

Gender Differences in Time Spent on Parenting and Domestic Responsibilities by High-Achieving Young Physician-Researchers

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Background: Female physician-researchers do not achieve career success at the same rate as men. Differences in nonprofessional responsibilities may partially explain this gap.

Objective: To investigate the division of domestic labor by gender in a motivated group of early-career physician-researchers.

Design: Nationwide postal survey between 2010 and 2011.

Setting: United States.

Participants: Physician recipients of National Institutes of Health K08 or K23 awards between 2006 and 2009 with active academic affiliation at the time of the survey.

Measurements: Time spent on parenting and domestic tasks was determined through self-report. Among married or partnered respondents with children, a linear regression model of time spent on domestic activities was constructed considering age, gender, race, specialty, MD or MD/PhD status, age of youngest child, number of children, work hours, K award type, and spousal employment.

Results: A 74% response rate was achieved, and 1049 respondents were academic physicians. Women were more likely than

men to have spouses or domestic partners who were employed full-time (85.6% [95% CI, 82.7% to 89.2%] vs. 44.9% [CI, 40.8% to 49.8%]). Among married or partnered respondents with children, after adjustment for work hours, spousal employment, and other factors, women spent 8.5 more hours per week on domestic activities. In the subgroup with spouses or domestic partners who were employed full-time, women were more likely to take time off during disruptions of usual child care arrangements than men (42.6% [CI, 36.6% to 49.0%] vs. 12.4% [CI, 5.4% to 19.5%]).

Limitations: Analyses relied on self-reported data. The study design did not enable investigation of the relationship between domestic activities and professional success.

Conclusion: In this sample of career-oriented professionals, gender differences in domestic activities existed among those with children. Most men's spouses or domestic partners were not employed full-time, which contrasted sharply with the experiences of women.

Primary Funding Source: National Institutes of Health.

Ann Intern Med. 2014;160:344-353.

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The traditional family unit, headed by a breadwinning husband and stay-at-home wife, now characterizes a minority of American households (1). Women have entered the workforce in large numbers over the past few decades, and family structures are considerably more varied than in the past. In families headed by a married couple, responsibility for parenting and domestic activities has been more evenly divided (2). Nevertheless, women in the general population still spend more time on parenting and housework than men (3). Scholars have noted that this may reflect rational economic calculations in the face of a market that still pays men more than women (4), or it may be driven by deeper sociocultural barriers to changes in traditional gender roles (5).

In elite professions, such as medicine, where earning potential and professional demands are high and members have self-selected for career commitment by pursuing lengthy training, one may expect to observe less, if any, gender difference in time spent on domestic responsibilities. A recent study of surgeons suggested that although burnout rates were similar among men and women,

women were more likely to experience work-home conflicts (6). However, little research to date has considered how highly career-driven contemporary male and female physician-researchers allocate time to professional and domestic responsibilities. Examining gender differences in the nonprofessional responsibilities of physicians is particularly important because of growing evidence that female academic physicians are still not achieving career success at the same rate as their male colleagues (7–10). Understanding gender differences in nonprofessional responsibilities may help to explain this gap.

We investigated these issues in a survey study. To minimize variability in commitment to career and nature of work, we focused on physician-researchers who had received career development awards from the National Institutes of Health (NIH). We selected both K08 and K23 awards, which are highly selective grants made to early-career researchers who hold clinical doctorate degrees to support their career development. We focused on persons who recently received these awards to capture the experiences of “Generation X” because most recent K award recipients would have been raised when it was common for mothers to work outside the home. Their attitudes have been documented to be relatively egalitarian, both in general (11, 12) and specifically within the medical profession (13–16). In so doing, we investigated whether gender differences exist in time allocation within a population in which differences may not be expected and, if present,

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would lend insights about the causes of gender differences in domestic labor more generally and relevant information for policy development specifically within the medical profession.

METHODS

Data Collection

We identified 1719 recipients of new K08 and K23 awards from 2006 to 2009 using the NIH RePORTER (Research Portfolio Online Reporting Tools Expenditures and Results) database. After approval from the institutional review board, we conducted Internet searches and telephone calls that identified valid U.S. mailing addresses for 1708 persons, to whom we mailed a questionnaire and \$50 incentive. Nonrespondents received follow-up mailings (17). We merged survey responses to data previously collected from RePORTER.

Measures

We designed the questionnaires after review of the relevant literature; consideration of other instruments used to determine time allocation, responsibilities, and the outcomes of academic careers (18, 19); and cognitive pretesting (20). The final questionnaire included 173 items that assessed demographics, education, time allocation, mentoring experiences, family responsibilities, career satisfaction, and work environment (**Appendix Tables 1 to 4**, available at www.annals.org).

Time Allocation

To evaluate time spent on domestic labor, we asked how many hours were spent on parenting and domestic tasks on a typical workday (including the evening) and on a typical weekend (including both days). Definitions were provided: "Parenting" includes meeting physical needs (such as feeding or bathing), as well as meeting psychosocial needs (such as talking or playing with children, driving them to activities and attending their recitals or sporting events). "Domestic Tasks" include cooking, cleaning, laundry, home maintenance, yard work, shopping for necessities, errands, finances and other such activities." A continuous variable reflecting weekly total time spent on parenting or domestic tasks was created. We also asked respondents to describe the percentage of all time spent on parenting or domestic tasks by the respondent, their spouse or domestic partner, employed help, relatives, and others.

To evaluate time spent on paid labor, we asked respondents to think about their most frequent weekly working pattern and to estimate the total number of hours worked. We then asked how many of those hours were spent on patient care (including time spent rounding with trainees when a primary purpose is patient care), research, and teaching (defined as formal didactic teaching unrelated to patient care or research).

Family Responsibilities

We inquired whether respondents had children and, if so, asked for their children's ages. We asked, "Do your children require adult supervision or care?" and gathered information on who provided that care during work hours (school, day care, family member, nanny or babysitter, spouse or domestic partner, or other). Satisfaction with child care arrangements was ascertained using a 5-point response scale. We also asked: "When your children are ill, when school or institutional care is closed (such as during holidays or vacations), or when other disruptions in your usual child care arrangements occur, who usually stays with your children?" Respondents selected 1 option: "I usually do," "My spouse or partner usually does," "My spouse or partner and I usually alternate," "A friend or neighbor usually does," "I usually bring my children to work," "A family member usually does," or "Other."

Additional items, using 5-point response scales, inquired, "When you have after hours work (e.g., manuscript writing or grant writing, dinner meetings) to attend to, how easy is it for you to get such work done?" (for which responses were dichotomized as difficult vs. so-so or easy) and, "How often does child rearing and/or family responsibility currently interfere with your ability to get work-related things done?" (for which responses were dichotomized as always, frequently, or sometimes vs. infrequently or never).

Individual Characteristics

We determined the respondent's age (continuous), gender, specialty (grouped by nature into 5 categories as detailed elsewhere [9, 21]: medical [internal medicine and related subspecialties]; surgical [general surgery and surgical subspecialties]; hospital-based [for example, radiology, pathology, and anesthesiology fields]; relating to care of women, children, and families [family medicine, obstetrics and gynecology, pediatrics, and related subspecialties]; or basic sciences), PhD degree (yes or no), and spousal employment (full-time, part-time, or not employed) through self-report.

Statistical Analysis

We conducted statistical analyses using SAS, version 9.2 (SAS Institute, Cary, North Carolina). We compared respondents with the remainder of the initial target population for gender, K award type and year, and institution (ranked by total NIH funding) using chi-square or Fisher exact tests for categorical data and 2-sample *t* tests or the Wilcoxon rank-sum test for continuous data. The analytic sample was limited to persons who held MD degrees and were still affiliated with U.S. academic institutions. We described the characteristics of this sample by gender and constructed a multivariate linear regression model to explain the time spent on domestic labor. Time spent on domestic labor was assessed graphically and using other diagnostics and was found to be normally distributed. The

model was restricted to the married or partnered population with children using the following theoretically selected respondent characteristics: gender, age, age of the youngest child, number of children, weekly work hours, race, spousal employment, K award type, specialty nature, and MD or MD/PhD status. Most characteristics were categorical and modeled as indicator variables with a reference category. Continuous variables were centered at their medians. We also constructed linear regression models to test for the independent associations of gender with time spent on clinical and research activities. For time spent on teaching, we constructed a logistic regression model for the odds of spending more than the median time of 1 hour on teaching, given the lack of a sufficiently normal distribution for a linear model. We constructed CIs for proportions from categorical data using the exact binomial distribution or the multinomial distribution (22). For statistical inference, we conducted 2-tailed tests and considered *P* values of 0.05 or less to be significant.

Role of the Funding Source

This work was supported by the NIH. The funding source had no role in the design or conduct of the study; collection, management, analysis, or interpretation of the data; or preparation, review, or approval of the manuscript.

RESULTS

Of the 1719 K awardees identified, 1708 were surveyed, with 1435 of those surveyed holding MD degrees. Of the MD population surveyed, 1055 (74%) responded. Respondents did not differ significantly from nonrespondents by gender or award year. A greater proportion of K23 recipients (478 [77%]) responded than K08 recipients (577 [71%]) (*P* = 0.020). Persons at institutions with lower overall NIH funding were more likely to respond (227 [79%] from the lowest tier, 293 [74%] from the third tier, 309 [73%] from the second tier, and 214 [68%] from the top tier; *P* = 0.038). Of the respondents, 1049 (99.4%) reported a current academic affiliation and made up the analytic sample of this study, as detailed in Figure 1.

Recipients of K awards responded from 147 unique institutions: 34.7% of the institutions had a single awardee respondent, 42.9% had between 2 and 10 respondents, 12.9% had between 11 and 20 respondents, and 9.5% had 21 or more respondents. Table 1 describes the general characteristics of the overall analytic sample. The mean age of the respondents was 40.3 years (40.0 years among women and 40.6 years among men) and ranged from 33 to 58 years (33 to 57 years among women and 33 to 58 years among men). Most respondents were married or in a domestic partnership; women were more likely to be single than men (8.9% [95% CI, 6.3% to 11.6%] vs. 4.3% [CI, 2.5% to 6.2%]). Women were more likely to have no children (20.6% [CI, 16.9% to 24.8%] vs. 16.5% [CI, 13.7% to 19.8%]), and men were more likely to have 3 or

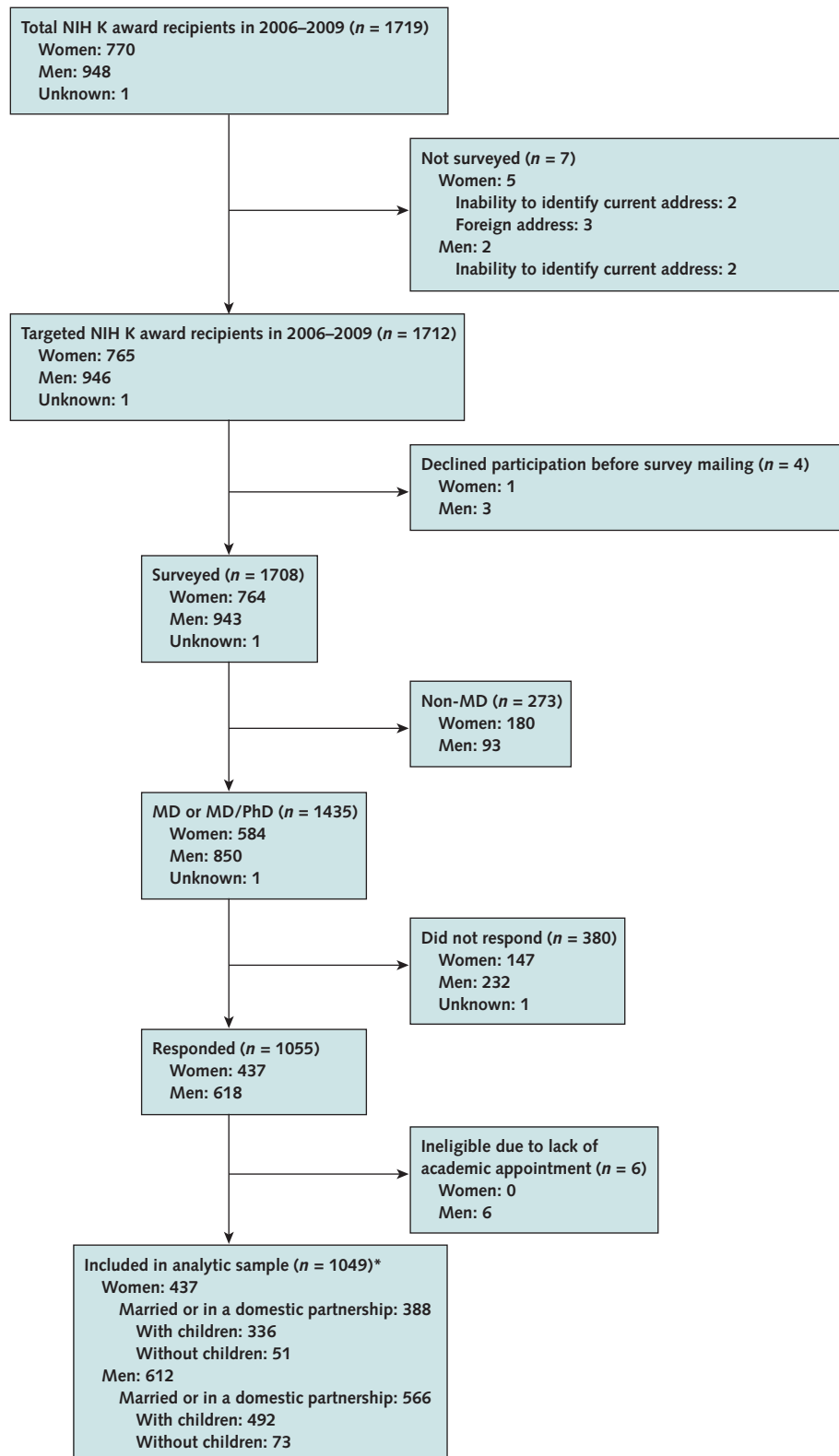
more offspring (27.1% [CI, 23.1% to 31.5%] vs. 14.6% [CI, 9.9% to 19.6%]). Most women's spouses or domestic partners were employed full-time outside of the home, whereas a much smaller percentage of men's spouses or domestic partners were (85.6% [CI, 82.7% to 89.2%] vs. 44.9% [CI, 40.8% to 49.8%]). Men's spouses or domestic partners were nearly 4 times more likely to be employed part-time or not at all.

Figure 2 depicts the time spent on paid and domestic labor, by gender and marital and parental status. Differences in time spent on domestic labor were restricted to those with children. Among married or partnered respondents with children, men worked 7 hours longer and spent 12 hours less on parenting or domestic tasks per week than women. In the subgroup of married or partnered respondents with children whose spouses or domestic partners worked full-time outside the home, the median time spent on parenting and domestic tasks by men was 9 hours less than by women. Married or partnered women with children had more total hours when paid and domestic labor were combined but fewer hours of paid labor.

Table 2 presents a multivariate model of time spent on parenting or domestic tasks among married or partnered respondents with children. In this model, female gender was associated with an excess of 8.5 hours per week spent on parenting or domestic tasks. This effect size was similar to the 8.2-hour difference between those whose youngest child was older than 12 years and those with at least 1 child aged 5 years or younger. Age of the respondent, number of children, work hours, and spousal employment status were also significantly associated with hours spent on parenting and domestic tasks. Of note, in multivariate models including the same independent variables, female gender was associated with less time spent on research (−2.94 hours [CI, −4.72 to −1.16 hours]; *P* < 0.001) (Appendix Table 1). There were also modest associations between female gender and greater odds of teaching more than 1 hour per week (odds ratio, 1.33 [CI, 0.95 to 1.88]; *P* = 0.100) and fewer hours spent in patient care (−1.00 hours [CI, −2.09 to 0.09 hours]; *P* = 0.071), although these relationships did not reach statistical significance (Appendix Tables 2 to 4).

When asked how much of all time spent on parenting or domestic tasks was spent by the respondent compared with others, women reported relying more on themselves or employed help with domestic tasks than men. Married or partnered women with children spent 43.8% of the total time devoted to parenting or domestic tasks themselves; married or partnered men with children spent 25.2% of that time themselves (Table 3). Men reported that their spouses or domestic partners contributed a greater proportion of time spent on these tasks than women (60.2% vs. 32.4%). When analysis was restricted to married or partnered respondents with children whose spouses or domestic partners were employed full-time, women spent 46.3% of the total time on parenting or domestic tasks themselves,

Figure 1. Study flow diagram.



Evolution of the analytic sample from the original pool of all 1719 respondents who received new K08 or K23 career development awards from the NIH in 2006–2009, by sex. NIH = National Institutes of Health.

* Missing data from respondents.

Table 1. General Characteristics of Respondents*

Characteristic	Women	Men	P Value†
Respondents, n (%)	437 (41.7)	612 (58.3)	
Mean age (SD), y	40.0 (3.7)	40.6 (3.7)	0.009
Respondents missing age data, n (%)	3 (0.7)	5 (0.8)	
Marital status, n (%)			0.006
Married/domestic partnership	388 (88.8)	566 (92.5)	
Single (never married)	39 (8.9)	26 (4.2)	
Divorced or widowed	9 (2.1)	18 (2.9)	
Respondents missing data	1 (0.2)	2 (0.3)	
Have children, n (%)			0.092
Yes	346 (79.2)	509 (83.2)	
No	90 (20.6)	101 (16.5)	
Respondents missing data	1 (0.2)	2 (0.3)	
Mean number of children	2.0	2.3	<0.001
Number of children, n (%)			
0	90 (20.6)	101 (16.5)	
1	73 (16.7)	82 (13.4)	
2	209 (47.8)	261 (42.6)	
≥3	64 (14.6)	166 (27.1)	
Respondents missing data	1 (0.2)	2 (0.3)	
Age at birth of first child			
Mean age, y	32.5	32.3	0.52
Respondents missing data, n (%)	5 (1.4)	7 (1.4)	
Race, n (%)			0.78
White	290 (66.4)	418 (68.3)	
Asian	112 (25.6)	150 (24.5)	
Other	32 (7.3)	38 (6.2)	
Respondents missing data	3 (0.7)	6 (1.0)	
Spouse/domestic partner employed, n (%)			<0.001
Yes	359 (92.5)	413 (73.0)	
Full-time	332 (85.6)	254 (44.9)	
Part-time	27 (7.0)	159 (28.1)	
No	28 (7.2)	148 (26.1)	
Respondents missing data	1 (0.2)	5 (0.8)	
K award, n (%)			<0.001
K08	183 (41.9)	389 (63.6)	
K23	254 (58.1)	223 (36.4)	
Academic rank, n (%)			0.069
Fellow/postdoctoral/instructor	45 (10.3)	52 (8.5)	
Assistant professor	331 (75.7)	437 (71.4)	
Associate professor	59 (13.5)	118 (19.3)	
Professor	2 (0.5)	5 (0.8)	
Specialty, n (%)			<0.001
Basic sciences	12 (2.7)	22 (3.6)	
Clinical specialties for women, children, and families	134 (30.7)	120 (19.6)	
Hospital-based specialties	51 (11.7)	100 (16.3)	
Surgical specialties	12 (2.7)	60 (9.8)	
Medical specialties	228 (52.2)	310 (50.7)	
Hours worked			
Mean work time (SD), h	54 (9.7)	59 (10.9)	<0.001
<50 h, n (%)	91 (20.8)	49 (8.0)	
50–60 h, n (%)	192 (43.9)	198 (32.4)	
≥60 h, n (%)	153 (35.0)	362 (59.2)	
Respondents missing data, n (%)	1 (0.2)	3 (0.5)	

Continued

Table 1—Continued

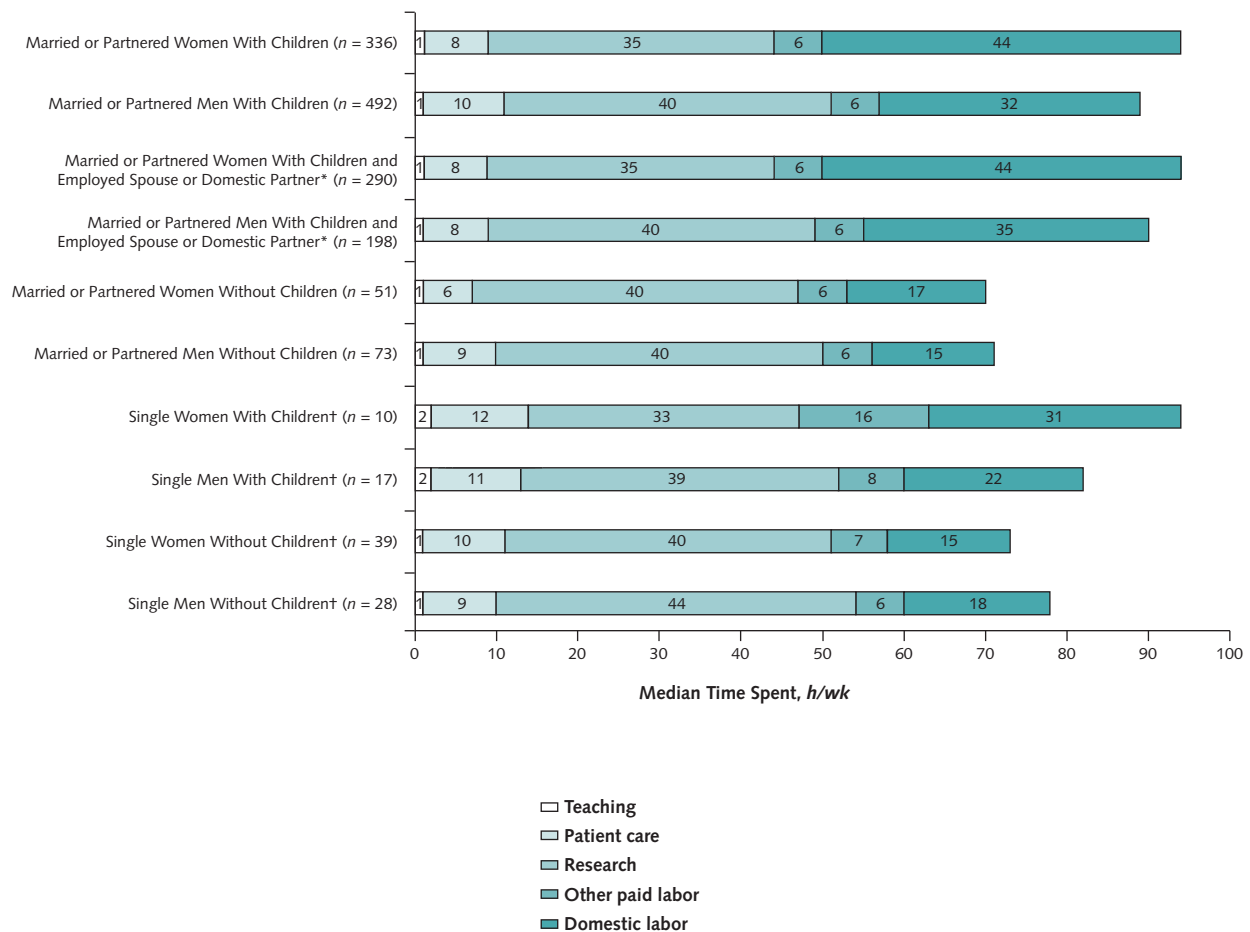
Characteristic	Women	Men	P Value†
Weekly teaching duties, n (%)			0.72
0 h	74 (16.9)	114 (18.6)	
0.01–1.00 h	148 (33.9)	197 (32.2)	
1.01–2.00 h	106 (24.3)	134 (21.9)	
2.01–5.00 h	84 (19.2)	133 (21.7)	
>5 h	19 (4.3)	25 (4.1)	
Respondents missing data	6 (1.4)	9 (1.5)	

* Data from 1049 respondents. Percentages may not sum to 100 due to rounding.
† P value for comparison of women and men, excluding respondents with missing data.

whereas men spent 31.1%. In this subgroup, men again reported that their spouses or domestic partners contributed a greater proportion of time spent on these tasks than women, although the difference was not as large (45.3% vs. 28.7%).

There were no significant gender differences in need for child supervision or care among married or partnered respondents with children. Overall, 325 (96.7%) women and 468 (95.5%) men reported having children who required adult supervision or care. For that care, women were significantly more likely to report day care (38.8% [CI, 33.4% to 44.3%] vs. 30.6% [CI, 26.4% to 35.0%]) and nanny or babysitter use (44.3% [CI, 38.8% to 49.9%] vs. 32.3% [CI, 28.1% to 36.7%]) and less likely to report using their spouses or domestic partners (29.5% [CI, 24.6% to 34.8%] vs. 54.9% [CI, 50.4% to 59.4%]). After adjustment for the employment status of spouses and domestic partners, these differences were no longer statistically significant. Satisfaction with child care arrangements did not significantly differ by gender (68.8% [CI, 63.5% to 73.8%] of married or partnered women with children requiring supervision were satisfied, as were 74.4% [CI, 70.2% to 78.3%] of men).

Table 4 shows how source of child care during disruptions of usual arrangements differed by gender. Married or partnered women with children requiring adult supervision were substantially more likely than men to take time off and stay with children in these situations, particularly in the subgroup with spouses or domestic partners who were employed full-time (42.6% [CI, 36.6% to 49.0%] vs. 12.4% [CI, 5.4% to 19.5%]). When asked about ease of completion of after-hours professional work, 41.4% (CI, 36.1% to 46.9%) of the 336 married or partnered women with children described difficulty, compared with 26.3% (CI, 22.5% to 30.5%) of men. Within the subgroup of 488 respondents with spouses or domestic partners who were employed full-time, 41.8% (CI, 36.0% to 47.8%) of the women and 33.0% (CI, 26.5% to 40.0%) of the men reported difficulty. Moreover, 85.4% (CI, 81.1% to 89.0%) of married or partnered women with children reported that family responsibilities interfered with the ability to get work-related things done at least sometimes,

Figure 2. Median hours per week in domestic and paid labor activities, by sex.

Total hours devoted to paid and domestic labor by the men and women in a sample of respondents to a survey of recipients of National Institutes of Health K08 and K23 career development awards in 2006–2009.

* Full-time employment.

† “Single” includes those who indicated that they were divorced or widowed.

compared with 73.4% (CI, 69.2% to 77.2%) of men. Within the subgroup with spouses or domestic partners who were employed full-time, 87.5% (CI, 83.2% to 91.1%) of women and 78.2% (CI, 71.8% to 83.7%) of men reported such interference.

DISCUSSION

In this select sample of highly motivated, Generation X physician-researchers, we saw a substantial gender difference in time spent on work and home-related activities among respondents with children. Men and women who were married or in a domestic partnership without children had more similar patterns of time allocation both at work and at home, suggesting that the differences relate specifically to gender differences in the performance of child care rather than other household tasks. Of note, women reported spending less time on research activities. Differences in clinical or teaching time were less clear. After various

characteristics were controlled for, including professional work hours and spousal employment status, married or partnered female physician-researchers with children reported spending 8.5 hours per week more on parenting or domestic activities than their male counterparts.

Given the documented tendency for Generation Xers to have a strong sense of shared responsibility for parenting and domestic responsibilities (11–16), we anticipated finding little gender disparity in time spent on household activities in the high-achieving, high-earning sample we studied. Our study found that women with children were spending substantially more time on parenting or domestic activities than their male peers. These findings are surprisingly similar to those reported recently by the U.S. Bureau of Labor Statistics (23). It evaluated the distribution of paid work and domestic work among a more heterogeneous population of men and women with young children and found that mothers who worked full-time spent

Table 2. Multivariate Model of Time Spent on Parenting or Domestic Tasks Among Married or Partnered Respondents With Children*

Characteristic	Time Estimate (95% CI), h	P Value
Intercept	28.5 (23.4 to 33.7)	<0.001
Gender		<0.001
Women	8.5 (6.5 to 10.5)	
Men	Reference	
Age (centered at 40 y)	−0.4 (−0.6 to −0.1)	0.007
Age of youngest child		0.001
<2 y	8.2 (2.9 to 13.4)	
2–5 y	8.2 (3.3 to 13.2)	
6–12 y	4.9 (−0.1 to 9.8)	
13–18 y	Reference	
Number of children		0.018
1	−3.1 (−5.2 to −1.0)	
2	Reference	
≥3	−0.7 (−2.7 to 1.3)	
Work time, centered at 56 (per 1-h increase)	−0.2 (−0.3 to −0.1)	0.003
Race		0.78
White	Reference	
Asian	−0.1 (−2.3 to 2.0)	
Other	1.3 (−2.5 to 5.1)	
Spouse/domestic partner's employment		<0.001
Not employed	−4.8 (−7.4 to −2.3)	
Part-time	−2.6 (−4.6 to −0.5)	
Full-time	Reference	
K award type		0.54
K08	0.6 (−1.3 to 2.5)	
K23	Reference	
Specialty		0.26
Basic sciences	3.6 (−1.4 to 8.6)	
Clinical specialties of women, children, and families	1.7 (−0.3 to 3.7)	
Hospital-based specialties	1.0 (−1.1 to 3.2)	
Surgical specialties	2.7 (−1.7 to 7.1)	
Medical specialties	Reference	
PhD degree		0.34
Yes	−1.1 (−3.5 to 1.2)	
No	Reference	

* Data from 828 respondents.

15 more hours on child care and domestic chores than fathers with wives who were employed full-time. Our results also suggest that little has changed from studies that examined physicians who were practicing more than 2 decades earlier (24–28). Given these findings in a sample of high-earning Generation X professionals with children, gender differences in the division of domestic labor in our society seem to remain.

It is noteworthy that although the married or partnered women with children in our sample had a greater

total number of hours devoted to domestic and paid labor than married or partnered men with children, the number of hours they devoted to paid work was still lower. In this cohort of research-oriented junior faculty, relatively few hours were spent on teaching and clinical activities, making gender comparisons challenging. However, time spent in research activities was lower in women. This suggests that time spent on domestic labor competes with working time and that the specific activity with which it competes is research. Indeed, research time may be the most flexible aspect of a medical academic career and therefore the one most amenable to compromise when competing demands exist. Alas, it is also the activity most critical to academic success. Therefore, if time spent on domestic labor does crowd out research time, it may be a mechanism by which gender differences in success in otherwise equally apt and motivated persons persist.

Female physicians were significantly more likely to have spouses or domestic partners who were employed full-time (86% vs. 45%) than their male colleagues. This helps to explain the more equal division of domestic activities reported by women than by men. However, even within the subgroup of our sample with employed spouses or domestic partners, women were more likely to bear most disruptions in child care.

The difference in rates of spousal employment between male and female participants in our study merits attention. Similar patterns have been documented in other highly educated samples (29, 30), suggesting that conventional norms about marriage may continue to limit the pool from which educated women choose life partners more than they affect educated men. Thus, there may actually be greater divergence in the experiences of men and women in the medical profession than in lower-status occupations. Men with spouses or domestic partners who are unemployed or employed part-time may not appreciate the challenges faced by their colleagues in dual-working couples. This bodes ill for the adaptation of the culture of the medical profession toward accommodating the challenges of balancing responsibilities of career and home that women seem more likely to confront.

The implications of the unequal gender distribution of domestic labor in our highly motivated sample are noteworthy. Social scientists have offered several potential explanations for gender disparities in domestic labor (31). Economic theories suggest that men have greater economic potential in the paid workforce because of the historical inequalities in accessing the labor force based on gender. As a result, men may have greater engagement with the labor market, leaving the bulk of domestic labor to their female spouses. However, such explanations seem inadequate to explain our findings. Although we have previously published that gender disparities in the salaries of academic physicians exist (21), both women and men in our study group had extremely high salaries (32), comfortably placing both genders in the upper echelon of wage earners and

Table 3. Percentage of Time Spent on Parenting and Domestic Tasks by the Respondent Versus Other Potential Providers*

Variable	Time Spent on Parenting and Domestic Tasks, %				
	Respondent	Spouse/Domestic Partner	Employed Help	Relative	Other
Overall					
Women (n = 336)	43.8	32.4	19.9	3.7	0.7
Men (n = 492)	25.2	60.2	11.9	3.0	0.4
With spouse/domestic partner employed full-time					
Women (n = 290)	46.3	28.7	21.4	3.4	0.7
Men (n = 198)	31.1	45.3	19.7	4.7	0.9
With spouse/domestic partner employed part-time					
Women (n = 22)	29.0	44.9	15.0	10.4	1.6
Men (n = 148)	24.0	61.9	10.7	2.9	0.2
With unemployed spouse/domestic partner					
Women (n = 24)	27.5	65.2	5.8	1.5	0.2
Men (n = 142)	18.5	78.9	2.1	0.7	0.1

* Data from married or partnered respondents with children only (n = 828). Percentages may not sum to 100 because the respondents estimated the percentage of time independently for each category; although respondents were instructed to restrict the sum of the estimates to 100%, small deviations from that restriction existed.

suggesting that more may be at work than a simple rational economic calculation to maximize family income or earning potential.

When men and women have relatively equal economic standing and men continue to perform less domestic labor, other explanations must be considered. Scholars have described gendered performance as an explanation: Men attempt to preserve some presentation of themselves as masculine, and because domestic labor is culturally defined as feminine, not doing it is masculine (33). Various other theories, including opportunity hoarding, exploitation, boundary maintenance, and subordinate adaptation, have also been described (34). Our findings of gender differences in time spent on domestic labor among those with children in our elite sample of physician-researchers suggest

that many women and men may remain committed—at least behaviorally and perhaps also ideologically—to an unequal division of domestic activity (35).

We believe that it is critical that members of the medical profession recognize these differences in the domestic activities of male and female physicians and specifically among those who are members of a generation in which gender equity is generally embraced. Such awareness is essential for the appropriate development of interventions to promote the success of both men and women. For example, given the differences we saw, interventions, such as on-site back-up child care facilities, may be particularly valuable investments that institutions may wish to consider when attempting to promote gender equity in the profession. To the extent that women seem to continue to do

Table 4. Person Who Stays With Children When They Are Ill or There Are Disruptions in Usual Child Care Arrangements*

Variable	Person Who Stays With Children, %			
	Respondent	Spouse/Domestic Partner	Alternate With Spouse/Domestic Partner	Other
Overall				
Women (n = 325)	37.5	12.9	34.2	15.4
Men (n = 466)	7.3	46.1	37.6	9.0
With spouse/domestic partner employed full-time				
Women (n = 279)	42.7	4.7	36.2	16.5
Men (n = 186)	12.4	14.0	55.9	17.7
With spouse/domestic partner employed part-time				
Women (n = 22)	4.6	50.0	31.8	13.6
Men (n = 142)	6.3	50.7	38.7	4.2
With unemployed spouse/domestic partner				
Women (n = 24)	8.3	75.0	12.5	4.2
Men (n = 135)	1.5	85.2	11.9	1.5

* Data from married or partnered respondents with children needing adult supervision only (n = 793). Percentages may not sum to 100 due to rounding.

more parenting themselves, it may also be valuable to devote resources toward ensuring that other important professional development opportunities, such as national conferences, are accessible to all. Professional societies could formally organize child care resources for larger meetings, and individual institutions could provide dedicated funding support for hiring child care providers when parents attend smaller meetings. In summary, these data suggest that creative interventions to reduce the conflict between the ability to fulfill both professional and parental roles have substantial potential to improve the ability of all young physicians, and particularly women, to succeed in both spheres.

Our study has strengths, including the large sample size, high response rate, carefully selected target population, and detailed measures. However, several limitations merit consideration. Our analyses relied on self-reported survey data, which depended on individual recall and may be biased. We designed our questions carefully, drawing from carefully developed survey instruments from other studies (18, 19), and we conducted extensive cognitive pre-testing to improve validity. Nevertheless, responses to items inquiring about time spent on parenting and domestic activities may be particularly sensitive to a gender bias in estimation. Women may overestimate their time spent on these activities because of societal expectations that women do such activities, and men may underestimate their time spent on these activities because they counter traditional male roles. Still, the magnitude of the observed effects seem unlikely to be fully explained by such biases. In addition, our research focused simply on quantifying the time and division of domestic labor and did not directly ascertain our respondents' attitudes about those activities or the fairness of their allocation. We also had data from the perspective of the individual physician-researchers and had relatively limited information about their spouses or domestic partners, other than employment status, and no data reported directly by the spouses or domestic partners themselves.

In summary, this study is, to our knowledge, the first to evaluate the time spent on parenting and domestic activities by a sample of high-achieving Generation X physician-researchers. Although studies of the general population document a persistent gender gap in domestic labor, our finding of a substantial gender gap in this highly select subgroup is striking. Particularly notable is that most men in our sample reported traditionally structured families with spouses or domestic partners who were not employed full-time, a finding that contrasts sharply with the experiences of their female peers. If anything, this difference may make the medical profession particularly resistant toward policies and cultural changes necessary to ensure the success of women, who continue to bear a greater burden of domestic responsibility. Recognition of these trends is essential to allow for the development of appropriate, targeted interventions to ensure the ongoing vitality of the

physician-researcher workforce and the medical profession more generally.

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

Grant Support: Dr. Jagsi was supported by the NIH (grant 5 R01 HL101997-04). Dr. Ubel was supported by grants from the NIH and a Robert Wood Johnson Foundation Investigator Award in Health Policy Research.

Potential Conflicts of Interest: Disclosures can be viewed at www.acponline.org/authors/icmje/ConflictOfInterestForms.do?msNum=M13-0974.

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Appendix Table 1. Multivariable Linear Regression Model to Explain Time Spent on Research

Characteristic	Time Estimate (95% CI), <i>h</i>	P Value
Intercept	36.98 (32.52 to 41.43)	<0.001
Gender		<0.001
Women	−2.94 (−4.72 to −1.16)	
Men	Reference	
Age (centered at 40 y)	−0.44 (−0.69 to −0.18)	<0.001
Age of youngest child		0.50
<2 y	−1.48 (−5.89 to 2.94)	
2–5 y	−0.08 (−4.18 to 4.01)	
6–12 y	−0.97 (−4.93 to 2.99)	
13–18 y	Reference	
Number of children		0.79
1	0.17 (−1.89 to 2.23)	
2	Reference	
≥3	−0.55 (−2.38 to 1.27)	
Race		0.30
White	Reference	
Asian	−1.35 (−3.12 to 0.42)	
Other	−0.96 (−3.91 to 1.99)	
Spouse/domestic partner's employment		0.67
Not employed	−0.95 (−3.06 to 1.16)	
Part-time	−0.45 (−2.53 to 1.62)	
Full-time	Reference	
K award type		<0.001
K08	4.93 (3.27 to 6.58)	
K23	Reference	
Specialty		0.25
Basic sciences	−0.29 (−4.41 to 3.84)	
Clinical specialties of women, children, and families	−1.27 (−3.10 to 0.56)	
Hospital-based specialties	−2.36 (−4.66 to −0.06)	
Surgical specialties	−1.84 (−4.85 to 1.18)	
Medical specialties	Reference	
PhD degree		<0.001
Yes	3.30 (1.45 to 5.15)	
No	Reference	

Appendix Table 2. Multivariable Logistic Regression Model to Explain Time Spent on Teaching Greater Than the Median for Married or Partnered Respondents With Children*

Characteristic	OR (95% CI)	P Value
Gender		0.100
Women	1.33 (0.95–1.88)	
Men	Reference	
Age (centered at 40 y)	1.08 (1.03–1.13)	0.003
Age of youngest child		0.64
<2 y	1.01 (0.42–2.39)	
2–5 y	1.11 (0.50–2.48)	
6–12 y	1.32 (0.61–2.88)	
13–18 y	Reference	
Number of children		0.071
1	1.49 (1.00–2.21)	
2	Reference	
≥3	1.35 (0.95–1.92)	
Race		0.64
White	Reference	
Asian	0.91 (0.65–1.27)	
Other	0.79 (0.45–1.38)	
Spouse/domestic partner's employment		0.005
Not employed	1.43 (0.96–2.15)	
Part-time	1.93 (1.29–2.89)	
Full-time	Reference	
K award type		0.26
K08	0.83 (0.61–1.14)	
K23	Reference	
Specialty		0.28
Basic sciences	1.40 (0.63–3.11)	
Clinical specialties of women, children, and families	0.82 (0.58–1.16)	
Hospital-based specialties	0.86 (0.56–1.34)	
Surgical specialties	1.49 (0.83–2.67)	
Medical specialties	Reference	
PhD degree		0.006
Yes	0.60 (0.42–0.86)	
No	Reference	

OR = odds ratio.

* Median of 1 h/wk.

Appendix Table 3. Frequency and Percentage of Respondents Reporting Teaching Time Greater Than 1 Hour per Week

Characteristic	Respondents Who Report Teaching >1 h/wk, n/N (%)
Gender	
Women	164/330 (49.7)
Men	239/483 (49.5)
Age	
First quartile	63/161 (39.1)
Second quartile	115/217 (53.0)
Third quartile	88/184 (47.8)
Fourth quartile	136/250 (54.4)
Age of youngest child	
<2 y	79/174 (45.4)
2–5 y	185/389 (47.6)
6–12 y	117/212 (55.2)
13–18 y	22/38 (57.9)
Number of children	
1	77/143 (53.8)
2	206/452 (45.6)
≥3	120/218 (55.0)
Race	
White	279/547 (51.0)
Asian	94/206 (45.6)
Other	30/60 (50.0)
Spouse/domestic partner's employment	
Not employed	86/164 (52.4)
Part-time	97/167 (58.1)
Full-time	220/482 (45.6)
K award type	
K08	207/444 (46.6)
K23	196/369 (53.1)
Specialty	
Basic sciences	16/29 (55.2)
Clinical specialties of women, children, and families	99/211 (46.9)
Hospital-based specialties	52/111 (46.8)
Surgical specialties	36/59 (61.0)
Medical specialties	200/403 (49.6)
PhD degree	
Yes	89/217 (41.0)
No	314/596 (52.7)

Appendix Table 4. Multivariable Linear Regression Model to Explain Time Spent on Clinical Duties for Married or Partnered Respondents With Children

Characteristic	Time Estimate (95% CI), h	P Value
Intercept	7.61 (4.88 to 10.34)	<0.001
Gender		0.071
Women	–1.00 (–2.09 to 0.09)	
Men	Reference	
Age (centered at 40 y)	0.24 (0.09 to 0.39)	0.002
Age of youngest child		0.58
<2 y	1.70 (–1.00 to 4.41)	
2–5 y	1.05 (–1.45 to 3.56)	
6–12 y	1.14 (–1.28 to 3.56)	
13–18 y	Reference	
Number of children		0.89
1	0.12 (–1.13 to 1.38)	
2	Reference	
≥3	0.28 (–0.84 to 1.39)	
Race		0.176
White	Reference	
Asian	1.01 (–0.07 to 2.09)	
Other	–0.08 (–1.88 to 1.72)	
Spouse/domestic partner's employment		0.022
Not employed	1.73 (0.44 to 3.02)	
Part-time	1.15 (–0.12 to 2.41)	
Full-time	Reference	
K award type		0.109
K08	–0.83 (–1.84 to 0.19)	
K23	Reference	
Specialty		<0.001
Basic sciences	–1.63 (–4.15 to 0.89)	
Clinical specialties of women, children, and families	0.38 (–0.74 to 1.50)	
Hospital-based specialties	0.15 (–1.26 to 1.56)	
Surgical specialties	9.69 (7.85 to 11.54)	
Medical specialties	Reference	
PhD degree		0.96
Yes	–0.03 (–1.16 to 1.10)	
No	Reference	