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Women in Academic Medicine: Measuring Stereotype Threat Among Junior Faculty

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Abstract

Background: Gender stereotypes in science impede supportive environments for women. Research suggests that women's perceptions of these environments are influenced by stereotype threat (ST): anxiety faced in situations where one may be evaluated using negative stereotypes. This study developed and tested ST metrics for first time use with junior faculty in academic medicine.

Methods: Under a 2012 National Institutes of Health Pathfinder Award, Stanford School of Medicine's Office of Diversity and Leadership, working with experienced clinicians, social scientists, and epidemiologists, developed and administered ST measures to a representative group of junior faculty.

Results: 174 School of Medicine junior faculty were recruited (62% women, 38% men; 75% assistant professors, 25% instructors; 50% white, 40% Asian, 10% underrepresented minority). Women reported greater susceptibility to ST than did men across all items including ST vulnerability ($p < 0.001$); rejection sensitivity ($p = 0.001$); gender identification ($p < 0.001$); perceptions of relative potential ($p = 0.048$); and, sense of belonging ($p = 0.049$). Results of career-related consequences of ST were more nuanced. Compared with men, women reported lower beliefs in advancement ($p = 0.021$); however, they had similar career interest and identification, felt just as connected to colleagues, and were equally likely to pursue careers outside academia (all $p > 0.42$).

Conclusions: Innovative ST metrics can provide a more complete picture of academic medical center environments. While junior women faculty are susceptible to ST, they may not yet experience all of its consequences in their early careers. As such, ST metrics offer a tool for evaluating institutional initiatives to increase supportive environments for women in academic medicine.

Introduction

In academic medicine, women comprise 47% of medical students but just 21% of full professors.[1] While these figures seem to suggest it is only a matter of time before women reach parity up the career ladder, the Association of American Medical Colleges (AAMC) reports that ''there is no longer a pipeline problem regarding women entering medical school,'' and that instead, women are foregoing academic medicine careers.[2,3] Across Science, Technology, Engineering, and Mathematics (STEM) fields—which include academic medicine—student pipeline explanations cannot reasonably account for continued gender disparity among faculty.[4] While women's attrition in STEM is often attributed to gender-based differences in family responsibilities and career commitment,[5] an increasing amount of research links women's turnover in these fields to STEM cultures.[6,7]

Specifically, gender stereotypes in STEM impede supportive environments for women faculty.[8] Stereotypes originate from society, are often unconsciously held by both men and women, and not only affect the social interactions and

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external evaluations of a stereotyped individual, but can also affect that individual's performance in the stereotyped domain. Social science research suggests that women's perceptions of their environments are influenced by stereotype threat (ST): the anxiety faced when confronted with situations in which one may be evaluated using a negative stereotype.[9,10] Studies of ST have found that black students perform worse on standardized tests when reminded of their race,[9] women perform worse on math tests when reminded of their gender,[11] and older adults perform worse on memory tasks when reminded of their age.[12] While consensus exists regarding the actuality and nature of ST, and several studies have examined the construct among students from underrepresented groups studying traditional STEM subjects, in this paper we have advanced the domain of knowledge of ST to new frontiers. We have developed novel metrics to assess ST in a population that is vastly understudied but widely assumed to be vulnerable: the population of junior faculty at an academic medical center.

ST can degrade performance whenever group stereotypes contradict explicit or implicit criteria for success. Women faculty experience conflict between stereotypes of women (gentle, nurturing, communal), and stereotypes of leaders (independent, assertive, competitive);[13,14] thus, when these stereotypes are invoked, women's performance may suffer.[15] Women leaders in medicine are likely to confront reminders of these stereotypes in both subtle and blatant ways, including within the language of performance evaluation and promotion. Research has shown that tenure criteria from top-ranked medical schools frequently include many more words associated with stereotypically ''male'' attributes than with ''female'' or ''neutral'' attributes.[16] The culture of academic medicine, which tends to require self-promotion and autonomous behavior, often rewards stereotypically ''male'' behavior.[17] Factors such as these likely contribute to gender disparities in compensation, which persist within academic medicine.[18]

Although the most widely known consequence of ST is degraded performance in assessments, other documented consequences of ST include internal attribution of failure,[19] self-handicapping,[20] and distancing oneself from the stereotyped group.[21] Individuals facing ST may eventually distance themselves from the entire stereotyped domain.[22] This may lead them to alter their professional identities and aspirations in order to cope. Studies suggest that women have lower leadership aspirations when experiencing ST than those who do not experience the threat.[23] Those who defy the stereotypes of their group to achieve success in the stereotyped domain may also face negative consequences. Women who perform well in a stereotypically ''male'' domain may face negative reactions from others due to their perceived violation of gender norms.[24] Research published in this journal has revealed a lack of gender parity at leadership levels and lack of retention of women within academic medicine.[25] Thus, negative outcomes potentially related to ST have been observed, but the evidence of ST leading to these outcomes within academic faculty populations has not yet been established.

Although to date ST has not been directly measured within medical faculty populations, satisfaction and engagement surveys within diverse academic STEM disciplines have documented greater dissatisfaction among female than among male faculty. More often than men, women of all ranks report isolation from colleagues and perceptions of fewer available career advancement opportunities.[26,27] Women also report sensing incongruence between their own values and those of their institutions.[26] These perceptions of barriers to advancement and distance from colleagues and institutions are related to observed consequences of ST, such as career disengagement, but no research has yet considered this relationship. It is imperative to study the ways in which ST may contribute to women faculty's dissatisfaction in medicine due to the high cost of turnover of medical faculty to individuals, institutions, and society.

Research focusing on women faculty in medicine often alludes to ST as a cause for concern and an area to further investigate;[26,28] however, the metrics necessary to investigate ST have not yet been implemented in this population. We developed novel metrics surrounding ST for use with junior medical school faculty, a population considered particularly vulnerable as they navigate new roles in their nascent careers. We assessed susceptibility to ST as well as consequences of ST. ST-consequence factors are often incorporated in faculty satisfaction surveys, but have not yet been considered in relation to ST. Our inclusion of ST-precursor and ST-consequence metrics allowed us to assess both individuals' potential exposure to ST and the extent to which they experienced consequences affecting their careers.

Materials and Methods

As part of the 2012 National Institutes of Health's Pathfinder Award, the Office of Diversity and Leadership at Stanford's School of Medicine (SoM) partnered with a team of experienced clinicians, social scientists and epidemiologists in order to understand the role of ST among junior medical faculty. The team makeup was particularly important as it united social science expertise on gender stereotypes with knowledge of the inner workings of academic medicine.

The Pathfinder study aimed both to analyze the presence of ST among junior faculty and to pursue ST interventions. Here, we report findings related to ST survey measures collected prior to later-stage interventions. While often researched among undergraduates, ST measures are not assessed in junior faculty populations. This population is especially critical to consider because of high career attrition among women at this stage.

Recruitment

Recruitment occurred via email from 13 ''champions'' (senior SoM faculty in leadership positions). Using a database of current assistant professors and instructors, champions sent announcements asking junior faculty in their departments or research groups to participate in a study. Participants were told that the survey was part of a larger research initiative entitled ''Steps to Transitioning to Early Professoriate,'' and that upon survey completion, they would be asked to return at a later date to participate in a faculty development presentation or an functional Magnetic Resonance Imaging study. Institutional review board (IRB) approval required the recruitment email to make clear that participation was anonymous and champions would not know who chose to participate. Therefore, participants felt in no way beholden to the request sent to them by the senior SoM champion. Once enrolled, participants' individual identifiers were accessible only to the team's research officer. Participants received a link to the survey, which took 15–20

minutes to complete. Upon completion, participants received $25 gift cards to Amazon.com.

Participants

Participants included 174 (108 women, 66 men) SoM instructors and assistant professors from a total population of 727 (381 women, 346 men). Once champions sent the initial recruitment emails, tallies of responses by gender were kept to identify achievement of recruitment goals. To maintain statistical power for later-stage interventions, we sought to recruit a minimum of 75 women and 45 men and were able to recruit 45% more than our target to account for the likelihood of later-stage attrition. Fortunately, we achieved 45% more than our target rapidly, after which we ceased recruitment.

Of this junior faculty sample, 75% ($n=130$) were assistant professors and 25% ($n=44$) were instructors. Across remaining demographic variables, participants did not differ significantly from the broader population. Participants' average age was 39, ranging from 28 to 63. Participants were 50% white ($n=87$), 40% Asian ($n=69$), and 10% underrepresented minority ($n=18$) (African American, Hispanic/Latino, Native American/Alaska Native, Native Hawaiian/Pacific Islander). Most were from clinical departments (96%), and time in rank averaged 2.5 years (ranging from 1 month to 9 years). In Pearson's chi-squared tests (for categorical variables) and two-sample *t*-tests (for continuous variables), there were no significant differences in demographic characteristics by gender apart from faculty rank ($p=0.006$), where there were more female instructors and male assistant professors, and percentage of women in the department ($p<0.001$), where women were more likely to be in departments with higher percentages of women. Again, these figures were in line with demographics of the population (Table 1).

Table 1. Summary Statistics of Survey Respondents, by Gender

	Overall (n = *174*)	*Women* (n = *108*)	*Men* (n = *66*)
Age (years)	39.1 (5.6)	38.5 (5.6)	40.1 (5.5)
Race			
White	50.0	55.6	40.9
Asian	39.7	35.1	47.0
Underrepresented minority[a]	10.3	9.3	12.1
Marital status			
Single	12.6	13.9	10.6
Married/partnered	84.5	83.3	86.4
Divorced	2.9	2.8	3.0
Number of children			
0	35.1	36.1	33.3
1	17.2	17.6	16.7
2	35.1	33.3	37.9
3–4	12.6	13.0	12.1
Faculty rank[b]			
Instructor	25.3	32.4	13.6
Assistant professor	74.7	67.6	86.4
% Women in department[b]	40.2 (11.3)	42.6 (9.9)	36.3 (12.3)
Department type			
Clinical	96.0	95.4	97.0
Basic science	4.0	4.6	3.0
Time in rank (years)	2.5 (2.3)	2.4 (2.3)	2.8 (2.3)
Highest earned academic degree			
MD (includes MD + other)	69.5	73.2	63.6
PhD (includes PhD + other)	12.6	13.0	12.1
MD/PhD	14.4	9.3	22.7
Other	3.5	4.6	1.5

Values for categorical variables represent percent in each category. Values for female representation, time in rank, and age are variable means (standard deviations in parentheses).

[a]Underrepresented minority encompasses African American, Hispanic/Latino, Native American/Alaska Native, and Native Hawaiian/Pacific Islander, for which representation is too small to count separately.

[b]Values for women and men for these variables differ significantly using Pearson's chi-squared tests (categorical) and two-sample *t*-tests (continuous). They do not differ significantly, however, from the population and are thus representative of the make-up of their respective categories.

Instrument development

Participants completed measures commonly used to measure ST in nonfaculty populations that were reworded to better correspond to faculty (see Supplementary Appendix S1; Supplementary Data are available online at www.liebertpub.com/jwh). These ST metrics were drawn from previously validated items used in the social psychological literature to measure various aspects of ST. We conducted principal component analysis to ensure that our items loaded onto the distinct factors identified in prior research. All analyses were completed using Stata 13 (StataCorp LP). Participants completed each of the following:

A 4-item ST vulnerability scale based on Pinel's stigma consciousness questionnaire[29] and Cohen and Garcia's ST scales[30] [e.g., ''I feel that people in academic medicine judge me negatively because of what they think of (my gender) as a group''; 1 = strongly disagree, 7 = strongly agree; $\alpha=0.81$];

A 16-item faculty-based rejection sensitivity scale based on London et al.'s gender-based rejection sensitivity[31] and Downey and Feldman's rejection sensitivity[32] scales [for each of eight scenarios, e.g., ''Image you are working on a difficult research project and want to approach a senior colleague for advice,'' participants rate how anxious they would be in this situation and to what extent they would expect to be treated fairly—the fairness question is reverse-coded and responses to both (6-point) questions are multiplied, with the products averaged across scenarios; 1 = possible minimum, 36 = possible maximum; $\alpha=0.80$];

A 4-item gender identification scale based on Cohen and Garcia's racial identification[30] and Schmader's gender identification scales[33] (e.g., ''Overall, my gender has very little to do with how I feel about myself''; 1 = strongly disagree, 7 = strongly agree; $\alpha=0.81$);

A two-item relative potential (compared with colleagues) scale based on Walton and Cohen's potential measure[34] (i.e., ''I believe I have more potential than __% of faculty members in my department'' and ''I believe I have more potential than __% of all faculty members at Stanford Medical School''; 0%–100%, average of both scores; $r=0.85$, $p<0.001$); and

A 6-item sense of belonging scale based on Walton and Cohen's social fit scale[34] (e.g., ''I feel like I belong in my department''; 1 = strongly disagree, 7 = strongly agree; $\alpha = 0.82$).

This first set of measures assesses exposure and susceptibility to ST. Specifically, those high in stigma consciousness (here, ST vulnerability) are more likely to underperform in ST contexts.[35] Similarly, high rejection sensitivity indicates that the individual is constantly watchful for signals of being viewed stereotypically and is more likely to evaluate a given situation as threatening.[36] Gender identification (or group identification, more generally) indicates that individuals may be more sensitive to ST because their group membership is more salient to them.[37] Relative potential and sense of belonging scales evaluate overall sense of fit as medical faculty members; research has shown that high sense of fit reduces ST.[30]

In order to examine the career-related consequences of ST, we assessed additional items, including:

A four-item career advancement scale, based on Markus and Nurius' possible academic selves measure[38] (e.g., ''I can see myself completing enough research to advance to Associate Professor''; 1 = strongly disagree, 7 = strongly agree; $\alpha = 0.86$);

One item assessing career enjoyment based on Walton and Cohen's enjoyment of academic work measure[34] (''How much do you enjoy the work of academic medicine?'' 1 = not at all, 7 = extremely);

An eight-item career identification scale based on Walton and Cohen's academic identification scale[34] (e.g., ''How important is it to you to do well in academic medicine?'' 1 = not at all, 7 = extremely; $\alpha = 0.88$);

One item assessing connectedness to colleagues based on Walton et al.'s concept of mere belonging[39] (''Compared to your peers, do you feel more or less connected to people in your department?'' 1 = much less connected, 5 = much more connected); and

One item assessing likelihood to pursue an alternative career, part of Markus and Nurius' possible academic selves scale[38] that, in principal component analysis, did not load onto career advancement (<0.35) (''I can see myself pursuing an alternative career path other than academic medicine''; 1 = strongly disagree, 7 = strongly agree).

This second set of measures is more commonly associated with consequences of ST, with variants often found in career satisfaction surveys, as they measure specific career-related plans, beliefs, and perceptions. Specifically, the career advancement scale assesses how well individuals envision future career progression, which can enhance performance.[40] Connectedness to colleagues, career interest, and career identification measure the extent to which junior faculty have disengaged and disidentified with their chosen career, two common consequences of ST.[41,42] Finally, pursuing an alternative career path serves as a direct measure of altering one's professional identity and aspirations, which can occur among individuals undergoing ST.[22]

Results

We ran two-sample *t*-tests using pooled variances to understand differences between male and female respondents across all survey measures. However, because we intentionally oversampled female faculty, we first examined results of variance ratio tests for each measure. Where variances differed significantly ($p < 0.05$), we used Satterthwaite's degrees of freedom for unpooled variance (marked p_s below).

Susceptibility to ST

Analyses of ST survey measures across the junior faculty sample revealed consistent gender differences across all measures of exposure to and susceptibility to ST. In the context of academic medicine, women reported more vulnerability to ST ($p_s < 0.001$), more sensitivity to rejection ($p_s = 0.001$), and more identification with their gender ($p_s < 0.001$) than male counterparts. Additionally, along the two related measures of social fit, women felt lower relative potential (compared with colleagues) ($p = 0.048$) and had a lower sense of belonging ($p = 0.049$) than men (Table 2).

Because we sampled both instructors and assistant professors, we conducted additional analyses using linear regression to examine whether rank had any effect on the survey measures. After controlling for gender, assistant professors rated their potential significantly higher than instructors (8 percentage points, $p = 0.02$) on the perception of relative potential measure. Rank did not have a significant effect on any other susceptibility measure (all other $p > 0.29$). Similarly, we examined whether participants' race/ethnicity had any effects after controlling for gender and, as expected, race/ethnicity played no role in identifying susceptibility to gender-based ST (all $p > 0.37$). Furthermore, we examined whether there were differences in susceptibility between

Table 2. Survey Measures Related to Susceptibility to Stereotype Threat, by Gender

	Overall (n = *174*)	*Women* (n = *108*)	*Men* (n = *66*)	p[a]
Stereotype threat vulnerability*	3.17 (1.36)	3.65 (1.34)	2.39 (0.99)	<0.001
Rejection sensitivity*	10.12 (4.86)	11.00 (5.18)	8.69 (3.93)	0.001
Gender identification*	4.66 (1.28)	5.04 (1.05)	4.04 (1.38)	<0.001
Perception of relative potential (compared with colleagues)	43.92 (20.27)	41.54 (20.19)	47.79 (19.95)	0.048
Sense of belonging	4.57 (1.08)	4.44 (1.08)	4.78 (1.06)	0.049

Survey measures rated on a scale of 1 (low) to 7 (high) except for rejection sensitivity, which is based on a scale of 1–36 (see text for description) and perception of relative potential, which is rated on a scale of 0–100 (e.g., ''I believe I have more potential than xx% of my colleagues''). Standard deviations are given in parentheses.

[a]*p*-Values report results from two-sample *t*-tests using pooled variances. Because we intentionally oversampled female faculty, we first ran variance ratio tests for each measure. Where variances differ significantly ($p < 0.05$), we use (Satterthwaite's) degrees of freedom for unpooled variance and mark these instances with an asterisk (*).

Table 3. Survey Measures Related to Consequences to Stereotype Threat, by Gender

	Overall (N = *174*)	*Women* (N = *108*)	*Men* (N = *66*)	p[a]
Belief in career advancement	4.58 (1.39)	4.39 (1.39)	4.89 (1.33)	0.021
Career interest	5.90 (0.82)	5.88 (0.81)	5.94 (0.86)	0.644
Career identification	5.61 (0.78)	5.60 (0.74)	5.63 (0.85)	0.829
Connectedness to colleagues	2.84 (0.82)	2.81 (0.87)	2.91 (0.74)	0.422
Possibility of pursuing alternative career	3.82 (1.77)	3.77 (1.69)	3.89 (1.91)	0.652

Survey measures rated on a scale of 1 (low) to 7 (high) except for connectedness to colleagues, which is rated on a scale of 1(low) to 5 (high). Standard deviations are given in parentheses.

[a]*p*-Values report results from two-sample *t*-tests using pooled variances. Because we intentionally oversampled female faculty, we first ran variance ratio tests for each measure. Variances did not differ significantly ($p < 0.05$) among the survey measures related to consequences of stereotype threat presented in this table.

degree type categories since more men than women had MD/PhD degrees (even though this difference was not significant in chi-square analyses). In logistic regressions, the MD/PhD group did not show a difference in any susceptibility measure (all $p > 0.24$) compared with the MD reference group.

Consequences of ST

Findings regarding direct consequences of ST, measures more regularly implemented in faculty satisfaction surveys, however, were more nuanced. While women reported lower belief in career advancement ($p = 0.02$), they had similar levels of career interest and career identification as men, were just as connected to colleagues, and were equally likely to pursue a career outside academia (all $p > 0.42$) (Table 3). We again used linear regression to control for gender and found that neither faculty rank nor race/ethnicity had any significant effect on ST consequences (all $p > 0.16$). Furthermore, in logistic regressions, the MD/PhD group did not show a difference in any ST consequence measure (all $p > 0.18$) compared with the MD reference group.

Analyses on dichotomized scales

We also completed analyses yielding results more directly comparable to those of typical faculty surveys. Because the results of satisfaction surveys are often reported in terms of the proportion of dissatisfied to satisfied respondents (instead of raw scale scores), we dichotomized each item at its midpoint into ''susceptible'' and ''not susceptible'' categories (e.g., 4 on a 7-point scale). As expected, in each area, women were more likely to report above-average susceptibility. The most striking findings were: 44% of female respondents reported ST vulnerability scale scores above the midpoint, compared with only 5% of male respondents; 87% of women versus 44% of men scored above the gender identification midpoint; and 79% of women and 63% of men rated their relative potential below 50% of colleagues.

We similarly dichotomized ST-consequence scales using each scale's midpoint. As with the raw scale scores, there were no notable differences between the proportion of men and women scoring below the midpoint; however, no participant rated *career interest* below its midpoint score (4), suggesting that junior faculty of both genders remain interested in the work of academic medicine.

Correlations between measures

Having noted these divergent trends among ST susceptibility and consequence scores by gender, we became interested in correlations between raw, scaled scores. We calculated Pearson product-moment correlations and observed that most measures of ST susceptibility were significantly correlated with one another, as were most measures of ST consequences. However, we took particular interest in potential correlations between ST susceptibility and consequences: among measures of ST susceptibility, rejection sensitivity, relative potential, and sense of belonging were significantly correlated ($p < 0.05$) with all or nearly all ST-consequence measures (Table 4). That is, these three ST-susceptibility scales could prove to be particularly predictive of later attrition as a consequence of ST.

Discussion

As the first assessment of ST susceptibility in faculty from any underrepresented group and thus the only indication as to

Table 4. Pearson Product-Moment Correlations of Key Stereotype Threat Susceptibility Measures with Consequences of Stereotype Threat

	Susceptibility to ST		
Consequences of ST: Faculty satisfaction and engagement	*Rejection sensitivity*	*Relative potential (compared with colleagues)*	*Sense of belonging*
Belief in career advancement	–0.48**	0.45**	0.46**
Career interest	–0.30**	0.40**	0.39**
Career identification	–0.15*	0.38**	0.44**
Connectedness to colleagues	–0.40**	0.64**	0.29**
Likely alternative career	0.13	–0.23**	–0.19*

*$p < 0.05$.
**$p < 0.01$.
ST, stereotype threat.

the degree that faculty suffer from ST, we believe these data are incredibly valuable. The results of this study indicate that the climate of academic medicine may expose junior women faculty to ST. These results align with past research, which has described, for example, feelings of isolation by women in STEM as a contributor to increased susceptibility to stereotype threat.[27] However, the results also suggest reasons for optimism. While junior women faculty report that they experience the triggers of ST, they may not yet necessarily suffer career-altering consequences. This finding is in line with the results of prior research; our finding that women had similar levels of career interest and career identification as men is consistent with findings from Wright and colleagues suggesting that women are as engaged and committed to their careers as men are.[43]

A potential limitation of our study is that because recruitment ended after we reached our initial target, it is possible that ''early'' recruits may be different in terms of ST susceptibility from individuals who delayed volunteering. This is unlikely to be the case, however, as faculty did not know they were participating in a survey about ST. Relatedly, it could be valuable to conduct surveys with these measures through an external, impartial organization rather than through the participating medical school. For example, medical faculty completing these measures through their school's administration of the Association of American Medical College's Faculty Forward survey may be even more willing to participate, which could broaden the population.[44]

A further limitation is that these findings pertain to faculty from a single institution; ST factors have yet to be analyzed across a broad spectrum of institutions. Future studies must measure ST susceptibility among more varied populations and include a focus on cultural differences among participants, or on ST differences among a greater variety of faculty ranks. Along those lines, another compelling way to build upon this work would be to target other vulnerable populations including minority racial groups and lesbian, gay, bisexual, and transgender populations. While we do not have the sample size in this study to examine underrepresented groups other than women, this is a potentially fruitful avenue for future study.

Conclusions

Women faculty's scores on ST-related measures are context specific and should not be considered a ''problem with women.'' These metrics, in fact, measure problems with the environment. Using ST metrics to evaluate institutional initiatives designed to increase supportive environments for women faculty can offer a more complete view of medical environments and employee experiences within those environments. For example, instead of focusing on leadership training for women, we propose instead that institutions focus on systemic changes. That is, rather than solely relying on so-called ''fix the women'' arguments, institutions should also broaden their efforts to encompass measures that affect the greater environment. These might include, for example, diversity training across the organization (fixing the community), implementing work–life policies (addressing structural barriers), conducting frequent salary reviews (discovering hidden systemic inequities), or, at the more macro level, instituting double-blind review processes (removing opportunities for bias).[18,45,46] Our findings suggest that measuring susceptibility to ST may allow for early recognition and interventions such as these to combat later adverse career consequences.

Existing career satisfaction surveys that tend to emphasize the consequences of ST may well be missing information about ST's development and progression, which can provide critical data for institutions attempting to improve the institutional environment for women. Our analysis addresses the current gap in the literature regarding the link between ST among medical faculty, career satisfaction, and eventual attrition. Understanding each stage in the development of junior faculty's career aspirations and goals may help to improve environmental conditions for all academic medicine faculty.

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Author Disclosure Statement

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