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PERSPECTIVE

Barriers to success for female physicians in academic medicine

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Despite the fact that women now comprise half of the medical student and resident populations, women remain underrepresented in prominent leadership positions in academia. Women are challenging themselves to live up to the expectations of their professional peers, society, and their patients in order to 'have it all.' These pressures are leading to professional and personal dissatisfaction. Is this a problem that will resolve itself as the younger generations of female physicians graduate into faculty positions, or does it require more attention from both male and female medical professionals?

Keywords: *gender gap*; *academic productivity*; *female leadership*; *mentorship*; *work-life balance*

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The inclusion of women in the medical field, shockingly, began as a prank. In 1847, Dr. Elizabeth Blackwell was accepted to Geneva Medical College, not based on her scholarly merit, but rather the 150 male students assumed that her application was a joke and went along with the charade, voting unanimously for her acceptance. They were certainly surprised when she arrived on campus changing the course of medicine forever (1).

Women have become established members of the medical community comprising half of the medical student and residency populations. Despite this strength in numbers, women remain grossly underrepresented in academic leadership positions. Females comprise only 37% of full-time academic physicians. As of 2012, only 13% of full professors, 32% of associate professors, and 43% of assistant professors are female. In the past, this discrepancy could be explained by the smaller percentage of female students; however, this issue has not corrected itself despite the percentage of female residents increasing from 39 to 46% over the past 10 years (2). An exploration of the barriers preventing female physicians from advancement of their academic careers is fully warranted.

Young women are being encouraged to strive against all odds to achieve both their professional and personal goals; however, these aims can often be at odds with each other. It is difficult to weave the traditional household and parenting duties expected of women into the hectic schedule of a medical professional. In a recent study that interviewed university hospital department chairs in a variety of medical specialties, a large majority (78%) agreed that the demands of the household were a barrier to the advancement of women in medicine. Many female physicians must '[delay their] rewards ... by not getting married and/or having children while in college or in medical school or even residency' in order to pursue their chosen careers (3). On average, female physicians have their first child 7.4 years later than the general population (4).

This delay may come at a significant cost. A woman's ability to conceive begins to decline in her early thirties with the most rapid decline seen after age 37. In a nationwide survey of young female physicians, it was found that a large majority, (80%), had attempted to conceive. Luckily, most were successful with 77% giving birth to at least one child; however, a quarter of respondents were unsuccessful and received an official diagnosis of infertility (4). This is significantly higher than the rate of infertility in the general population, (11%) (5). Despite their medical backgrounds, 44% of infertile female physicians were surprised by this diagnosis. Many of these women expressed regret not only for delaying the conception process, but also for their choice of medical specialty and even for choosing a career in medicine (4). Failure to achieve personal goals is leading to job dissatisfaction, proving how inseparable female physicians' personal and professional lives can be.

Women, who successfully overcome the physiologic barriers of child bearing, encounter new barriers in child rearing. Despite the growing acceptance of the more modern perspective of shared domestic responsibility

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between husbands and wives, married female physicians with children spend 8.5 h more per week on parenting and household duties. This correlates to their shorter work week, which is 7 h less than those of married male physicians with children. One explanation for this disparity is that 85.6% of women's spouses work full-time versus only 44.9% of men's spouses. Unlike most professional women, many men have extra support at home to tend to issues, such as having a sick child (6).

For female physicians struggling to balance their responsibilities at home and in the hospital, there are options. For example, University of Pennsylvania's Perelman School of Medicine offers its faculty both a reduction in duties and an extension of the probationary period. The reduction in duties serves as a part-time employment option for up to 6 years for reasons such as personal illness or injury, and caring for children or aging and ill family members. The extension of the probationary period delays the time toward mandatory promotion review for up to 3 years for faculty that have either given birth or adopted a child, have suffered a personal injury or illness, or who must care for an ill family member. Significantly more female faculty than male opt for either a reduction in duties (women 2.5% vs. men 0.2%), or an extension of the probationary period (women 34% vs. men 20%) (7). In an examination of junior faculty at University of Pennsylvania by Speck et al., it was found that taking an extension of the probationary period is significantly protective against quitting, whereas opting for part-time employment significantly increases one's risk of departing academic medicine entirely (7). For many female physicians, a reduction in work hours maybe the first indication that a career in academic medicine is too burdensome and inflexible to accommodate their familial responsibilities. Female physicians, who want successful academic careers, may be better off delaying their mandatory review rather than decreasing their work hours. Although they would have to manage a full-time schedule, they would be temporarily relieved from the pressures of academia to produce publishable research.

Even though part-time employment and extension of one's probationary period provide flexibility, these options can hinder a female physician's productivity, thus preventing academic advancement. In order to better understand the disparity between sexes with regard to academic productivity and career advancement, a large cross-sectional survey of 4,285 full-time pediatricians (64.7% male and 35.3% female) representing 126 academic pediatric departments was completed. First, and unsurprisingly, it confirmed that male faculty work, on average, significantly more hours per week than their female counterparts (64.4 h vs. 60.5 h per week, respectively). When inspecting this difference, it was found that female professors reported spending a significantly greater proportion of their time teaching and in direct patient care (women 40.1 h per week vs. men 34.9 h per week) and less time engaging in research (women 15.0 h per week vs. men 20.4 h per week). This difference in research activity is further reflected in differences in the number of first and last author publications, book chapters, named lectures, grants, and principal and co-principal investigator positions. Using such achievements as standards to measure productivity reveals that less than 20% of highly productive academic pediatricians are female, despite pediatrics being a predominately female field (8).

It has been similarly reported that females are more likely to opt for the clinician-educator track (CET), in which the responsibilities of faculty exist primarily in patient care and medical education, rather than the traditional tenure track (TTT), in which faculty are expected to publish high-quality data in peer-reviewed medical and scientific journals. Out of the 83 medical schools which offer a CET track, 77% reported a higher proportion of full-time female professors on this alternative, less demanding path. In contrast, out of 102 medical schools that offer the traditional tenure path, 80% have a higher proportion of male faculty on the TTT (9).

Although CET provides the much needed flexibility for the overworked physician, many participants are concerned that their contributions are not given equal recognition compared with TTT members. Promotion chairs claim to value the clinical and teaching skills of clinician-educators, but tenured faculty are twice as likely to be promoted as CET faculty. Dedicating more than 30% of a workday to research greatly increases a physician's chance of promotion, as does spending less than 5% of a workday as an educator in clinic (10). Given these statistics, it's not surprising that faculty on the CET track, especially women, are more likely to leave their university positions and seek employment outside of academic medicine because of job dissatisfaction (7).

The barriers of female advancement in academic medicine, mentioned thus far, emphasize the importance of academic productivity. Female physicians who do not have the time to engage in research either because of family, educational, or clinical responsibilities are less likely to be promoted. This is further proven by adjusting for differences of authorships, grants, investigator positions, allocation of time between research and clinic work, and institutional support for research, revealing that male and female faculty members achieve similar leadership positions in academic medicine (8).

An additional barrier, which is less quantifiable, is the lack of quality mentorship for female physicians. Role models in academic medicine not only provide guidance, but their presence also affects promotion rates. The existence of 'powerful women in very visible positions ... is like a magnet' attracting females of similar caliber and also paving the way for younger female trainees (3). This was demonstrated in a study of female leadership in

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emergency medicine residency programs by Cheng et al. Out of 133 university emergency medicine departments, 7.5% have a female chairman. Compared with the majority of programs led by male chairs, these programs have a higher percentage of female faculty, (22% vs. 31%). The presence of female department chairs also correlates to a significantly higher percentage of female residency program directors, (50% vs. 12%) (11). Thus, female physicians are both more likely to be employed and promoted in academic centers that are led by a female chairman.

This correlation of female leadership and female promotion is related to mentorship. More than 75% of medical schools have designated mentoring for their female students (2); however, multiple studies have recognized a difference in the quality of mentorship between the sexes. Male physicians report a higher rate of satisfaction with respect to the quality of mentorship (male 53% vs. female 42.5%) (8). There is also a difference in the quality of mentorship for CET faculty, a predominately female cohort, as compared with the TTT faculty, a mainly male population (12). Mentors are not only associated with job satisfaction but also, most importantly, with career advancement. The presence of a mentor doubles a physicians's chance of promotion (10). Without a significant amount of women in leadership positions, young female attendings, residents, and medical students do not have role models to help guide their careers. This further perpetuates the problematic lack of females in academic leadership.

The unanswered question of how to improve the sex disparity in academic medicine remains. This multifaceted issue should be addressed both globally, with an examination of the inflexibility of medicine to provide a satisfactory work-life balance for women, and individually, with each academic institution trying to cultivate a supportive work environment. Because the path to success has been shown to be based on academic productivity, female students and residents should make an effort to involve themselves in research activities early in their careers. It is the responsibility of all physicians of both sexes to mentor young female trainees providing them with valuable leadership and research opportunities. Although this is a sex-based issue, it can only be solved if both male and female leaders in all medical fields work together.

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