Gender Gap in Leadership in Academic Medicine and Dentistry: What Are the Barriers? What Can Be Done To Correct It?

Pooja Gangwani, DDS, MPH, * *and Antonia Kolokythas, DDS, MSc, FACS*†

Purpose: The present study aimed to report the main barriers to women's advancement in leadership and high-rank academic positions in the fields of medicine and dentistry.

Materials and Methods: An electronic search was conducted of the MEDLINE database using the PubMed search engine. The Google Scholar search engine was also used to access scholarly articles across all disciplines. A total of 173 reports and abstracts published in the English language were retrieved and evaluated for their content. Of these, 32 were initially selected and reviewed. Finally, 16 studies focusing on gender-related discrepancies in healthcare concerning leadership and academic advancement were included.

Results: The following themes emerged as the main contributors to the gender disparity in academic medicine and dentistry: *1)* the lack of appropriate role models and mentorship for successful socialization of female faculty; *2)* the lack of peer support for women's promotion through the academic ranks and their selection for executive administrative roles at equal rates as their male counterparts; and *3)* implicit bias and negative stereotypes.

Conclusions: A need exists to increase the number of female role models and enhance mentorship to increase the attraction toward academic careers in medicine and dentistry. Cultural changes also are required at an institutional and organizational level to embrace diversity. The implicit biases against women's promotion to higher academic ranks must be addressed.

J Oral Maxillofac Surg 77:1536-1540, 2019

Dr. Elaine Stuebner was the first female oral and maxillofacial surgeon in the United States. In 1954, she graduated from the University of Illinois at the Chicago College of Dentistry. She completed her residency in oral and maxillofacial surgery (OMS) at the Cook County Hospital in 1958.[1] The discipline of dentistry and the specialty of OMS have progressed appreciably since then. Today, women constitute 49% of dental graduates and represent one third of licensed physicians in the United States.[2,3] However, this ratio is not reflected in the organizational leadership positions and higher academic ranks. In 2016, only 15% of permanent department chairs and 22% of full tenured professors in all US medical schools were women.[4] Similarly, women comprised 20% of all the dental school deans, department chairs, and program directors. As of 2017, no woman has been the president in 3 major organizations within dentistry

Received from Department of Oral and Maxillofacial Surgery, Eastman Institute for Oral Health, University of Rochester, Rochester, NY.

*Assistant Professor.

†Department Head and Program Director.

Conflict of Interest Disclosures: None of the authors have any relevant financial relationship(s) with a commercial interest.

Address correspondence and reprint requests to Dr Gangwani: Department of Oral and Maxillofacial Surgery, Eastman Institute for Oral Health, University of Rochester, Strong Memorial Hospital-EIOH, 601 Elmwood Ave, AC-4, Rochester, NY 14642; e-mail: pooja_gangwani@urmc.rochester.edu

Received October 25 2018

Accepted April 19 2019

0278-2391/19/30454-9

https://doi.org/10.1016/j.joms.2019.04.023

(American Association of Oral and Maxillofacial Surgery, American Academy of Pediatric Dentistry, and American Association of Orthodontics).[5-7] In medicine, fewer than 5% of chief medical officers and chief executive officers are women, and only 2 women have served as the president of the American Medical Association.[4,8] The gender disparity in leadership and academic medicine and dentistry is thought provoking. In the present report, we have discussed the main barriers to women's advancement in leadership and high-rank academic positions in medicine and dentistry.

Materials and Methods

An electronic search was conducted in the MEDLINE database using the PubMed search engine. The Google Scholar search engine was also used to access scholarly articles across all disciplines. The following search terms were used: "women leadership in surgery," "women in oral and maxillofacial surgery," "women in academia," "leadership in oral and maxillofacial surgery," "gender gap," "bias," "medicine," "dentistry," "leadership," and "academic rank." Reports and abstracts published in the English language from 2010 to 2018 were retrieved. Additional references from the retrieved studies were reviewed for possible inclusion. A total of 173 reports were evaluated for their content. Abstracts, editorials, comments, and opinions were excluded. A total of 32 studies were initially selected and reviewed by us. Reports not pertaining to the gender gap, barriers, and faculty advancement in academic medicine were excluded from our review. Finally, 16 studies[6,9-23] that had focused on gender-related discrepancies in healthcare concerning leadership and academic advancement were included. The following themes emerged as the main contributors to the gender disparity in academic medicine and dentistry: *1)* the lack of appropriate role models and mentorship for successful socialization of female faculty; *2)* the lack of peer support for women's promotion through academic ranks and their selection for executive administrative roles at equal rates as their male counterparts; and *3)* implicit bias and negative stereotypes.

LACK OF APPROPRIATE ROLE MODELS AND MENTORSHIP FOR SUCCESSFUL SOCIALIZATION

The lack of mentorship has been identified among the factors that have detrimental effects on careers in academic medicine and dentistry. Sambunjak and Marušic[9] have reported that mentorship in academic medicine impacts positively on research productivity, including grant success and publications. Additionally, mentorship is important for personal and career development, which, in turn, improves productivity.[9] In response to the editorial by Dr Laskin[10] in 2015, Kolokythas and Miloro[11] conducted a survey study to examine "why do women choose to enter academic oral and maxillofacial surgery (OMS)?" The gender disparity in the leadership and academic faculty in OMS is more profound than in any other dental specialty, with only 32 female full-time faculty of 432 total, 4 female chairs of 102, only 10 program directors of 102, only 1 woman as a past American Board of Oral and Maxillofacial Surgery (the board certification body of the specialty) president,[24] and no women in the administration of the American Association of Oral and Maxillofacial Surgeons (the specialty's main organization body).[7] Kolokythas and Miloro[11] directed their survey to female faculty and female residents in training. As a part of the survey, the participants were asked to comment on 2 key questions that specifically addressed the gender gap in the specialty. The responders asked for better mentorship from academic surgeons, more female role models, and more women in leadership positions in the major organizations of the specialty.[11]

Valantine et al[12] conducted a study to assess whether interventions undertaken at the Stanford School of Medicine were effective in increasing the proportion of women at full professor rank. In 2001, the School of Medicine at Stanford University created the Provosts' Advisory Committee on the Status of Women Faculty to enhance representation and women's experiences. The committee identified 4 areas of need: *1)* employment of a diverse faculty; *2)* resources that enable faculty to conduct and publish research; *3)* career enhancement programs that heighten professional success; and *4)* programs to decrease social isolation.[12] These needs were addressed with specific interventions. Intensive mentoring and access to influential faculty who can serve as appropriate role models to junior faculty were identified as important factors in faculty development. Emphasis was placed on the selection of role models. Senior faculty with a successful performance history in academic achievements were selected to lead small groups for faculty mentoring. Furthermore, attention was given to the selection of faculty with relevant expertise in directing skill-building workshops for career advancement.[12] Distinguished female scholars with extensive experience in gender issues related to career advancement were recruited to discuss their experiences and guide conversations.[12]

The testament to the importance of appropriate role models and gender-directed mentorship in successful socialization and career advancement was the increase in women faculty in the higher academic ranks (associate and full professor) by 87 and 75%, respectfully, after implementation of the correctional strategies at Stanford. Slightly lower, but encouraging, results were also reported at the national level.

Table 1. SUMMARY OF ADDITIONAL STUDIES

Investigator	Article	Barriers	Recommendations
Carr et al,[18] 2018	A summary report from the research partnership on women in science careers	*1)* Lack of access to mentoring, coaching, and sponsorship; *2)* work–life balance; *3)* pathway to leadership; *4)* implicit bias	*1)* Diverse peer mentoring networks (diversity in expertise, rank, gender, and race); *2)* sponsorship from senior faculty to advocate for talented women to be considered for senior leadership positions; *3)* flexible policies at the institutional level; *4)* encourage women to participate in leadership programs; *5)* positive counterstereotype imaging (placing women in a position usually held by men)
Humberstone,[19] 2017	Women deans' perceptions of the gender gap in American medical deanships	*1)* Lack of role models/mentors; *2)* family obligations; *3)* heightened attention on female leaders; *4)* career assumptions based on gender	*1)* Update the criteria for deanships, including prioritizing skills aligned with employment duties, instead of research record, because women with families might not have many traditional qualifications (eg, studies, grants); *2)* expand faculty development resources; *3)* establish one on one leadership programs; *4)* increase member diversity of search committees
Seemann et al,[20] 2016	Women in academic surgery: why is the playing field still not level?	*1)* The difficulty of balancing a surgical career with family; *2)* mentorship for women in academic surgery; *3)* gender discrimination	*1)* Having other women as mentors; *2)* addressing the mentioned barriers by acknowledging and developing long-term solutions
Bickel et al,[21] 2002	Increasing women's leadership in academic medicine: report of the AAMC project implementation committee	*1)* Lack of social capital (essential information) leading to isolation; *2)* lack of appropriate mentorship; *3)* lack of support from staff, leading to burn out	*1)* Reward department chairs for faculty diversity, especially for developing women faculty; *2)* establish mentoring programs and awards; *3)* mentor women faculty for vital positions; *4)* appoint diverse committees to improve the selection process; *5)* strengthen the Women in Medicine program
Yedidia et al,[22] 2001	Why aren't there more women leaders in academic medicine? The views of clinical department chairs	*1)* Lack of role models and effective mentors; *2)* socialization patterns affecting women's status; *3)* bias in recruitment and promotion practices	*1)* Use visiting professorships to increase the presence of female role models; *2)* establish workshops to sensitize colleagues; *3)* appoint search committee individuals who can be relied on to take female candidates seriously

Abbreviation: AAMC, Association of American Medical Colleges.

LACK OF PEER SUPPORT

Given the distinctly different socialization processes between genders, women might not have peer support from their male counterparts, who mainly thrive on independence, competitiveness, and separation.[13] At the Stanford School of Medicine, this realization led to the implementation of the Women's Faculty Networking Program, which consisted of informal and formal meetings open to female faculty from all ranks to promote socialization and experience sharing.[12] Professional enhancement, including promotion and election in leadership positions, has been associated with the usage of informal networks. It has also been noted that women are less likely to have these resources than are men.[14]

IMPLICIT BIAS AND NEGATIVE STEREOTYPES

The study conducted by Girod et al[15] examined the explicit and implicit biases promoting men as leaders among the faculty members at the Stanford University School of Medicine. The results revealed a strong association of male gender and age with an implicit bias favoring male leaders.[15,16] Furthermore, Girod et al[15] identified that interventions used to reduce this bias had a small, but positive, effect on the implicit biases surrounding women in leadership positions. Pingleton et al,[17] in their study, reported that organizational policies supporting leadership development are crucial. Organizational strategies to decrease gender disparity in health care must be instituted.[17] Given the demographic data on professors, department chairs, and deans, their implicit biases toward women in leadership positions could inadvertently affect their decisions. This further supports that gender leadership bias is one of the main barriers to women's advancement in their professional organization's administration. Additional studies[18-22] considering these barriers are summarized in Table 1.

Discussion

Although, from a historical prospective, a tremendous increase has occurred in women choosing a career and, further, specializing in medicine and dentistry, regrettably the gender disparity in the top administrative and academic ranks has largely remained unchanged. A profound paucity exists of women holding leadership and high-rank academic positions in medicine and dentistry. The lack of appropriate role models, the lack of peer support, and implicit bias are 3 major reasons that have hindered gender equity in these fields.

Mayer et al[13] argued that because gender socialization processes are profoundly different between the genders, the traditional dyadic model of mentorship based on male socialization might not be appropriate or adequate for all women. Women seem to value encouragement, collaboration, and group affiliations. In contrast, men seem to respond to challenge, individual achievement, and competition.[13] Mutual understanding and shared values can enhance the relationship between mentor and mentee in gender-matched mentorship settings.[13] However, personality clashes and sexual dynamics, as well as differences in work styles, can negatively affect the mentee's progress.[13] Consequently, the dyadic model based on challenge and mentee independence via informal technical conversations, rather than guidance and support, might not be a good fit for many women. Thus, alternative mentorship models should be adopted.[13] Professional enhancement in leadership positions has been associated with the use of informal networks. It has been noted that women are less likely to have these resources than are men.[14] This, in turn, affects their socialization process into their profession, which is crucial for future advancement. In addition, the implicit and explicit biases toward women in leadership positions are a reality, and women cope with such attitudes throughout their academic careers.[15] An example of the importance of the appropriate environment for female faculty was set by the University of California, Davis, School of Medicine, when they created a Women in Medicine and Health Science program in 2000. Their goal was to build a supportive community to ensure the full participation and advancement of women in their academic careers.[23] This contemporary and inclusive program led to an increase in new hires and retention of female faculty.[23] This also indicates that the lack of mentorship, the lack of a supportive environment, and unconscious gender bias can negatively affect job satisfaction and faculty retention and result in a loss of talent in medicine and dentistry.[15,17,23]

IMPLICATIONS

A need exists to increase the number of female role models and enhance mentorship to increase the attraction toward, and advancement in, academic careers in medicine and dentistry. Cultural changes at the individual, institutional, and professional organizational levels, including the development of strategies to promote equality in career advancement among genders, are required. The implicit biases toward women in leadership positions must be addressed. We have described the barriers to women's advancement in leadership and high-rank academic positions in medicine and dentistry. The findings of our review also pertain to the field of medicine and are not specific to the field of OMS.

References

1. Stuebner E, Women make strides in OMFS. PRNewswire, American Association of Oral and Maxillofacial Surgeons; 2005
2. American Dental Association: United States Dental School Graduates by Gender; 2016-2017. Available at: https://www.ada.org/~/media/ADA/Science%20and%20Research/HPI/Files/2016-17_SDE1_final.xlsx?la=en. Accessed May 29, 2019
3. American Medical Association: Total Graduates by U.S. Medical School and Sex; 2016. Available at: https://www.aamc.org/data/facts/enrollmentgraduate/148670/total-grads-by-school-gender.html. Accessed April 18, 2019
4. Association of American Medical Colleges: U.S. Medical School Faculty; 2016. Available at: https://www.aamc.org/data/facultyroster/reports/475478/usmsf16.html. Accessed April 18, 2019
5. American Dental Association: ADA Presidents; 2017. Available at: https://www.ada.org/en/about-the-ada/ada-history-and-presidents-of-the-ada/ada-presidents. Accessed April 18, 2019
6. Haden NK, Ditmyer MM, Rodriguez T, et al: A profile of dental school deans. J Dent Education 79:1243, 2015
7. American Association of Oral and Maxillofacial Surgeons. Available at: https://www.aaoms.org/member-center/resource-documents. Accessed April 18, 2019
8. American Medical Association: AMA Presidents; 2017. Available at: https://web.archive.org/web/20160610133321/http://www.ama-assn.org:80/ama/pub/about-ama/our-history/annual-meetings-presidents.page. Accessed April 18, 2019
9. Sambunjak D, Straus SE, Marušic A: Mentoring in academic medicine. JAMA 296:1103, 2006
10. Laskin DM: The role of women in academic oral and maxillofacial surgery. J Oral Maxillofac Surg 73:579, 2015
11. Kolokythas A, Miloro M: Why do women choose to enter academic oral and maxillofacial surgery? J Oral Maxillofac Surg 74:881, 2016
12. 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 89:904, 2014
13. Mayer AP, Files JA, Ko MG, Blair JE: Academic advancement of women in medicine: do socialized gender differences have a role in mentoring? Mayo Clin Proc 83:204, 2008
14. Ellinas EH, Fouad N, Byars-Winston A: Women and the decision to leave, linger, or lean in: Predictors of intent to leave and aspirations to leadership and advancement in academic medicine. J Womens Health 27:324, 2017
15. Girod S, Fassiotto M, Grewal D, et al: Reducing implicit gender leadership bias in academic medicine with an educational intervention. Acad Med 91:1143, 2016
16. Eagly AH, Karau SJ, Makhijani MG: Gender and the effectiveness of leaders: A meta-analysis. Psychol Bull 117:125, 1995
17. Pingleton SK, Jones EV, Rosolowski TA, Zimmerman MK: Silent bias: Challenges, obstacles, and strategies for leadership development in academic medicine—Lessons from oral histories of women professors at the University of Kansas. Acad Med 91:1151, 2016
18. Carr PL, Helitzer D, Freund K, et al: A summary report from the research partnership on women in science careers. J Gen Intern Med 34:356, 2019
19. Humberstone E: Women deans' perceptions of the gender gap in American medical deanships. Educ Health (Abingdon) 30:248, 2017
20. Seemann NM, Webster F, Holden HA, et al: Women in academic surgery: Why is the playing field still not level? Am J Surg 211:343, 2016
21. Bickel J, Wara D, Atkinson BF, et al: Increasing women's leadership in academic medicine: Report of the AAMC project implementation committee. Acad Med 77:1043, 2002
22. Yedidia MJ, Bickel J: Why aren't there more women leaders in academic medicine? The views of clinical department chairs. Acad Med 76:453, 2001
23. Bauman MD, Howell LP, Villablanca AC: The women in medicine and health science program: an innovative initiative to support female faculty at the University of California, Davis, School of Medicine. Acad Med 89:1462, 2014
24. American Board of Oral and Maxillofacial Surgery: Past Presidents. Available at: https://www.aboms.org/who-we-are/past-presidents. Accessed April 18, 2019