin Pharmacology and Physiology</i>	Male	–	28.00	0
<i>Journal of Dermatologic Treatment</i>	Male	–	9.38	16.67
<i>Dermatitis</i>	Male	–	16.00	35.29

*2019 board used.

(n = 9): average years since terminal degree for women, for men, and for women and men combined. A total of 597 board members from the top journals were evaluated, and data were available for 445 (75%). The average years since terminal degree for all board members from the included journals was 28.5 years. The average number was 29.2 years for women and 28.0 years for men ($p > .05$).

Discussion

This study demonstrates that women represent a minority of dermatology editorial board members across all categories. Two of the journals with the highest representation of women on the editorial board were the *British Journal of Dermatology* (43.10% women) and the *Journal of the American Academy of Dermatology* (42% women). Interestingly, these are two journals with high impact factors (*Journal of the American Academy of Dermatology*:

6.898; *British Journal of Dermatology*: 6.129). Perhaps increasing the representation of women on editorial boards leads to diversity in the publication process, which may indirectly contribute to an increase in impact factor. For example, female editors may be more likely to publish articles that are of particular interest to women, who contribute much of the readership of dermatology journals.

Although near equal representation was seen in these journals, most of the journals analyzed had far from equal representation of women as editors. This further validates the literature reporting underrepresentation of women in academic medicine and the existence of a glass ceiling or invisible barrier for academic advancement (Nickerson et al., 1990). The reasons for these obstacles to professional advancement are complex and due, at least in part, to biases, institutional culture, family responsibilities, child bearing, and lack of gender parity in compensation.

In recent years, gender biases in the workplace are more often implicit rather than explicit. Implicit biases are beliefs and stan-

standardized associations informed by societal expectations and cultural norms that affect actions and behaviors in an unconscious manner (Phillips et al., 2016). In academic medicine, implicit gender biases affect women at all levels of training (Phillips et al., 2016). A 2012 randomized, double-blinded study evaluated the implicit biases of faculty members when hiring a laboratory manager. Each faculty member was given one candidate's application materials to evaluate; after summing all faculty evaluations of each candidate, the study reported higher competency ratings for the male applicant compared with the female applicant, the latter of whom had an identical application apart from listed sex (Moss-Racusin et al., 2012). The faculty also assigned a starting salary and potential mentoring opportunities to both applicants, with the male applicant receiving both a higher salary and more listed mentorship opportunities (Moss-Racusin et al., 2012). The findings of this study not only support the existence of implicit biases, but also underscore the importance of empowering women to negotiate for salary and advocate for mentorship opportunities.

Another study by Reuben et al. (2014) further investigated implicit biases in hiring practices. The investigators recruited subjects to perform various arithmetic tasks during a simulated interview process and paid the subjects more money if they were hired by the employer. The study reported that women and men scored equally on the required arithmetic task; however, despite the equal score, women were half as likely to be hired compared with their male counterparts (Reuben et al., 2014). The hiring discrepancy was explained by the employer as due to women being less adept at the task relative to men (Reuben et al., 2014).

An interventional study by Girod et al. (2016) proposed that implicit bias training may be a viable way to address these unconscious beliefs. This study consisted of a 20-minute educational session presented to medical school faculty that discussed research in the literature with regard to implicit bias, as well as a pre- and postassessments to measure the efficacy of this session. The results of the assessments indicated that both male sex and older age were associated with greater favorable implicit bias (Girod et al., 2016). However, the results of the study also indicated that the intervention significantly changed all faculty members' perceptions ($p < .05$), including bias on women in leadership roles and the effectiveness of men and women as leaders (Girod et al., 2016).

Another university study investigated implicit gender bias training in academic medicine using faculty from 92 academic departments (Carnes et al., 2015). A 2.5-hour workshop on gender bias was given to the faculty, with surveys before and after the intervention (Carnes et al., 2015). In addition, a control group received the workshop after all their data were collected (Carnes et al., 2015). In the workshop, the idea of implicit gender bias was framed as a habit, and the three educational modules were intended to help participants recognize and overcome these habits (Carnes et al., 2015). The results indicated that the majority of both male and female faculty shared the bias of viewing men as leaders and women as supporters. However, after the intervention, the workshop training was determined to be successful in promoting feelings of self-efficacy ($p < .05$) among faculty members, which enabled them to participate in gender-equity promoting behaviors (Carnes et al., 2015). The authors suggest expanding these types of interventions to other universities and other settings to increase awareness of implicit gender bias and ultimately the differential treatment of men and women that results from these biases.

Although women are entering medical school at rates similar to or higher than men, fewer women enter academic medicine and more women in academic medicine report burnout, which may be due in part to the culture of academic medicine (McMurray et al., 2000). One study found that women had 1.6 times the odds ratio for burnout compared with men, with this number increasing by 12% to 15% for every 5 hours worked over 40 hours per week

(McMurray et al., 2000). Importantly, a lack of workplace control was correlated with burnout in women, but not in men, with young children (McMurray et al., 2000). Workplace control refers to the general flexibility of the working environment, including the ability to shift working hours and take days off to care for children when necessary. Thus, changes in institutional policies, such as flexible work hours, can help. Onsite subsidized daycare centers that reflect hospital hours and options for backup care for sick children may also help (Cassidy-vu et al., 2017). This is further supported by a 2003 study that reported that, after controlling for income and work hours, controllable lifestyle factors accounted for 55% of variation in specialty preference (Dorsey et al., 2003).

Redistributing roles and responsibilities within the family unit may also alter perceptions associated with hiring women and reduce female physician burnout. For female physicians, burnout was reported to be 40% less when a significant other was present (McMurray et al., 2000). In European countries, many more fathers are taking paternity leave in an effort to remove the stigma around female hires taking time off and to invest more early time with their children. The Swedish Institute for Labor Market Policy Evaluation (2010) found that for every month of leave a father took, the mother's future earnings increased by an average of 7%. Thus, the hope is that ultimately, maternity leave will not play a large role in hiring decisions because the male partner will be assumed to take a comparable amount of time off (Heymann et al., 2017). Additionally, spending this concentrated early time with children has led to fathers being more engaged in childcare activities, such as feeding and bathing children and responding to children's needs throughout the night, which further works to redistribute responsibilities within the family unit and help reduce rates of female physician attrition in academic medicine (Huerta et al., 2017).

The redistribution of family responsibilities and evolution of academic culture is increasingly important considering that the reproductive years for women tend to coincide with the time of women's first faculty position, usually at the age of early to mid-30s. Graduate school professor Mary Mason calls age 30 to 40 years the "make-or-break" decade for academics due to timing for finishing doctorates and fellowships and being granted tenure. During this time, many new mothers may work part-time initially, which can negatively affect their opportunity to advance. The idea that women leave academic medicine at a higher rate than men, at least in part due to family responsibilities, is called the leaky pipeline effect (Girod et al., 2016). A study that involved interviewing women who left academic medicine found that a supportive work culture matters in terms of female physician satisfaction and retention in academics.

Among the most common reasons for leaving were the lack of role models for combining career and family responsibilities and poor mentorship (Levine et al., 2011). Thus, having supportive female role models and colleagues in academic medicine may improve female retention. Accordingly, both formal and informal mentoring should be encouraged for female academics as a means to provide support for barriers and alleviate challenges young female physicians may encounter. In addition to the benefits of mentoring in the academic setting, formal and informal mentoring programs may also be applied in the editorial room. Assigning new editors a mentor of either sex may help women excel as members of the editorial team.

With regard to gender parity in compensation, the 2016 National Faculty Survey (2000–2016) compiled data from 24 U.S. medical schools and found that women in academic medicine made 90 cents for every dollar earned by their male counterparts (Freund et al., 2016). Annually, women made \$20,000 less than men ($p = .03$). After adjusting for covariates that predict salary, such as academic rank and promotion, salary differences remained significant, although they were not significant after adjusting for

full-time status. This suggests that more women are working part-time relative to men and that rank/position is partially responsible for the pay gap.

Increasing the representation of women as editors also has the potential to improve the pay gap. Publications are often essential for promotions, and improving the engagement of women in the publication process may help improve academic rank and thus salary.

Conclusions

Despite the incredible advances women have made in medicine over the past 100 years, there remains room for progress. Women have yet to gain equality in academic leadership, including editorial positions, professorships, and higher leadership roles. Many steps can be taken to continue to increase the representation of women in academic leadership, such as implicit bias training, mentoring, supporting changes in institutional culture, and establishing training programs to help women advance in their careers. Advocating for these changes may help combat bias, improve the peer-review process, and ultimately improve the quality and diversity of scientific publications (Murray et al., 2018).

Conflict of Interest

None.

Funding

None.

Study Approval

NA.

References

Association of American Medical Colleges. 2018 Physician Specialty Data Report [Internet]. 2018 [cited xxx]. Available from: <https://www.aamc.org/data>.

- Bendels MHK, Dietz MC, Bruggman D, Oremek GM, Schoffel N, Groneberg DA. Gender disparities in high-quality dermatology research: a descriptive bibliometric study on scientific authorships. *BMJ Open* 2018;8(4) e020089.
- Carnes M, Devine PG, Baier Manwell L, Byars-Winston A, Fine E, Ford CE, et al. The effect of an intervention to break the gender bias habit for faculty at one institution: a cluster randomized, controlled trial. *Acad Med* 2015;90(2):221–30.
- Cassidy-Vu L, Beck K, Moore JB. Burnout in female faculty members: a statistic or an opportunity? *J Primary Care Comm Health* 2017;8(2):97–9.
- Dorsey ER, Jarjoura D, Rutecki GW. Influence of controllable lifestyle on recent trends in specialty choice by U.S. medical students. *JAMA* 2003;290(9):1173–8.
- Feramisco JD, Leitenberger JJ, Redfern SI, Bian A, Xie XJ, Resneck Jr JS. A gender gap in the dermatology literature? Cross-sectional analysis of manuscript authorship trends in dermatology journals during 3 decades. *J Am Acad Dermatol* 2009;60(1):63–9.
- Freund KM, Raj A, Kaplan SE, Terrin N, Breeze JL, Urech TH, et al. Inequities in academic compensation by gender: a follow-up to the National Faculty Survey cohort Study. *Acad Med* 2016;91(8):1068–73.
- Girod S, Fassiotto M, Grewal D, Ku MC, Sriram N, Nosek BA, et al. Reducing implicit gender leadership bias in academic medicine with an educational intervention. *Acad Med* 2016;91(8):1143–50.
- Gollins CE, Shipman AR, Murrell DF. A study of the number of female editors-in-chief of dermatology journals. *Int J Womens Dermatol* 2017;3(4):185–8.
- Heymann J, Sprague AR, Nandi A, Earle A, Batra P, Schickedanz A, et al. Paid parental leave and family wellbeing in the sustainable development era. *Public Health Rev* 2017;38:21.
- Huerta MC, Adema W, Baxter J, Han WJ, Lausten M, Lee R, et al. Fathers' leave and fathers' involvement: evidence from four OECD countries. *Eur J Soc Secur* 2017;16(4):308–46.
- Jena AB, Khullar D, Ho O, Olenki AR, Blumenthal DM. Sex differences in academic rank in U.S. medical schools in 2014. *JAMA* 2015;314(11):1149–58.
- Lautenberger D. The state of women in academic medicine [Internet]. 2013 [cited xxx]. Available from: <https://members.aamc.org/eweb/upload/The State of Women in Academic Medicine 2013-2014 FINAL.pdf>.
- Levine RB, Fenny L, Kern DE, Wright SM, Carrese J. Stories from early-career women physicians who have left academic medicine: a qualitative study at a single institution. *Acad Med* 2011;86(6):752–8.
- McMurray JE, Linzer M, Konrad TR, Douglas J, Shugerman R, Nelson K. The work lives of women physicians results from the physician work life study. *J Gen Intern Med* 2000;15:372–80.
- Moss-Racusin CA, Dovidio JF, Brescoll VL, Graham MJ, Handelsman J. Science faculty's subtle gender biases favor male students. *Proc Natl Acad Sci U S A* 2012;109(41):16474–9.
- Murray D, Siler K, Larivière V, Chan WM, Collings AM, Raymond J, et al. Gender and international diversity improves equity in peer review. *bioRxiv* 2018:400515.
- Nickerson KG, Bennett NM, Estes D, Shea S. The status of women at one academic medical center: breaking through the glass ceiling. *JAMA* 1990;264(14):1813–7.
- Phillips NA, Tannan SC, Kalliainen LK. Understanding and overcoming implicit gender bias in plastic surgery. *Plast Reconstr Surg* 2016;138(5):1111–6.
- Reuben E, Sapienza P, Zingales L. How stereotypes impair women's careers in science. *Proc Natl Acad Sci U S A* 2014;111(12):4403–8.