Internal Medicine Residents' Perceived Ability to Direct Patient Care: Impact of Gender and Experience

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Abstract

Background: Physicians are expected to effect patient care by giving orders to members of a healthcare team. Because women are socialized to be less directive than men, the assertive behavior required of new physicians may be experienced differently by male and female residents. We sought to explore the effects of gender and year of training on residents' experiences and perceived ability to direct patient care.

Methods: This was a mixed-methods, cross-sectional, descriptive study employing a quantitative written survey and qualitative interviews among internal medicine residents at an academic health center. Measurements included questionnaires and interviews about stress, assertiveness, and personal factors that influence their effectiveness in directing patient care. Analyses examined differences by gender and year of training.

Results: One hundred residents were invited to participate; 65 returned questionnaires, and 16 of these residents were interviewed. Compared with male residents, female residents selected less assertive behaviors for clinical scenarios ($p = 0.047$) and were more likely to perceive gender as inhibiting their ability to influence patient care ($p < 0.01$). Stress associated with being assertive varied more with experience than gender. Interviews corroborated these findings and supported the complexity of gender norms for behavior for female residents in a directive leadership position.

Conclusions: When compared with male peers, female residents reported more gender issues in residency and chose less assertive behaviors in clinical scenarios. Experience mitigated some gender differences. Our findings suggest that discussion of the existing research on prescriptive gender norms for behavior and leadership may be warranted in resident orientation.

Introduction

WOMEN CURRENTLY COMPRISE 50% of graduating medical school classes.¹ In 2005, 42% of applicants to internal medicine residency programs were female.² Despite these statistics, little is known about the gender-influenced experiences of internal medicine residents. Contemporary patient care increasingly relies on healthcare teams led by physicians.³ In order for physicians to be able to effectively manage patient care, they must be able to assert influence on the behavior of other members of the healthcare team. This typically involves giving orders in a directive manner.

Despite dramatic changes in the social roles available to women over the past 30 years, surprisingly little has changed regarding the stereotypical behaviors associated with being

male or female. For example, responses to the Bem Sex Role Inventory, a battery of traits ranked according to "desirability for each gender," indicate little variation in the past quarter-century.⁴⁻⁶ Both men and women continue to indicate that it is more desirable for men to be "assertive" and act "as a leader" and for women to be "compassionate" and "yielding." The mental model of a high authority figure as being male is pervasive. Schein⁷ named this the "think manager-think male" phenomenon and found cross-national support for its existence.⁸ Furthermore, many controlled studies confirm that women who violate behavioral gender norms (e.g., highly assertive women or women in positions of authority) often suffer social penalties in the work place, such as being less liked or more personally derogated than equivalently successful men.⁹⁻¹²

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Residency is the first time during training that new physicians are thrust into a directive leadership role in which they must routinely assert influence. Residents must effect patient care by giving orders and making requests of other members of the healthcare team, including nurses, pharmacists, and other physicians. Because women are socialized to be less directive than men, we were interested in exploring whether gender influenced the experience of physicians who were new to the role of leading a healthcare team. Our research probed for gender differences in the experienced stress and perceived difficulty in giving orders to direct patient care.

Materials and Methods

Participants

In June 2005, 100 residents in the University of Wisconsin Internal Medicine Residency Program were invited to participate. This group included all incoming interns and completing first-year, second-year, and third-year internal medicine residents who remained at the University of Wisconsin Hospitals and Clinics during this transition month. Mirroring national figures showing that 42% of internal medicine residents are women, 39% of these residents were women.² Sixty-five residents participated (Fig. 1), 45% women and 87% white of European descent. The mean age was 28.2 years (range 23–35). Nonresponders were more likely to be male or departing postgraduate year 3 (PGY-3) residents. The study protocol was approved by the University of Wisconsin Institutional Review Board, and informed consent was obtained from all participants.

Survey

We developed a three-part questionnaire to examine residents' self-reported stress when being directive, the degree of assertiveness practiced, and the perceived individual advantages and disadvantages when attempting to direct patient care (Fig. 2). To examine stress when being directive, the first part of the questionnaire asked residents to consider various clinical situations requiring them to give verbal orders (e.g., to a pharmacist or nurse) and indicate on a 5-point Likert scale the level of stress they experienced while giving orders.

To examine the level of assertive behavior, the second part of the questionnaire asked residents to select multiple-choice

responses to 10 frequently encountered scenarios in medical residency. For example, one scenario involved a nurse interrupting a resident performing a history and physical examination by entering to insert the patient's Foley catheter. The resident is asked if she or he would (A) offer to leave the room, (B) continue interviewing while the nurse performs the procedure, or (C) request that the nurse return when the interview is complete. All scenarios were piloted on a senior physician, three recent residency graduates, one medical student, and one clinical psychologist with consensus on the degree of assertiveness for each response. In the example given, choice A is the least assertive response and choice C the most assertive. In the last section of the questionnaire, residents were asked to rank factors that they believed aided or inhibited their ability to influence patient care: age, gender, reputation for competence, general likability, and the title of "Doctor."

Demographic information, including participant gender and postgraduate year, was collected on a separate page to preserve confidentiality and then coded to correlate with the appropriate questionnaire respondent for statistical analysis. The Cronbach coefficient alpha for the entire questionnaire indicated a reliability of 0.76, which is greater than the 0.7 threshold for internal consistency.

Interviews

Recognizing the sensitive nature and thematic complexities of gender and assertiveness, qualitative methods were used to elicit individual insights and conceptual frameworks that are difficult to measure quantitatively.¹³ A stratified purposeful sample of residents was selected from survey participants who volunteered for interviews.¹⁴ This sampling strategy in qualitative research provides information-rich cases for in-depth study. Thus, we interviewed 16 residents, 2 men and 2 women from each level of training, including incoming new and departing senior residents. The same investigator (S.G.) conducted all interviews. The semistructured format included five root questions (Table 1). Each interview was digitally recorded and transcribed for coding and analysis.

Statistical analysis

Questionnaire items were analyzed individually and as summative scores for the first two sections. The Wilcoxon rank-sum test was used to identify differences in responses according to gender or postgraduate year (predetermined significant $p \leq 0.05$). No adjustment was made for multiple comparisons. Fisher's exact test was used to compare ranked advantages and disadvantages. For the qualitative portion of the study, interview transcripts were entered into ATLAS.ti qualitative analysis software (ATLAS.ti Scientific, Berlin, Germany). Transcripts were coded by two independent readers who collapsed codes into major thematic areas. Initial interreader agreement was >90%. All discrepancies in coding were resolved by consensus.

Results

Survey results

In the first questionnaire section examining self-reported levels of stress or anxiety when being directive, no differ-

FIG. 1.

(A) Please rate the following activities by circling the number that correlates with how you feel with each activity.

1-Pleasure 2-Calm 3-Little nervous 4-Anxious 5-Severely anxious

- Evaluating a new admission alone in the emergency room.
- Requesting STAT IV fluids for a patient with vomiting and orthostasis.
- Requesting that ER nurses place an additional 16G peripheral IV after you learn that the patient is Gastrocull positive with a likely GI bleed.
- Negotiating an IMC bed with the nursing supervisor for the patient with orthostasis and a GI bleed.
- Negotiating that the patient's RN will complete q 1 hr vital signs.
- Requesting that the Health Unit Coordinator on the IMC pages you when the patient arrives from the ER.
- Requesting that the RN on the unit place the additional 16G IV that you requested previously but was not placed in the ER.
- Requesting that the RN page you when the patient's family arrives to update them on his condition and continue the code discussion due to the patient's request to involve family in the decision.
- Requesting an urgent surgical consultation after the patient fails attempted endoscopic repair with ongoing orthostasis and Hct declines despite transfusion.
- Running an adult blue cart after the patient is found pulseless and non-breathing.

(B) Select the answer that best represents your response to the following scenarios:

- You are attempting arterial line placement and are gloved, draped and prepped before noting that the kit has a kinked guide-wire, are you more likely to: [***KEY: 1 Most assertive, 2 Moderately assertive, 3 Least assertive response**]
 - Ask the RN who is in the room to get another kit [***1**]
 - Explain to the med students what kit you need and send them on a hunt [***2**]
 - Go get another kit yourself and then re-glove [***3**]
- You are waiting for a patient's medical POA to arrive for an important discussion. Are you more likely to:
 - Ask the RN to page you when the person arrives [***1**]
 - Send the med student to watch for the family member [***2**]
 - Make repeat trips to the unit yourself to see if the person has arrived [***3**]
- You requested a non-contrast CT abdomen/pelvis to evaluate a patient for nephrocalculi and the RN calls to tell you that radiology called up to start the oral contrast for the CT. You suspect that the new Health Unit Coordinator has incorrectly ordered a contrast CT. Are you more likely to:
 - Tell the RN to skip the contrast and then call radiology to clarify the matter yourself [***3**]
 - Tell the RN to skip the contrast and have the RN call radiology [***1**]
 - Tell the unit coordinator to re-enter the order and to contact radiology [***2**]
- You are completing a physical exam and a nurse walks in with a foley catheter kit which she opens and prepares without asking if you finished. Would you:
 - Request that the RN return in 10 minutes [***1**]
 - Offer to step out and return in 10 minutes to complete your exam [***3**]
 - Step aside and take the opportunity to talk with the patient until the RN completes the catheter placement [***2**]
- It is 10PM and you examine a patient with pulmonary edema and order a second dose of IV furosemide noting ongoing crackles. The RN tells you that she will NOT give the dose because "It is cruel to keep him up all night." Would you:
 - Skip the dose until morning [***3**]
 - Order the nurse to give the dose [***1**]
 - Ask the nurse to elaborate her concerns [***2**]
 - Engage superiors [***1**]
- Imagine that in the previous example you had insisted that the nurse give the dose. Would you worry what this person would think of you?
 - Of course, yes [***3**]
 - Of course not, no [***1**]
 - Maybe [***2**]
 - Never thought about it [***1**]
- A colleague has triaged a patient to you that you feel should have gone to another team. Are you more likely to:
 - Call the colleague to tell them that they should triage the patient elsewhere [***1**]
 - Call back to ask more information regarding the decision [***2**]
 - Do the admission without further questioning [***3**]
- Imagine that in the previous example you had called to debate the triage decision with your colleague. Would you worry what your colleague would think of you?
 - Of course, yes [***3**]
 - Of course not, no [***1**]
 - Maybe [***2**]
 - Never thought about it [***1**]

(C1) In order of importance, rank the top three traits from 1-3 where (1) is the trait that offers YOU the greatest **ADVANTAGE** to influence patient care. (1)Trait offering most **POSITIVE** influence → (3) 3rd most beneficial trait for influence

(C2) In order of importance, rank three traits from 1-3 where (1) is the trait that causes you the greatest **DISADVANTAGE** influencing patient care. (1)Trait offering most **NEGATIVE** influence → (3) 3rd most negative trait for influence

- ___ The title of "Doctor"
- ___ General likableness
- ___ Reputation for competence
- ___ Your actual skill and competence
- ___ Gender
- ___ Age

(D) In general, including orders to pharmacists, nurses, medical students and other hospital personnel, how often do you need to give verbal orders or requests during your work week? (Mark the single closest answer) Scale: Never to >6 times daily.

FIG. 2. Questionnaire to examine residents' self-reported stress when being directive, the degree of assertiveness practiced, and the perceived advantages and disadvantages in being effective in directing patient care.

TABLE 1. INTERVIEW QUESTIONS

1. What is it like to give verbal orders as a resident?
2. Is it ever stressful to give orders?
3. Have you changed strategies for giving orders during residency?
4. What advice would you offer an intern regarding giving verbal orders?
5. Would the advice be different for a female versus a male intern?

ences emerged when examining individual items. Summative scores on this section varied more by year of training than by gender ($p = 0.008$ and $p = 0.86$, respectively). In the second section examining responses to clinical scenarios, the one aforementioned example differed significantly in that female residents were more likely than their male counterparts to offer to leave the room when a nurse interrupted their patient interview ($p = 0.05$). Cumulatively on this section, male residents had higher mean assertiveness responses than female residents ($p = 0.047$). Although there was some difference in assertiveness by year of training, the difference was not statistically significant ($p = 0.09$). All residents reported being actively involved in giving verbal orders.

The strongest gender difference emerged when examining perceptions of traits that confer the greatest advantage or disadvantage for directing patient care in the third questionnaire section. As illustrated in Figure 3, age was ranked as the greatest disadvantage by both male and female residents. However, 30% of female residents and no male resident ranked gender as the greatest disadvantage ($p < 0.01$), and 84% of female residents ranked gender first or second as a disadvantage. Cumulatively, 88% of women listed gender in their top three disadvantages vs. 49% of men. Using

the Fisher's exact test to compare the pooled likelihood of ranking specific traits in the top three disadvantages, we found that only rankings for gender were significantly different between male and female residents ($p < 0.001$ vs. $p = 0.17$ – 0.28 for other traits). Rankings of advantages (not shown) were not significantly different by gender.

Interview results

The coded and collapsed transcripts of the 16 interviews identified 14 major themes with 8–83 entries per category. Cumulatively, 127 subthemes emerged, with 1–18 responses in each subgroup sharing specific thematic ideas. Female residents described experiencing stress so often that we split this into multiple subcategories, including stress with delivering orders and other sources of stress in the dynamics of directing a healthcare team to influence patient care. These qualitative data are coherent with the questionnaire findings suggesting that gender is a greater issue for female than male residents. Only 1 of the male residents had a statement indicating that gender is an issue in residency, whereas 6 of the 8 female residents indicated that gender is an issue. Key themes pertaining to gender, experience, and influence are detailed in Table 2. Both male and female respondents noted that male residents are often perceived as more "authoritative," "confident," and "assertive." Female residents often described themselves or female peers as being "reflective" and at times "self-conscious." When residents were asked if they would offer different advice to a female intern vs. a male, several respondents from both sexes pointed out the precarious nature of "tone" in female-to-female nurse-doctor interactions. One female intern shared her own self-conscious quandary: "When you're new and you don't know the people that you're working with you need to delegate but . . . sometimes you're afraid that you'll be thought of as being bossy or too aggressive." A male senior resident noted:

FIG. 3.

TABLE 2. QUALITATIVE INTERVIEW THEMES MOST FREQUENTLY CITED AND REPRESENTATIVE QUOTES^a

Theme	Subthemes	Representative quotes
Describing female residents	Reflective Self-conscious Misinterpretation Tone/authority Collaborative	Reflective/less authoritative: Women tend to stand back a little bit more . . . be a little more thoughtful about things, and maybe a little more honest about some of their limitations. (<i>Senior F</i>) ^b Self-conscious: Face-to-face there's kind of this feeling of . . . "Who are you to tell me what to do? You know, you are just as old as my daughter." (<i>Senior F</i>)
Describing male residents	Authoritative More confident More assertive Flirting	Authoritative: If you had the deep booming male voice and kind of act authoritative they [nurses or other staff] won't initially second guess you. (<i>Junior M</i>) Confident/assertive: I would say in general the male residents start out at least externally being a lot more confident and probably a little more assertive and aggressive about things. (<i>Senior F</i>)
Stress when starting out in residency	New doctor Unsure of roles Self-conscious Blank slate Overwhelmed Time pressured	New roles: As an intern you sort of feel like you're a glorified medical student so you . . . are wondering, "Why are they asking ME this?" Then you realize—you're the DOCTOR! (<i>Senior M</i>) Unsure of perceptions: When you're new and you don't know the people you're working with . . . you need . . . to delegate . . . but sometimes you're afraid that you'll be thought of as being bossy to too aggressive . . . (<i>Junior M</i>)
Experience and stress	Confidence Routine Reputation Know staff	Confidence/routine: Once you have worked up a few patients on basic cases: pneumonia, cellulitis, COPD, then that pattern recognition really helps you grow, improves your confidence (<i>Senior F</i>)
Multidisciplinary team dynamics and orders	Collaborative Hierarchical MD responsible Communication Respect	Collaborative: It goes a long way when you create a team dynamic . . . parallel, not one above the other. (<i>Junior F</i>) Hierarchical: Ultimately the physician is the one responsible . . . but still sort of working as part of a team. (<i>Junior M</i>) It's not a request, it's an order, and it's not their name on the chart . . . (<i>Senior M</i>)
Nurse interactions and order giving	Respect Resources Agendas Communication	Respect: When we did orientation this year we put the top ten things to surviving residency and numbers one, two, and three were "Be kind to the nurses." (<i>Senior F</i>) Resources: I try to get feedback from the nurses (to) see if they're okay with the orders I've given. (<i>Junior M</i>)

^aOther themes less frequently cited: details of orders, details of order delivery, order delivery and stress, other stressors, resident motivations and perspectives, nursing motivations and perspectives, other advice.

^bSenior, completing PGY-2 or PGY-3; Junior, completing PGY-1.

"I've seen men able to say things in just terrible tones but it's just accepted. Whereas if a woman tried that. . . "

In interviews, women described stressful and self-conscious directive interactions with nursing staff. In describing her discomfort in the early days of giving orders, one first-year resident stated: "It just didn't seem right for me to tell people what to do, even if I was asking them in a nice way. It seemed like if it was something I could do myself, why would I, you know, ask them. But as the year went on, I started to realize that I had too much to do of my own work." A more senior woman recalled in her early experience: "I was nervous about how patients would view me. . . . I was nervous about how nurses would view me and if they would trust me at all. . . . I was nervous how I would be able to handle certain situations."

Several women residents emphasized the importance of a collaborative interaction with nursing staff. In fact, one woman thought she had a gender advantage as a woman on common ground with predominantly female nursing staff.

Offering advice to new interns, one senior female resident commented that the most successful residents were committed to communicating the idea that: "We're all a team here." More male residents described a hierarchical team dynamic. One man summarized:

"Ultimately the physician is the one responsible but still sort of working as part of a team."

Discussion

Both the quantitative and qualitative findings in our study suggest that male and female residents experience being in a leadership role differently. Among the residents surveyed, we found that experienced residents reported less stress in being directive regardless of gender. Male residents selected more assertive behaviors in common clinical scenarios, and female residents were more likely to name gender as a disadvantage when attempting to direct patient care. In interviews, all residents reported that interactions with nurses

and accrued experience were important. Female residents cited numerous examples of stress in a variety of circumstances, including giving orders, and both men and women were aware of different behaviors of male and female residents when being directive.

Until relatively recently, physicians in the United States were overwhelmingly male, and traditional assertive behaviors associated with being a physician (e.g., being direct, giving verbal orders) align with the unconscious assumptions about the way men should behave.^{4,15} Valian¹⁶ refers to such mental models as “gender schema.” These same behaviors, however, are inconsistent with gender schema for women, which generally include more communal behaviors (e.g., acting in a supportive role, being dependent). Furthermore, when women behave in a more stereotypically masculine way, it may trigger negative reactions.^{9,17,18} Performing a meta-analysis of experimental studies in which only the sex of the leader varied, Eagly et al.¹⁹ found that women leaders who adopted a stereotypically masculine, autocratic style received lower evaluations than men exhibiting the same style of leadership. Heilman et al.,¹¹ in a randomized study where evaluators rated assistant vice presidents for identical accomplishments, found that women but not men who were competent in leadership positions typically held by men were viewed as unlikable and that competence and likability were independent predictors of being recommended for institutional rewards. Butler and Geis¹⁷ found that when women perform as a single leader in a work group, they are subject to more subtle negative affective responses from other members of the team than men following identical scripts. The negative consequences for women in the corporate world who lead with a style associated with male gender schema have even led to the creation of workshops called Bully Broads to teach capable high-ranking women how to assume more socially acceptable, stereotypically female communal behaviors.¹²

Female residents find themselves in a position referred to by Eagly and Karau⁹ as “role incongruity” because the assumptions about the behavioral attributes required to be effective leaders overlap with the stereotypic male qualities more than stereotypic female qualities. The need to negotiate the interplay between their social roles as women and their newly acquired role as physicians may account for the finding in both our survey and interviews that female residents are more aware of gender and its salience in their experiences as residents than their male counterparts. The recurring theme in interviews that female residents need to be careful of their tone in giving orders and statements by residents of both genders that male residents are viewed as more authoritative, confident, and assertive are fully consistent with the research on gender behavioral norms, leadership, and power differentials in other contexts.^{10,20,21}

Although our results supported our original premise that male and female residents experience being directive differently, we were gratified to see that when asserting authority in specific clinical scenarios, year of training appeared to be more predictive of stress than did gender. In interviews, statements about experiencing stress with giving orders and in other situations (especially but not exclusively early in residency) were made by female residents far more often than by male residents. We do not know if the reduction in stress for women with experience is related only to greater com-

petence as a physician or if more experienced female residents have learned to tune their behaviors to be effective without suffering negative reactions for violating gender norms. For example, in a randomized, controlled study, Heilman and Okimoto²² found that the negative ratings, assumption of undesirable personal attributes, and lower desirability as a boss afforded successful female managers were entirely mitigated by providing additional evidence that successful women had communal traits (e.g., were “caring and sensitive” to employees). In our interviews, female residents noted the importance of being kind to nurses and checking things out with nurses. Extrapolating from the work of Heilman and Okimoto,²² female residents may have recognized—consciously or unconsciously—that engaging in these dependent, communal behaviors was an effective means of preventing negative reactions from nurses, thus achieving the end goal of directing patient care. In a recent paper, Hirshbein,²³ a new female faculty member, describes her own personal experiences in this regard. When she mimicked the autocratic leadership style of male faculty, evaluations from the residents she supervised were harshly critical. When she purposely engaged in “more nurturing” behaviors that align with her social role as a woman, which included demonstrating more personal interest in team members and bringing food, her evaluations turned positive.

No study has specifically investigated gender and stress related to giving verbal orders, but several studies have found gender differences in stress among residents, with women experiencing greater stress. In a survey of 165 residents, Archer et al.²⁴ found that female residents reported higher “hassles” scores than did male residents. Leonard and Ellsbury²⁵ surveyed 58% of all residents at the University of Washington School of Medicine and found that female residents were more likely than male residents to feel under stress and less confident. In interviews with 22 female residents at four medical centers, Coombs and Hovanessian²⁶ encountered stress related to role conflict among many female resident physicians. Our findings are consistent with these earlier studies.

Although our study is the first to examine the perceptions of residents in being directive toward members of the health-care team and although we approached this issue with both quantitative and qualitative methods, our study has limitations. Our findings are limited to a single residency program. Furthermore, even though the female residents chose less assertive responses and perceived gender to negatively impact their ability to direct patient care, we do not know if this had any impact—either positive or negative—on the provision or outcome of care. Nor do we know if female physicians who adopt a more stereotypically male assertiveness style are more or less effective in directing a healthcare team, although research from other settings would predict that such a style would be less effective for women than for men.^{18,19} Finally, it is possible that the interviews were influenced by the gender of the interviewer through social tuning.²⁷

Our study supports the existence of gender differences in residents’ perceptions and experiences in directing patient care and indicates that further research may be useful in exploring how female residents successfully negotiate the interactions of prescriptive gender norms for behavior with a directive leadership position. The resulting insights may help promote the success and career satisfaction of all resi-

dents. Our findings suggest that discussion of the existing research on gender and leadership may be warranted in resident orientation and potentially useful in reducing early stress for female residents.

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References

1. Association of American Medical Colleges. Data warehouse: Applicant matriculant file as of October 27, 2006. Available at www.aamc.org/data/facts/2006/2006summary.htm. Accessed August 9, 2007.
2. American Medical Association. FREIDA online specialty training statistics information: internal medicine 2005. Available at www.ama-assn.org/vapp/freida/spcstsc/0,1238,140,00.html. Accessed August 9, 2007.
3. Greiner AC, Knebel E, eds. Health professions education: A bridge to quality. Washington, DC: National Academy Press, 2003.
4. Bem S. The measurement of psychological androgyny. *J Consult Clin Psychol* 1974;42:155–162.
5. Holt CL, Ellis JB. Assessing the current validity of the Bem Sex-Role Inventory. *Sex Roles* 1998;39:929–941.
6. Konrad AM, Harris C. Desirability of the Bem Sex-Role Inventory items for women and men: A comparison between African Americans and European Americans. *Sex Roles* 2002;47:259–271.
7. Schein VE. The relationship between sex role stereotypes and requisite management characteristics. *J Appl Psychol* 1973;60:340–344.
8. Schein VE, Mueller R, Lituchy T, Liu J. Think manager—Think male: A global phenomenon? *J Organizational Behav* 1996;17:33–41.
9. Eagly AH, Karau SJ. Role congruity theory of prejudice toward female leaders. *Psychol Rev* 2002;109:573–598.
10. Eagly AH, Johnson BT. Gender and leadership style: A meta-analysis. *Psychol Bull* 1990;108:233–256.
11. Heilman ME, Wallen AS, Fuchs D, Tamkins MM. Penalties for success: Reactions to women who succeed at male gender-typed tasks. *J Appl Psychol* 2004;89:416–427.
12. Banerjee N. Some “bullies” seek ways to soften up; toughness has risks for women executives. *The New York Times*, August 10, 2001:C1.
13. Pope C, Mays N. Qualitative research: Reaching the parts other methods cannot reach: An introduction to qualitative methods in health and health services research. *BMJ* 1995;311:42–45.
14. Patton MQ. Qualitative evaluation and research methods, 2nd ed. Newbury Park, CA: Sage, 1990.
15. Heilman M. Description and prescription: How gender stereotypes prevent women’s ascent up the organizational ladder. *J Soc Issues* 2001;57:657–674.
16. Valian V. Why so slow? The advancement of women. Cambridge, MA: MIT Press, 1998.
17. Butler D, Geis FL. Nonverbal affect responses to male and female leaders: Implications for leadership evaluations. *J Pers Soc Psychol* 1990;58:48–59.
18. Rudman LA, Glick P. Prescriptive gender stereotypes and backlash toward agentic women. *J Soc Issues* 2001;57:743–762.
19. Eagly AH, Makhijani MG, Klonsky BG. Gender and the evaluation of leaders: A meta-analysis. *Psychol Bull* 1992;111:3–22.
20. Ridgeway C. Gender, status, and leadership. *J Soc Issues* 2001;57:637–655.
21. Scott J. Gender: A useful category of historical analysis. *Am Hist Rev* 1986;91:1053–1075.
22. Heilman M, Okimoto TG. Why are women penalized for success at male tasks? The implied communality deficit. *J Appl Psychol* 2007;92:81–92.
23. Hirshbein L. Are women residency supervisors obligated to nurture? *Med Educ* 2006;40:1159–1161.
24. Archer LR, Keever RR, Gordon RA, Archer RP. The relationship between residents’ characteristics, their stress experiences, and their psychosocial adjustment at one medical school. *Acad Med* 1991;66:301–303.
25. Leonard JC, Ellsbury KE. Gender and interest in academic careers among first- and third-year residents. *Acad Med* 1996;71:502–504.
26. Coombs RH, Hovanessian HC. Stress in the role constellation of female resident physicians. *J Am Med Womens Assoc* 1988;43:21–27.
27. Lowery BS, Hardin CD, Sinclair S. Social influence effects on automatic racial prejudice. *J Pers Soc Psychol* 2001;81:842–855.

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