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Original Article

Speaker Introductions at Internal Medicine Grand Rounds: Forms of Address Reveal Gender Bias

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Abstract

Background: Gender bias has been identified as one of the drivers of gender disparity in academic medicine. Bias may be reinforced by gender subordinating language or differential use of formality in forms of address. Professional titles may influence the perceived expertise and authority of the referenced individual. The objective of this study is to examine how professional titles were used in the same and mixed-gender speaker introductions at Internal Medicine Grand Rounds (IMGR).

Methods: A retrospective observational study of video-archived speaker introductions at consecutive IMGR was conducted at two different locations (Arizona, Minnesota) of an academic medical center. Introducers and speakers at IMGR were physician and scientist peers holding MD, PhD, or MD/PhD degrees. The primary outcome was whether or not a speaker's professional title was used during the first form of address during speaker introductions at IMGR. As secondary outcomes, we evaluated whether or not the speakers professional title was used in any form of address during the introduction.

Results: Three hundred twenty-one forms of address were analyzed. Female introducers were more likely to use professional titles when introducing any speaker during the first form of address compared with male introducers (96.2% [102/106] vs. 65.6% [141/215]; $p < 0.001$). Female dyads utilized formal titles during the first form of address 97.8% (45/46) compared with male dyads who utilized a formal title 72.4% (110/152) of the time ($p = 0.007$). In mixed-gender dyads, where the introducer was female and speaker male, formal titles were used 95.0% (57/60) of the time. Male introducers of female speakers utilized professional titles 49.2% (31/63) of the time ($p < 0.001$).

Conclusion: In this study, women introduced by men at IMGR were less likely to be addressed by professional title than were men introduced by men. Differential formality in speaker introductions may amplify isolation, marginalization, and professional discomfiture expressed by women faculty in academic medicine.

Keywords: academic medicine, unconscious bias, gender disparity, stereotype

Introduction

ALTHOUGH ADVANCES HAVE been made toward achieving gender equity in medical education and academic medicine, women continue to lag behind their male counterparts in many important areas.[1–6] In this context, gender bias has been identified as one of the drivers of gender disparity in academic advancement and remains a significant challenge for women in the workplace.[7–10] Gender bias can be subtle and may be further reinforced through the use of

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gender-subordinating language and by choice of level of formality (*i.e.*, style) in forms of address (*e.g.*, formal title, first name, nickname).[11–14] Word choice and selective use of forms of address may reflect conscious or unconscious assumptions about gender roles.[1,11,15]

Ideally, in a professional setting, occupational/professional titles and informal names should be used equally among men and women. In settings where professional titles convey expertise and competence, failure to acknowledge the title may influence the perceived expertise and authority of the referenced individual. The manner in which individuals refer to a fellow professional may introduce a linguistic expectancy bias, whereby subtle systematic variations in language, such as the use of a professional title or not, not only reflect stereotypic expectancies, but also strengthen them, reinforcing a lack of equity in the workplace.[16] Nonreciprocal address practices in mixed-gender interactions may encourage a preconceived power differential and contribute to the reinforcement of gender stereotyping. This practice may influence institutional culture and inadvertently further gender bias and even gender discriminatory practices.[8]

Within professional environments, individuals may assume shared norms of a particular linguistic network or community of practice and, therefore, differences in formality can signal intentional, subconscious, and/or institutionalized behavior.[17] Within academic medicine, studies have demonstrated the presence of linguistic biases in RO1 grant reviews and letters of recommendation for medical faculty seeking tenure, suggesting gender stereotyping may impede career advancement of women.[11,13] A recent report highlighted the importance of self-identification by professional title when resident physicians answered pages in the hospital. The use of title was recognized to convey their role on the team, establish credibility, and display professionalism.[15] Anecdotal reports[18,19] and observation of nonreciprocal address practices in mixed-gender interactions at professional meetings and academic medical centers prompted us to more formally evaluate these occurrences. We sought to determine how forms of address were used in same- and mixed-gender interactions occurring in the setting of regularly occurring formal conferences in an academic medical center.

In the field of medicine, Internal Medicine Grand Rounds (IMGR) represents a formal setting in which the majority of participants in both the role of speaker and audience member are physician and scientist peers holding MD, PhD, or MD/PhD degrees. In this professional setting, the expectation is that an appropriate formal introduction of each of these degreed participants would include the use of the title, ''Doctor'' (Dr.), as fitting with current standards of professionalism and etiquette.[20] We hypothesize that female speakers in this professional setting are more often addressed by first name or equivalent than their male counterparts during speaker introductions.

We, therefore, sought to examine the association between gender and address practices used during formal introductions of speakers in IMGR.

Methods

Study design

We conducted a retrospective observational study of forms of address used during IMGR at our institution. The study was approved by the Institutional Review Board at our institution and deemed exempt. The retrospective analysis utilized IMGR presentations held in a video archive. Speaker introductions occurring at consecutive IMGR at 2 different campuses from January 1, 2012, through July 20, 2014, were analyzed for forms of address used. Mixed-gender coding teams of 2 coders per team were assembled. Each coder underwent formal training in evaluation of the presentations, coding strategies, and reporting structure. The teams were trained at an organizational meeting and those who could not participate in person were provided the slide presentation and written materials. Intercoder reliability was assessed utilizing standardized introductions with all coders required to attain 100% accuracy before participation. A male and female reviewer coded each verbal introduction noting the form of address used in the introductions. The use of mixed-gender coding teams was intentional to decrease or eliminate any unconscious bias on the part of the coders.

A total of 134 unique grand rounds presentations listed in a video archive library were accessed and reviewed for inclusion in the study. Grand rounds presentations were excluded from analysis if the speakers did not have doctoral degrees ($n = 3$), video was not available for review ($n = 5$), or review of the grand rounds was conducted by only 1 coder of the review team ($n = 1$). One video was excluded as no speaker introductions were made. Participants were identified as either introducer or speaker depending on their role in the verbal interaction being observed. Introducers were defined as those making the introduction and speakers were those being referred to during the introduction. IMGR introducers are selected based on a variety of factors, including subject matter expertise, hosting division, or session theme. Each grand rounds presentation could contain multiple speakers requiring introductions. Of the 124 grand rounds reviewed, 83 had more than 1 introduction (introducer introducing the speaker) with each introduction representing an opportunity for the introducer to utilize the appropriate professional title. Each grand round had between one and five introducers. We restricted the analysis to the sessions where both the introducer and speaker had a doctoral degree (MD/PhD/Pharm D/DMD). We analyzed the form of address used in up to 5 speaker introductions in each grand round. In the analysis, each introduction on the same date was treated as an occurrence. Within an occurrence, there was one introducer and one speaker. We recorded gender and credentials of introducers and speakers as:

1 = Dr. Full Name; 2 = Dr. Last Name Only; 3 = First and Last Name; 4 = First Name Only.

We collapsed the above 4 into 2 responses: speaker was addressed by professional title (1, 2) and speaker was not addressed by professional title (3, 4 above). The primary outcome of interest was whether or not a speaker's professional title was used during the first form of address. As secondary outcome, we evaluated whether or not the professional title was used in any form of address within the same occurrence. Gender and credentials of introducers and speakers were recorded when available. Participants in grand rounds were unaware that a retrospective analysis of the introduction was being considered. Coding discrepancies were adjudicated by the principal investigators and all data were recorded in a deidentified manner.

Statistical methods

In the introducer/speaker dyad, there were 4 possible gender combinations of female introducers (FI), male introducers (MI), male speakers (MS), and female speakers (FS): FI introducing FS, FI introducing MS, MI introducing FS, and MI introducing MS. We reported the frequency counts and percentages of speakers who were addressed and were not addressed by their professional titles for the primary and secondary outcomes. To compare the percentages across groups, a generalized estimating equation (GEE) was applied to adjust for the clustering effect of the verbal interactions at the same grand rounds, and the *p*-values from the Wald test were reported. The analyses were performed using SAS 9.4 (SAS Institute, Cary, NC). A 2-sided familywise *p*-value <0.05 was considered statistically significant.

Results

A total of 321 forms of address between an introducer and a speaker occurring during introductions from 124 grand rounds were analyzed. Forty-one grand rounds had only a single introduction, 14 had 2 introductions, 33 had 3, 24 had 4, and 12 had 5 introductions. One hundred and six (33.3%) of the introducers were female, whereas 215 (67.0%) of introducers were male. Among the speakers, 109 (34.0%) were female and 212 (66.0%) were male. The introducer/speaker dyad proportions were as follows: FI introducing FS = 46 (14.3%), FI introducing MS = 60 (18.7%), MI introducing FS = 63 (19.6%), and MI introducing MS = 152 (47.4%).

The first form of address

Female introducers were more likely to use a professional title when introducing any speaker during the first form of address when compared with male introducers (96.2% [102/106] vs. 65.6% [141/215]; $p < 0.001$). Female dyads (FI introducing FS) utilized formal titles during the first form of address 97.8% (45/46) of the time compared with 72.4% (110/152) for male dyads (MI introducing MS) ($p = 0.007$). (Table 1) In mixed-gender dyads, where the introducer was female and speaker male (FI introduces MS), formal titles were used 95.0% (57/60) of the time versus 49.2% (31/63) when the introducer was male and speaker female (MI introduces FS) ($p < 0.001$).

Any form of address

Further analysis revealed that across any form of address in each speaker introduction, female introducers were more likely to call a speaker by their professional title than were their male counterparts (96.2% [102/106] vs. 67.0% [152/215]; $p < 0.001$) (Female dyads (FI introducing FS) utilized formal titles during any form of address 97.8% (45/46) of the time compared with 75.7% (115/152) for male dyads (MI introducing MS) ($p = 0.01$) Table 2). In mixed-gender dyads, where the introducer was female and speaker male (FI introduces MS), professional titles were used 95.0% (57/60) of the time versus 58.7% (37/63) when the introducer was male and speaker female (MI introduces FS) ($p < 0.001$).

Sensitivity analysis

A sensitivity analysis was performed to control for the potential effects of the moderator on the subsequent introducers and introductions as many grand rounds conferences were moderated by the director of Grand Rounds. When introductions by the moderator were removed from the analysis, although some of the comparisons became less statistically significant, the percentages of utilizing formal titles during the first form of address were very consistent with the results of the overall sample. (Table 3)

Discussion

To our knowledge, this is the first study to objectively demonstrate gender differences in forms of address used in speaker introductions occurring in a formal academic medical conference.

In this study, women introduced by men at IMGR were less likely to be addressed by their professional title than were men introduced by men. In contrast, women introducers were more formal in both same- and mixed-gender interactions. Our findings demonstrate that female introducers compared with male introducers were more likely to use professional titles when introducing any speaker, male or female, during the first form of address. However, there were striking differences in how males utilized their informal introduction style depending on whether the speaker was a man or woman. While women consistently and nearly universally introduced both male and female speakers by their formal titles during first form of address, men used male's formal title during introductions 72.4% (110/152) of the time ($p = 0.007$), whereas acknowledging female speakers with their professional title only 49.2% (31/63) of the time ($p < 0.001$) (Table 1).

While the first form of address is significant in establishing a tone of respect and credential acknowledgement at IMGR, our secondary outcome was to evaluate whether or not the professional title was used in any form of address (first and all subsequent) during the introduction before the speaker

Table 1. First Form of Address

Introducer and Speaker gender (Introducer, Speaker)	*Speaker addressed by professional title*		p-*values from pairwise comparisons*			
	n/N	*%*	*FI-FS*	*FI-MS*	*MI-FS*	*MI-MS*
Female, Female (FI-FS)	45/46	97.8%		0.46	<0.001	0.007
Female, Male (FI-MS)	57/60	95.0%			<0.001	0.003
Male, Female (MI-FS)	31/63	49.2%				0.001
Male, Male (MI-MS)	110/152	72.4%				

Gray cells represent the same groups compared to themselves or duplicates.
FI, female introducers; FS, female speakers; MS, male speakers; MI, male introducers.

Table 2. Any Form of Address

Introducer and Speaker gender (Introducer, Speaker)	*Speaker addressed by professional title*		p-*values from pairwise comparisons*			
	n/N	*%*	*FI-FS*	*FI-MS*	*MI-FS*	*MI-MS*
Female, Female (FI-FS)	45/46	97.8%		0.44	<0.001	0.01
Female, Male (FI-MS)	57/60	95.0%			<0.001	0.006
Male, Female (MI-FS)	37/63	58.7%				0.02
Male, Male (MI-MS)	115/152	75.7%				

Gray cells represent the same groups compared to themselves or duplicates.

assumed the podium. Female introducers with their high utilization of formal title during the first form of address exhibited no change in their utilization of formal title. When all introductions by men were included, the rate of utilization of professional titles increased slightly, but a gender difference remained (Table 2). Despite multiple opportunities to acknowledge the speakers' credentials, the title of *Dr.* was withheld by male introducers from 41.3% of female speakers compared with only 24.3% of male speakers.

Within popular literature, there are many anecdotal examples of professional women encountering the ''insidious slights'' of nonreciprocal address practices occurring in mixed-gender, professional workplace interactions.[18–20] Additionally, the reinforcement of gender hierarchy that occurs by not acknowledging the professional title of female speakers further reinforces the social norm that men are of higher status than women.[21] Gender differences in both content and use of titles were common in a study of over 300 letters of recommendation for academic positions.[13] Letters written on behalf of women compared with men were shorter, raised more doubts, contained hedges, unexplained comments and ''faint praise,'' and used language that reinforced gender stereotypes. Analogous to our study, letters written for men compared with women were 4 times more likely to highlight multiple professional titles beyond *Dr.*[13]

This study supports what many female physicians have experienced and discussed informally; the withholding of their professional titles when they are referenced or addressed by their male colleagues. Perhaps this is made more noticeable by our finding that women use formal titles close to 100% of the time for both the men and the women they introduce. This formal practice by women may engender an expectation of reciprocity, thus, further amplifying the disparity. While we did find that men are less formal overall and do withhold the professional title of *Dr*. during the first form of address from over one quarter of male speakers, it is important to view the experience from the perspective of the female speaker. As she prepares to assume the podium for her formal presentation, she will hear her formal title from almost all of the female introducers; however, she has less than a 50% likelihood that a male introducer will set the tone in the first form of address by calling her ''Doctor.''

Word choice and selective use of forms of address may reflect conscious or unconscious assumptions about gender roles[1,12,13] and may be a demonstration of ''in-group'' bias.[21] The concept of in-group and out-group bias purports that members of the in-group typically hold status, power, and prestige.[22] Men in academic medicine belong to the in-group, and one of the tools for maintaining male power is the use of gender subordinating language. As members of the ''out-group,'' women may benefit more from an external conferral of status through a title than men, who are already assumed to have status. However, women may suffer a greater loss of status when that title is withheld.[23]

Expectation of formality may vary depending on the setting in which the introduction occurs and on organizational culture; however, whatever the setting and culture (formal vs. informal), it should affect men and women equally at any organization. Our rationale for examining introduction style in the formal setting of IMGR was that it is the most likely professional encounter, where one might expect consistent use of a formal title in contrast to small group presentations, or work rounds in academic medicine given their informal nature and more casual settings. While the desire to be called *Dr*. varies greatly in academia, many doctors ask to be called by their first name or nickname in professional settings.[18] There is a crucial difference between an individual asking to be called by his or her first name, and having the informality assumed by others.[24] In the first scenario, the power remains in the hands of the academic/professional; in the latter it does not and is a form of gender bias, which potentially dictates subsequent behavior. Failure to use a woman's professional title is a subtle reinforcement that women are of lower status and may be one of the factors contributing to the consistent

Table 3. First Form of Address (Excludes Moderator from Analysis)

Introducer and Speaker gender (Introducer, Speaker)	*Speaker addressed by professional title*		p-*values from pairwise comparisons*			
	n/N	*%*	*FI-FS*	*FI-MS*	*MI-FS*	*MI-MS*
Female, Female (FI-FS)	23/29	96.6%		0.76	<0.001	0.02
Female, Male (FI-MS)	44/45	97.8%			<0.001	0.008
Male, Female (MI-FS)	17/36	47.2%				0.01
Male, Male (MI-MS)	62/87	71.3%				

Gray cells represent the same groups compared to themselves or duplicates.

finding that female physicians are paid less than their male counterparts are less likely to be appointed to leadership positions and are more likely to pursue career tracks with historically fewer opportunities for academic promotion[10,25–29] Additionally, using or withholding professional titles may introduce a linguistic expectancy bias, contribute to stereotype threat, and reinforce a lack of equity in the workplace[8,16] The significance of these linguistic biases lies in the fact that they implicitly communicate stereotypes to the individual, in this case women in medicine, and thereby contribute to the transmission and maintenance of socially shared stereotypes which ultimately have the potential to affect both the recipient and the audience.

Perceived inequities within academic medicine do matter. One of the major contributors to low job satisfaction and burnout is a worker's sense of inequity in the workplace.[30,31] Many women working in academic medicine feel marginalized, as they perceive themselves to be outsiders, reporting feelings of isolation and not belonging.[32] Not receiving verbal acknowledgement of their professional status, and therefore recognition as equals, may further add to the feeling of marginalization by some women.[33]

Unequal forms of address can also be viewed as microaggressions, the brief daily verbal, behavioral, and environmental indignities, whether intentional or unintentional, which communicate hostile, derogatory, or negative racial, gender, sexual orientation, or religious slights and insults to the target person or group.[34] More specifically, as a microaggression, unequal address practice is a form of microinvalidation; words and actions that exclude, negate, or nullify someone's thoughts, feelings, or reality. In other words, not acknowledging women and men professionals in a consistent and equivalent manner propagates unconscious gender stereotypes.[33]

Gender equity in academic medicine remains a challenge despite dedicated efforts and the adoption of policies which have significantly reduced overtly discriminatory and stereotype-based gender bias practices.[10,14,35] In addition to equal access, supportive leadership, and work-life balance, freedom from gender bias has been identified as one of the distinct dimensions in a work environment that contributes to a woman's ability to be academically successful.[35,36] Gender bias is challenging to address as it occurs across many domains and impacts multiple processes that are intrinsic to driving career advancement.[37] The goal of true gender equity for women physicians and scientists working in academic medicine transcends numerical parity and requires a fully inclusive ''culture conducive to women's academic success (CCWAS).''[35] Efforts to effect change have led to a broader understanding of the issues underlying practices that encourage gender inequity. Overt discrimination is usually obvious and well recognized by those experiencing it, whereas more subtle forms of gender bias are difficult to describe, explain, and to address especially when inflicted upon an individual who may feel unsafe to address the practice as it occurs. Furthermore, unrecognized aspects of an organization's culture may have different effects on men and women. The subtle role language abstraction plays in hindering women's careers has been documented.[33]

Efforts to address unconscious bias require awareness of the subtleties of behavior and language that contribute to a culture of gender disparity and inequity.[4]

Evidence suggests that stereotype-based bias operates much like a habit and thus could be addressed in a systematic way.[4] A number of interventions to remediate gender bias in academic medicine have shown promise.[3,4,10,38,39] Furthermore, it has been found that the acknowledgement of practices that demonstrate gender bias and stereotype threat lessens the negative impact on those most affected.[8,40] It is our hope that objective documentation of the gender disparity identified in speaker introductions at IMGR will provide validation to women who have experienced it.

The institution of formal guidelines for speaker introductions at IMGR can be a first step toward addressing the findings of this study. Guidelines could include expectations for length and content of introduction and that all speakers are introduced with the use of their professional title. IMGR, often the flagship conference for the Department of Medicine at many academic medical centers, is imbued with historical precedent and expectation for formality. The broad reach of the conference has the potential to influence a critical mass of faculty, thus, leading to effective change in institutional practices and culture[4]

Study limitations

Certain limitations of our study must be considered in the interpretation of the results. This was a retrospective analysis representing presentations that occurred in one department (internal medicine) within the same institution, although at two different campuses, and the findings may not be generalizable to other settings. We could not ascertain if race or religious affiliation played a role in the use of informal forms of address as we did not assess these characteristics among the observed speakers. Also, the study was not designed to address the issue of age/seniority or prior familiarity between introducer and speaker as this information was not available in the video archive. However, in order for these variables to negate the findings of the study, the assumption would have to be made that the majority, if not all of the women, were younger, more junior, and had no prior familiarity with the speakers they were introducing. Finally, further studies, if we are to offer a comprehensive view of gender bias, should take into account issues of intersectionality (for example, gender cross-studied with race, ethnicity, and economic status), which often disproportionately affect women of certain backgrounds.

Conclusion

Despite substantial gains in the number of women graduating from medical school and achieving status as faculty members, there remains a significant difference in the way men and women are perceived and treated in academic medicine. In this study, we demonstrated a potential contributor to these gender differences in the form of unequal forms of address used to introduce female and male faculty of equivalent educational level. Although these findings confirm the anecdotal experience of female faculty who encouraged us to explore this issue, we acknowledge that additional variables not analyzed in this study may have impacted our results. Subtle, yet pervasive practices, reinforcing the perception that women are of lower status than men, can negatively impact a woman's career trajectory and her satisfaction with her career even if they are

unintentional.[14] Unequal naming practices may amplify the issues of isolation, marginalization, and professional discomfiture expressed by women faculty in academic medicine.[32] Even if this practice is unintentional, it may reflect subtle yet important inequity. The findings in this study support the need for academic and professional organizations to explore whether subtle types of bias are present in other settings. Identification of this issue is only the first step. Our hope is that this study will encourage further discussion and commitment to the development of guidelines for speaker introductions at all departmental levels and functions as IMGR has the potential to influence the way colleagues interact with one another. Ideally, a culture of inclusion and transparency would provide a setting, where women are perceived and treated as equals to male colleagues.

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Author Disclosure Statement

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