

Dermatology Author Gender Trends During the COVID-19 Pandemic

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PRACTICE POINTS

- The academic productivity of female dermatologists as last authors in dermatology clinical journals has potentially been impacted by the COVID-19 pandemic.
- To potentially aid in the resurgence of female dermatologist authors impacted by the pandemic, academic institutions and funding agencies may consider implementing strategies such as extending grant end dates, providing dedicated funding opportunities, and prioritizing female-authored submissions in dermatology research.

To the Editor:

Peer-reviewed publications are important determinants for promotions, academic leadership, and grants in dermatology.¹ The impact of the COVID-19 pandemic on dermatology research productivity remains an area of investigation. We sought to determine authorship trends for males and females during the pandemic.

A cross-sectional retrospective study of the top 20 dermatology journals—determined by impact factor and Google Scholar H5-index—was conducted to identify manuscripts with submission date specified pre-pandemic (May 1, 2019–October 31, 2019) and during the pandemic (May 1, 2020–October 31, 2020). Submission date,

first/last author name, sex, and affiliated country were extracted. Single authors were designated as first authors. Gender API (<https://gender-api.com/en/>) classified gender. A χ^2 test ($P < .05$) compared differences in proportions of female first/last authors from 2019 to 2020.

Overall, 811 and 1061 articles submitted in 2019 and 2020, respectively, were included. There were 1517 articles submitted to clinical journals and 355 articles submitted to basic science journals (Table). For the 7 clinical journals included, there was a 7.7% decrease in the proportion of female last authors in 2020 vs 2019 ($P = .002$), with the largest decrease between August and September 2020. Although other comparisons did not yield statistically significant differences ($P > .05$ all) (Table), several trends were observed. For clinical journals, there was a 1.8% decrease in the proportion of female first authors. For the 4 basic science journals included, there was a 4.9% increase and a 0.3% decrease in percentages of female first and last authors, respectively, for 2020 vs 2019.

Our findings indicate that the COVID-19 pandemic may have impacted female authors' productivity in clinical dermatology publications. In a survey-based study for 2010 to 2011, female physician-researchers ($n = 437$) spent 8.5 more hours per week on domestic activities and childcare and were more likely to take time off for childcare if their partner worked full time compared with males ($n = 612$) (42.6% vs 12.4%, respectively).² Our observation that female last authors had a significant decrease

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in publications may suggest that this population had a disproportionate burden of domestic labor and childcare during the pandemic. It is possible that last authors, who generally are more senior researchers, may be more likely to have childcare, eldercare, and other types of domestic responsibilities. Similarly, in a study of surgery submissions (n=1068), there were 6%, 7%, and 4% decreases

in percentages of female last, corresponding, and first authors, respectively, from 2019 to 2020.³

Our study had limitations. Only 11 journals were analyzed because others did not have specified submission dates. Some journals only provided submission information for a subset of articles (eg, those published in the In Press section), which may have accounted

Manuscripts Submitted to Dermatology Clinical or Basic Science Journals Categorized by Male and Female Authors^a

Category/ characteristics	All authors				US-affiliated authors			
	2019	2020	Absolute change, %	P value ^b	2019	2020	Absolute change, %	P value ^b
Clinical Journals^c								
Submitted manuscripts, n	653	864	N/A		656	866	N/A	
First author								
Female, n (%)	311 (48.4)	397 (46.6)	-1.8	P=.5	51 (42.9)	106 (50.0)	7.1	P=.6
Male, n (%)	332 (51.6)	455 (53.4)	1.8		68 (57.1)	106 (50.0)	-7.1	
Last author								
Female, n (%)	239 (38.1)	253 (30.4)	-7.7	P=.002	56 (48.7)	81 (38.6)	-10.1	P=.8
Male, n (%)	388 (61.9)	578 (69.6)	7.7		59 (51.3)	129 (61.4)	10.1	
Basic Science Journals^d								
Submitted manuscripts, n	158	197	N/A		161	197	N/A	
First author								
Female, n (%)	70 (44.6)	97 (49.5)	4.9	P=.4	14 (50)	25 (50.0)	0	
Male, n (%)	87 (55.4)	99 (50.5)	-4.9		14 (50)	25 (50.0)	0	
Last author								
Female, n (%)	43 (28.3)	54 (28.0)	-0.3	P=.9	8 (28.6)	14 (29.2)	0.6	P=1
Male, n (%)	109 (71.7)	139 (72.0)	0.3		20 (71.4)	34 (70.8)	-0.6	

Abbreviation: N/A, not applicable.

^aGender could not be determined for 1% of authors. Submission dates of May 1, 2019, to October 31, 2019, were considered prepandemic, and during pandemic included submissions dates of May 1, 2020, to October 31, 2020.

^bP values were obtained from χ^2 tests with significance set to $P < .05$.

^cIncluded the following journals: *Clinical, Cosmetic and Investigational Dermatology; Contact Dermatitis; Dermatology; Dermatology and Therapy; Journal of Dermatology; Journal of the American Academy of Dermatology; Journal of the European Academy of Dermatology and Venereology.*

^dIncluded the following journals: *Experimental Dermatology; Journal of Dermatological Science; Pigment Cell & Melanoma Research; Skin Pharmacology and Physiology.*

for the large discrepancy in submission numbers for 2019 to 2020. Gender could not be determined for 1% of authors and was limited to female and male. Although our study submission time frame (May–October 2020) aimed at identifying research conducted during the height of the COVID-19 pandemic, some of these studies may have been conducted months or years before the pandemic. Future studies should focus on longer and more comprehensive time frames. Finally, estimated dates of stay-at-home orders fail to consider differences within countries.

The proportion of female US-affiliated first and last authors publishing in dermatology journals increased from 12% to 48% in 1976 and from 6% to 31% in 2006,⁴ which is encouraging. However, a gender gap persists, with one-third of National Institutes of Health grants in dermatology and one-fourth of research project grants in dermatology awarded to women.⁵ Consequences of the pandemic on academic productivity may include fewer women represented in higher academic ranks, lower compensation, and lower career satisfaction compared with men.¹ We urge academic institutions and funding agencies to recognize and take action to mitigate

long-term sequelae. Extended grant end dates and submission periods, funding opportunities dedicated to women, and prioritization of female-authored submissions are some strategies that can safeguard equitable career progression in dermatology research.

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