

# COVID-19 Threatens Progress Toward Gender Equity Within Academic Medicine

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## Abstract

Women remain underrepresented within academic medicine despite past and present efforts to promote gender equity. The authors discuss how the COVID-19 pandemic could stymie progress toward gender parity within the biomedical workforce and limit the retention and advancement of women in science and medicine. Women faculty face distinct challenges as they navigate the impact of shelter-in-place and social distancing on work and home life. An unequal division of household labor and family care between men and women means women faculty are vulnerable to inequities that may develop in the workplace as they strive to maintain academic productivity and professional development without adequate assistance with domestic tasks

and family care. Emerging data suggest that gender differences in academic productivity may be forthcoming as a direct result of the pandemic. Existing gender inequities in professional visibility, networking, and collaboration may be exacerbated as activities transition from in-person to virtual environments and create new barriers to advancement. Meanwhile, initiatives designed to promote gender equity within academic medicine may lose key funding due to the economic impact of COVID-19 on higher education. To ensure that the gender gap within academic medicine does not widen, the authors call upon academic leaders and the broader biomedical community to support women faculty through deliberate actions

that promote gender equity, diversity, and inclusion. The authors provide several recommendations, including faculty needs assessments; review of gender bias within tenure-clock-extension offers; more opportunities for mentorship, sponsorship, and professional recognition; and financial commitments to support equity initiatives. Leadership for these efforts should be at the institutional and departmental levels, and leaders should ensure a gender balance on task forces and committees to avoid overburdening women faculty with additional service work. Together, these strategies will contribute to the development of a more equitable workforce capable of transformative medical discovery and care.

**W**ithin the past 5 years alone, calls for gender equity within scientific and medical fields have resounded throughout academic institutions. With online movements such as #MeTooSTEM and #TimesUpHealthcare; scholarly publications; op-eds; and a 2018 report by the National Academies of Sciences, Engineering, and Medicine on sexual harassment in academia,<sup>1</sup> gender equity became an increasingly urgent academic priority. But now, in 2020, as the COVID-19 pandemic upends our personal and professional lives, any progress that has been made toward closing the gender gap in academic medicine will not only stall but ultimately regress at a time when it is perhaps

needed the most. The fact remains that women are underrepresented in the biomedical workforce, as women only account for 24% of full professors<sup>2</sup> and 22% of department chairs.<sup>3</sup> While these gender disparities are likely due in part to structural factors and systemic factors including gendered expectations, occupational segregation, biases in tenure and promotion practices, and inequities in research funding,<sup>4</sup> the pandemic represents a new threat to gender equity in academia. In this article, we posit that women in academic medicine will face additional barriers and challenges to advancement as a direct result of the COVID-19 pandemic, and we provide solutions to mitigate these effects.

requirements are lifted. Studies have shown that female physicians and scientists carry a disproportionate share of domestic responsibilities compared with their male peers and are more likely to take time off when children are sick or there are other interruptions in family-care arrangements.<sup>5,6</sup> Unlike short-term tasks such as accompanying an aging parent to a doctor's appointment or attending a parent-teacher conference, family-care disruptions due to COVID-19 will likely have a profound and lasting impact on women in the biomedical sciences. As parents, partners, and families adjust to the merger of life, lab, and lecture hall, explicit conversations surrounding the equitable distribution of household and family-care tasks are necessary.

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Even in the midst of a pandemic, the academic markers of success hold fast and true. Data need to be analyzed, manuscripts penned, and grants submitted. But as work and home life blend into one with the confluence of shelter-in-place orders and children at home due to school and daycare closures, women in science and medicine may lag behind male peers in academic productivity long after social isolation

## Gender Disparities in Productivity During the Pandemic

Early data from the pandemic show the gender gap appears to be widening. Editors of academic journals recently shared anecdotal evidence that suggests fewer female authors submitted articles during the first 6 weeks of the COVID-19

pandemic.<sup>7</sup> Within the biomedical sciences, Vincent-Lamarre and colleagues found that preprint submissions to medRxiv from female first authors decreased from 36% of all submissions in December 2019 to 20% in April 2020.<sup>8</sup> In stark contrast, editors from the journal *Comparative Political Studies* compared submission data between April 2019 and April 2020 and found that submissions from male authors increased by 50% while submissions from female authors remained the same.<sup>7</sup> Yet, the editors of the *American Journal of Political Science* compared submissions from January 2017 through October 2019 and March 2020 through April 2020 and found no gender gap in authorship.<sup>9</sup> Given the nuances in academic publishing that exist across fields, it will be critical to track these trends in the basic, translational, and clinical biosciences to assess the impact of COVID-19 on academic medicine. It is important to note that if manuscript submission rates during the COVID-19 pandemic vary by gender, the same might hold true for grant submissions, because grants also require significant time to write. Disparities in grant funding are already a problem for women. On average, early-career women who are first-time principal investigators receive approximately \$40,000 less than men in National Institutes of Health funding for their first grant.<sup>4</sup> Decreased grant submission rates, compounded by gender-based funding discrepancies, have the potential to cause significant setbacks in productivity. Our concerns are echoed by Malisch and colleagues, who also anticipate a quantifiable decrease in the productivity of women faculty due to the COVID-19 pandemic.<sup>10</sup> Within the next 2 to 3 years, bibliometric analyses and review of publicly accessible funding databases will ultimately be able to confirm if this was indeed the case.

In an attempt to mitigate the COVID-19-related reductions in productivity, many academic institutions are now offering tenure-clock extensions to faculty members. Paradoxically, a study that examined the use of tenure-clock extensions for parental leave found striking differences by gender.<sup>11</sup> Men who used the extension achieved tenure at higher rates than women, whose rates significantly decreased, effectively establishing a gender-based prize and penalty system. The tenure-clock-extension system rewards

men who use the extension while simultaneously penalizing women by denying them tenure. If the same holds true for COVID-19-related extensions, progress made toward gender equity in the professoriate and among leadership will be stymied. Particular care must be taken, at both the institutional and departmental levels, to ensure that tenure and promotion committees recognize the potential for the differential use of extensions on the basis of gender and the impact of such an approach. Committees should also acknowledge the difficult circumstances junior faculty are expected to navigate during this time.

### Navigating Professional Development in a Pandemic

Even for women who are not on the tenure track, networking, collaboration, and the ability to present research findings are all important contributors to success in academia that are threatened by the pandemic. The cancellation of in-person conferences or symposia can limit key opportunities for professional recognition and may be particularly deleterious for women who are already minoritized at academic medical meetings (i.e., not only are fewer women than men present, but the status of the women is also lower than that of the men).<sup>12-15</sup> As conferences and symposia transition to virtual formats, it remains essential that organizers ensure that the number of male and female invited speakers and panelists is equal.<sup>16</sup> Online meetings have posed a new series of challenges for women, as anecdotal evidence suggests that they may be talked over or interrupted more frequently in this virtual format.<sup>17</sup> We encourage meeting organizers to moderate these virtual discussions carefully and use tools such as virtual hand raising or chat-based questions so that all participants' voices and perspectives are heard and acknowledged.

Lack of child or family care is a well-noted barrier to conference attendance, particularly for women.<sup>18-20</sup> At first glance, this problem appears to be mitigated by the fact that attendees no longer need to travel to participate in meetings, yet women may be less able to fully engage in multihour or multiday virtual events because of the increased demands of child and family care as a direct result of COVID-19.<sup>21-23</sup> National conferences

and symposia also facilitate networking and collaboration, which often occur in spaces adjacent to the meeting itself such as hallways, cafes, or hotel lobbies. Virtual meeting formats limit these types of informal networking opportunities, and women may be less likely to be invited to collaborate in the COVID-19 era if they are perceived as too busy with home responsibilities. As it stands, women already receive fewer invitations to pen commentaries in medical journals<sup>24</sup> or to serve as peer reviewers.<sup>25</sup> One possible solution to limitations on women's ability to participate in research endeavors and engage in other scholarly work is deliberate and equitable sponsorship by senior faculty to ensure that women do have these opportunities. Women may find such sponsors among mentors or leaders at their organizations or through national collaboratives that seek to advance gender equity. These interactions can be bolstered at the departmental level through the establishment of mentorship programs that aim to support the retention and advancement of junior women faculty<sup>26</sup> and may benefit those who use COVID-19-based tenure-clock extensions.

### Resources for Reopening

Reopening academic institutions during the COVID-19 pandemic will come with its own distinct set of challenges. Instead of taking a business-as-usual approach, we must ensure that women faculty have the necessary tools and resources to be successful in this new environment. The nature of these tools and resources may vary by laboratory, department, division, or institution but may broadly include flexible work arrangements, modifications in teaching or clinical responsibilities, or additional access to child or family care. To determine the strategies that will best support women faculty, institutions should consider implementing a faculty needs assessment surrounding COVID-19-based disruptions and changes to the workplace. This step will aid data-driven decision making and provide greater insight into institutional and/or departmental issues.

However, we caution leaders as they create working groups, task forces, and other committees designed to address COVID-19-related issues. Women and minoritized individuals (i.e., those who have a lower status than the dominant

group) within academia are often tasked with nonacademic service-related activities,<sup>27</sup> and we encourage leaders to carefully consider the gender balance of these groups to avoid overtaxing women faculty, especially Black women, at this critical time as we fight the intersecting pandemics of COVID-19 and racism.<sup>28</sup>

In some cases, supplementary research funding may be required to restart laboratory work. Particular care should be taken to ensure transparent and equitable disbursement of departmental or institutional funds used for these purposes. But a stark reality has emerged in which many institutions are now facing serious budget crises as a result of COVID-19 that may limit available funds. Projects and programs related to gender equity or diversity are particularly vulnerable and may be abandoned to meet operational demands. While this may seem like a reasonable sacrifice in the short term, it will have long-term implications and hinder the advancement of gender equity and creation of inclusive environments within the professoriate. It is imperative that institutions continue to support these efforts, as well as others, related to diversity, equity, and inclusion within the biomedical sciences, because any financial gains made in the short term will be negligible compared with the future loss of cultural and intellectual capital if these efforts do not persist. Ultimately, the advancement of science and clinical care may be hindered.

Thus, we cannot pause work toward gender equity even as the biomedical community faces innumerable challenges unknown to us in recent history. The COVID-19 pandemic has the capacity to catalyze significant sociopolitical and cultural change from which academic medicine is not exempt. Rather than potentially disadvantaging women in the biomedical community, the pandemic can bring awareness and implementation of a more balanced domestic burden, academic support, and sustained institutional efforts surrounding gender equity. The pandemic can provide an opportunity to strengthen the career paths of our female physicians and researchers, thus reinforcing their ability to advance the health of women and men in our broader community. Let us use this momentum to build a stronger and more equitable workforce that supports rigorous science and data-

driven discovery and has the capacity to transform health care for all.

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## Cover Art

### Artist's Statement: Behind the Same Mask

My hands shake as I try to appear calm passing the endotracheal tube through copious secretions and glimpse an oxygen saturation reading of 15% on the monitor. I look down at the ashen face of the patient before me who seemed fine just hours ago.

Standing above this patient, with both our faces barely visible above our masks, I see we are not that different. Despite differences in language, culture, eye shape, nose size, and education levels, we wear the same mask. Behind our masks, it is more difficult to register those who are “not like me.”

By the end of March 2020, it had become quite clear to me and many others that COVID-19 does not affect all people equally, disproportionately affecting people of color, immigrants, and patients of low socioeconomic status. At the time, the great majority of the patients I had intubated with COVID-19 were people of color, many of whom did not speak English as a first language, with a similar pattern among the countless other COVID-19 patients I had treated. Being from an immigrant family myself, I questioned the inequities, as well as the cultural, historical, and personal stories that brought us both to the same room, wearing the same mask, and afraid of the same virus, but with very different stories of how we got there.



Behind the Same Mask

In my piece *Behind the Same Mask*, on the cover of this issue, I used graphite and aquarelle pencil to draw the elderly patient on the left—an anonymized representation of 2 non-English-speaking patients with severe COVID-19 illness I had placed on ventilators in the emergency room. Long after my shift ended, they kept me awake at night, rechecking their medical records and analyzing the critical care team's clinical notes. I wondered if I had done the right thing, given the right medications, and questioned the reasons for which they had such poor outcomes compared with other patients.

On the right, I drew a portrait of myself after my shifts. My mask is precious, serving more to hide my expression

of terror and vulnerability than as protection from the virus. My fears and doubts of my own sufficiency in doing my job as an academic emergency medicine doctor, aiming to provide equitable care as a clinician and modeling those behaviors for training doctors and students, have weighed constantly on my mind. In sharing my vulnerability with others, especially trainees, I wonder if these lessons are more important than the extensive technical skills acquired in our work.

I drew this piece using pointillism technique—a technique that relies on the ability of the eye and mind of the viewer to blend a set of colored dots into a fuller range of tones. It is therefore impossible to see the whole of a person without stepping back and looking away from individual marks made by the pencil. The process itself of taking pen repeatedly to paper was for me a kind of meditation, allowing me to see the fine lines, iris pigments, and facial expressions that are shared between 2 people. It is this empathy that I hope to impart to my colleagues, patients, and trainees.

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