



Winners and Losers in Academic Productivity During the COVID-19 Pandemic: Is the Gender Gap Widening for Faculty?

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Abstract

Background: The coronavirus pandemic accelerated academic medicine into the frontline of research and clinical work, leaving some faculty exhausted, and others with unanticipated time off. Women were particularly vulnerable, having increased responsibilities in both academic work and caregiving.

Methods: The authors sought to determine faculty's responses to the pandemic, seeking predictors of accelerated versus decelerated academic productivity and work-life balance. In this survey of 424 faculty from a private Midwest academic medical center completed in August–September 2020, faculty rated multiple factors both “pre-COVID” and “during the COVID-19 lockdown,” and a change score was calculated.

Results: In a binary logistic regression model comparing faculty whose self-rated academic productivity increased with those whose productivity decreased, the authors found that controlling for multiple factors, men were more than twice as likely to be in the accelerated productivity group as women. In a similar model comparing partnered faculty whose self-rated work-life balance increased with partnered faculty whose work-life balance decreased, being in the positive work-life balance group was predicted by increased academic productivity, increased job stress, and having higher job priority than your partner.

Conclusions: While the COVID-19 pandemic placed huge stressors on academic medical faculty, pandemic placed huge stressors on academic medical faculty, some experienced gains in productivity and work-life balance, with potential to widen the gender gap. As academic medicine evolves post-COVID, leaders should be aware that productivity and work-life balance predict each other, and that these factors have connections to work location, stress, and relationship dynamics, emphasizing the inseparable connections between work and life success.

Keywords: gender, academic medicine, faculty, COVID-19, work-life balance

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Introduction

THE CORONAVIRUS PANDEMIC brought unprecedented stressors to health care, the economy, and the household. Women have been particularly affected, making up the majority of the health care workforce attending to the sick,¹ the job losses in the non-healthcare economy,² and the caregivers for a generation of children that was suddenly learning from home.³ Many authors worried about the effects of the combination of increased outbreak-related work and stay-at-home orders on academic faculty, and particularly on women faculty's productivity, well-being, and retention.^{4,5}

Now a year into the pandemic, it has become clear that in addition to devastating losses, there have been winners as a result of the crisis—businesses and individuals that became more productive, wealthier, and more profitable than ever before.⁶ We considered that this could be true for academic faculty as well—overworked, exhausted faculty juxtaposed with those for whom the lockdowns brought an opportunity for academic flourishing.

Academic productivity before coronavirus disease

Although women have made considerable gains since the 1970s, large gaps in publication rates between men and women in academia^{7,8} and academic medicine^{9–12} persist. Possible explanations for lower publication rates by women range from merit-based arguments¹³ possibly driven by men's greater funding¹⁴ and recognition,^{15,16} through potential sources of publication bias.^{17,18} When effects of home-life are considered, negative effects on women's publication rates have been attributed to exhaustion,¹⁹ whereas effects of having children have been mixed.^{20–22} Publications are not the only measure of academic productivity, with most institutions also considering educational excellence, mentoring, and institutional service as part of promotion criteria^{23–25}—may have contracted or expanded during the pandemic.

Work-life balance in academic faculty

In the decade before the coronavirus pandemic, satisfaction with work-life balance was already decreasing in academic medical faculty relative to the general population.²⁶ Whether measured by the related terms of work-life balance, wellness, or burnout, women are particularly vulnerable to difficulties, and home-work conflicts and responsibilities play a particularly salient role for them.^{27,28} Women in academic medicine are more likely to be married to other professionals, and in those relationships, do more of the housework, childcare, and have fewer publications relative to men or their unmarried counterparts.^{21,29} This led one author to describe the situation early in COVID as:

“...a leaky inflatable raft submerged under the water. Perhaps the tiny punctures were always there. But it's only now, in the crisis, that we see the streams of bubbles and realize where we were losing air.”³⁰

The COVID lockdown has likely created a dual situation in which some faculty are falling behind, whereas others, potentially those with fewer responsibilities and time on their hands, are leaping ahead academically, widening a pre-existing gap for academic faculty. We hypothesized that women would report larger (and mostly negative) changes in

academic productivity relative to their men colleagues, and that gender, professional role, caregiving responsibilities, and stress factors would be predictive in a regression model of academic productivity.

Methods

Institutional Review Board approval was granted for this anonymous, web-based survey of faculty in a single Midwest academic medical center. A women's advancement research group reviewed literature, media, and previous internal surveys regarding family stressors and COVID-19 to create a 40-question survey using Qualtrics. The survey was piloted with peer faculty for face validity, clarity, understanding, and ease of use on both large and small screen devices; appropriate adjustments were made and retested with the authors and peers. The complete survey can be found in Supplementary Appendix SA1.

For questions assessing changes in academic productivity occurring during the COVID crisis, questions were developed with paired slider options: one slider each for “Before Covid-19” and “During COVID-19,” providing respondents with a visualization of the change. For example, academic productivity was assessed by asking participants to utilize a scale from “much less” (–3) through “much more” (+3) to “rate your overall academic productivity relative to what you think you should do or would like to be doing.”

Work-life balance was also assessed through paired slider questions for “Before COVID-19” and “During Covid-19,” specifically “how successful did you feel at balancing your job with the other areas of your life?” Anchors for this slider pair were “not at all successful” (–3) through “very successful” (+3). All slider questions had similar anchors, except for questions of relationship dynamics, in which the scale for questions such as “whose job was prioritized or considered more important” was anchored at “my spouse/partner” (–3) through “me” (+3). Change scores were calculated by subtracting the Before COVID-19 score from the During COVID-19 score.

In August and September of 2020, a survey link was emailed to all faculty, with follow-up invitations sent through institutional list serves. Methods to maximize participation included anonymity, known sender, personalized appeals, and salience of the issue.

We divided productivity change scores into three groups: (1) those whose self-rated productivity decreased during COVID (*i.e.*, decreasing by any amount from any starting score), (2) those whose productivity was unchanged, and (3) those whose productivity increased. As this was a self-assessed scale, we felt that this binning removed an element of subjectivity inherent in self-rating.

To focus this study on the productivity gap between perceived “winners” and “losers” resulting from the pandemic, we chose binary logistic regression to determine predictors of decreased versus increased productivity, eliminating respondents whose productivity was unchanged. Wanting the productivity model to be broadly generalizable, we limited predictors to those applicable to all faculty, that is, having children and childcare amounts were included (because they could be “zero” for faculty without dependents), but relationship factors such as relative job priority between partners were not included in this model.

As both literature and media suggested that work-life balance was particularly critical during the pandemic, and desiring its relationship to productivity, we further modeled work-life balance change, utilizing binary binning to compare the work-life balance scores of faculty whose work-life balance increased with those whose work-life balance decreased. We included similar variables to the productivity model and added relationship-dynamic variables that asked respondents to rate their relative job priority, job flexibility, and childcare responsibility within the relationship. This choice limits the generalizability of the work-life-balance model to partnered faculty. Data were analyzed using R Version 1.2.5042, and SPSS Version 26.

Results

Of the 1964 faculty who received the survey, 424 responses were obtained, representing a 21.5% response rate (Table 1). There were 272 (64.3%) women participants, 151 (35.7%) men, and <5 faculty who identified as nonbinary (after discussion with nonbinary colleagues, any individuals in this category were subsequently analyzed as part of the

group “Women” gender). The sample, therefore, represented relatively more women than the institution’s faculty proportions of 43.2% women and 56.8% men. Among participants, there were 7 (1.7%) instructors, 182 (42.9%) assistant professors, 122 (28.8%) associate professors, and 113 (26.7%) professors, roughly corresponding to the 5.7% instructors, 48.5% assistants, 21.6% associates, and 24.1% professors in the full complement of the institution’s faculty.

All scores were on a self-determined scale from [(-3) much less to (+3) much more], allowing respondents to define for themselves (with guideposts) the definition of a “unit” of productivity, childcare, or other metrics. Mean scores by gender are available in Supplementary Appendix SA2 for the pre-COVID, during-COVID, and change scores. Change scores (pre to during COVID) for the all-faculty variables ranged from 0.72 (amount of childcare for all respondents, standard deviation [SD]=1.16) through 3.06 (amount working from home, SD=2.19).

However, the change scores for the relationship variables (whose job was flexible or important, and who was responsible for childcare) were nearly zero for both genders and overall [overall scores for job priority (mean=0.02,

TABLE 1. DEMOGRAPHIC VARIABLES BY GENDER AND OVERALL

	Women, ^a 273 (64.4), n (%)	Men, 151 (35.6), n (%)	Overall, 424 (100), n (%)
Faculty role			
Academic clinician	215 (78.8)	112 (74.2)	327 (77.1)
Research-focused faculty	58 (21.2)	39 (25.8)	97 (22.9)
Academic rank			
Instructor	6 (2.2)	<5 (0.7) ^b	7 (1.7)
Assistant Professor	126 (46.2)	56 (37.1)	182 (42.9)
Associate Professor	84 (30.8)	38 (25.2)	122 (28.8)
Professor	57 (20.9)	56 (37.1)	113 (26.7)
Child <11 years			
Yes	155 (56.8)	59 (39.1)	214 (50.5)
No	118 (43.2)	92 (60.9)	210 (49.5)
Spouse/partner			
Yes	243 (89.0)	137 (90.7)	380 (89.6)
No	30 (11.0)	14 (9.3)	44 (10.4)
Spouse/partner’s work			
Full-time	191 (70.0)	56 (37.1)	247 (58.3)
Part-time	17 (6.2)	36 (23.8)	53 (12.5)
Not employed in paid work	35 (12.8)	45 (29.8)	80 (18.9)
Missing	30 (11.0)	14 (9.3)	44 (10.4)
Race ^c			
Asian	25 (9.2)	21 (13.9)	46 (10.8)
Black	7 (2.6)	<5 (1.3)	9 (2.1)
Hispanic	11 (4.0)	<5 (2.6)	15 (3.5)
Indigenous	<5 (0.7)	<5 (0)	<5 (0.5)
White	216 (79.1)	115 (76.2)	331 (78.1)
Different identity	<5 (1.1)	<5 (2.0)	6 (1.4)
Missing	9 (3.3)	6 (4.0)	15 (3.5)
Sexuality			
Heterosexual	253 (92.7)	131 (86.8)	384 (90.6)
Homosexual	<5 (0.7)	<5 (2.6)	6 (1.4)
Bisexual	<5 (1.1)	<5 (0)	<5 (0.7)
I identify another way	6 (2.2)	<5 (0.7)	7 (1.7)
Missing	9 (3.3)	15 (9.9)	24 (5.7)

^aIncludes both faculty identifying as women and nonbinary genders.

^bCells with fewer than 5 respondents are listed as <5.

^cRespondents could choose more than one race category.

TABLE 2. DEMOGRAPHIC VARIABLES BY PRODUCTIVITY INCREASED AND DECREASED GROUPS AND WORK-LIFE BALANCE INCREASED AND DECREASED GROUPS

A) Academic productivity						
	<i>Decrease</i>		<i>Increase</i>		<i>Chi-square</i>	
	n	%	n	%	<i>ChiSq</i>	p
Gender						
Women ^a	137	73.3	50	26.7	1.68	0.20
Men	68	66.0	35	34.0		
Professional role						
Clinician	153	69.5	67	30.5	0.58	0.45
Researcher	52	74.3	18	25.7		
Academic rank						
Professor	47	66.2	24	33.8	0.92	0.34
Other rank	158	72.1	61	27.9		
Child <11 years						
Yes	111	71.1	45	28.9	0.04	0.85
No	94	70.1	40	29.9		
B) Work-life balance success						
Gender						
Women ^a	155	75.2	51	24.8	2.20	0.14
Men	63	67.0	31	33.0		
Professional role						
Clinician	168	70.9	69	29.1	1.80	0.18
Researcher	50	79.4	13	20.6		
Academic rank						
Professor	49	70.0	21	30.0	0.33	0.57
Other rank	169	73.5	61	26.5		
Child <11 years						
Yes	128	74.9	43	28.1	0.96	0.33
No	90	73.2	33	26.8		

^aIncludes both faculty identifying as women and nonbinary genders.

SD=1.00), relative job flexibility (mean=0.03, SD=1.55), childcare responsibility (mean=0.12, SD=1.20)]. By author consensus, we determined the relationship scores to be fixed, and utilized the “during COVID” scores for the remainder of the calculations involving these three variables.

Productivity model

We divided productivity change scores into three groups regardless of pre-COVID score: those whose self-rated productivity decreased during COVID [$n=205$ (48.3%)], those whose productivity was unchanged [$n=134$ (31.6%)], and those whose productivity increased [$n=85$ (20.0%)]. Comparisons of the groups with increased and decreased productivity are given in Tables 2A and 3A.

The logistic regression results for productivity (Table 4A) indicate that controlling for other variables in this regression, women had 0.42 times the odds (confidence interval [CI]: 0.20–0.87, $p=0.020$) of being in the increased-productivity group relative to men, or conversely, men had 2.38 times the odds of being in the increased productivity group relative to women. In addition, increasing the amount of childcare by one unit decreased the odds of being in the positive productivity group by a factor of 0.65 (CI: 0.44–0.93, $p=0.023$).

Similarly, each unit increase in work-life balance and work from home increased the odds of being in the positive productivity group by a factor of 1.25 (CI: 1.05–1.51, $p=0.017$) and 1.22 (CI: 1.03–1.46, $p=0.023$), respectively. Academic rank, faculty role (research vs. clinical), having a child, and stress factors did not significantly alter the odds of being in either the increased or decreased productivity groups.

Work-life balance model

In our model of work-life balance for partnered faculty, we divided the work-life balance success scores into three groups regardless of pre-COVID scores: those whose work-life balance improved ($n=82$, 20.5%), stayed the same ($n=100$, 25.0%), or worsened ($n=218$, 54.5%). Comparisons of the groups with increased and decreased work-life balance can be seen in Tables 2B and 3B.

In the logistic regression results for this model (Table 4B) we note no significant difference in odds (odds ratio [OR]=0.41, CI: 0.14–1.10, $p=0.080$) of being in the positive work-life balance change group for women relative to men. Job stress (OR=0.65, CI: 0.43–0.94, $p=0.030$) but not general stress (OR=0.69, CI: 0.45–1.03, $p=0.082$) decreased the odds of being in the positive work-life balance group. In addition, rating yourself as one unit higher on the scale of job importance relative to your partner increased the odds of being in the positive work-life balance group by a factor of 1.62 (CI: 1.16–2.34, $p=0.007$).

Note that just as work-life balance predicted increased productivity, so did academic productivity predict increased work-life balance—a one-unit increase in academic productivity increased the odds of being in the positive work-life balance group by a factor of 1.33 (CI: 1.01–1.79, $p=0.049$).

As represented by R^2 , >37% of the variation in work-life balance could be accounted for by the variables in the model. As this result is particularly large for this type of study, we considered that perhaps work-life balance and academic productivity might have represented very similar concepts or that multicollinearity might be present (two things that can artificially inflate R^2). We note that correlation between the two predictors was 0.40, and variance-inflation factor score was <2.5, leading us to conclude that these were indeed separate and significant predictors of each other when controlling for other factors.

Discussion

The coronavirus pandemic brought dramatic changes to academic medicine and added new stressors to faculty. In this study of faculty at a private medical institution, self-reported perceptions of academic productivity decreased on average for both genders during the pandemic, but effects on individual faculty varied widely, with 20% of faculty increasing their productivity and potentially accelerating their careers at a time when others were falling behind.

When comparing these “winners” versus “losers” in academic productivity, we found that controlling for other factors, men had more than twice the odds of being in the positive productivity group relative to their women colleagues. In addition, caregiving, general stress, and work-life balance were salient predictors of academic productivity change, leading to the conclusion that faculty who accelerated their careers during the pandemic were more likely to be

TABLE 3. CHANGE VARIABLES BY PRODUCTIVITY INCREASED AND DECREASED GROUPS AND WORK-LIFE BALANCE INCREASED AND DECREASED GROUPS

A) Academic productivity

Change scores	Decrease			Increase			T-test	
	n	Mean	SD	n	Mean	SD	T	p
Work-life balance	195	-1.52	2.02	81	-0.10	2.17	-5.05	<0.001
Working from home	202	3.14	2.17	84	3.33	2.08	0.69	0.50
Job stress	196	1.19	1.61	83	0.52	1.68	3.11	0.002
General stress	187	1.76	1.61	75	1.04	1.99	2.81	0.006
Nonchild caregiving	179	0.35	1.08	70	0.11	0.97	1.68	0.10
Childcare amount	131	1.24	1.30	57	0.74	1.17	2.64	0.009
Respondents with dependents								
Childcare amount	182	0.90	1.23	77	0.55	1.06	2.31	0.02
All respondents								
Whose job important ^a	166	0.62	1.96	67	0.87	1.53	-1.02	0.31
Whose job flexible ^a	171	-0.53	2.08	68	-0.57	1.86	0.15	0.89
Who does childcare ^a	139	0.34	1.83	60	0.20	1.72	0.51	0.61

B) Work-life balance success

Academic productivity	218	-1.27	1.88	82	0.09	1.66	-6.09	<0.001
Working from home	217	3.08	2.18	80	3.25	1.98	0.63	0.53
Job stress	211	1.48	1.51	78	-0.17	2.07	6.45	<0.001
General stress	195	1.90	1.60	70	0.27	1.98	6.19	<0.001
Nonchild caregiving	195	0.39	1.10	66	0.24	0.99	1.01	0.31
Childcare amount	144	1.36	1.25	60	0.88	1.38	2.32	0.02
Respondents with dependents								
Childcare amount	197	0.99	1.23	79	0.67	1.26	1.95	0.05
All respondents								
Whose job important ^a	185	0.41	1.86	65	0.97	1.66	-2.28	0.02
Whose job flexible ^a	188	-0.52	1.97	73	-0.10	1.91	-1.58	0.11
Who does childcare ^a	155	1.52	1.301	60	0.65	1.313	4.35	<0.001

Bolded items are significant at the $p < 0.05$ level.

^aScores during COVID are presented because average change scores were nearly zero. COVID, coronavirus disease; SD, standard deviation.

men, working at home, with low caregiving responsibilities, and better work-life balance relative to their colleagues whose productivity decreased.

Productivity

Added to a decreasing but persistent pre-COVID publication gap,^{9–12} potential effects of COVID on women's publication rates raised early voices of concern.³¹ Several studies have indicated that overall publication rates were increased during the pandemic lockdown relative to the year before, but often with women lagging men in that success,^{32,33} particularly as first authors,^{32,34} and leading to speculation that effects might be greatest for early-career women who are both more likely to have childcare responsibilities,^{35,36} and less likely to have “work in the pipeline” relative to more senior colleagues.^{32,36} Most publication studies are based on pre-prints, the earliest place publications can be seen, but not representative of the total research process.

Furthermore, for most institutions, academic productivity includes other assessments such as committee service, workshops, presentations, and teaching activities. Our study asked for a self-assessment of productivity as a whole, giving a real-

time assessment not available to pre-print studies. Our finding that men were more likely to experience a productivity acceleration may presage a widening of the productivity gender gap.

Caregiving

Perceived amounts of childcare directly provided, but not simply having a child, increased the odds of being in the decreased-productivity group. It was somewhat surprising that our model indicated no effect of having a child, likely indicating that childcare options (whether by a spouse, school, or other childcare) were sufficient to decrease the effect of that factor. U.S. women spend twice as much time caring for children as men, and three times as much during the hours of 8 am to 6 pm, with higher income women hiring outside help (as opposed to receiving help from men) to decrease their relative childcare hours.^{3,37} More specifically, academic women spent 8.3 more hours per week on household tasks than their male counterparts, and took time away from work to care for children more frequently than male peers.²⁹

If more hours, and particularly day-time childcare, fall to women, then even if both parents are “working from home,” mothers' ability to accomplish work at home may be greatly decreased relative to fathers', especially if both parents work

TABLE 4. LOGISTIC REGRESSIONS COMPARING INCREASED VERSUS DECREASED ACADEMIC PRODUCTIVITY AND INCREASED VERSUS DECREASED WORK-LIFE BALANCE

A) Academic productivity			
<i>N</i> = 219			
<i>R</i> ² = 0.148			
Predictors	OR	CI	p
Intercept	0.58	0.24–1.35	0.21
Gender [women ^a]	0.42	0.20–0.87	0.02
Faculty role [research]	0.87	0.38–1.96	0.75
Rank [professor]	0.87	0.38–1.98	0.75
Child under 11 years	1.86	0.84–4.25	0.13
Work-life balance	1.25	1.05–1.51	0.02
Job stress	1.05	0.77–1.43	0.78
Amount work at home	1.22	1.03–1.46	0.02
Amount childcare	0.65	0.44–0.93	0.02
General stress	0.80	0.60–1.05	0.11
B) Work-life balance			
<i>N</i> = 163			
<i>R</i> ² = 0.371			
Intercept	2.18	0.51–9.01	0.31
Gender [women ^a]	0.41	0.14–1.10	0.08
Faculty role [research]	0.68	0.19–2.29	0.55
Rank [professor]	0.67	0.18–2.41	0.55
Child under 11 years	1.04	0.28–3.99	0.96
Academic productivity	1.33	1.01–1.79	0.049
Job stress	0.65	0.43–0.94	0.03
Amount work at home	0.94	0.73–1.21	0.63
Amount childcare	0.94	0.61–1.44	0.77
General stress	0.69	0.45–1.03	0.08
Whose job important	1.62	1.16–2.34	0.007
Whose job flexible	1.12	0.82–1.53	0.48
Who responsible childcare	1.12	0.75–1.67	0.59

^aIncludes both faculty identifying as women and nonbinary genders.

CI, confidence interval; OR, odds ratio; *R*², variance explained.

full time (70% of our women faculty compared with 37% of our men faculty).^{30,38,39} In our study, increased work from home predicted being in the positive productivity group. This may be related to a contingent of faculty who were sent home from clinical duty and freed to do academic work. How successful they were at working from home depends on the level of their responsibilities and interruptions there.

Work-life balance

In our model of work-life balance, job stress and academic productivity predicted work-life-balance success, but gender did not. Faculty who reported greater job priority relative to a spouse or partner also had significantly greater work-life balance success, making this factor a better predictor than gender or the amount of perceived childcare. It is possible that factors relating to job priority in a relationship have a strong relationship with both gender and childcare duties, which results in job priority's influence. This is consistent

with reports that during the pandemic shutdown, U.S. women worked late into the evening to complete professional work,³ and with suggestions that higher job importance (*e.g.*, because one job carries the health insurance or higher salary) for one partner can lead to the downgrading of the other's career.

Lower relative job importance may manifest as forced job flexibility (*e.g.*, to be available to care for sick children) that results in turning down key assignments that would advance careers.^{30,38,39} Academic faculty are not exceptions, with several studies indicating that women physicians have the majority of responsibility for childcare and housework within a partnership,^{28,39–41} and that women are less likely to be on a tenure track than men.⁴¹ If this indicates a lower commitment to academic life, then women academic faculty, already at risk for career burnout,^{26,42} could leave academic jobs for those with lower time requirements, or join a large number of U.S. women leaving the workforce altogether.²

Furthermore, relationships with spouse, family, and work intertwine with advocacy and self-efficacy, where beliefs regarding individual skills, and ability to achieve specific goals, can be “self-enhancing or self-hindering.”⁴³ The greater a person's perceived self-efficacy, the greater confidence in personal accomplishments, which may reflect that person's sense of self-worth and decision making, and their ability to advocate for themselves both at work and at home.

Relationship between perceived balance and productivity

Our study suggested a reciprocal relationship in which work-life balance predicted academic productivity, and academic productivity predicted work-life balance. Most studies do not link these two areas, and we encourage future authors and academic leaders to explore this connection.

Westring et al. suggested four facets were necessary to ensure gender equity in academic medicine: equal access to opportunity, support for work-life balance, management of unconscious bias, and leadership engagement.⁴⁴ This study suggests that the pandemic has greatly disrupted both access to opportunity and work-life balance, and has highlighted potential effects of gender in relationships that may affect choices in the workplace and at home.

Engaged leadership should be aware that the pandemic has accelerated some faculty while decelerating others, emphasizing that “We are all in the same storm, but not in the same boat.”⁴⁵ Suggested solutions have included finding ways to account for COVID-related activities in the promotion process,⁴⁶ and “stopping the tenure clock,” realizing that the latter may be necessary but not fully effective.⁴⁷ In addition, academic leaders should work to improve faculty's flexibility and work-life balance, realizing their connection to academic success.

Limitations

While involving more than 400 faculty, this work represents one Midwest institution, and therefore findings might not apply to other institutions in other areas, especially if differentially affected by the pandemic. In addition, we had only limited numbers of faculty underrepresented in medicine, and therefore did not include that factor in the analysis, nor were we able to account for sexuality or nonbinary gender. Our results are therefore not generalizable to those groups.

Self-selection bias may be present. Respondent faculty made time to answer an emailed survey from an internal organization that represents women's concerns. Faculty that were unconcerned or unburdened by perceived survey content, or overwhelmed by clinical or childcare burdens, may not have responded to requests to participate.

Conclusions

The pandemic lockdown presented widely disparate conditions to academic faculty. Winners, who found their academic productivity accelerated, were likely to be men, working from home, directly providing low amounts of childcare and describing their work-life balance as increased. Women were less than half as likely to be in that accelerated group, and particularly reported decreases in work-life balance. The links between partner-related factors, work-life balance, and academic productivity should be further explored as leadership acknowledges and attempts to mitigate a potentially widening productivity gap.

Ethical Approval

Approval was granted for this "Minimal Risk Research Project" (PRO00038333) by the Institutional Review Board of the Medical College of Wisconsin.

Authors' Contributions

E.E., T.A., K.K., K.Q., C.K., and A.F., contributed to the conception, design, analysis, and writing of this work and approved the final version; they agree to be accountable for all aspects of the work.

Author Disclosure Statement

E.E.: As an academic physician, E.E. gives professional talks such as grand rounds and medical conference plenary and receives honoraria from conference organizers. She also serves as an advisor on external grants related to women in academia and receives remuneration for those roles.

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Supplementary Material

Supplementary Appendix SA1

Supplementary Appendix SA2

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