

Inequity and Women Physicians: Time to Change Millennia of Societal Beliefs

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ABSTRACT

Gender inequities date back thousands of years, with women expected to be caregivers at home and men expected to be leaders with occupations outside the home. In more recent history, women have trained in various professions, including medicine. Although the number of female physicians has risen consistently over the past several decades and half of US medical students now are women, gender inequities persist and are due, at least in part, to implicit (unconscious) biases held by doctors, other health care professionals, and patients and their families. Implicit biases negatively affect women in their medical careers and contribute to slower advancement, less favorable evaluations, underrepresentation in leadership positions, fewer invited lectures, lower salaries, impostor syndrome, and burnout. Despite efforts to address gender biases, studies in academic medical centers indicate no major change over a 20-year span. Management of implicit gender bias at the organizational level is imperative. Strategies include implicit bias training for doctors and other staff; development of a transparent and equitable compensation plan; and transparent processes for promotion and hiring, mentorship, and sponsorship of women physicians for grand rounds, lectureships, committees, leadership positions, and awards. Achievement of equity for women physicians requires effort and ultimately a culture change. Gender equity in the medical profession will lead to improved physician wellness, retention of women physicians, and improved access to and quality of health care.

HISTORICAL OBSERVATIONS

Gender inequity and bias date back thousands of years to long-standing societal beliefs that men are superior to women in strength and intellect and thus more suited for work outside the home, and that women exist for the purpose of bearing children and raising a family. In this social construct, men are seen as powerful and strong leaders, whereas women are regarded as warm, nurturing, and unsuited for leadership.

Archaeologic findings show evidence of gender role differences more than 5000 years ago in the fourth millennium BC.¹ More men than women had evidence of inflicted violence likely due to their roles as warriors, and rock art shows gender differences: more male than female figures are depicted as archers. Female figures are generally not shown in hunting or fighting scenes. These findings support a societal role for men distinct from that of women, and the emergence of the powerful male stereotype.

These early gender-based roles contributed to social complexity. In medieval times, the famous trial in 1431 of

Joan of Arc was motivated by political and religious considerations, but Joan's perceived gender transgressions (dressing as a male, having a male haircut, and leading soldiers in battle) were also accusations that had an important role in condemning her (Figure 1).²

During the ensuing centuries, few women had the opportunity or were allowed to participate in the workforce, greatly limiting possibilities for leadership roles. Women were impeded by limited access to schools and higher education, company policies against hiring married women, restrictive federal and state policies, and state work bans for married women.³ Educational opportunities for women in the US began to improve in the 1820s with the establishment of women seminaries and academies and in the 1860s and 1870s with the founding of colleges for women.⁴ However, the higher education of women was justified as a means of preparing women to educate their children.⁴ State work ban laws for married women began in the late 19th century. Before the Great Depression, 9 states had laws that prohibited married women from working, and this number increased to 26 states in the 1930s.³

Limited education and workforce opportunities, including in the professions,⁴ reflected in part the societal expectation of women as mothers and caregivers with little interest in roles outside the home.⁴ Medicine, like other professions, has traditionally been dominated by men and structured to accommodate them. When Elizabeth Blackwell, the first woman physician in the US, attended medical school in the 1840s, she shocked the community of Geneva, New York; women stared at her and the wives of doctors refused to talk to her.⁵ She was excluded from some of the anatomy demonstrations for her class because of her sex. Furthermore, Dr Blackwell had difficulty finding training after graduation, despite having graduated at the top of her class. This was a common problem for other women medical school graduates later in the 1800s.

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Figure 1. The painting by Louis Maurice Boutet de Monvel, entitled "The Trial of Joan of Arc (Joan of Arc Series: VI)." Courtesy National Gallery of Art, Washington. The painting is from the National Gallery collection and accessible at https://images.nga.gov/en/search/do_quick_search.html?q=Joan+of+Arc+trial.

When the US entered World War I in 1917, women doctors who applied for commissioned service in the army were rejected on account of their sex. Dr Rosalie Slaughter Morton (founding Chair of the War Service Committee of the American Medical Women's Association), Dr Esther Pohl Lovejoy, and others, however, refused to stay "home." They organized American Women's Hospitals, which provided funding for ambulances, hospitals, and treatment centers in Europe, where women doctors served as civilians both during and after the war.⁶

In the first half of the 20th century, the number of women physicians remained limited. Often only a handful were accepted at each medical school because of established quotas. When Dr Helen Brooke Taussig, expressed her desire to study medicine in 1921, her father encouraged her to study public health, which he considered a more appropriate career for women.⁷ In Dr Taussig's interview at Harvard University, the Dean of Public Health was quoted as saying, "[W]e will permit women to study but we will not admit them as candidates for degrees."⁷ So instead, she studied anatomy at Boston University School of Medicine and applied to Johns Hopkins Medical School, which accepted more women than other schools did. Admitted to the class of 1923 as 1 of 10 women in a class of 70, Dr Taussig became a renowned pediatric cardiologist, co-developing (with Dr Arthur Blalock and Vivian Leigh) the operation that saved babies with "blue baby syndrome," which was usually caused by a congenital heart defect such as Tetralogy of Fallot. She was later instrumental in establishing thalidomide as a teratogen causing congenital limb deformities.

By the latter part of the 20th century, the numbers of women studying medicine began to improve. In 1965 to 1966, women comprised 9.3% of matriculating students in medical schools.⁸ After the passage of Title IX in 1972 (which prohibited discrimination based on sex in all federally funded educational programs or activities), the number of matriculating women medical students increased from 11% in the academic year 1970 to 1971, to 29% in 1980 to 1981, 38.5% in 1990 to 1991, and 46% in 2000 to 2001. In 2019, women comprised, for the first time, more than 50% of all medical student in the US.⁹ Achieving a robust pipeline of women entering medicine has been a major achievement. Yet despite these gains, women in medicine still find lack of acceptance, marginalization, and differential treatment compared with men, largely due to gender bias. In addition, recruitment and acceptance of women in some areas of medicine, such as general surgery and surgery subspecialties, continue to be an issue.¹⁰ There also remain society's gendered expectations of women regarding care of children and duties at home; these expectations can be at odds with a health care system whose framework and compensation models were traditionally developed by and for men, despite the increased influx of women into the profession.

In addition to biological sex, factors that contribute to inequality for women in the medical profession include race, ethnicity, sexual orientation, and nonbinary gender. One of the first examples was the experience of Dr Rebecca Lee Davis Crumpler, the first black woman physician, who applied to medical school at a time when all women doctors in the US (300 of the approximately 55,000 physicians in

1860) were white.¹¹ After graduation, Dr Crumpler practiced in the post-Civil War South. Although appreciated by her patients, she was treated without respect by her male colleagues and by pharmacists, who did not want to fill her prescriptions.¹² The issues of intersectionality for women physicians continue to this day.

PREVALENCE OF GENDER BIAS IN ACADEMIC MEDICINE

Similar studies in 1995 and 2014 demonstrated that gender bias in academic medical settings affects women more than men and substantially affects women's careers. Regrettably, the prevalence of gender bias did not change during the interval of 20 years between these studies.^{13,14} The earlier study, which surveyed 1979 faculty from 24 medical schools,¹³ found that gender bias affecting professional advancement was experienced by 60% of women and 9% of men. Similarly, the 2014 survey of 1066 physicians who were recipients of career development awards found that 66% of women and about 10% of men perceived personal gender bias.¹⁴

IMPACT OF GENDER BIAS ON WOMEN PHYSICIANS

Biases based on gendered stereotypes can negatively affect the careers of women in science and medicine.^{15,16} Biases that are explicit and recognized by the individual are easier to identify and fortunately are becoming less common. More challenging are implicit or unconscious biases, which can affect interactions and decisions without awareness.¹⁷ A systematic review of 42 studies that evaluated biases among health care professionals, including more than 12,000 physicians, found evidence in 35 studies for implicit biases, largely based on race-ethnicity and sex, which were similar to what is seen in the general population.¹⁷ As implicit biases are largely unknown to the person holding them, they can be much harder to identify. Both men and women can harbor implicit gender biases against women.^{18,19} A study 20 years ago found that women viewed self-promoting women as competent but less socially attractive and thus would prefer to hire men. In contrast, men viewed self-promoting women favorably and were willing to hire them.¹⁸ A more recent study, in 2007, found that women and men had a negative bias toward women who were successful in male-associated jobs.¹⁹ However, this negative reaction was diminished when the women seeking employment conformed to societal expectations in their roles as mothers.

Numerous studies have shown that implicit bias negatively affects women in academic medical careers and may limit opportunities or hinder professional advancement^{15,20} (see Sidebar: Negative Impact of Gender Bias on Women Physicians). Recent data from the Association of American Medical Colleges show that women comprise 59% of faculty at the instructor level, 47% at assistant professor, 38% at associate professor, and 25% at full professor.²¹ The slower

advancement of women in academic medicine, with fewer women at each successive level of career promotion, may be related to gender bias in the promotion process itself or in the various steps required for promotion. For example, professional medical societies give more awards to men,²² and women receive fewer invitations to speak at grand rounds.²³ In 2015, women constituted 34% of the physician workforce, although only 15% of presidents of professional medical societies were women.²⁴ Gender bias also affects how people refer to physicians and other professionals. Both men and women scientists are more likely to call men, but not women, by their surname, including introductions for grand rounds²⁵ or other important lectures. These differences in forms of address were found to reinforce the perception that men are leaders in the field and more deserving of awards, recognition, and promotion.²⁶

Analysis of physician-patient communication shows that women doctors in general have different communication styles than their male colleagues.²⁷ Women physicians are reported to be caring and empathic, and ask more psychosocial questions, speak more positively, and spend more time with each patient.^{27,28} Patients, however, have gendered expectations of physicians that affect the way they perceive communication styles in female and male doctors.²⁹ Physicians with the same behavior may receive different patient ratings based on their sex, with women doctors not always receiving a good rating for patient-centered behavior.²⁹ In addition, even if the communication of women physicians is scored highly by patients, this style of providing more "warmth" can also come with lower scores in the area of competence,³⁰ reflecting the societal view of women as nurturers but not necessarily as knowledgeable physicians. Given the increased emphasis on assessing the metrics of patient experiences, negative patient satisfaction

Negative Impact of Gender Bias on Women Physicians

Career Advancement

- Underrepresentation in leadership positions^{15,20,23,24}
- Slower academic promotion³⁷
- Fewer professional awards²²
- Fewer grand rounds or national lectures^{23,26}
- Attrition⁴⁵

Financial Considerations

- Less research funding⁴⁶
- Lower salaries^{37,39}

Psychological challenges

- Harassment^{13,14,43}
- Impostor Syndrome^{47,48}
- Burnout^{32,34,47}

ratings could potentially hinder the advancement of women in the medical profession.²⁹

Women physicians frequently adopt the empathic style of interaction (the “mother transference”) because of their tendency to be more nurturing, which may be a learned trait (related to social or cultural influences), as well as an innate biological characteristic.³¹ In the Physician Work Life Study of 2326 physicians (32% women), women doctors reported having more psychosocially complex patients, fewer resources, and the need to spend more time with their patients to provide high-quality care.³² If health care models do not provide extra time to interact with these patients, this excessive workload can lead to long hours and burnout.³³ As noted by Dahlke et al³⁴ in 2018 when discussing female surgeons, the “motherly approach to patient care is likely to be best for the patient, but perhaps could be personally “draining” to female [surgeons] over time.”

ASSESSMENT OF BIAS

Implicit (unconscious) gender bias can be assessed by the Implicit Association Test,³⁵ which measures the time it takes for an individual to associate specific words, such as *woman*, *man*, *home*, *career*, or pictures, with each other. Salles et al²⁰ reviewed data from the Gender-Career Implicit Association Test and compared responses of approximately 43,000 health care professionals, largely women (80%), and about 900,000 people who were not health care professionals. Both groups associated men with career and women with family, although the implicit bias score was slightly higher in health care professionals. Implicit bias scores of women health care professionals were higher than their male counterparts. Health care professionals of both sexes also had explicit biases. Using a Gender-Specialty Implicit Association Test developed by the authors, 131 surgeons (34% women) associated men with surgery and women with family medicine, and responses were similar in men and women. However, on the explicit bias test, women were less likely to associate men with surgery and women with family medicine, reinforcing the need to evaluate unconscious biases, which are a result of societal and professional stereotypes.

MANAGING GENDER BIAS IN THE MEDICAL PROFESSION

With the increasing number of women in medicine, addressing gender bias in the workplace has become a national imperative. Unfortunately, larger societal change eliminating gender bias is unlikely, at least in the short term.

Managing implicit bias so that women in medicine are treated equitably begins at the organizational level. One of the first steps is assessment of the magnitude of the problem, by evaluating leadership positions, salaries, rank, and new hires, by sex. Based on the results of this assessment,

strategies for improving inequities can be developed. These strategies may include the following:

- increasing awareness of both unconscious and conscious gender bias through implicit bias training for physicians and other staff, as well as training to help individuals manage their biases
- development of a compensation plan, designed for pay equity, that compensates for the position, not the qualities of the individual
- safe, clear reporting processes for those who experience or witness bias
- transparent hiring procedures and requirements for promotion
- commitment to advancing the careers of both women and men
- provision of family leave for women at all stages of their careers
- sponsorship of women physicians by encouragement of their nomination for leadership positions, important committees at the institution and elsewhere, editorial boards, grand rounds speakers, and invited lectureships
- support for development of leadership skills in women by providing funding and coverage for leadership programs and making time available for them to fully participate in these programs
- transparency about the organization’s commitment to equity and the policies involved.

To achieve equity, a variety of approaches are needed. Underpinning many of these is the need for the support of male colleagues, sometimes referred to as “male allies”; this support is critical and will likely accelerate progress. Studies on intergroup relations (outside the medical profession) have found that women who advocate for gender equity appreciate support from men provided that this support is autonomy oriented, rather than domineering, because the latter would reinforce stereotypical male roles.³⁶

Although data are limited, studies of interventions to achieve equity suggest benefits to women faculty at academic medical institutions. Results of one of the earliest reports, by Fried et al,³⁷ found that multiple interventions between 1990 and 1995 in the Department of Medicine at a single medical center, Johns Hopkins, had positive effects on retention and promotion of both women and men faculty, including a 5.5-fold increase in promotion of women to associate professor. Essential to this success was the commitment by leadership (in this case, the department Chair) to career equity. Interventions included communications from the department Chair, problem assessment, leadership development, salary adjustment, education about gender bias/discrimination in academic medicine, effective mentoring, annual curriculum vitae review of each female faculty member, and later male faculty, to identify gaps

for promotion and strategies to remedy them. In addition, meetings previously held on weekends and after 5 pm were rescheduled so that women with family responsibilities could participate. At a 3-year assessment, both women and men faculty reported more timely promotions, reduction in signs of gender bias, improved access to information about promotion, greater inclusion, greater degree of equity in pay, and better mentoring experiences, with women reporting significantly greater improvements in these outcomes compared with men, with the exception of mentoring. Evaluation of a leadership program for women faculty at the same medical institution from 2010 to 2013 found self-reported improvement in 9 of 11 leadership skills in 134 women faculty (95% at the assistant professor level) in the Departments of Medicine and Surgery.³⁸

Pay equity has been found to be achievable using a structured compensation model in which physicians reach a target salary for the specialty after 5 years, without taking into consideration relative value units, duration of service, and academic rank or tenure.³⁹ In 2017, evaluation of salaries at the Mayo Clinic, which has used a structured model for 40 years, found equitable compensation by sex, race, and ethnicity.³⁹ Exceptions were noted for those in leadership positions, usually men, who received higher compensation; in addition, higher compensation was seen for those in some specialties that are predominantly male. This demonstrates the need for continued support and sponsorship for women to achieve leadership roles and to enter all specialties of medicine as part of approaches to reach pay equity.

Changing or controlling implicit bias can be difficult but is possible through training. A workshop to reduce implicit gender bias has been evaluated in a pair-matched, single-blind, cluster-randomized controlled study of faculty in medicine, science, or engineering at one institution.⁴⁰ The objectives of the 2.5-hour interactive workshop were to increase awareness of gender bias and its detrimental effects, provide education about various forms of stereotype-based gender bias, and discuss evidence-based behavioral strategies for individuals to practice. Three months after the workshop, surveys found improvement in self-efficacy to adopt behaviors that promoted gender equity, a requirement for behavioral change. When 25% or more of the department faculty attended the workshop, self-reported actions to promote gender equity increased at 3 months.

Leadership development programs specifically tailored to meet the needs of women physicians are currently offered by a number of organizations, both locally and nationally. The Association of American Medical Colleges' Early Career Women Faculty Leadership Development Seminar and Drexel University College of Medicine's Executive Leadership in Academic Medicine program are 2 such examples. But ultimately, success in the management of gender bias

depends on organizational commitment. A system of accountability is needed, for example, a departmental "equity report card" that is public and accessible to all.⁴¹

The #MeToo movement in medicine has revealed how sexual harassment can negatively affect women's careers in medicine.⁴² In 2018, the National Academies of Science, Engineering, and Medicine published the seminal report, *Sexual Harassment of Women: Climate, Culture, and Consequences in Academic Sciences, Engineering, and Medicine*, which revealed that more than 50% of women faculty and staff report having been harassed.⁴³ The effect on a woman's academic career can be substantial, depending on the power dynamics involved, thus having an impact on academic promotion and leadership advancement opportunities.

That same year, Time's Up Healthcare was founded to ensure safety and equity in the health professions. The foundation's Signatory Program invites medical centers, universities, hospitals, and other health care organizations to uphold 3 principles: 1) prevention of sexual harassment and gender inequity and protection and assistance for those who are targets; 2) equitable opportunity, support, and compensation for every employee; and 3) measurement and tracking of sexual harassment and gender-based inequities.⁴⁴

CONCLUSION

Implicit and explicit gender biases have existed for centuries and are rooted in gender norms that date back thousands of years. The more complex a society or organization becomes, the more likely that biases will be present. Fully addressing implicit gender bias in the medical profession requires changing both the culture of medicine and the sociopolitical milieu in which medicine is practiced. Only then will it be possible to achieve full equity for women physicians, a reality that will translate into improved physician wellness, retention of women physicians in the workforce, and improved access to and quality of health care. ♦

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