Title

Perceptions of Pressures to Alter or Misrepresent Time Allocation Among Clinician-Researchers With NIH Career Development Awards.

Journal

Academic Medicine, 95(2)

Authors

Jagsi, Reshma
Moniz, Michelle
Griffith, Kent
et al.

Publication Date

2020-02-01

DOI

10.1097/ACM.0000000000003044

Peer reviewed

Published in final edited form as:

Acad Med. 2020 February ; 95(2): 248–254. doi:10.1097/ACM.0000000000003044.

Perceptions of Pressures to Alter or Misrepresent Time Allocation Among Clinician-Researchers with NIH Career Development Awards

Michelle H. Moniz, MD, MSc [Assistant Professor],
Department of Obstetrics and Gynecology, University of Michigan, Ann Arbor, Michigan

Kent A. Griffith, MS [Statistician Expert],
Center for Cancer Biostatistics, University of Michigan, Ann Arbor, Michigan.

Rochelle D. Jones, MS [Research Area Specialist Intermediate],
Center for Bioethics and Social Science in Medicine and Department of Radiation Oncology, University of Michigan, Ann Arbor, Michigan.

Christina Mangurian, MD, MAS [Professor and Vice Chair],
Department of Psychiatry, University of California, San Francisco School of Medicine, San Francisco, California.

Reshma Jagsi, MD, DPhil [Professor]
Deputy Chair, and Residency Program Director, Department of Radiation Oncology, and Director of the Center for Bioethics and Social Sciences in Medicine, University of Michigan, Ann Arbor, Michigan

Abstract

Purpose: NIH career development awards require a mandatory allocation of effort to research and training. We sought to understand pressures perceived by award recipients to change working time allocation or to misrepresent effort, and whether these perceptions differed by gender.

Methods: In 2010–2011 and 2014, the authors surveyed 1719 K08 and K23 career development awardee recipients. Questions evaluated perceived pressure to change working time allocation or misrepresent it. Multivariable logistic regression modeling of pressure to misrepresent time evaluated associations with individual and basic job characteristics.

Correspondence should be addressed to Dr. Jagsi, Department of Radiation Oncology, University of Michigan; UHB2C490, SPC 5010; 1500 East Medical Center Drive; Ann Arbor, MI 48109-5010; telephone (734) 936-8700; fax (734) 763-7370; rjagsi@med.umich.edu.

Other disclosures: Outside the current work, Dr. Jagsi also reports funding from the NIH, the Greenwall Foundation, the Susan Komen Foundation, the Doris Duke Foundation, Blue Cross Blue Shield of Michigan for the Michigan Radiation Oncology Quality Consortium; personal fees from Amgen and Vizient; and stock options in Equity Quotient. Dr. Moniz received support from the Agency for Healthcare Research and Quality (AHRQ) under award number K08 HS025465 outside the current work. Dr. Mangurian reports funding from the Doris Duke Foundation and NIH outside the current work.

Ethical approval: This study was approved by the University of Michigan Institutional Review Board.

Publisher's Disclaimer: Disclaimers: Not applicable

Previous presentations: Not applicable

Results: Of the 1,719 faculty in the initial target population, 493 women and 573 men (1,066, 62%) responded at both time points. Most respondents reported feeling pressure to increase time spent on professional activities other than their K award-related research or career development or to decrease time on their K award-related research. The likelihood of perceiving pressure differed significantly by gender: 68% of women vs 55% of men ($P < .001$). A minority reported perceiving pressure to misrepresent professional time (women, 29%, vs men, 27%, $P = .52$). Multivariable analysis revealed that pressure to misrepresent professional time was less likely among respondents at institutions with the most extramural funding ($P = .02$). A significant pairwise interaction between gender and K award type suggested that female K08 awardees had higher odds than male peers of perceiving pressure to misrepresent time.

Conclusions: Most K-award recipients feel pressure to do more non-K-related activities, and more than a quarter feel pressure to misrepresent effort. Additional research is needed to evaluate the proportion of academic medical faculty who actually misrepresent professional effort.
Additional research is needed to evaluate the proportion of academic medical faculty who actually misrepresent professional effort.

Introduction

Clinician-researchers typically balance research, teaching, and service activities such as committee work alongside clinical responsibilities. University policies and federal rules often stipulate specific guidelines on faculty allocation of professional effort. National Institutes of Health (NIH) Career Development (K) Awards are highly competitive grants that support young investigators in building independent research careers. Recipients of these prestigious awards are typically required to devote at least 75% effort toward research and career development activities (50% minimum for certain procedural specialties).[1] This protected time is intended to allow awardees to develop research skills and ultimately produce a pool of highly trained research scientists.

Existing literature suggests that clinician-researchers have multiple competing demands for their time.[2] Such competing demands include clinical work, teaching, and administrative responsibilities. Prior work among K-awardees suggests few differences in actual time allocation across genders, except that women clinician-researchers report spending less time on research activities and more time on domestic tasks.[3] Importantly, prior investigators have not, to our knowledge, published a comprehensive description of the pressures that clinician–researchers with obligatory effort distributions may perceive.

As part of a broader study investigating mechanisms driving gender differences in career outcomes in academic medicine[4–6], we surveyed a cohort of clinician-researchers who received new NIH K08 and K23 career development awards in 2006–2009. We have previously reported findings regarding baseline characteristics of this sample and the influence of various factors on professional success.[7] The current report seeks to describe perceived pressures to change amount of time spent on various professional activities or to misrepresent time allocation, and to compare these perceptions by gender in this cohort of highly motivated men and women.

Method

We conducted a longitudinal cohort study of clinician researchers receiving career development awards from the National Institute of Health between 2006 and 2009. K23 awards support patient-oriented research, and K08 awards support more basic biomedical or behavioral investigation. We have previously described our study design[7] and reported baseline characteristics of this sample.[3,8,9] Methods are reported in brief here. This study received approval from the University of Michigan Institutional Review Board (HUM00025530).

Study Sample and Survey Administration

We used the NIH RePORTER database to identify clinician-researchers receiving new K08 or K23 awards that began in 2006–2009 (n=1719). Via Internet searches and telephone calls, we obtained valid U.S. mailing addresses for 1708 of these individuals. In 2010–2011 ("T1"), we mailed a baseline paper survey along with a $50 incentive to these individuals and received 1275 responses (75% response rate). In 2014 ("T2"), we conducted a follow-up survey of the respondents to the T1 questionnaire. Again using internet searches and telephone calls, we identified current U.S. mailing addresses for 1258 of the 1275 who responded to the baseline survey. We mailed the follow-up paper survey along with a $50 incentive (sent up-front to all, not conditional on response) and received 1,066 responses (84.7% response rate). These 1066 individuals in our analytic sample constitute 62% of the original 1719 K-awardees identified as the total target population.

Survey data were entered into the University of Michigan's REDCap (Research Electronic Data Capture) system, a secure, Internet-based application designed to support valid and seamless data capture, audit, import, and export to statistical packages.[10]

Survey Development and Measures

The design of both survey questionnaires was informed by review of the medical literature to identify valid survey items, qualitative research involving interviews with K awardees and their mentors that has been reported previously in detail,[11–15] and standard techniques for survey design and validation[16] when existing measures were inadequate or lacking. We conducted extensive cognitive pretesting of the entire survey instruments with individuals similar to the intended target population.

T1 characteristics:

At T1, we measured individual characteristics, including age, gender, and race. We also measured basic job characteristics, including K award type (K08 vs. K23, to distinguish those conducting basic science research from those pursuing patient-oriented research), initial year of K award (2006–2009), NIH funding institute tier (broken into three tiers as defined in our previous work based on total amount of R01 awards granted by the institute funding the individual's K award), K-award institution tier (broken into four tiers as defined in our previous work based on the NIH funding ranking of the individual's academic institution), degree (whether the individual held a PhD or equivalent in addition to a clinical

doctorate or held a non-clinical degree), specialty (grouped by nature as in our prior work), and academic rank.[17]

Outcomes:

We assessed two important outcomes of interest: perceived pressure to change the amount of time spent on various professional activities (measured only at T1) and perceived pressure to misrepresent effort (measured at both T1 and T2). Each outcome is described in detail below.

At T1, we evaluated whether respondents felt pressure or encouragement to change the amount of time spent on specific other professional activities ("Do you feel pressure or encouragement from your department/division or K award mentor to change the amount of time you spend on the following activities?"). Individuals were asked to report on feeling pressure/encouragement from either "My Department/Division" or "My K Award Mentor" across multiple activities, including: "Patient Care, Research directly related to your K award proposal, Research other than research specified in your K award, Career Development, Teaching, or Administrative Duties. The T2 survey did not include an item asking if respondents felt pressure to change the amount of time spent on specific professional activities, as this second survey was timed such that most respondents would no longer be actively governed by the requirements of a K award (as these are generally five-year awards, and the awardees' first year of funding was between 2006 and 2009).

The primary dependent variable of interest was whether or not respondents felt pressure to misrepresent percent effort at either T1 or T2. At both T1 and T2, a survey item assessed: "Have you ever felt pressure to misrepresent your percent effort, personal months of effort, or work time allocation?" Respondents answering "Yes" were asked "How?" (Response options, "to overstate K award-related activities," "to understate K award-related activities," or "Other (specify)") and "By Whom?" (Response options "My K award mentor," "My department," "My Division," "Other (specify)"). We defined the primary outcome of interest as perceived pressure to misrepresent percent effort at either T1 or T2, because individuals could feel pressure to misrepresent effort at any point during their career development award and such perceived pressure would be concerning at any point during their award period.

Analysis

We first described the characteristics of individuals in our sample of respondents (all of whom had responded to both surveys), including individual and basic job characteristics reported at T1 by gender. We next compared, by gender, the rates of perceived pressure/encouragement to change amount of time spent on various professional activities, as reported at T1, and perceived pressure to misrepresent effort, as reported at either T1 or T2. We describe perceived pressure by gender in detail, followed by a summary measure that examined perceived pressure from any source at T1 to increase time spent on activities other than career development or K-related research or to decrease time spent on K-related research. For these analyses, we compared perceived pressures (the dependent variables of interest) by gender and report p values for gender after adjustment for pre-specified individual and basic job characteristics (K award grant type, year of K award, K award

funding institute tier, institution tier, degree, and specialty; all as defined above) in regression models. Finally, we constructed a multivariable logistic regression model of perceived pressure to misrepresent time outcome (as reported either T1 or T2) as the dependent variable, including gender as well as the same pre-specified individual and basic job characteristics as independent variables. The presence of significant first-order interactions between gender and all other independent variables were evaluated independently in fully adjusted models (all other main effects). Interactions were included in the final model based upon considerations of statistical significance and model fit using the Akaike's Information Criterion (AIC). Analyses were conducted using SAS statistical software, version CC (SAS Institute Inc., Cary, North Carolina); p values <0.05 were considered significant throughout.

Results

Comparisons of respondents to the target population have been reported previously.[7] Most notably, response rates did not differ by gender but did differ by several other characteristics, including respondent degree (higher responses among non-MDs compared to MDs or MD/PhDs), K award type (higher response among K23 awardees compared to K08 awardees), and K award institution tier (higher response rates from first to fourth tier). Four hundred ninety-three (493) female and 573 male respondents, an 84.7% response rate, comprise the analyses reported herein.

Table 1 describes respondents' individual characteristics and basic job characteristics by gender. Age and race did not differ by gender. Higher proportions of women held K23 awards (65.3% [322] vs. 39.1% [224]) and higher proportions of men held K08s (60.9% [349] vs. 34.7% [171]). Women were less likely to be MD/PhDs (14.6% [72] vs. 30.5% [175]) and hold awards from the NIH institutes in the highest tiers for funding (17.4% [86] vs. 31.1% [178]).

Both women and men reported perceiving pressure or encouragement to change the amount of time spent on various professional activities at T1, when they all held active K awards (Figure 1). For every professional activity, higher proportions of women than men felt pressure to change the amount of time spent. Significantly more women than men felt pressure from their departments/divisions to increase time spent on non-K research (30.0% [148] vs. 21.1% [121], p=0.005), teaching (29.2% [144] vs. 18.3% [105], p=<0.001), and administrative duties (35.1% [173] vs. 27.6% [158], p=0.04). Significantly more women than men felt pressure from their K award mentors to increase time spent on non-K research (33.1% [163] vs. 25.7% [147], p=0.001) and career development activities (16.4% [81] vs. 11.3 % [65]; p=0.03).

A majority (61.3%, [653]) of respondents indicated feeling pressure to increase time spent on professional activities other than career development or K-award related research (specifically: patient care, teaching, administrative duties, or research not related to their K-award) and/or pressure to decrease time spent on K award-related research. This perception of pressure was significantly more common (p<0.001) among women (68.4%, [337]) than men (55.1%, [316]).

A total of 155/1066 respondents indicated feeling pressure to misrepresent professional time (14.5%) in the baseline (T1) survey, as did 230/1066 (21.6%) in the follow-up (T2) survey. Over a quarter of both men and women reported that they had felt pressure to misrepresent professional time either at T1 or T2, with no significant difference in this by gender (women, 29% [145] vs. men, 27% [153], p=0.52).

In a multivariable logistic regression model (Table 2), respondents at K-award institutions with the most extramural funding demonstrated significantly lower odds of reporting perceived pressure/encouragement to misrepresent their professional time (institution tier 1 vs. 4, OR 0.52, 95% CI 0.34–0.82, p=0.02). There was also a significant pairwise interaction effect between gender and grant type, with female respondents with K08 awards having higher odds than male peers to report feeling pressure/encouragement to misrepresent their time (OR 1.55, 95% CI 1.01–2.37).

Discussion

Findings from this longitudinal national survey study of NIH K-award recipients suggest that many career development awardees perceive pressure to change their working time allocation in various ways, with women more likely to report perceiving pressures than men. Most report feeling pressure to increase time spent on professional activities other than their K-related research or career development, or to decrease time spent on their K-related research, including over two thirds of women (68.4%) and over half (55.1%) of men. This is troubling because career development awards deliberately seek to ensure that promising young clinician-scientists have the protected time needed to become independent investigators. Moreover, over a quarter of research-oriented junior faculty members in the present study felt pressured to misrepresent how they are actually spending their time on University or federal reporting sites.

The most commonly perceived pressure was to increase patient care time: one in four respondents (all of whom hold clinical doctorates as a criterion of receiving the types of K-awards they hold) endorsed this. Perhaps more surprisingly, similar proportions of respondents perceived pressure to engage in other activities as well, and respondents perceived competing pressures from their mentors and department/division chiefs. The most commonly perceived pressures from K award mentors were to increase time spent on K-award research, other research, or career development, while the most commonly perceived pressures from department/division leaders were to increase time spent on patient care, teaching, administrative duties, or other research. Future work should examine how K awardees and other physician-researchers manage the competing demands for their time and the various pressures they perceive from different sources, along with potential effects on work satisfaction and professional advancement.

Additional research is also needed to understand how gender biases may influence protection of K awardees' time for research and career development activities. Prior qualitative work suggests that grant reviewers expressed concerns about ensuring adequate protected time for research and career development only for male K award applicants.[18,19] It is possible that mentors, division/department leadership may also be more attuned to

protecting men's time for research. Gender biases, including expectations that women demonstrate communal behaviors and men agentic ones, may also lead to women assuming or being expected to assume more teaching, mentoring, and administrative work that competes with research time.[20–23]

An important finding of this study was that over a quarter of the clinician-researchers in this study reported feeling pressure to misrepresent professional effort. This is concerning given that all K awardees receive federal funding to provide protected time, and thus, both the awardee and the institution are contractually obligated to ensure that the awardee allocate this time to research and career development activities. In a field where honesty and integrity are critical, this observation is striking and should prompt further investigation.

Perceptions of pressure to misrepresent professional time seemed most acute at institutions with the least experience with extramural funding. These institutions may be less familiar with the rules governing effort allocation of K awardees or may have fewer institutional norms and policies to protect the effort allocation of these early career investigators. K awardees at these institutions might also face higher demands for teaching, mentoring, or other non-career development activities. Additionally, we observed that among K08 awardees (whose research is laboratory-based), but not K23 awardees (whose research is patient-oriented), women were more likely than men to perceive pressure to misrepresent their effort in the current sample. We can speculate that women, who still constitute a minority among basic biomedical and behavioral science researchers, may be most vulnerable to feeling pressures to differentially use and report research time, while also being more likely to feel more pressure to mentor, take on administrative roles, or act as the "token female" in other capacities such as committees, etc.

Future qualitative research should seek to understand the exact context within which promising young clinician-researchers are feeling pressured to misrepresent their time and to extend prior work investigating gender and behaviors that constitute misconduct.[24,25] Further survey studies or audits seem appropriate to follow on the hypotheses generated by the current study, in order to investigate whether faculty are, in fact, misrepresenting time. Future research should also investigate the extent to which psychological safety in the department/division and connections to mentors might influence actual behavior in the face of pressures to misrepresent.

Strengths:

Key strengths of this study include robust survey response rates (leading to inclusion of 62% of the originally targeted population in the current analytic sample), a large number of clinician-researcher respondents (n=1066), and statistical methodology controlling for several key measured confounders.

Limitations:

This study also has limitations. Respondents were unlike non-respondents in certain ways, although not by gender. This study relies on self-reported measures. Although the survey items were developed using rigorous survey design techniques, including cognitive pre-

testing, and have high face validity, it is possible that recall, selection, or other biases may have influenced responses. Although the overall study design was longitudinal, the questions regarding perceived pressures to change time allocations were asked only at the baseline time point, when respondents were actively funded by their K awards, and this was in 2010. Findings may not generalize to a more contemporary population of K-award recipients, although we see little reason to believe that pressures would have decreased in more recent years. Finally, the experiences of this exceptionally promising group of early-career faculty may differ from those of junior academic faculty without K awards.

Conclusions:

Early-career clinician-researchers require protected time to generate innovative ideas, hone superb research skills, and demonstrate the productivity necessary to obtain independent funding. Our data show that many K award recipients, who have obligatory allocation of effort to research and career development, nevertheless feel pressures to change their time allocation, often in ways that might compromise their career development if they responded by changing their own behaviors accordingly. Moreover, more than a quarter feel pressure to misrepresent how their time is actually spent—and perceived pressure was more common for individuals in specific settings, namely institutions that have lower overall extramural funding and women whose research occurs in laboratories. Such perceptions of pressures may corrode career satisfaction and may lead to attrition among promising young clinician-researchers.

The current study deliberately did not ask about actual misrepresentation of professional time, in order to minimize risks to subjects, given that retention of participant identifiers was necessary because of the longitudinal design of the overall study. Our findings that a high proportion of respondents reported perceived pressure to misrepresent professional time allocation now suggests a hypothesis that a nontrivial proportion of faculty may actually misrepresent effort—a hypothesis we believe should be investigated directly in a future cross-sectional survey that would be administered to a broader and more recent cohort of current academic faculty whose responses would be fully anonymized at time of collection. If the hypothesis that it is not rare for faculty to misrepresent effort were substantiated, targeted interventions would appear needed to ensure that all institutions promote adherence to the stated goals of career development award programs. More robust monitoring and reporting systems might also be appropriate, including confidential mechanisms by which to alert institutions and ultimately funders about the specific contexts in which pressures to deviate from expectations might exist, both to deter future exertion of inappropriate pressures and to facilitate the remediation of those that may be deeply embedded in specific subcultures. Ultimately, integrity in effort reporting is essential to maintain the trust of the public and to ensure that academic medicine provides an environment that inculcates professionalism among its many members, with implications far beyond the subgroup of clinician-researchers alone. The current study raises an important hypothesis that merits definitive evaluation in subsequent research.

Acknowledgments:

The authors wish to thank the K-award recipients who took the time to participate in this study.

Funding/Support: This work was supported by Grant 5 R01 HL101997-04 from the National Institutes of Health to Dr. Jagsi. The funding body played no role in the design and conduct of the study; collection, management, analysis, and interpretation of the data; or preparation, review, or approval of the manuscript.

References

1. National Institutes of Health Office of Extramural Research. Clarifying Percent Effort and Support for Career Development (K) Awardees. Published October 11, 2017. https://nexus.od.nih.gov/all/2017/10/11/clarifying-percent-effort-and-support-for-career-development-k-awardees/. Accessed October 2, 2018.
2. Jagsi R, Jones RD, Griffith KA, et al. An Innovative Program to Support Gender Equity and Success in Academic Medicine: Early Experiences From the Doris Duke Charitable Foundation's Fund to Retain Clinical Scientists. Ann Intern Med. 2018;169(2):128–130. [PubMed: 29554690]
3. Jolly S, Griffith KA, DeCastro R, Stewart A, Ubel P, Jagsi R. Gender differences in time spent on parenting and domestic responsibilities by high-achieving young physician-researchers. Ann Intern Med. 2014;160(5):344–53. [PubMed: 24737273]
4. Jagsi R, Griffith KA, Stewart A, Sambuco D, DeCastro R, Ubel PA. Gender differences in the salaries of physician researchers. JAMA. 2012;307(22):2410–2417. [PubMed: 22692173]
5. Nonnemaker L Women physicians in academic medicine: new insights from cohort studies. N Engl J Med. 2000;342(6):399–405. [PubMed: 10666431]
6. Jagsi R, Guancial EA, Worobey CC, et al. The "gender gap" in authorship of academic medical literature--a 35-year perspective. N Engl J Med. 2006;355(3):281–287. [PubMed: 16855268]
7. Jagsi R, Griffith KA, Jones RD, Stewart A, Ubel PA. Factors associated with success of clinician-researchers receiving career development awards from the National Institutes of Health: a longitudinal cohort study. Acad Med. 2017;92(10):1429–1439. [PubMed: 28537950]
8. DeCastro R, Griffith KA, Ubel PA, Stewart A, Jagsi R. Mentoring and the career satisfaction of male and female academic medical faculty. Acad Med. 2014;89(2):301–311. [PubMed: 24362376]
9. Holliday E, Griffith KA, De Castro R, Stewart A, Ubel P, Jagsi R. Gender differences in resources and negotiation among highly motivated clinician-researchers. J Gen Intern Med. 2015;30(4):401–407. [PubMed: 25112462]
10. Harris Paul A., Taylor Robert, Thielke Robert, Payne Jonathon, Gonzalez Nathaniel, Conde Jose G., Research electronic data capture (REDCap) – A metadata-driven methodology and workflow process for providing translational research informatics support. J Biomed Inform. 2009;42(2):377–81. [PubMed: 18929686]
11. DeCastro R, Sambuco D, Ubel PA, Stewart A, Jagsi R. Batting 300 is good: perspectives of faculty researchers and their mentors on rejection, resilience, and persistence in academic medical careers. Acad Med. 2013;88(4):497–504. [PubMed: 23425991]
12. DeCastro R, Sambuco D, Ubel PA, Stewart A, Jagsi R. Mentor networks in academic medicine: moving beyond a dyadic conception of mentoring for junior faculty researchers. Acad Med. 2013;88(4):488–496. [PubMed: 23425990]
13. Sambuco D, Dabrowska A, Decastro R, Stewart A, Ubel PA, Jagsi R. Negotiation in academic medicine: narratives of faculty researchers and their mentors. Acad Med. 2013;88(4):505–511. [PubMed: 23425992]
14. Strong EA, De Castro R, Sambuco D, et al. Work-life balance in academic medicine: narratives of physician-researchers and their mentors. J Gen Intern Med. 2013;28(12):1596–1603. [PubMed: 23765289]
15. Jones RD, Griffith KA, Ubel PA, Stewart A, Jagsi R. A Mixed-Methods Investigation of the Motivations, Goals, and Aspirations of Male and Female Academic Medical Faculty. Acad Med. 2016;91(8):1089–1097. [PubMed: 27254012]
16. Fowler FJ. Survey Research Methods. Los Angeles: Sage Publications; 2014.

17. Jagsi R, DeCastro R, Griffith KA, Rangarajan S, Churchill C, Stewart A, Ubel PA. Similarities and differences in the career trajectories of male and female career development award recipients. Acad Med. 2011;86(11):1415–21. [PubMed: 21952061]

18. Kaatz A, Dattalo M, Regner C, Filut A, Carnes M. Patterns of feedback on the bridge to independence: a qualitative thematic analysis of NIH mentored career development award application critiques. J Womens Health (Larchmt). 2016;25(1):78–90. [PubMed: 26418619]

19. Magua W, Zhu X, Bhattacharya A, Filut A, Potvien A, Leatherberry R, et al. Are female applicants disadvantaged in National Institutes of Health peer review? Combining algorithmic text mining and qualitative methods to detect evaluative differences in R01 reviewers' critiques. J Womens Health (Larchmt). 2017;26(5):560–570. [PubMed: 28281870]

20. Parks-Stamm EJ, Heilman ME, Hearns KA. Motivated to penalize: women's strategic rejection of successful women. Pers Soc Psychol Bull 2008;34(2):237–247. [PubMed: 18212332]

21. Amanatullah ET, Tinsley CH. Punishing female negotiators for asserting too much…or not enough: Exploring why advocacy moderates backlash against assertive female negotiators. Organ Behav Hum Decis Process 2013;120(1):110–22.

22. Heilman ME, Okimoto TG. Why are women penalized for success at male tasks?: the implied communality deficit. J Appl Psychol 2007;92(1):81–92. [PubMed: 17227153]

23. Eagly AH, Karau SJ. Role congruity theory of prejudice toward female leaders. Psychol Rev 2002;109(3):573–598. [PubMed: 12088246]

24. Fang FC, Bennett JW, Casadevall A. Males are overrepresented among life science researchers committing scientific misconduct. MBio. 2013;4(1):e00640–12. [PubMed: 23341553]

25. Kaatz A, Vogelman PN, Carnes M. Are men more likely than women to commit scientific misconduct? Maybe, maybe not. MBio. 2013;4(2).

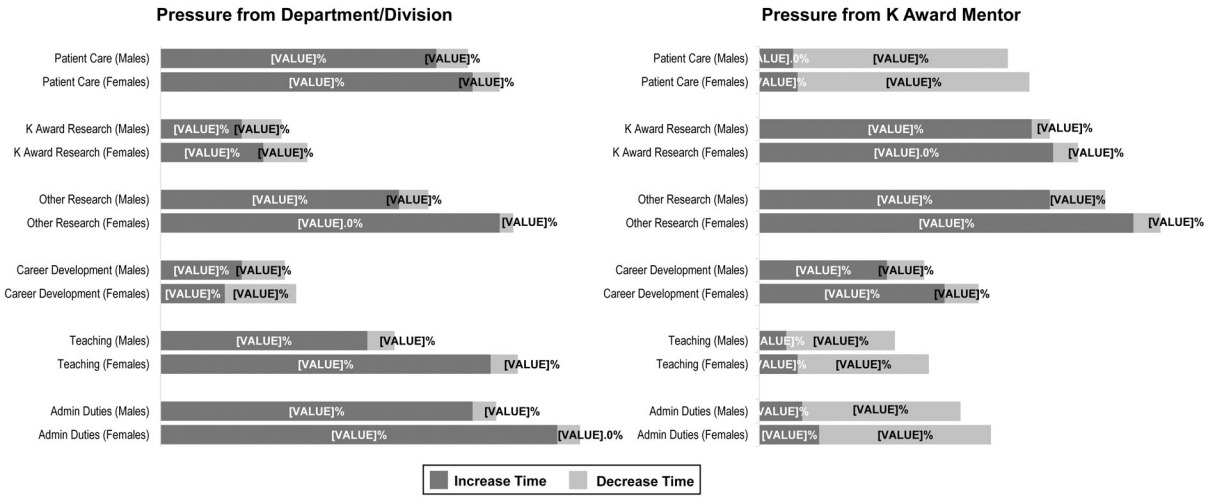

Figure 1.

Stacked bar graph presenting pressure or encouragement to change amount of time spent on professional activities By gender, measured in 2010 among 1066 respondents to a longitudinal survey of recipients of new national institutes of health K08 and K23 awards from 2006–2009

Table 1.

Individual and Basic Job Characteristics in 2010 Among 1066 Respondents to a Longitudinal Survey of Recipients of New National Institutes of Health K08 and K23 Awards from 2006–2009*

Variable/Level	Females (n=493)	Males (n=573)	P value
Age: Mean (SD)	40.0 (4.7)	40.4 (3.9)	.13
Race			.56
White	346 (70.2)	406 (70.9)	
Asian	105 (21.3)	128 (22.3)	
Other	42 (8.5)	39 (6.8)	
Award type			<0.001
K08	171 (34.7)	349 (60.9)	
K23	322 (65.3)	224 (39.1)	
K Award Year			.50
2006	104 (21.1)	131 (22.9)	
2007	124 (25.2)	129 (22.5)	
2008	115 (23.3)	150 (26.2)	
2009	150 (30.4)	163 (28.4)	
NIH funding institute tier			<0.001
1st	86 (17.4)	178 (31.1)	
2nd	194 (39.4)	225 (39.3)	
3rd	213 (43.2)	170 (29.7)	
K award institution funding tier (at time of K award)			0.69
1st	91 (18.5)	107 (18.7)	
2nd	129 (26.2)	161 (28.1)	
3rd	130 (26.4)	157 (27.4)	
4th	143 (29.0)	148 (25.8)	
Degree			<0.001
MD	292 (59.2)	338 (59.0)	
MD/PhD	72 (14.6)	175 (30.5)	
Non-MD	129 (26.2)	60 (10.5)	
Specialty			<0.001
Basic sciences	2 (0.4)	1 (0.2)	
Non-MD	127 (25.8)	59 (10.3)	
Clinical specialties for women, children, & families	118 (23.9)	108 (18.8)	
Hospital-based specialties	47 (9.5)	82 (14.3)	
Surgical specialties	10 (2.0)	51 (8.9)	
Medical specialties	189 (38.3)	272 (47.5)	
Baseline (T1) academic rank			0.27
Fellow/Postdoc/Resident/Research Scientist	3 (0.6)	7 (1.2)	
Instructor	45 (9.1)	40 (7.0)	
Assistant Professor	365 (74.0)	408 (71.2)	

Variable/Level	Females (n=493)	Males (n=573)	P value
Associate Professor	76 (15.4)	108 (18.8)	
Professor	2 (0.4)	6 (1.0)	
No academic rank	2 (0.4)	4 (0.7)	

Abbreviations: SD indicates standard deviation; NIH, National Institutes of Health; MD, Doctor of Medicine; PhD, Doctor of Philosophy

*Data presented as n (%) except where noted

Table 2.

Model Explaining Time Misrepresentation (n=1,063)

Characteristic	Odds Ratio	95% CI	p-value
Gender by Grant Type interaction			0.034
K08: Females vs Males	1.55	1.01 – 2.37	
K23: Females vs Males	0.84	0.58 – 1.23	
Females: K08 vs K23	1.03	0.68 – 1.58	
Males: K08 vs K23	0.56	0.38 – 0.84	
Award Year:			0.717
2006 vs. 2009	1.02	0.70 – 1.48	
2007 vs. 2009	0.83	0.57 – 1.22	
2008 vs. 2009	0.89	0.61 – 1.29	
Funding Institute Tier:			0.106
1 vs. 3	0.78	0.54 – 1.13	
2 vs. 3	0.71	0.52 – 0.98	
K Award Institution Tier			0.019
1 vs. 4	0.52	0.34 – 0.82	
2 vs. 4	1.00	0.70 – 1.45	
3 vs. 4	0.88	0.61 – 1.27	
Degree:			0.314
MD/PhD vs. MD	1.19	0.83 – 1.70	
Non-MD vs. MD	4.53	0.40 – 51.34	
Specialty:			0.373
Non-MD vs Medical	0.16	0.01 – 1.83	
Clinical specialties for Women, Children, & Families vs. Medical	1.00	0.70 – 1.44	
Hospital-Based vs. Medical	0.73	0.46 – 1.16	
Surgical vs. Medical	1.14	0.62 – 2.09	