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Gender Differences in Salary in a Recent Cohort of Early-Career Physician-Researchers

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Abstract

Purpose—Since prior studies have suggested that male physicians earn more than their female counterparts, the authors examined whether this disparity exists in a recently hired cohort.

Method—In 2010-11, the authors surveyed recent recipients of National Institutes of Health (NIH) mentored career development (i.e., K08 or K23) awards, receiving responses from 1,275 (75% response rate). For the 1,012 physicians with academic positions in clinical specialties who reported salary, they constructed linear regression models of salary considering gender, age, race, marital status, parental status, additional doctoral degree, academic rank, years on faculty, specialty, institution type, region, institution NIH funding rank, K-award type, K-award funding institute, K-award year, work hours, and research time. They evaluated the explanatory value of spousal employment status using Peters-Belson regression.

Results—Mean salary was $141,325 (95% confidence interval [CI] 135,607-147,043) for women and $172,164 (95% CI 167,357-176,971) for men. Male gender remained an independent,

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significant predictor of salary (+$10,921, $P < 0.001$) even after adjusting for specialty, academic rank, work hours, research time, and other factors. Peters-Belson analysis indicated that 17% of the overall disparity in the full sample was unexplained by the measured covariates. In the married subset, after accounting for spousal employment status, 10% remained unexplained.

Conclusions—The authors observed, in this recent cohort of elite, early-career physician researchers, a gender difference in salary that was not fully explained by specialty, academic rank, work hours, or even spousal employment. Creating more equitable procedures for establishing salary at academic institutions is important.

Previous studies have suggested that male physicians earn higher salaries than their female counterparts, but the mechanisms underlying much of this difference remain poorly understood.[1-9] Differences in the distribution of men and women into different specialties, work hours, and productivity have explained some of the observed difference; however, prior studies have indicated that a substantial proportion of the difference remains unexplained even after those variables are taken into account.[1]

In prior work, our group documented an unexplained gender difference in salary even within a relatively homogeneous population of mid-career physician researchers.[1] Given the extensive list of potential factors for which we controlled, including specialty, work hours, and productivity, we speculated that the difference observed might be rooted in gender-related differences in values or behaviors. For example, men might prioritize compensation more highly, either due to prevailing societal expectations of gender roles or the greater likelihood of a man serving as the sole breadwinner in a family. Similarly, men might negotiate more aggressively for salary. Employer attitudes may also play a role. Employers might value men's contributions more than women's. Alternatively, employers might view men as needing higher salaries (due to the notion of a “family wage”)[10] if men are less likely to be in two-income households. However, like others, our prior work was limited by lack of information on the employment of the respondent's spouse, precluding the ability to ascertain whether some of the gender effect on salary may have been mediated by spousal employment. Moreover, the sample of physician researchers we previously considered had commenced their academic careers over a decade ago, and recent efforts to decrease inequities may have been successful with younger cohorts.

Therefore, we sought to evaluate gender differences in salary in a new population of physician-researchers who were similarly select and homogeneous, but who were early in their careers: physicians who received K08 and K23 awards (i.e., prestigious National Institutes of Health [NIH] mentored career development grants) between 2006 and 2009. We sought to evaluate whether the gender differences we previously observed in a *mid-career* population of elite physician-researchers would be apparent in this younger and more recently hired cohort at this earlier point in their career trajectories. In addition, we included questions eliciting spousal employment status (fulltime, part-time, or not employed) and the perceived level of dependence of the family unit upon the respondent for financial support in order to determine how much of any observed gender difference in salary might be mediated by spousal employment and gender roles within the family.

Method

Data collection

In 2010, using the NIH RePORTER database,[11] we identified 1,719 researchers who received new K08 and K23 awards in 2006 through 2009. After receiving approval from the University of Michigan Institutional Review Board (IRB), we conducted Internet searches

and made telephone calls to obtain the current U.S. mailing addresses of these K award recipients. We obtained 1,708 valid U.S. mailing addresses (see also Figure 1).

Between August 2010 and February 2011, we sent a survey questionnaire and a $50 incentive to all 1,708 of these K award recipients. We enclosed a cover letter that explained that this was an IRB-approved research study investigating the experiences of individuals who received K08 and K23 awards from the NIH. The cover letter stated the voluntary nature of participation, our efforts to ensure confidentiality, the minimal risks involved (e.g., possible loss of confidentiality), and our source of funding for the study. It also included contact information for the IRB and the principal investigator. Following a modified Dillman approach (which employed an initial contact letter, a tailored questionnaire, and subsequent correspondence),[12] we also sent a follow-up questionnaire to non-respondents. Upon receipt of the completed questionnaires, we merged survey responses to data previously collected from RePORTER on K award type, year, and institution characteristics.

Measures

We designed the questionnaire after reviewing the relevant literature,[1- 9,12] considering instruments used in other research to determine outcomes of academic careers,[3,13] and conducting detailed cognitive pretesting.[14] Ultimately, the questionnaire comprised 173 items that assessed demographics, education, time allocation, academic experiences, family responsibilities, and salary.

The principal dependent variable for the analysis was current annual salary, which we structured as a continuous variable rounded to the nearest thousand dollars. We also analyzed several independent variables as continuous variables: age, number of years on faculty, number of hours spent working (work hours), and percentage of time spent conducting research (research time).

As described in greater detail in previous studies,[1,15] we grouped specialties into four categories based upon their nature: (1) internal medicine and its subspecialties, (2) surgical specialties, (3) specialties related to the care of children, women, and families (family practice, obstetrics/gynecology, and pediatrics and its subspecialties), and (4) hospital-based specialties (emergency medicine, anesthesiology, pathology, and radiology). We also grouped specific specialties into four pay-level categories (low, medium, high, and extremely high) based upon Association of American Medical Colleges data on median salary in that specialty in 2009, as described elsewhere.[1] This additional grouping allowed for finer distinctions between subspecialties that are similar in nature but have different earning potential.

We grouped institutions such that all hospitals affiliated with a single university were considered to be a single institution. We then grouped the institutions employing the researchers into four tiers containing roughly equal numbers of K-awardees, based on the amount of total NIH funding received (i.e., first tier = the institutions receiving the most NIH funding and fourth tier = the institutions receiving the least NIH funding), as well as into categories for public or private.[1,15] We grouped institution location into 4 categories based upon region of country (Northeast, South, Midwest, and West).

We grouped the NIH-institutes that funded respondents' K-awards (e.g., National Cancer Institute, National Institute for Mental Health) into three tiers of funding activity, based upon the total dollar amount of R01 awards granted in 2000 (i.e., first tier = those granting the highest dollar amount of R01 grants, second tier = those in the middle, and third tier = those granting the least).[1,15]

We divided faculty as follows: by academic rank into 5 groups, by year of K award into 4 groups, by race (as self-reported in multiple-choice questions) into 4 groups, and by marital status into 3 groups (married or in domestic partnership, single, or divorced/widowed). We grouped spousal employment status into 3 categories (full-time, part-time, and not working). K-award type, parental status, and possession of an additional PhD degree were binary variables, as was gender.

We also asked respondents how much their compensation depends upon clinical volume or number of patients seen, as well as how much their compensation depends upon amount of grant funding received. Another item asked respondents, “How dependent is your family upon your income to maintain an acceptable lifestyle?” We scored all of these items on a four-point response scale ranging from “not at all” to “very much.”

Data analysis

We performed statistical analyses using the SAS System, version 9.2 (SAS Institute Inc., Cary, NC). We compared respondents to nonrespondents by those characteristics for which public data were available so as to evaluate for potential bias related to non-response. After comparing those who reported their salary to those who did not, we limited our sample to individuals holding MD degrees with academic positions in clinical specialties who reported their salary.

We described characteristics of this sample by gender and then constructed multiple variable linear regression models for salary. We began with the following respondent characteristics: gender, age, race, marital status, parental status, additional PhD degree, academic rank, number of years on faculty, specialty, specialty pay level, current institution type (public or private), current institution region, current institution NIH funding tier, K-award type, K-award funding institute tier, K-award year, work hours, and research time. Most characteristics were categorical and modeled as indicator variables with a reference category. We centered continuous characteristics (e.g., age, work hours) at their means. We constructed both a full model using all covariates and a parsimonious model whereby we iteratively deleted variables from the model based upon improvement in Akaike's Information Criterion,[16] using both forward stepwise and backward elimination approaches. We also explored pairwise interactions between gender and the other characteristics. These multivariable models offer estimates of the association between gender and salary, independent of the other variables included.

To explore the explanatory value of spousal employment within the married or partnered subset of our sample, we used the Peters-Belson approach. This approach allows for the decomposition of an observed gender difference in salary into two components: the component that is explained by gender differences in other measured characteristics and the component that remains unexplained. Specifically, we developed a regression model using all measured characteristics for the men alone. We then applied the coefficients from that model to the characteristics for each woman to derive her expected salary, as if her gender were male, in order to quantify the proportion of the observed gender difference unexplained by the measured characteristics.[17-21] We first conducted this exercise in the married/partnered subset without including spousal employment status and then repeated it after including spousal employment status, to measure the explanatory impact of that variable.

For statistical inference, we conducted two-tailed tests with test statistics, considering *P* values at or below 5% to be significant.

Results

We received 1,275 completed questionnaires from the 1,708 individuals we contacted for a response rate of 75% (see Figure 1). Our respondent sample did not differ significantly from non-respondents by gender or K-award year. A higher proportion of K23 recipients (645/831, 78%) responded than did K08 recipients (630/888, 71%, $P = 0.002$). Individuals at institutions with lower overall NIH funding were more likely to respond (322/401[80%] from the lowest/fourth tier; 349/474 [74%] from the third tier; 353/486 [73%] from the second tier; and 236/340 [69%] from the top/first tier, $P = 0.006$). Of the 1,275 respondents, 1,055 (83%) held MD degrees—and of these 1,046 (99%) held academic positions in clinical specialties. Finally, of these 1,046, we used the 1,012 (97%) who reported salary information to constitute the analytic sample.

The characteristics of the 419 female and 593 male K award recipients in the analyzed sample are detailed in Table 1. Women were more likely to be single (8.6% vs 4.2%, $P = 0.01$). Of those who were married/partnered, men were far more likely to have a spouse who was not employed (26.5% vs 7.5%, $P < 0.001$) or employed part-time (28.0% vs 6.4%, $P < 0.001$). Women were nearly twice as likely to be in the lowest paying specialties (45.1% vs 24.1%, $P < 0.001$), more likely to hold K23 (rather than K08) awards (58.2% vs 35.4%, $P < 0.001$), and more likely to be funded by NIH institutes that awarded lower amounts of independent funding (38.0% vs 25.3%, $P < 0.001$). Women's mean work hours were lower than men's (54.0 vs 59.4, $P < 0.001$).

Overall, mean salary was $141,325 (95% confidence interval [CI] $135,607 – $147,043) for women and $172,164 (95% CI $167,357 – $176,971) for men in this sample. Table 2 presents the results of our bivariate analysis on the correlates of salary (i.e., the personal, family, professional, K-award, and institutional demographics described in Method).

Table 3 presents multivariate models of salary in the sample: a full model including all theoretically selected covariates and a parsimonious reduced model. The gender effect was similar in both models (+$10,921 for men in the full model and +$10,663 for men in the reduced model). Of note, we observed one statistically significant interaction between gender and a modeled covariate. This significant interaction was between gender and specialty pay level ($P < 0.001$), and the interaction remained significant when modeled simultaneously with the main effects in the model, revealing the gender difference in salary in this sample to be larger in the higher-paying specialties.

Specifically, as depicted in Figure 2, the mean salary for women in low-paying specialties (e.g., pediatrics, family medicine) was $123,678, whereas for men in these specialties, mean salary was $132,058. The mean salary for women in medium-paying specialties (e.g., neurology, pathology) was $146,651 versus $152,622 for men in these same medium-paying specialties. The mean salary for women in the high-paying specialties (e.g., emergency medicine, gastroenterology) was $165,114, and the mean salary for men in these specialties was $195,771. Finally, the mean salary for women in extremely high-paying specialties (e.g., neurosurgery, radiology) was $264,636, and the mean salary for men in these specialties was $298,915.

Table 4 describes respondents' perceptions regarding their salaries. Respondents were more likely to indicate that compensation depended heavily upon grant funding than upon clinical volume ($P < 0.001$, Stuart-Maxwell test). There were no statistically significant gender differences in response to questions asking how much the respondent's compensation depended on clinical volume or number of patients seen ($P = 0.13$) or upon grant funding received ($P = 0.41$). However, men were more likely to report that their families were “very much” dependent upon their incomes to maintain an acceptable lifestyle than were women

(77.5% vs 54.1%), and the difference was significant ($P = 0.002$) even after adjusting for spouse/partner employment status.

Peters-Belson analysis in the married/partnered subsample revealed that women earned less than what would be expected if they retained their other measured characteristics but were men. When we excluded spousal employment status from the Peters-Belson analysis, 17% of the total observed gender difference was unexplained by the other measured characteristics. When we did include spousal employment status, the proportion of the total gender difference in salary that remained unexplained was 10%. Thus, inclusion of a measure of spousal employment status explained only about a third of the previously unexplained gender difference.

Discussion

In this cohort of elite, early-career physician researchers who only recently commenced their faculty careers, we observed a substantial gender difference in salary that was not fully explained by specialty, academic rank, work hours, or even spousal employment. These findings suggest that salary disparities in academic medicine exist even in cohorts hired recently and that these disparities arise early in the course of a career. In a previous study of *mid-career* K award recipients, we observed similar gender differences in all specialties,[1] but the gender difference in this study primarily existed in the higher-paying specialties (Figure 2). Thus, the salary gap appears to develop early in the career trajectory, especially for women in those specialties.

Scholars have noted that gender differences in salary that exist early in a career are likely to widen over time, and that the initial salary negotiation may merit particular attention.[22,23] Some evidence suggests that women negotiate salary less aggressively than men do.[24-28] Other, related research indicates that female academic physicians may need to prepare in advance for a conversation regarding salary in order to feel more comfortable being assertive during the negotiation and more self-confident afterwards.[29] Additional research shows that women are judged more harshly than men for initiating negotiations. [30-33]

Workshops in negotiation for women faculty are an increasingly common intervention that offices dedicated to the support of women at various academic institutions are pursuing.[34-36] Given these current findings, such programs should consider expanding eligibility and outreach to ensure that female residents and fellows experience negotiation training prior to their first faculty appointments. Even with such training, however, new junior faculty are hardly in a position to ensure their own salary equity. Those doing the hiring and setting the salaries need to be sensitized both to the corrosive impact of salary inequity on faculty morale and to the importance of working to avoid even small inequities early in women's careers, particularly given evidence that such inequities grow over time.[37] To that end, bias literacy workshops and other systematic educational interventions targeting department chairs, division chiefs, and medical school administrators merit further development and investigation.

In this study, we found that about one-third of the gender difference in salary that was unexplained by other factors could be explained by spousal employment. An unconscious influence of gender-linked beliefs about the “family wage” has been proposed as a mechanism underlying gender differences in salaries, despite the very high rates of women's labor force participation nationally.[10] Our findings are consistent with this speculation; that is, the idea of the family wage may partially explain salary inequity among physician-researchers. Employers may feel that men who are supporting a family deserve higher salary than women whom they do not view (and who may not view themselves) as principal

breadwinners. Given the large differences in family composition between men and women physicians (that is, women generally have partners who are employed full-time while men generally do not), salary-setting may possibly be influenced by extra-professional assumptions about gender, rather than by actual credentials or performance. Unobserved differences in activity at work (e.g., working a schedule that is equal in number of hours but more convenient for family life), not adequately addressed by control variables for work hours and research time are also possible explanations, although this seems less likely, given our selection of a relatively homogeneous and research-intensive population of academic medical faculty for this study. Future research, particularly employing qualitative methods, is necessary to explore further whether some of the observed salary differences result from differences in unmeasured aspects of job flexibility. After all, women may be more willing than their male colleagues to trade salary for flexibility; likewise, men may not perceive themselves to be as closely monitored at work as women do and are therefore more able to harness job flexibility without trading salary.

Even with the inclusion of spousal employment status in our model, an unexplained gender difference remained. Scholars of economics and of psychology have proposed various explanations for why gender differences in salaries may exist. Employers may exercise "statistical discrimination" when they set salaries, making inferences based upon group rather than individual characteristics[38]; in other words, an employer might pay a woman who works long hours a lower salary because of an assumption that women in general work fewer hours than men do. Unconscious gender biases may also influence employers,[39-42] particularly when considering employees who are mothers.[43,44] To the extent that we found a substantial gender difference that is not explained by numerous theoretically selected covariates (i.e., factors such as specialty, rank, work hours, and research time) these explanations merit attention.

Of note, even some of the difference that was explained by covariates in our model may warrant concern and attention. As in our previous work,[1] specialty was a key driver of the overall difference in salary. Whether salary differences related to gender differences in specialization are justifiable depends upon whether women freely choose lower-paying specialties or whether they are discouraged from higher-paying specialties and whether the feminization of a specialty itself leads to lower pay.[5]

This study has a number of strengths. We obtained a high response rate—from an elite and homogeneous population in whom gender differences in salary would not be expected. Our questionnaire included specific items measuring a large number and variety of mechanisms that might underlie gender differences in salary. Several limitations also merit acknowledgment. All survey studies must confront concerns about possible selection bias; in this case, it is reassuring that we obtained a high response rate and found no gender difference between the initially targeted population and respondents. In addition, our measures draw from self-report, making them vulnerable to recall or other biases. Nevertheless, we developed these measures with standard techniques of survey design, including cognitive pretesting, [14] and the items have strong face validity.

In sum, this study suggests that gender differences in the compensation of physicians in academic medicine exist in cohorts hired recently who are still at the early stages of their careers. Some of the gender difference in salary appears to be explained by differences in spousal employment status, suggesting important mechanistic roles for differences in the behavior of physicians themselves and/or disparate treatment by employers. The residual unexplained gender difference suggests that other mechanisms are also important, including the possibility of conscious and unconscious bias. Efforts to ensure gender equity in physician pay should consider these findings and focus interventions accordingly, with

particular attention towards transparent, consistent methods for determining pay at the institutional level.

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

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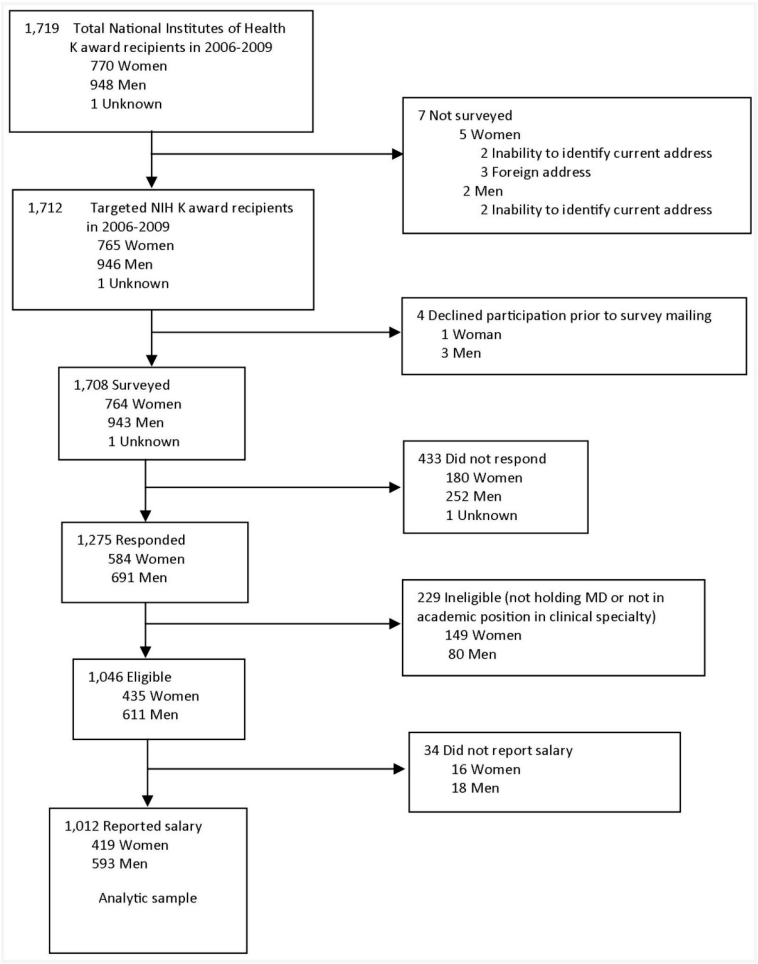

Figure 1.

The evolution, by gender, of the analytic sample from the original pool of all 1,719 individuals who received new National Institutes of Health mentored research (i.e., K08 or K23) awards in 2006-2009.

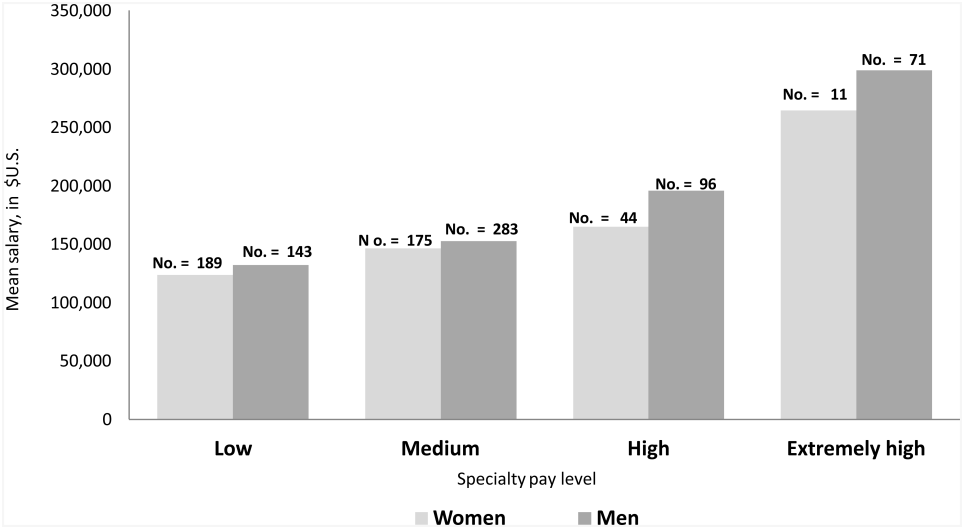

Figure 2.

Gender differences in salary, by specialty pay level. This graph depicts the mean self-reported current annual salaries of male and female physicians in a sample of 1012 physicians, by specialty pay level. The authors observed a statistically significant interaction between gender and specialty pay level, in which gender differences were most pronounced in the highest-paying specialties (e.g., neurosurgery, radiology).

Table 1

Characteristics of a Sample (n = 1,012) of Early Career Physician-Researchers Holding Academic Positions in Clinical Specialties Who Received National Institutes of Health (NIH) Mentored Career Awards from 2006 -- 2009

Characteristic	No. (%* of 419) women	No. (%* of 593) men	*P* value
Self-reported race			0.60
White	280 (66.8)	408 (68.8)	
Black	14 (3.3)	12 (2.0)	
Asian	105 (25.1)	145 (24.5)	
Other	17 (4.1)	25 (4.2)	
Not reported	3 (0.7)	3 (0.5)	
Marital status			0.01
Married or domestic partnership	373 (89.0)	551 (92.9)	
Single (never married)	36 (8.6)	25 (4.2)	
Divorced or widowed	9 (2.2)	17 (2.9)	
Not reported	1 (0.2%)	0	
Parental status			0.16
Yes	333 (79.5)	492 (83.0)	
No	86 (20.5)	101 (17.0)	
Employment status of spouse/domestic partner†			< 0.001
Yes, full time	320 (85.8)	247 (44.8)	
Yes, part time	24 (6.4)	154 (28.0)	
No	28 (7.5)	146 (26.5)	
Not reported	1 (0.3)	4 (0.7)	
Additional PhD degree/s			< 0.001
Yes	88 (21.0)	204 (34.4)	
No	331 (79.0)	389 (65.6)	
Academic rank			0.07
Fellow/research scientist	1 (0.2)	4 (0.7)	
Instructor	44 (10.5)	48 (8.1)	
Assistant professor	318 (75.9)	426 (71.8)	
Associate professor	54 (12.9)	111 (18.7)	
Professor	2 (0.5)	4 (0.7)	
Specialty			< 0.001
Medical specialties	231 (55.1)	318 (53.6)	
Clinical specialties for women, children, and families	129 (30.8)	120 (20.2)	
Hospital-based specialties (e.g., emergency, anesthesiology, pathology, and radiology)	49 (11.7)	98 (16.5)	
Surgical specialties	10 (2.4)	57 (9.6)	
Specialty pay level‡			< 0.001

Characteristic	No. (%* of 419) women	No. (%* of 593) men	*P* value
Low-paying	189 (45.1)	143 (24.1)	
Moderately-paying	175 (41.7)	283 (47.7)	
High-paying	44 (10.5)	96 (16.2)	
Extremely high-paying	11 (2.6)	71 (12.0)	
K award institution type			0.36
Private	234 (55.8)	313 (52.8)	
Public	180 (43.0)	271 (45.7)	
Not reported	5 (1.2%)	9 (1.5%)	
K award institution NIH funding tier§			0.91
First	85 (20.3)	119 (20.1)	
Second	119 (28.4)	179 (30.2)	
Third	122 (29.2)	162 (27.3)	
Fourth	89 (21.2)	125 (21.1)	
Not reported	4 (1.0%)	8 (1.3%)	
K award institution region			0.57
Northeast	174 (41.5)	224 (37.8)	
South	47 (11.2)	77 (13.0)	
Midwest	102 (24.3)	143 (24.1)	
West	96 (22.9)	149 (25.1)	
K award type			< 0.001
K08	175 (41.8)	383 (64.6)	
K23	244 (58.2)	210 (35.4)	
K award year			0.15
2006	93 (22.2)	144 (24.3)	
2007	109 (26.0)	122 (20.6)	
2008	96 (22.9)	160 (27.0)	
2009	121 (28.9)	167 (28.2)	
Funding institute tier¶			< 0.001
First	88 (21.0)	198 (33.4)	
Second	172 (41.0)	245 (41.3)	
Third	159 (38.0)	150 (25.3)	
Characteristic	**No. (SD)**	**No. (SD)**	***P* value**
Mean age in years	39.9 (3.7)	40.5 (3.7)	0.01
Mean number of years on faculty	4.7 (2.5)	4.6 (2.5)	0.85
Mean number of hours spent working	54.0 (9.7)	59.4 (10.6)	< 0.001
Mean percentage of time spent conducting research	65.4 (16.8)	65.7 (17.1)	0.73

*Percentages may not equal 100 due to rounding.

†Applies only to the married/partnered sample (n = 924).

‡Based on salaries as reported in the Association of American Medical Colleges Faculty Salary Survey Reports, which are available through www.aamc.org/publications. Examples of specialties within each category are as follows: extremely high paying = neurosurgery and radiology; high paying = emergency medicine and gastroenterology; moderately paying = neurology and pathology; low paying = pediatrics and family medicine.

§Institutions ranked and then grouped into four groups with roughly equal numbers of K awardees, based on total amount of NIH funding received, as previously defined in detail in Jagsi R, Motomura AR, Griffith KA, Rangarajan S, Ubel PA. Sex differences in attainment of independent funding by career development awardees. Ann Intern Med. 2009;151:804-811.

¶NIH funding institutes (e.g., National Cancer Institute, National Institute for Mental Health) ranked based on the dollar amount of R01 grants awarded and then grouped into those awarding the highest amount of funding (first), those in the middle (second), and those awarding the least (third), as previously defined in detail in Jagsi R, Motomura AR, Griffith KA, Rangarajan S, Ubel PA. Sex differences in attainment of independent funding by career development awardees. Ann Intern Med. 20091;151:804-811.

Table 2

Associations Between Self-Reported Annual Salary and Various Characteristics of Early Career Physician-Researchers (n = 1,012) Holding Academic Positions in Clinical Specialties Who Received National Institutes of Health (NIH) Mentored Career Awards from 2006 – 2009: Bivariable Analyses

Characteristic	Salary estimate in U.S. $	95% confidence interval	*P* value
Gender			< 0.001
Women	141,325	135,607 – 147,043	
Men	172,164	167,357 – 176,971	
1-year increase in age	2,099	1,084 – 3,113	< 0.001
Self-reported race			0.64
White	158,499	153,689 – 162,912	
Black	150,885	127,128 – 174,641	
Asian	163,405	155,747 – 171,063	
Other	159,310	140,627 – 177,992	
Marital status			0.04
Married	160,025	156,060 – 163,989	
Divorced/widowed	176,885	153,253 – 200,516	
Single/never married	143,061	127,633 – 158,489	
Parental Status			
Yes	162,151	157,962 – 166,341	0.002
No	146,923	138,076 – 155,770	
Additional PhD degree/s			0.16
Yes	155,142	148,080 – 162,203	
No	161,121	156,624 – 165,618	
Academic rank			< 0.001
Fellow/research scientist	107,000	56,774 – 157,226	
Instructor	117,022	105,313 – 128,731	
Assistant professor	154,877	150,759 – 158,994	
Associate professor	202,539	193,796 – 211,283	
Full professor	226,667	180,817 – 272,516	
1-year increase in number of years on faculty	5,820	4,346 – 7,294	< 0.001
Specialty			< 0.001
Medical specialties	147,396	140,176 – 153,007	
Clinical specialties for women, children, and families	146,591	140,176 – 153,007	
Hospital-based specialties (e.g., emergency, anesthesiology, pathology, and radiology)	170,010	161,660 – 178,360	
Surgical specialties	282,015	269,646 – 293,383	
Specialty pay level *			< 0.001
Low-paying	127,287	122,668 – 131,906	
Moderately-paying	150,341	146,408 – 154,273	

Characteristic	Salary estimate in U.S. $	95% confidence interval	*P* value
High-paying	186,136	179,023 – 193,249	
Extremely high-paying	294,317	285,023 – 303,611	
K award institution type			0.28
Public	157,171	151,998 – 162,344	
Private	161,410	155,713 – 167,107	
K award institution NIH funding tier[†]			< 0.001
First	143,743	135,404 – 152,081	
Second	156,314	149,415 – 163,213	
Third	158,632	151,565 – 165,699	
Fourth	178,910	170,768 – 187,051	
K award institution region			0.10
West	154,686	147,004 – 162,367	
Midwest	170,343	162,662 – 178,024	
South	161,249	150,452 – 172,046	
Northeast	154,686	147,004 – 162,367	
K award type			0.008
K08	164,017	158,921 – 169,112	
K23	153,716	148,067 – 159,365	
Years since receipt of K award			0.004
4	171,393	163,591 – 179,196	
3	156,796	148,893 – 164,669	
2	158,595	151,087 – 166,102	
1	152,319	145,242 – 159,397	
Funding institute tier[‡]			< 0.001
First	175,622	168,608 – 182,637	
Second	147,072	141,263 – 152,881	
Third	161,008	154,259 – 167,756	
1-hour increase in number of hours spent working	1,634	1,288 – 1,980	< 0.001
1-percentage point increase in percentage of time spent conducting research	-1,062	-1,276 – -847	< 0.001

[*] Based on salaries as reported in the Association of American Medical Colleges Faculty Salary Survey Reports, which are available through www.aamc.org/publications. Examples of specialties within each category are as follows: extremely high paying = neurosurgery and radiology; high paying = emergency medicine and gastroenterology; moderately paying = neurology and pathology; low paying = pediatrics and family medicine.

[†] Institutions ranked and then grouped into four groups with roughly equal numbers of K awardees, based on total amount of NIH funding received, as previously defined in detail in Jagsi R, Motomura AR, Griffith KA, Rangarajan S, Ubel PA. Sex differences in attainment of independent funding by career development awardees. Ann Intern Med. 2009;151:804-811.

[‡] NIH funding institutes (e.g., National Cancer Institute, National Institute for Mental Health) ranked based on the dollar amount of R01 grants awarded and then grouped into those awarding the highest amount of funding (first), those in the middle (second), and those awarding the least (third), as previously defined in detail in Jagsi R, Motomura AR, Griffith KA, Rangarajan S, Ubel PA. Sex differences in attainment of independent funding by career development awardees. Ann Intern Med. 20091;151:804-811.

Table 3

A Parsimonious Model of Self-Reported Annual Salary of Early Career Physician-Researchers (N = 1,012) Holding Academic Positions in Clinical Specialties Who Received National Institutes of Health (NIH) Mentored Career Awards from 2006 – 2009: Multivariate Model

	All covariates		Reduced model	
Characteristic	**Salary estimate in U.S. $**	***P* value**	**Salary estimate in U.S. $**	***P* value**
Intercept	129,665	< 0.001	124,631	< 0.001
Gender		< 0.001		< 0.001
Men	10,921		10,663	
Women	Reference		Reference	
1-year increase in age (centered at 40)	-772	0.08	-976	0.02
Self-reported race		0.110		
White	Reference			
Black	-13,591			
Asian	5,272			
Other	-2,518			
Marital status		0.85		
Married	Reference			
Divorced/widowed	-1,034			
Single/never married	-3,598			
Parental status		0.13		0.03
Yes	Reference		Reference	
No	-5,987		-7,605	
Additional PhD degree/s		0.74		
Yes	-1,081			
No	Reference			
Academic rank		< 0.001		< 0.001
Fellow/research scientist	-57,752		-53,128	
Instructor	-22751,		-23,965	
Assistant professor	Reference		Reference	
Associate professor	16,877		18,008	
Full professor	31,410		35,477	
1-year increase in number of years on faculty (centered at 4)	1,257	0.11	1,668	0.02
Specialty		0.292		
Medical specialties	Reference			
Clinical specialties for women, children, and families	-117			
Hospital-based (e.g., emergency, anesthesiology, pathology, and radiology)	-4,296			
Surgical specialties	10,511			

	All covariates		Reduced model	
Characteristic	**Salary estimate in U.S. $**	***P* value**	**Salary estimate in U.S. $**	***P* value**
Specialty pay level *		< 0.001		< 0.001
Low-paying	Reference		Reference	
Moderately-paying	17,299		18,609	
High-paying	49,075		50,776	
Extremely high-paying	136,656		143,688	
K award institution type		0.085		
Public	Reference			
Private	5,781			
K award institution NIH funding tier †		0.06		
First	-12,690			
Second	-8,234			
Third	-6,021			
Fourth	Reference			
K award institution region		0.55		
West	-1,353			
Midwest	-475			
South	-6,591			
Northeast	Reference			
K award type		0.79		
K08	-816			
K23	Reference			
Years since receipt of K award		0.63		
4	2,056			
3	Reference			
2	-3,128			
1	-1,988			
Funding institute tier ‡		0.44		
First	4,660			
Second	2,108			
Third	Reference			
1-hour increase in number of hours spent working (centered at 58)	419	0.002	454	< 0.001
1-percentage point increase in percentage of time spent conducting research (centered at 68)	-298	< 0.001	-299	< 0.001

* Based on salaries as reported in the Association of American Medical Colleges Faculty Salary Survey Reports, which are available through www.aamc.org/publications. Examples of specialties within each category are as follows: extremely high paying = neurosurgery and radiology; high paying = emergency medicine and gastroenterology; moderately paying = neurology and pathology; low paying = pediatrics and family medicine.

† Institutions ranked and then grouped into four groups with roughly equal numbers of K awardees, based on total amount of NIH funding received, as previously defined in detail in Jagsi R, Motomura AR, Griffith KA, Rangarajan S, Ubel PA. Sex differences in attainment of independent funding by career development awardees. Ann Intern Med. 2009;151:804-811.

‡ NIH funding institutes (e.g., National Cancer Institute, National Institute for Mental Health) ranked based on the dollar amount of R01 grants awarded and then grouped into those awarding the highest amount of funding (first), those in the middle (second), and those awarding the least (third), as previously defined in detail in Jagsi R, Motomura AR, Griffith KA, Rangarajan S, Ubel PA. Sex differences in attainment of independent funding by career development awardees. Ann Intern Med. 20091;151:804-811.

Table 4

Perceptions Regarding Salary of Early Career Physician-Researchers (N = 1,012) Holding Academic Positions in Clinical Specialties Who Received National Institutes of Health Mentored Career Awards from 2006 – 2009

			No. (%*) answering…			
Question	**Gender**	**No. of people responding to the question**	**Not at all**	**Somewhat**	**Moderately**	**Very much**
How dependent is your family upon your income to maintain an acceptable lifestyle? †	Women	383	21 (5.5)	75 (19.6)	80 (20.9)	207 (54.1)
	Men	564	7 (1.2)	42 (7.5)	78 (13.8)	437 (77.5)
How much does your compensation depend upon clinical volume or the number of patients you see?	Women	419	186 (44.4)	147 (35.1)	63 (15.0)	23 (5.5)
	Men	593	253 (42.7)	193 (32.6)	91 (15.4)	56 (9.4)
How much does your compensation depend upon the amount of grant funding you receive?	Women	418	72 (17.2)	91 (21.8)	78 (18.7)	177 (42.3)
	Men	592	125 (21.1)	125 (21.1)	114 (19.3)	228 (38.5)

*Percentages may not equal 100 due to rounding.

†Sample is limited to those that are married or in a domestic partnership or that have children (n = 947).