His Opportunity, Her Burden: A narrative critical review of why women decline academic opportunities

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Abstract

The persistence of a gender gap in academic medicine has been documented in thousands of studies in the last decade. Notable disparity between representation by men and women is present in leadership positions, invited keynote speakers, and publication counts. The COVID-19 pandemic provided an additional context for this disparity; while many journals continue to experience rapid increases in manuscript submissions, these submissions are disproportionately from men. The results of efforts aimed at raising awareness and advocating for women have been underwhelming. Allowing this disparity to continue significantly limits the diversity and quality of vision in leadership and research. We can—and must—do better. How do we bridge the gaps between intention, interpretation, and results? How can advocates ensure that they aren't unintentionally creating situations that undermine the very women they seek to empower? Until these questions are answered, the goal of ending gender discrimination risks being unattainable. In this critical review we argue that the gender gap is a symptom of a much larger issue. Specifically, the power of social expectations, culture and gender stereotypes remains a resistant force against calls for action. The power of stereotypes shapes the decisions that men and women make about their careers. In turn, these decisions impact the amount of time that women can dedicate to leadership, self-promotion, and research. Drawing on our combined lived experiences and a rich multidisciplinary literature, we offer a practical guide to allies in the fight against the gender gap.

Introduction

We have long been aware of gender gaps in academic medicine and there have been many efforts to remedy these disparities, ranging from recruitment initiatives to bias training.[1–4] Indeed, a PubMed search on the term 'gender gap medicine' results in over 3,000 publications; over 2500 in the last 10 years alone. These disparities are gaining attention because they persist. While *representation* of women in medicine has increased to achieve gender parity in the profession as a whole in both Canada and the United States[5,6], *equity* in recognition of women's contributions has not matched pace.[57–10] Women are less likely to obtain jobs in the competitive world of academic medicine[11] and, when they do, they earn less than their male colleagues[12,13] - even when studies control for factors such as family commitments, years of experience, and research productivity.[14–18] Their academic contributions are likewise under-recognized through critical metrics such as authorship on academic publications[19], representation in leadership [20,21] and engagement

as keynote speakers.[22–25] In the context of authorship, the COVID-19 pandemic has only served to magnify this gap.[19,26,26–28,28–32] Clearly, our current strategies for remedying the gender gap are insufficient.

A large part of the problem with current strategies may be the assumption that increasing women's representation would be enough to ensure equity. In other words, if women were given enough time to progress through the ranks, they would eventually achieve parity at higher levels of recognition. Simultaneously, many advocates in many fields believed that increasing *awareness* of gender inequity was the key to safeguarding women's progress through the leadership pipeline, but this strategy was failing as early as the 1980s[33–35]; patience and increased awareness has not triggered significant improvements. Though they were coined nearly 20 years ago, the metaphors of the 'leaky pipeline' (i.e. the consistent and noticeable reduction in the proportion of women, compared to men, at each progressive step up in promotion toward senior leadership) and 'Matilda effect' (i.e. under recognition and denial of contributions from women, compared to men) remain very relevant today.[4,15,36]

Another strategy that has met with significant criticism and very little change, encouraged women to 'lean in', and 'step up'.[37,38] Encouraging women to "step up" and be part of the solution or 'lean in' to the problem implies in part that the gender gap's presence and persistence is caused by a lack of effort on the part of women. What all of these strategies have in common is a failure to recognize the cultures and systems that waylay women's efforts to succeed - they suggest representation will automatically lead to equity, that awareness is sufficient to change practice, or that more effort on the part of women will lead to change.[39]These strategies reinforce the belief that women need to find a way to work within the existing culture and systems, instead of requiring the culture and systems to change in ways that recognizes the value of equity and diversity.[9,40] Given the resilience of the gender gap despite these efforts, we may only exacerbate the problem by placing additional burdens on women to fix or adapt to the problem.

Recent strategies call on allies to take the burden of change-making off of women's shoulders; through allyship, men can support women's advancement, sharing the goal and responsibilities involved in the fight for gender equity. Allyship is a particularly important strategy in achieving gender equity given that significant power remains in the hands of men, and, thus, male allies may often be in a better position to change systems and ensure equitable recognition.[40–42] As an example, women and allies have targeted the 'manel' (a panel of presenters dominated by men) for extinction.[22,41,43] Allies that are aware of the "manel" problem can use their power to mindfully recruit speakers, considering inclusivity and equity.[44] However, there remain significant and complex psychological and structural issues that prevent women from participating[20,45,46]; allies must understand that their role is not limited to simply extending more invitations to women. The anecdote in Box 1 and Figure 1 highlight this reality and illustrates some of the complexities involved in the work of allyship. Even when allies advocate for representation of women and women might benefit from such recognition, there are often unseen barriers that hamper progress.

Box 1: A vignette describing the divergent views of invited speaker and the conference organizers Carl and S

Figure 1: A cartoon illustrating the divergent thinking between the characters in the Vignette featured in Box 1 of this paper.

To complicate things further, saying "no" isn't always as overt as it appears in this example; for many of the same reasons, women might say "no" overtly when asked directly, as in the anecdote, but they might also choose to delay acceptance, saying "I hope you'll consider me for future events," or decide not to go after speaking engagements and other opportunities that could be available to them. And these responses lead to similar results - "manels" and other examples of women's underrepresentation in spaces of recognition and power stubbornly persist despite the recruitment efforts of allies.

This paper stems from a desire to draw on and deepen our own understanding of why women "say no" in situations like these, and to use this wisdom to support the work of allies. The cartoon below is grounded in conversations that we had as an authorship team, and those we had as we discussed this anecdote with other women in academic medicine. It depicts the ways in which saying "no" is complicated - "opportunities" can't be evaluated outside of their context.

Some of the reasons in the thought bubbles represent subjective beliefs, and some represent practical constraints on material resources, such as finances and time. In our own examination of reasons behind 'why women say no', we identified strongly with constraints on time. Although the ally's thoughts indicate a genuine desire to recognize her expertise, accompanied by acknowledgement of the need to sponsor women, he is not considering the significant material constraints that limit her ability to accept the invitation. Recognizing a need to illuminate these barriers and build capacity amongst allies, we looked to the literature to determine if there is evidence that, compared to men, women have less time for career advancement opportunities, such as research and leadership. To deepen our understanding of this phenomenon, we then sought to explore why women might have less time for research and leadership, compared to men. And particularly, in cultures where gender equality is the norm, how are gender disparities maintained? Finally, we offer practical guidance on how allies can help, going beyond simply extending more invitations to women to address the psychological and material barriers that undermine women's ability to say "yes".

Methods

Our critical review draws on diverse literatures to seek out more nuanced explanations for why women say no, or, more specifically, why they cannot say yes, to opportunities for career advancement. When conducting critical reviews, researchers do not seek a comprehensive accounting of everything that has been said on a topic; rather, they draw on expertise within the team and consult with experts outside the team to select perspectives that best inform their questions and that have the greatest potential to shift their field's thinking on their topic.[47]

Our team is comprised of three academics who identify as women and are active in medical education. We have worked and trained at different institutions in Canada, trained in different disciplines, and hold different family statuses, racial identifications, and career stages. Dr. Monteiro is a mid-career researcher, trained in cognitive psychology – a perspective that greatly informed our discussions. She identifies as a person of colour and parent to young adults. Dr. Chan is a practicing academic physician in emergency medicine. She is an active health professions' education researcher who identifies as being in her mid-career. She has also held many leadership positions at her institution and at a national level. She identifies as a person of colour and her observations and experiences during her climb through the ranks of leadership greatly impacted our conversations. Dr. Kahlke is an early career researcher with a young family. She holds a PhD in Education, and her sociocultural perspective helped to balance and frame our focus on literatures from cognitive psychology. Spurred by an interest in the anecdote presented above, we began this review by consulting our own lived experience of the gender gap and discussed the reasons that women might say "no" when faced with an opportunity that might be seen as beneficial to our career advancement. Differences in our intersectional identities were critical in generating robust discussions that resulted in identification of myriad reasons why different women might say no. Our different disciplinary perspectives also informed our understanding of the problem, and the literatures we consulted.

We then turned to the literature to explore evidence for our shared belief that women have less time for these "opportunities" because they have greater time demands in other areas. We asked: do women have less time for career advancement opportunities, such as speaking engagements, research, and leadership? We drew on robust literatures from Psychology (cognitive, industrial, and educational), Sociology, Health Professions Education, and Business to confirm that competing pressures on women's time negatively impacts their decisions about career advancement opportunities. This evidence is described in detail in the first section of the results below.

We then turned to these same literatures in search of potential explanations for why this gendered imbalance in available time for career advancement has proved so persistent, asking: why might women have less time for career advancement opportunities? And how are these disparities maintained? Finally, in effort to recommend novel and evidence-based solutions to remedy the gender gap in our field, we asked: how can allies help? To address these questions, we engaged in an iterative cycle of refining the problem through group discussion, identifying new search directions, and returning to these literatures. In this way, our searches and analyses were intertwined. For example, some search directions proved less relevant to our evolving research questions and were dropped from our analysis. In keeping with critical review methodologies, other perspectives were determined to be particularly fruitful, such as stereotype theory from cognitive psychology, which offered insight into the mechanisms that contribute to the persistence of the gender gap, and cause women to say 'no.' Thus stereotypes literature forms the backbone of our findings related to these three questions.

Results

Do women have less time for career advancement opportunities, such as research and leadership?

In addition to evidence that women receive less recognition for their research and fewer invitations to collaborate in research and engage in leadership activities, our analysis of the literature from psychology, sociology,

business and medicine supports our argument that women say no to these opportunities because they disproportionately take on other tasks that are not as well recognized, specifically those related to caretaking in their personal lives or supporting others at work.[11,37,48] Studies showing differences in well-compensated clinical hours between men and women are mirror images of studies showing differences between men and women in time spent on supporting others. [49,50] For example, women are more likely to sacrifice work responsibilities to care for children/family; globally, 75% of unpaid work is done by women, including child and elder care.[4,51] Women are more likely to spend their time acting as an academic mentor[49], a pattern that extends even to 'ghost advising'; or serving as an academic mentor without explicit recognition. [52] These mentoring and caretaking activities are critical to the functioning of academia and society more broadly, but they come at great cost to women. The result of this imbalance in labor is clear - women are slower to advance their careers because they have less time to spend on well recognized and compensated research and self-promotion/tenure seeking activities.[49] On average, women simply don't have the same amount of time to commit to applying for and acting in leadership positions, preparing for keynotes, or engaging in other time-consuming but high profile academic activities. Without careful consideration for how to distribute these commitments and recognition of these contributions equitably, women may continue to say no to the very opportunities that can close the gap.

Why might women have less time for research and leadership?

It is crystal clear that the problem is not women's capability; studies consistently demonstrate equal cognitive capacity of men and women in all types of academic, managerial, mentorship and leadership activities.[4,34] Indeed, several studies have highlighted benefits of including women in leadership.[53] Our analysis of the literature also suggests a reason *why* these disparities persist: women spend more time on tasks that help others because of society's expectation of them and of their male colleagues. In part, women help others more because men are *not expected* to help. In other words, women and men continue to perform stereotyped roles.[11,18,20,33,37,48,54] Historically, women in most societies have been expected to play a nurturing family- and community-oriented role while men develop identities outside the home through their career or talents.[4,33] These expectations persist today. For example, in personal or home contexts, women are expected to, and do, manage reminders and to-do lists, while men contribute less to these activities, and experience less societal pressure to do so.[54] Socialization into these domestic roles reinforces expectations that women will commit their time and energy to the benefit of the community over individual career advancement.[54]

Why should these outdated notions have such a powerful hold over our behavior today? Many believe, in fact, that these expectations no longer hold true and should not drive behavior. [44,55] And although gender roles have certainly evolved, with more women working outside the home in diverse careers, there remain powerful gender stereotypes rooted in these traditional expectations; the stereotype of women as nurturing and less suited for leadership positions (thought to require assertiveness) is even stronger today than it used to be.[34,55,56] Stereotypes, which are learned from birth and entrenched as early as 6 years of age, form societal expectations and limitations around how men and women *should* or *should not*behave.[9,57] For example, stereotypes characterize female academic clinicians as more nurturing, while men are characterized as brilliant assertive leaders. [9,58,59]As a consequence, women are ushered into underrecognized supportive roles that are often disguised as opportunities, but limit opportunity for further advancement; these decisions are often reactions to the stereotype that men have the required characteristics for leadership.[9] For example, women are often invited to deliver Grand Rounds, which have local impact, but are overlooked for keynote speaker engagements at international conferences.[9,60–62] Conversely, women may avoid higher profile or highly competitive situations, such as vying for keynote speaker engagements or senior leadership positions, because of their self-perceived lack of assertiveness, a perception which may be confirmed by their mentors.[15]

How are these disparities maintained?

Breaking with such firmly entrenched stereotypes has consequences.[60,62] These consequences can be perpetrated by others in a social environment (e.g. criticism) or through self-sabotage (e.g. self-doubt). Social consequences generally occur because women are rarely expected in high profile roles and they are bur-

dened with a greater need to prove themselves and demonstrate their expertise. Women often face social consequences such as doubt and criticism when they venture into leadership positions, which are seen as stereotypically male.[63,64] For example, colleagues and search committees cast doubt on women's qualifications when they apply for senior leadership positions because women do not "look like leaders".[44,57,65] Women leaders are often criticized for their leadership styles, which may not fit the stereotypical male style.[44,66] This puts women in positions taking on the extra labor of convincing search committees and co-workers that they are assertive enough, or 'male,' enough.[62,63,63,67,68] Conversely, women are expected to have better interpersonal skills compared to men, and are held to a different standard: whether rated as a teacher, clinician, scientist or leader, women are criticized more harshly if their interpersonal skills are perceived as weak, while men are not.[57,69]

Myriad other findings contribute to a picture that explains why women often say no: women leaders or keynotes may be dismissed as a token representative, with more credit given to their male colleagues (ref; Matilda effect; invisible women). Women also report feeling a lack of support and fear of reprisal from co-workers if they take a job others see as clearly intended for a man.[70] Women are encouraged to step up and lean in, but there is little recognition for the risks they take and heightened barriers they face when doing so.[48] Realistically, who would want the hassle of 'advancing' one's career by competing for a new role, with unlikely success and high professional and social consequences?[60,71] And when in doubt regarding the potential outcomes of trying something new, people often revert to the familiar. [72–76]

Women have developed several strategies for navigating these challenges covertly, while still trying to achieve their personal goals. However, these strategies are not designed to correct stereotypes. For example, a woman might head off negative reactions to her advancement from colleagues by suggesting she is only taking someone else's (typically a male mentor's) advice.[33,34] She might also emphasize her femininity so that her more 'masculine' leadership style is not appraised too critically.[33,34,77,78] By contrast, Glick et al. demonstrated that when women highlight characteristics and accomplishments often perceived as 'masculine', they improved their ranking in competition for leadership positions, compared to those who highlighted more 'feminine' accomplishments. [67]Influential masculine characteristics included statements about stereotypical male hobbies and interests. However, giving one's CV a masculine makeover is not an appropriate solution as this still prioritizes the male stereotypes as the preferred model for leadership, rather than challenging this problematic hierarchy. Similarly, embracing the feminine stereotype is equally harmful. Both adaptations fail to address the inequities in how we value activities critical to academia and society, and the systems that prevent women from progressing in their academic careers.

Other studies suggest that women may try to "fit in" to systems that value stereotypically masculine traits by self-silencing, or choosing not to take on inequity.[4,33,77] Rather than altering the system, these strategies rely on women's acquiescence to the status quo. In another related strategy, women may disengage from mainstream and stereotypically masculine spaces by seeking the safety of microcultures to avoid constant criticism or a feeling that they don't fit the mold.[4,34,77] Microcultures can create safe spaces for underrepresented groups, but can also serve to diminish much needed visibility and equitable access to mainstream spaces and opportunities.[34] Finally, to offset the pressures created by societal expectations, women occupying leadership or other spaces of power may prioritize work life balance more than their male counterparts. These decisions may help them navigate the pressures they face when they choose not to align with prescriptive stereotypes. However, those decisions may also hinder further promotion, as women again sacrifice time that they could use to advance better rewarded career metrics in a traditional merit or reward systems.

Alongside the external pressures and consequences involved in challenging stereotypes, there is a self-sabotaging phenomenon described in the psychology literature as stereotype threat. [79]For example, a common stereotype of women, (noted in published work since the 1990s but present in academic discourse for decades prior to that) is a belief that women are weaker at learning and mastering concepts in mathematics.[57,80,81] When placed in a competitive context requiring math skills, women often perform poorly, or choose not to compete at all.[81] This phenomenon is not related to ability, as it occurs even for women with exceptional aptitude and knowledge of the domain.[57,80,81] A more modern conceptualization

of this phenomenon is *imposter syndrome* .[82,83] All individuals who identify with a negative stereotype are susceptible to the phenomenon of stereotype threat, with the primary explanation being a sub-conscious drop in confidence and performance. The evidence suggests that knowledge and fear of being compared to a negative stereotype causes people to lose confidence and inadvertently confirm the stereotype. Decades of research on stereotype threat reveal its impact in domains such as sports[84], leadership [85,86], and communication skills.[87] For example, women, who are aware of the negative stereotype regarding women and some sports, may opt out of competitive sports activities altogether. Men are not immune[88]; in one study, men were observed to perform in ways that were less empathetic, or caring, when primed with the stereotype that women are more nurturing than men, compared to men who were not primed with this stereotype.[89] Even as women venture into non-traditional roles, the phenomenon of stereotype threat may serve to support harmful stereotypes.[90,91]

How can allies help?

Allies, whether men or women, need support and guidance to be effective. Recommendations for addressing the impact of stereotypes and stereotype threat require specific and concrete actions, not vague guidelines.[4,34] Critically allies need support to help them and others understand the mechanisms that will lead to *equity* between genders, which are very different from initiatives that recognize *equality* between genders; believing that all genders are equal is not enough to reach gender equity when there are real material barriers hindering women's advancement. Allies are critical in helping amplify and recognize the contributions and perspectives of women and underrepresented groups.

The key recommendations from the literature:

1. Recognize, consult, and support women when they are uniquely positioned - recognize that an invitation to apply may not be enough to counterbalance disproportionate negative fallout that women often experience,[4]
2. Create supportive microcultures (that actually impact mainstream),[4]
3. Set expectations & realign merit systems,[92]
4. Actively seek out women for more traditionally male roles,[55]
5. Actively seek out men for more traditionally female roles.[55]

Our Supplemental Digital Content (Appendix 1) outlines some ways that people in various leadership positions can support women and other underrepresented groups. In hoping to close the knowing-doing gap, we have grouped the suggestions by leadership roles that are common to the academic clinical environment. We then follow each recommendation with a worked example, or continuance of the vignette, to demonstrate how allies can take action.

Discussion

The gender gap remains visible in academic medicine, particularly within leadership and traditional metrics of academic productivity. There is much work to be done to remedy gender discrimination; however, knowing what remedy will work is proving to be a daunting challenge. In the *#heforshe* movement, confusion abounds. In this paper we argue that many efforts aimed at supporting, advancing, advocating, and promoting women are not met with success. Not only do some of these efforts miss their intended target, but some of them also actually perpetuate discrimination they seek to thwart.

Clearly, allyship is not always straightforward, and it is becoming increasingly clear that simply inviting women to the table is not enough to overcome the complexities involved in achieving gender equity. Allies may get confused and possibly frustrated when their efforts fail to meet with success. This is a problem if allies eventually give up, or, worse, critics of equity initiatives find evidence confirming that attempts at equity are pointless. To effectively support the important work that allies do, there is an urgent need to broaden our focus beyond asking women to the table when it comes to leadership positions and other types

of recognition. We need to understand the psychosocial context in which women make decisions about their careers, identifying the multitude of reasons 'why women say no' when they encounter opportunities for career advancement. Until we address these complexities, the goal of ending gender discrimination will be unattainable; we can't afford such failure.

For women academic clinicians there are challenging decisions involved regarding the use of time. There are very clear, but often implicit, value statements regarding the importance of research activities, compared to clinical education, administration, along with a lack of acknowledgement for family caregiving responsibilities. Evidence suggests that the dominant clinical and academic culture typically benefits people with fewer responsibilities outside the clinical context; historically, those have been men. If we hope to change the culture, we have to first understand why it exists and how it contributes to gender inequity. The standard academic contract defines expectations around research, education, clinical practice, and leadership. However, decisions about promotion center on research productivity. Further, these expectations ignore additional responsibilities and roles that also need to be managed, such as coaching, mentoring, being a caregiver, etc. Several studies have documented the gender gap within time spent on research[6,18], family or caregiver responsibilities[49,59] and teaching/mentorship.[53,55] This translates into inequitable evaluations of many women who create a balanced academic and personal portfolio, compared to many men who tend to prioritize their own scholarship. Barring a change in values and the way these types of productivity are valued, our search for reasons women say no to more traditionally prestigious opportunities reveals a simple factor of time; how can they possibly say yes if they are already so busy?

We've laid out the issues surrounding stereotypes about women. Stereotypes are oversimplified, inaccurate and often harmful representations of large groups within society. Stereotypes compartmentalize unique individuals through categories that reduce their complexity to a few characteristics, mis-represent who they are, constrain their activities and prevent them from accessing fair compensation and the power to make change. Stereotypes cannot account for the complex and intersectional identities (and the power relations imbued in them) that individuals take up or are saddled with in different moments. We recognize that we have taken to task binary stereotypes that construct only "woman" and "man". These binary stereotypes are harmful for others beyond women, which can undermine the very existence of those who identify as non-binary or trans and that these stereotypes categories impact people differently when they are also subject to discrimination and stereotypes based on other aspects of their identity, such as race, sexuality, or dis/ability (for example). The intersectional impacts of gender and other stereotypes deserve significant attention, and we believe that the advancement of women can only be just when we address all aspects of intersectional discrimination across equity-deserving groups. Figure 2 and the supplemental digital appendix provides some scenario-based summaries of the literature and highlight some key tactics and strategies that allies might use.

Figure 2: An infographic summarizing strategies that leaders, mentors, and peers can used to be allies for women in academic medicine. For a more fulsome explanation if these strategies and relevant citations, please see the Supplemental Digital Content for the Appendix.

Going forward, we urgently need to think beyond the reasons that "women" say no to consider why *this* woman is saying no, or why others who are underrepresented in well-recognized spaces might say no. Expanding this inquiry to include questions like 'who is being asked?' and 'who is not invited?' can contribute significantly to improving equity.

Conclusion

Women make up over 50% of matriculants to medical schools, but they hold less than 15% of leadership positions in medical schools. Such inequity harms our medical education efforts and the women we train. Seemingly feminist axioms, like 'lean in', encouraged women to work harder to close the gap. Even objectively positive messaging around imposter syndrome, or the old adage 'fake it till you make it' have a darker side - suggesting that women only need to get out of their own way. These axioms ignore powerful systemic barriers and significant differences in personal values that shape these choices and opportunities. Allies must work harder alongside the women-colleagues to create real and lasting change. We can—and must—do better.

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References

1. Carnes M, Isaac C, Kaatz A. WHY IS JOHN MORE LIKELY TO BECOME DEPARTMENT CHAIR THAN JENNIFER? :18.

2. Carnes M, Devine PG, Manwell LB, et al. Effect of an Intervention to Break the Gender Bias Habit for Faculty at One Institution: A Cluster Randomized, Controlled Trial. *Acad Med J Assoc Am Med Coll* . 2015;90(2):221-230. doi:10.1097/ACM.0000000000000552

3. Begeny CT, Ryan MK, Moss-Racusin CA, Ravetz G. In some professions, women have become well represented, yet gender bias persists—Perpetuated by those who think it is not happening. *Sci Adv* . 2020;6(26):eaba7814. doi:10.1126/sciadv.aba7814

4. Perez CC. *Invisible Women: Exposing Data Bias in a World Designed for Men* . Random House; 2019.

5. Valantine HA, Grewal D, Ku MC, et al. The Gender Gap in Academic Medicine: Comparing Results From a Multifaceted Intervention for Stanford Faculty to Peer and National Cohorts. *Acad Med* . 2014;89(6):904-911. doi:10.1097/ACM.0000000000000245

6. Varpio L, Harvey E, Jaarsma D, et al. Attaining full professor: Women's and men's experiences in medical education. *Med Educ* . 2021;55(5):582-594. doi:10.1111/medu.14392

7. Balmer DF, Courts KA, Dougherty B, Tuton LW, Abbuhl S, Hirshfield LE. Applying the Theory of Gendered Organizations to the Lived Experience of Women with Established Careers in Academic Medicine. *Teach Learn Med* . 2020;32(5):466-475. doi:10.1080/10401334.2020.1767106

8. Sleeman KE, Koffman J, Higginson IJ. Leaky pipeline, gender bias, self-selection or all three? A quantitative analysis of gender balance at an international palliative care research conference. *BMJ Support Palliat Care* . 2019;9(2):146-148. doi:10.1136/bmjspcare-2016-001211

9. Burgess D, Borgida E. Who women are, who women should be: Descriptive and prescriptive gender stereotyping in sex discrimination.*Psychol Public Policy Law* . 1999;5(3):665-692. doi:10.1037/1076-8971.5.3.665

10. Babaria P, Abedin S, Berg D, Nunez-Smith M. "I'm too used to it": A longitudinal qualitative study of third year female medical students' experiences of gendered encounters in medical education. *Soc Sci Med* . 2012;74(7):1013-1020. doi:10.1016/j.socscimed.2011.11.043

11. Lewiss RE, Silver JK, Bernstein CA, Mills AM, Overholser B, Spector ND. Is Academic Medicine Making Mid-Career Women Physicians Invisible?*J Womens Health* . 2020;29(2):187-192. doi:10.1089/jwh.2019.7732

12. Glauser W. Why are women still earning less than men in medicine?*Can Med Assoc J* . 2018;190(21):E664-E665. doi:10.1503/cmaj.109-5576

13. Roy B. Gender Pay Gaps in Medicine: Moving from Explanations to Action. *J Gen Intern Med* . 2018;33(9):1413-1414. doi:10.1007/s11606-018-4579-3

14. Jena AB, Olenski AR, Blumenthal DM. Sex differences in physician salary in US public medical schools. *JAMA Intern Med* . 2016;176(9):1294-1304.

15. Jones TM, Fanson KV, Lanfear R, Symonds MRE, Higgie M. Gender differences in conference presentations: a consequence of self-selection? *PeerJ* . 2014;2:e627. doi:10.7717/peerj.627

16. Volerman A, Arora VM, Cursio JF, Wei H, Press VG. Representation of women on National Institutes of Health study sections. *JAMA Netw Open* . 2021;4(2):e2037346-e2037346.

17. Arora VM. It is time for equal pay for equal work for physicians—paging Dr Ledbetter. *JAMA Intern Med* . 2016;176(9):1305-1306.

18. Burstin HR, Arora VM. Gender Disparities in Journal Citations—Another Metric of Inequity in Academia. *JAMA Netw Open* . 2021;4(7):e2114787-e2114787.

19. Mannix A, Parsons M, Davenport D, Chan T, Monteiro S, Gottlieb M. Author Gender Diversity within Emergency Medicine Publications.*Acad Emerg Med* .

20. Risberg G, Johansson EE, Hamberg K. 'Important... but of low status': male education leaders' views on gender in medicine: Male education leaders' views on gender. *Med Educ* . 2011;45(6):613-624. doi:10.1111/j.1365-2923.2010.03920.x

21. Bates C, Gordon L, Travis E, et al. Striving for Gender Equity in Academic Medicine Careers: A Call to Action. *Acad Med* . 2016;91(8):1050-1052. doi:10.1097/ACM.0000000000001283

22. Farr CM, Bombaci SP, Gallo T, et al. Addressing the Gender Gap in Distinguished Speakers at Professional Ecology Conferences.*BioScience* . 2017;67(5):464-468. doi:10.1093/biosci/bix013

23. Harris KT, Clifton MM, Matlaga BR, Koo K. Gender Representation Among Plenary Panel Speakers at the American Urological Association Annual Meeting. *Urology* . 2021;150:54-58. doi:10.1016/j.urology.2020.04.136

24. Martin JL. Ten Simple Rules to Achieve Conference Speaker Gender Balance. Bourne PE, ed. *PLoS Comput Biol* . 2014;10(11):e1003903. doi:10.1371/journal.pcbi.1003903

25. Schroeder J, Dugdale HL, Radersma R, et al. Fewer invited talks by women in evolutionary biology symposia. *J Evol Biol* . 2013;26(9):2063-2069. doi:10.1111/jeb.12198

26. Woitowich NC, Jain S, Arora VM, Joffe H. COVID-19 threatens progress toward gender equity within academic medicine. *Acad Med* . 2021;96(6):813.

27. Quak E, Girault G, Thenint MA, Weyts K, Lequesne J, Lasnon C. Author gender inequality in medical imaging journals and the COVID-19 pandemic.*Radiology* . 2021;300(1):E301-E307.

28. Malisch JL, Harris BN, Sherrer SM, et al. Opinion: In the wake of COVID-19, academia needs new solutions to ensure gender equity.*Proc Natl Acad Sci* . 2020;117(27):15378-15381. doi:10.1073/pnas.2010636117

29. Pinho-Gomes AC, Peters S, Thompson K, et al. Where are the women? Gender inequalities in COVID-19 research authorship. *BMJ Glob Health* . 2020;5(7):e002922.

30. Wehner MR, Li Y, Nead KT. Comparison of the Proportions of Female and Male Corresponding Authors in Preprint Research Repositories Before and During the COVID-19 Pandemic. *JAMA Netw Open* . 2020;3(9):e2020335. doi:10.1001/jamanetworkopen.2020.20335

31. Myers KR, Tham WY, Yin Y, et al. Unequal effects of the COVID-19 pandemic on scientists. *Nat Hum Behav* . 2020;4(9):880-883. doi:10.1038/s41562-020-0921-y

32. Collins C, Landivar LC, Ruppanner L, Scarborough WJ. COVID-19 and the gender gap in work hours. *Gend Work Organ* . 2021;28(S1):101-112. doi:10.1111/gwao.12506

33. Heilman ME. Gender stereotypes and workplace bias. *Res Organ Behav* . 2012;32:113-135. doi:10.1016/j.riob.2012.11.003

34. Heilman ME. Sex stereotypes and their effects in the workplace: What we know and what we don't know. *J Soc Behav Personal* . 1995;10(4):3.

35. Heilman ME, Block CJ, Martell RF. Sex stereotypes: Do they influence perceptions of managers? *J Soc Behav Personal* . 1995;10(4):237.

36. Maggio L, Costello J, Ninkov A, Frank J, Artino AR. *The Voices of Medical Education Science: Describing the Published Landscape* . Scientific Communication and Education; 2022. doi:10.1101/2022.02.10.479930

37. West C. The Lean In Collection: Women, Work, and the Will to Represent. *Open Cult Stud* . 2018;2(1):430-439. doi:10.1515/culture-2018-0039

38. Sandberg S. *Lean In-Women, Work and the Will to Lead* . SAGE Publications Sage India: New Delhi, India; 2015.

39. Zigarmi L, Diamond J, Mones L. How Women Can Get Comfortable "Playing Politics" at Work. *Harv Bus Rev* . Published online January 19, 2022. Accessed February 11, 2022. https://hbr.org/2022/01/how-women-can-get-comfortable-playing-politics-at-work

40. Burgess DJ, Joseph A, van Ryn M, Carnes M. Does Stereotype Threat Affect Women in Academic Medicine?: *Acad Med* . 2012;87(4):506-512. doi:10.1097/ACM.0b013e318248f718

41. Kibbe MR, Kapadia MR. Underrepresentation of Women at Academic Medical Conferences—"Manels" Must Stop. *JAMA Netw Open* . 2020;3(9):e2018676. doi:10.1001/jamanetworkopen.2020.18676

42. Nash M, Grant R, Moore R, Winzenberg T. Male allyship in institutional STEMM gender equity initiatives. Cuthill F, ed. *PLOS ONE* . 2021;16(3):e0248373. doi:10.1371/journal.pone.0248373

43. Patterson I, Carlsson SV. On manels and manferences in urology.*Nat Rev Urol* . Published online July 30, 2021. doi:10.1038/s41585-021-00508-7

44. Wong A, McKey C, Baxter P. What's the fuss? Gender and academic leadership. *J Health Organ Manag* . 2018;32(6):779-792. doi:10.1108/JHOM-02-2018-0061

45. Caffrey L, Wyatt D, Fudge N, Mattingley H, Williamson C, McKevitt C. Gender equity programmes in academic medicine: a realist evaluation approach to Athena SWAN processes. *BMJ Open* . 2016;6(9):e012090. doi:10.1136/bmjopen-2016-012090

46. Coe IR, Wiley R, Bekker LG. Organisational best practices towards gender equality in science and medicine. *The Lancet* . 2019;393(10171):587-593. doi:10.1016/S0140-6736(18)33188-X

47. Kahlke R, Lee M, Eva K. Critical Reviews in Health Professions Education Research. *J Grad Med Eduation* . In Press.

48. Pololi LH, Jones SJ. Women faculty: An analysis of their experiences in academic medicine and their coping strategies. *Gend Med* . 2010;7(5):438-450. doi:10.1016/j.genm.2010.09.006

49. Misra J, Lundquist JH, Templer A. Gender, Work Time, and Care Responsibilities Among Faculty1: Gender, Work Time, and Care Responsibilities Among Faculty. *Sociol Forum* . 2012;27(2):300-323. doi:10.1111/j.1573-7861.2012.01319.x

50. Porter SR. A Closer Look at Faculty Service: What Affects Participation on Committees? *J High Educ* . 2007;78(5):523-541. doi:10.1353/jhe.2007.0027

51. Cleveland JN, Stockdale M, Murphy KR, Gutek BA. *Women and Men in Organizations: Sex and Gender Issues at Work* . Psychology Press; 2000.

52. Ghost Advising. The Chronicle of Higher Education. Published March 4, 2018. Accessed February 11, 2022. https://www.chronicle.com/article/ghost-advising/

53. Chandler D. What women bring to the exercise of leadership. *J Strateg Leadersh* . 2011;3(2):1-12.

54. Ahn JN, Haines EL, Mason MF. Gender Stereotypes and the Coordination of Mnemonic Work within Heterosexual Couples: Romantic Partners Manage their Daily To-Dos. *Sex Roles* . 2017;77(7-8):435-452. doi:10.1007/s11199-017-0743-1

55. Duehr EE, Bono JE. Men, Women, and Managers: Are Stereotypes Finally Changing? *Pers Psychol* . 2006;59(4):815-846. doi:10.1111/j.1744-6570.2006.00055.x

56. Diekman AB, Eagly AH. Stereotypes as Dynamic Constructs: Women and Men of the Past, Present, and Future. *Pers Soc Psychol Bull* . 2000;26(10):1171-1188. doi:10.1177/0146167200262001

57. Bian L, Leslie SJ, Cimpian A. Gender stereotypes about intellectual ability emerge early and influence children's interests. *Science* . 2017;355(6323):389-391. doi:10.1126/science.aah6524

58. Phillips NA, Tannan SC, Kalliainen LK. Understanding and Overcoming Implicit Gender Bias in Plastic Surgery: *Plast Reconstr Surg* . 2016;138(5):1111-1116. doi:10.1097/PRS.0000000000002668

59. Furnas HJ, Garza RM, Li AY, et al. Gender differences in the professional and personal lives of plastic surgeons. *Plast Reconstr Surg* . 2018;142(1):252-264.

60. Rudman LA, Phelan JE. Backlash effects for disconfirming gender stereotypes in organizations. *Res Organ Behav* . 2008;28:61-79. doi:10.1016/j.riob.2008.04.003

61. Rudman LA. Self-Promotion as a Risk Factor for Women: The Costs and Benefits of Counterstereotypical Impression Management. :17.

62. Rudman LA, Glick P. Prescriptive gender stereotypes and backlash toward agentic women. *J Soc Issues* . 2001;57(4):743-762.

63. Brewer A, Osborne M, Mueller AS, O'Connor DM, Dayal A, Arora VM. Who Gets the Benefit of the Doubt? Performance Evaluations, Medical Errors, and the Production of Gender Inequality in Emergency Medical Education.*Am Sociol Rev* . 2020;85(2):247-270. doi:10.1177/0003122420907066

64. Jones RD, Griffith KA, Ubel PA, Stewart A, Jagsi R. A Mixed-Methods Investigation of the Motivations, Goals, and Aspirations of Male and Female Academic Medical Faculty: *Acad Med* . 2016;91(8):1089-1097. doi:10.1097/ACM.0000000000001244

65. Torrance JS, Wincenciak J, Hahn AC, DeBruine LM, Jones BC. The Relative Contributions of Facial Shape and Surface Information to Perceptions of Attractiveness and Dominance. Fink B, ed. *PLoS ONE* . 2014;9(10):e104415. doi:10.1371/journal.pone.0104415

66. News MGH, Affairs P. Women less assertive than men in large classes, study finds. Harvard Gazette. Published January 21, 2022. Accessed February 11, 2022. https://news.harvard.edu/gazette/story/2022/01/women-physicians-less-vocal-than-men-in-large-classroom-setting/

67. Glick P, Zion C, Nelson C. What Mediates Sex Discrimination in Hiring Decisions? *J Pers Soc Psychol* . 1988;55:178-186. doi:10.1037/0022-3514.55.2.178

68. Dayal A, O'Connor DM, Qadri U, Arora VM. Comparison of Male vs Female Resident Milestone Evaluations by Faculty During Emergency Medicine Residency Training. *JAMA Intern Med* . 2017;177(5):651-657. doi:10.1001/jamainternmed.2016.9616

69. Handley IM, Brown ER, Moss-Racusin CA, Smith JL. Quality of evidence revealing subtle gender biases in science is in the eye of the beholder.*Proc Natl Acad Sci* . 2015;112(43):13201-13206. doi:10.1073/pnas.1510649112

70. Rowley C, Lee JSK, Lan LL. Why Women Say No to Corporate Boards and What Can Be Done: "Ornamental Directors" in Asia. *J Manag Inq* . 2015;24(2):205-207. doi:10.1177/1056492614546263

71. Grosse N, Riener G, Dertwinkel-Kalt M. Explaining Gender Differences in Competitiveness: Testing a Theory on Gender-Task Stereotypes.*SSRN Electron J* . Published online 2014. doi:10.2139/ssrn.2551206

72. Dent EB, Goldberg SG. Challenging "Resistance to Change." *J Appl Behav Sci* . 1999;35(1):25-41. doi:10.1177/0021886399351003

73. Ford JD, Ford LW. Stop Blaming Resistance to Change and Start Using It. *Organ Dyn* . 2010;39(1):24-36. doi:10.1016/j.orgdyn.2009.10.002

74. Ford JD, Ford LW, D'Amelio A. Resistance to Change: The Rest of the Story. *Acad Manage Rev* . 2008;33(2):362-377. doi:10.2307/20159402

75. Baron J, Ritov I. Omission bias, individual differences, and normality. *Organ Behav Hum Decis Process* . 2004;94(2):74-85. doi:10.1016/j.obhdp.2004.03.003

76. Ritov I, Baron J. Status-quo and omission biases. *J Risk Uncertain* . 1992;5(1). doi:10.1007/BF00208786

77. Heilman ME, Okimoto TG. Why are women penalized for success at male tasks?: The implied communality deficit. *J Appl Psychol* . 2007;92(1):81-92. doi:10.1037/0021-9010.92.1.81

78. Oswald DL, Chapleau KM. Selective self-stereotyping and women's self-esteem maintenance. *Personal Individ Differ* . 2010;49(8):918-922. doi:10.1016/j.paid.2010.07.030

79. Fassiotto M, Hamel EO, Ku M, et al. Women in Academic Medicine: Measuring Stereotype Threat Among Junior Faculty. *J Womens Health* . 2016;25(3):292-298. doi:10.1089/jwh.2015.5380

80. Cadinu M, Maass A, Rosabianca A, Kiesner J. Why Do Women Underperform Under Stereotype Threat?: Evidence for the Role of Negative Thinking. *Psychol Sci* . 2005;16(7):572-578. doi:10.1111/j.0956-7976.2005.01577.x

81. Spencer SJ, Steele CM, Quinn DM. Stereotype Threat and Women's Math Performance. *J Exp Soc Psychol* . 1999;35(1):4-28. doi:10.1006/jesp.1998.1373

82. Edwards CW. Overcoming Imposter Syndrome and Stereotype Threat: Reconceptualizing the Definition of a Scholar. *Commun Stoch Anal* . 2019;18(1). doi:10.31390/taboo.18.1.03

83. Mullangi S, Jagsi R. Imposter Syndrome: Treat the Cause, Not the Symptom. *JAMA* . 2019;322(5):403-404. doi:10.1001/jama.2019.9788

84. Gentile A, Boca S, Giammusso I. 'You play like a Woman!' Effects of gender stereotype threat on Women's performance in physical and sport activities: A meta-analysis. *Psychol Sport Exerc* . 2018;39:95-103. doi:10.1016/j.psychsport.2018.07.013

85. Hoyt CL, Murphy SE. Managing to clear the air: Stereotype threat, women, and leadership. *Leadersh Q* . 2016;27(3):387-399. doi:10.1016/j.leaqua.2015.11.002

86. Bergeron DM, Block CJ, Echtenkamp A. Disabling the Able: Stereotype Threat and Women's Work Performance. *Hum Perform* . 2006;19(2):133-158. doi:10.1207/s15327043hup1902_3

87. von Hippel C, Wiryakusuma C, Bowden J, Shochet M. Stereotype Threat and Female Communication Styles. *Pers Soc Psychol Bull* . 2011;37(10):1312-1324. doi:10.1177/0146167211410439

88. Kalokerinos EK, Kjelsaas K, Bennetts S, von Hippel C. Men in pink collars: Stereotype threat and disengagement among male teachers and child protection workers. *Eur J Soc Psychol* . 2017;47(5):553-565. doi:10.1002/ejsp.2246

89. Koenig AM, Eagly AH. Stereotype Threat in Men on a Test of Social Sensitivity. *Sex Roles* . 2005;52(7-8):489-496. doi:10.1007/s11199-005-3714-x

90. Kray LJ, Thompson L, Galinsky A. Battle of the sexes: Gender stereotype confirmation and reactance in negotiations. Paper presented at the Academy of Management Meetings. Published online 2000.

91. Kray LJ, Galinsky AD, Thompson L. Reversing the Gender Gap in Negotiations: An Exploration of Stereotype Regeneration. *Organ Behav Hum Decis Process* . 2002;87(2):386-410. doi:10.1006/obhd.2001.2979

92. Malisch JL, Harris BN, Sherrer SM, et al. Reply to Arora et al.: Concerns and considerations about using the CV as an equity tool.*Proc Natl Acad Sci* . 2020;117(39):24033-24034. doi:10.1073/pnas.2015932117

Supplemental Digital Appendix 1 . Supplemental Digital Content (Appendix 1) outlines some ways that people in various leadership positions can support women and other underrepresented groups. We have grouped the suggestions by leadership roles that are common to the academic clinical environment. We then follow each recommendation with a worked example, or continuance of the vignette, to demonstrate how allies can take action. Email lead author to request this document while this paper is in preprint.