

## Academic Advancement of Women in Medicine: Do Socialized Gender Differences Have a Role in Mentoring?

ANITA P. MAYER, MD; JULIA A. FILES, MD; MARCIA G. KO, MD; AND JANIS E. BLAIR, MD

During the past 30 years, women have entered academic medicine in increasingly larger numbers. However, fewer women than men have succeeded in advancing in academic rank.<sup>1</sup> Despite numerous studies and reports documenting this failure,<sup>2,4</sup> progress in correcting this problem has been slower than that predicted by even conservative estimates.<sup>5</sup> In 1985, 10% of female medical school faculty held the rank of full professor.<sup>2</sup> In 2006, 12% of female faculty were full professors.<sup>6</sup> It has taken more than 20 years for the proportion of female faculty who are full professors to increase 2 percentage points. Among male faculty, 30% have consistently held the rank of full professor over the same 20 years.<sup>2</sup>

The limited advancement of women in the upper echelons of medicine is not substantially different from that of women in other areas of science, mathematics, and business.<sup>7-9</sup> Our engineering and business colleagues have described similar issues as they search for greater gender equality in their upper ranks.<sup>7,8</sup> Of female engineering faculty in the United States, 1% are full professors.<sup>8</sup> In business, the *Harvard Business Review* has reported that women comprise less than 6% of the uppermost ranks (ie, presidents, executive vice-presidents, chief executive officers, and chief operating officers) of Fortune 500 companies.<sup>10</sup>

Three years ago, then-Harvard University president Lawrence Summers questioned whether "innate" differences accounted for women's inability to advance in math and science. These statements were made in the context of a discussion about the difficulty of recruiting and retaining women leaders in these fields.<sup>11</sup> Despite being unsubstantiated and negative, such speculation recognizes that the paucity of female faculty with full professorship is not unique to medicine.

Within academic medicine, the demands of clinical practice, family obligations, and lack of mentoring have all been identified as factors that have a detrimental effect on

women's careers.<sup>2,12-15</sup> In a published systematic review of the literature,<sup>16</sup> mentorship in academic medicine was reported to increase personal and career development, as well as research productivity, including publications and grant awards. However, mentoring is not always a positive experience.<sup>16,17</sup> In fields outside academic medicine, a large body of research addresses mentoring of women. Several reports<sup>8,18-20</sup> provide insight for medical academics seeking to mentor women physicians.

Adequate mentoring of women might not involve traditional dyadic mentoring. New structures and broader visions for the mentoring of female faculty across many disciplines have been described.<sup>8,18,21-24</sup> We review various mentoring models within the context of socialized gender differences and describe another mentoring model that has had initial success at Mayo Clinic. Although successful mentoring alone cannot be expected to address all impediments to the academic and leadership advancement of women, the academic medical community must move beyond the point of continuing to describe the problem and begin to develop and institute concrete solutions.

### MENTORING MODELS: SOCIALIZED GENDER DIFFERENCES

The terms *sex* and *gender* are not synonymous. Biology determines our sex; society determines our gender. This last statement is not presented as an absolute truth but rather to promote a civil discussion in the midst of what has become hot-button territory. Whether biology has a role in the ultimate expression of behavior need not be debated. Even if society as a whole is moving toward rearing all children in less gender-constricted ways, most adults still function as men and women according to certain socialized gender differences.

Men and women think and behave differently in the workplace.<sup>25,26</sup> Early family socialization and schooling experiences result in different work styles and goals.<sup>27</sup> These socialized differences lead women to place a greater priority on interpersonal satisfaction and integration than men do. Women are most often motivated by encouragement, whereas men respond to challenge. Men, through the male socialization model, value competition and individual achievement, whereas women more readily respond to collaboration and group affiliation.<sup>27</sup> The high value that men place on individual achievement leads them to be much more concerned about rank and ranking

From the Division of Community Internal Medicine (A.P.M.), Division of Mayo Clinic Women's Health Internal Medicine (J.A.F., M.G.K.), and Division of Infectious Disease (J.E.B.), Mayo Clinic, Scottsdale, AZ.

Individual reprints of this article are not available. Address correspondence to Anita P. Mayer, MD, Division of Community Internal Medicine, Mayo Clinic, 13400 E Shea Blvd, Scottsdale, AZ 85259.

© 2008 Mayo Foundation for Medical Education and Research

behavior, whereas women are more inclined to engage in leveling or equalizing behavior.<sup>28</sup> In both work and social settings, men quickly and informally establish a hierarchy that governs how they relate. In contrast, women quickly establish equalizing relationships, even with their obvious subordinates.<sup>28</sup>

Observable differences between men and women in ambition and goal setting have also been described.<sup>7</sup> A survey of professional women in 2004<sup>29</sup> revealed that women rarely describe themselves as extremely ambitious, although women in medicine are more likely to do so than women in business are. Only about 20% of those surveyed, including physicians, identified attaining a powerful position as a career goal. Instead, women found it much more important to be able "to associate with people they respect" (82%) and to "be themselves at work" (79%); they also considered it "extremely or very important to have the opportunity to collaborate with others and work as part of a team" (61%).<sup>7</sup> These gender differences in work style, ambition, and goal setting can have implications for successful mentoring models.

**Traditional Mentoring Model.** Mentoring traditionally follows a dyadic model. In these mentoring partnerships, an experienced person (a mentor) is paired with a less experienced individual (a mentee)<sup>30</sup> within the setting of a long-term relationship built on mutual trust and shared interests. When this pairing occurs informally, the 2 persons find each other on the basis of their shared interests and mutual appeal.<sup>31</sup> Recognition of the difficulty that some people have in accessing this informal relationship, especially those who are marginalized (such as women and minorities), has led some institutions to initiate formal mentoring programs in which mentors are assigned mentees.<sup>32,33</sup> Formal and informal traditional mentoring models have been shown to increase advancement of mentees.<sup>17,19</sup>

Drawbacks to the traditional model include inadequate skills to be an effective mentor, personality clashes, sexual dynamics, different work styles, and conflicting demands on time.<sup>34</sup> A mentor of the opposite sex can provide the mentee with insights that are lacking in a sex-matched pair. However, sex-matched mentoring can establish mentoring pairs that maximize the opportunity for mutual understanding, similarity in work styles, and role modeling.

Relevant to this discussion is the fact that the dyadic model of mentoring is based on the male socialization model previously outlined. Two major components typify this approach to mentoring: (1) a greater priority is placed on informational and technical conversation than on guidance and psychosocial issues and (2) a greater focus is placed on challenging the mentee and stressing independence.<sup>8</sup> This mentoring style often emphasizes separation

over integration, independence over relationship, and competitive tasks over collaboration. Although some women have been mentored very effectively within this model, the model is hierarchical in style, involves a ranked rather than level relationship, and might not be a good fit for other women.

**Multiple-Mentoring Model.** In the multiple-mentoring model, the mentee is encouraged to construct a mentoring community. Multiple mentors are sought to address and support the various aspects and needs of the mentee as he or she advances along a career path. These mentors meet various academic needs, such as providing support and guidance for research interests, educational pursuits, and clinical practice goals. Other mentors can provide psychosocial support by offering insight into work-life balance, work relationships, and work politics.<sup>8</sup>

This mentoring model has advantages for women because it allows them to look for and construct a powerful network within their discipline. The mentoring team can include junior and senior staff members, which provides the opportunity for collaborative or hierarchical relationships or both. The model also encourages women to seek out other women, within or outside their discipline, who can serve as role models and provide psychosocial support.

This type of mentoring model has been described but has never been studied quantitatively for outcomes.<sup>8</sup> Also, multiple mentoring has never been formalized; therefore, the burden of building a mentoring community falls on the individual mentee. Finding a diverse set of helpers during the stressful launch of a new career might be challenging.

**Peer-Mentoring Models.** Peer mentoring is another strategy that builds a mentoring community while simultaneously de-emphasizing hierarchy and seniority. Various permutations of this mentoring model have been described in the medical, science, and business literature.<sup>8,18,22,24,35</sup> In a peer-mentoring model, people of similar rank who share interests work together toward common goals. This model has been successful in that it allows some balance in both time flexibility and level of commitment when women must deal with unpredictable family and child-care responsibilities or career interruptions.<sup>18</sup> This model can help women maintain some academic productivity during their childbearing and child-rearing years.<sup>18</sup>

Peer mentoring benefits participants by providing mutual support, facilitating mutual learning, allowing different perspectives, and developing friendships.<sup>22,24</sup> Women peer mentors can encourage each other collaboratively by envisioning their success as part of their group affiliation, which nicely parallels the socialized gender differences described.

An important disadvantage of peer mentoring is inexperience within the group if participants have no clear access

to more experienced colleagues for technical support.<sup>24</sup> Logistical problems can also arise about whose needs are to be met first and by what time. As a result, participants in peer-mentoring groups sometimes find that their careers advance at different rates, with some peers being more productive than others.<sup>8</sup>

## DISCUSSION

The slow progress of women in medicine in achieving academic rank has been well documented. Academic promotion is less likely for female faculty than for their male colleagues of similar duration of appointment.<sup>36</sup> As of 2006, 85% of full professors at academic medical centers were men.<sup>6</sup> At the College of Medicine, Mayo Clinic, 91% of full professors are men. This disparity has clear implications for leadership. Academic rank is a primary factor in selecting department chairs, and such rank is granted, for the most part, in recognition of academic productivity—published papers and funded grants. By both these measures, female faculty lag behind their male colleagues.<sup>5,15</sup>

Mentorship has been shown to positively influence academic productivity of both men and women.<sup>16</sup> The socialized gender differences described can lead to the conclusion that women in general need a more supportive and collaborative mentoring model. While some women have been successfully supported by both male and female mentors in the traditional dyadic model, new mentoring models are emerging in medicine and other disciplines.<sup>8,18,22,37</sup> Several peer-mentoring models have been described, with some encouraging results.<sup>22,24,38</sup>

The disadvantages of peer mentoring include the group's lack of connection to experienced leadership, as well as the potential need for mediation in difficult time-management and goal-setting issues. A unique peer-mentoring model was developed at Mayo Clinic after we surveyed the female faculty to ascertain their level of interest in academic advancement and mentoring.<sup>39</sup> In this model, 3 to 5 women with similar academic rank, interests, and goals were identified as a peer group. A more experienced group of female faculty served as facilitators, setting expectations, designating a tailored curriculum, and acting as mediators and liaisons to provide the support the members needed to succeed. Metrics to document success include published papers, promotion in academic rank, and academic career satisfaction. This facilitated peer-mentoring model addresses the key components of the female socialization model. The facilitated peer-mentoring group provides encouragement and collaboration within the context of a group affiliation. It would be speculative at this point to state any conclusions about our peer-mentoring model.

Simply instituting a new mentoring model will not eliminate the barriers to academic and leadership advancement faced by women in medicine. Although adequate mentoring is important, it is only 1 of many factors necessary for such advancement. Academic medical centers, including our own, have made great strides toward ensuring diversity within their ranks. Nonetheless, the lack of diverse leadership (women hold only 11% of department chair positions<sup>6</sup>) has been identified as 1 possible reason for women's inability to climb higher than the bottom rungs of the academic ladder.<sup>36</sup>

The time has come for reasoned and targeted interventions to address these differences. Modest institutional investment, such as that in our new mentoring model, can be invaluable. Leadership support is crucial to these efforts. Without this support, the diversity we seek at our academic medical centers will occur only at the bottom of the academic and leadership ladder.

*We acknowledge Drs Victor F. Trastek and Jorge Rakela for providing institutional support of our facilitated peer-mentoring project and Dr Michele Y. Halyard for her assistance in expanding our mentoring efforts.*

## REFERENCES

1. Nonnemaker L. Women physicians in academic medicine: new insights from cohort studies. *N Engl J Med.* 2000;342(6):399-405.
2. Bickel J, Wara D, Atkinson BF, et al, Association of American Medical Colleges Project Implementation Committee. Increasing women's leadership in academic medicine: report of the AAMC Project Implementation Committee. *Acad Med.* 2002;77(10):1043-1061.
3. McGuire LK, Bergen MR, Polan ML. Career advancement for women faculty in a U.S. school of medicine: perceived needs. *Acad Med.* 2004;79(4):319-325.
4. Hamel MB, Ingelfinger JR, Phimister E, Solomon CG. Women in academic medicine: progress and challenges [editorial]. *N Engl J Med.* 2006;355(3):310-312.
5. Jaggi R, Guancial EA, Worobey CC, et al. The "gender gap" in authorship of academic medical literature: a 35-year perspective. *N Engl J Med.* 2006;355(3):281-287.
6. Magrane D, Lang J, Alexander H. *Women in U.S. Academic Medicine: Statistics and Medical School Benchmarking 2005-2006.* Washington, DC: Association of American Medical Colleges; 2006. <http://www.aamc.org/members/wim/statistics/stats06/start.htm>. Accessed December 6, 2007.
7. Hewlett SA, Luce CB. Off-ramps and on-ramps: keeping talented women on the road to success. *Harv Bus Rev.* 2005;83(3):43-46, 48, 50-54.
8. Chesler NC, Chesler MA. Gender-informed mentoring strategies for women engineering scholars: on establishing a caring community. *J Eng Educ.* 2002;91:49-55.
9. Committee on Maximizing the Potential of Women in Academic Science and Engineering, Committee on Science, Engineering, and Public Policy, National Academy of Sciences, National Academy of Engineering, Institute of National Academies. *Beyond Bias and Barriers: Fulfilling the Potential of Women in Academic Science and Engineering.* Washington, DC: National Academies Press; 2006.
10. Eagly AH, Carli LL. Women and the labyrinth of leadership. *Harv Bus Rev.* 2007;85:63-71.
11. Lawler A. Diversity: Summers's comments draw attention to gender, racial gaps. *Science.* 2005;307(5709):492-493.
12. Angell M. Women in medicine: beyond prejudice [editorial]. *N Engl J Med.* 1981;304(19):1161-1162.

13. Levinson W, Tolle SW, Lewis C. Women in academic medicine: combining career and family. *N Engl J Med*. 1989;321(22):1511-1517.
14. Carr PL, Ash AS, Friedman RH, et al. Relation of family responsibilities and gender to the productivity and career satisfaction of medical faculty. *Ann Intern Med*. 1998;129(7):532-538.
15. Tesch BJ, Wood HM, Helwig AL, Nattinger AB. Promotion of women physicians in academic medicine: glass ceiling or sticky floor? *JAMA*. 1995;273(13):1022-1025.
16. Sambunjak D, Straus SE, Marusic A. Mentoring in academic medicine: a systematic review. *JAMA*. 2006;296(9):1103-1115.
17. Palepu A, Friedman RH, Barnett RC, et al. Junior faculty members' mentoring relationships and their professional development in U.S. medical schools. *Acad Med*. 1998;73(3):318-323.
18. Limbert CA, Chrysalis: a peer mentoring group for faculty and staff women. *NWSA J*. 1995;7(2):86-99.
19. Ragins BR, Cotton JL. Mentor functions and outcomes: a comparison of men and women in formal and informal mentoring relationships. *J Appl Psychol*. 1999;84(4):529-550.
20. Jacelon CS, Zucker DM, Staccarini JM, Henneman EA. Peer mentoring for tenure-track faculty. *J Prof Nurs*. 2003;19(6):335-338.
21. Berk RA, Berg J, Mortimer R, Walton-Moss B, Yeo TP. Measuring the effectiveness of faculty mentoring relationships. *Acad Med*. 2005;80(1):66-71.
22. Pololi L, Knight S. Mentoring faculty in academic medicine: a new paradigm? *J Gen Intern Med*. 2005;20(9):866-870.
23. Pololi L, Knight S, Dunn K. Facilitating scholarly writing in academic medicine. *J Gen Intern Med*. 2004;19(1):64-68.
24. Bussey-Jones J, Bernstein L, Higgins S, et al. Repaving the road to academic success: the IMeRGE approach to peer mentoring. *Acad Med*. 2006;81(7):674-679.
25. Fenwick GD, Neal DJ. Effect of gender composition on group performance. *Gender Work Org*. 2001;8(2):205-225.
26. Maier M. On the gendered substructure of organization: dimensions and dilemmas of corporate masculinity. In: Powell GN, ed. *Handbook of Gender and Work*. Thousand Oaks, CA: Sage Publications; 1999:69-94.
27. Gilligan C. *In a Different Voice: Psychological Theory and Women's Development*. Cambridge, MA: Harvard University Press; 1982.
28. Robinson JD, Cannon DL. Mentoring in the academic medical setting: the gender gap. *J Clin Psychol Med Settings*. 2005;12(3):265-270.
29. Hewlett SA, Luce CB, Shiller P, Southwell S. The hidden brain drain: off-ramps and on-ramps in women's careers. Harvard Business Review Research Report. March, 2005:1-140. <http://www.womenscareersreport.hbr.org>. Accessed January 8, 2007.
30. *Merriam-Webster Online Dictionary*. 2007. <http://www.m-w.com/dictionary/google>. Accessed December 10, 2007.
31. Bhagia J, Tinsley JA. The mentoring partnership. *Mayo Clin Proc*. 2000;75(5):535-537.
32. Fried LP, Francomano CA, MacDonald SM, et al. Career development for women in academic medicine: multiple interventions in a department of medicine. *JAMA*. 1996;276:898-905.
33. Mark S, Link H, Morahan PS, Pololi L, Reznik V, Tropez-Sims S. Innovative mentoring programs to promote gender equity in academic medicine. *Acad Med*. 2001;76(1):39-42.
34. Pololi LH, Knight SM, Dennis K, Frankel RM. Helping medical school faculty realize their dreams: an innovative, collaborative mentoring program. *Acad Med*. 2002;77(5):377-384.
35. McDaugall M, Beattie RS. Peer mentoring at work: the nature and outcomes of non-hierarchical developmental relationships. *Manage Learn*. 1997;28(4):423-437.
36. Nattinger AB. Promoting the career development of women in academic medicine [editorial]. *Arch Intern Med*. 2007;167(4):323-324.
37. Thorndyke LE, Gusic ME, George JH, Quillen DA, Milner RJ. Empowering junior faculty: Penn State's faculty development and mentoring program. *Acad Med*. 2006;81(7):668-673.
38. Lewellen-Williams C, Johnson VA, Deloney LA, Thomas BR, Goyol A, Henry-Tillman R. The POD: a new model for mentoring underrepresented minority faculty. *Acad Med*. 2006;81(3):275-279.
39. Mayer AP, Blair JE, Files JA. Peer mentoring of women physicians [letter]. *J Gen Intern Med*. 2006;21(9):1007.

Copyright of *Mayo Clinic Proceedings* is the property of Mayo Foundation for Medical Education & Research and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.