

PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	Gender disparity between authors in leading medical journals during the COVID-19 pandemic: A cross-sectional review
AUTHORS	Misra, Vaidehi; Safi, Frozan; Brewerton, Kathryn; Wu, Wei; Mason, Robin; Chan, An-Wen; Rochon, Paula; Lega, IC; Abdel-Qadir, Husam

VERSION 1 – REVIEW

REVIEWER	Mannix, Alexandra University of Florida, Emergency Medicine
REVIEW RETURNED	18-Mar-2021

GENERAL COMMENTS	<p>I commend the authors for this novel and important research evaluating gender disparities during the COVID19 pandemic, especially when looking at publication rates.</p> <p>I strongly recommend replacing the word "sex" with "gender" in the title and throughout the entire paper. Sex is biologic, Gender is the social construct (including name and gender expression).</p> <p>Methods</p> <ul style="list-style-type: none">- I have some concerns about the bias imposed by individuals interpreting chinese names. It might make more sense to exclude these studies.-The authors compared the proportion of male and female authors to 50%. This assumes that all academic (publishing) faculty are 50% male and 50% female. While medical school is now right around 50/50, the percentages female academic faculty is lower (~41% according to 2018-2019 AAMC data). <p>Results</p> <ul style="list-style-type: none">- For me, the most impactful result is the fact that male senior authors was strongly associated with male principal authors. (Not surprising, but very interesting) <p>Discussion</p> <ul style="list-style-type: none">- It seems the hypothesis has been disproven, but you found something else important. Since 2014, we have made NO progress at increasing the proportion of female principal authors. OR we did, and COVID impacted those numbers. COVID studies have obviously been one since COVID, but its unclear when the non-COVID studies were actually performed vs published.- What I'd really love to see is this study, but looking at publications from Jan 2019-August 2019, compared with this data. Did female authorship drop off in 2020 or have we made no
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	progress since 2014 (which successfully increasing women in academic medicine)?
REVIEWER	Godskesen, Tove Uppsala Universitet
REVIEW RETURNED	26-Mar-2021
GENERAL COMMENTS	<p>Thank you for the opportunity to read this interesting paper, close to the field of publication ethics. The authors present the results of a study of female and male authors in high-impact academic medicine journals over the last year during COVID-19. The paper has the potential to be an important paper and of relevance for the readers of BMJ Open. The study is thoroughly done; the manuscript is well written, and the results can be easily followed. This paper was a pleasure to read.</p> <p>I have a few comments that I hope will be helpful:</p> <p>At page 10 lines 51-53 says "Preliminary analyses of American medical publications suggest that female principal authors' publishing rates have dropped 19% during the pandemic when compared to the previous year". I suggest that this sentence could be a part of the rationale at page 4 because it says something about the importance of doing your study.</p> <p>The Covidence data extraction tool link is not valid https://covidence-production.herokuapp.com/home</p> <p>At page 9 line 43 remove "a".</p>

VERSION 1 – AUTHOR RESPONSE

REVIEWER 1 (Dr. Alexandra Mannix, University of Florida)

Comment 1: I commend the authors for this novel and important research evaluating gender disparities during the COVID19 pandemic, especially when looking at publication rates.

Response: Thank you for the positive feedback and appreciating the value of our work. Comment 2 - I strongly recommend replacing the word "sex" with "gender" in the title and throughout the entire paper. Sex is biologic, Gender is the social construct (including name and gender expression).

Response: As advised, we have replaced the word "sex" with "gender" throughout the paper to better capture the social construct being discussed. Where applicable, we have also replaced the terms "male" and "female" with "men" and "women".

Comment 3: I have some concerns about the bias imposed by individuals interpreting Chinese names. It might make more sense to exclude these studies.

Response: We agree that there exists a greater potential for misclassification bias of the likely gender of authors who could not be identified through Genderize or review of an institutional web page published in the English language. However, we do not think it is appropriate to discriminate against Chinese authors by systematically excluding them from our study. As a compromise, we conducted a sensitivity analysis wherein we excluded studies where the author gender was determined by review of an institutional website that was not published in English, or by examination of the name in Chinese characters. This is described in the manuscript as follows:

Methods (page 7, paragraph 2):

"We conducted a sensitivity analysis where we excluded studies for which author's likely gender could only be determined by review of an institutional website that was not published in English, given the greater potential for misclassification bias."

Results (page 10, paragraph 3):

“The sensitivity analysis included 2216 articles where determination of likely author gender did not require review of a non-English website. A likely gender could be determined for the principal author in 2108 articles, of whom 1342 (63.7%) were likely men. A likely gender could be determined for the senior author in 1854 articles, of whom 1303 (70.3%) were likely men. There was no significant difference in the likelihood of authorship by men based on the COVID-19 status of the study. The univariable odds ratio (OR) for the association of COVID-19 status with likely principal authorship by men was 0.98 (95% CI 0.80-1.20; $p=0.86$). After multivariable adjustment, the OR was 0.99 (95% CI 0.81-1.21; $p=0.91$; see sTable 2). For the senior author position, the corresponding univariable OR was 0.92 (95% CI 0.75-1.14; $p=0.47$) while the multivariable OR was 0.95 (95% CI 0.76-1.18; $p=0.62$; see sTable 3).”

Comment 3: The authors compared the proportion of male and female authors to 50%. This assumes that all academic (publishing) faculty are 50% male and 50% female. While medical school is now right around 50/50, the percentages female academic faculty is lower (~41% according to 2018-2019 AAMC data).

Response: This is a valid point. We had acknowledged in the prior version of the manuscript that some of the differences can be due to the lower proportion of female researchers. We wrote (page 14, paragraph 1):

“We cannot wholly attribute the observed sex disparity in authorship to the structural and social factors discussed above. While women are similarly represented in medical degrees or doctorates in the life sciences ^{1,2}, as well as in residency and postdoctoral training positions ^{2,3}, they remain underrepresented in faculty positions ^{4,5}. Thus, the disparity in female and male principal and senior authors may be partly attributed to the lower proportion of female to male researchers in the medical sciences, particularly in higher ranking positions ⁵⁻⁸.”

The reviewer's comment alerted us that conducting a the one-sample binomial test to determine if the proportion was significantly different from 50% inherently assumes that there is a 50/50 split between male and female faculty. Accordingly, we have removed that statistical test.

Comment 4: Results: For me, the most impactful result is the fact that male senior authors was strongly associated with male principal authors. (Not surprising, but very interesting)

Response: We agree that this is an interesting albeit not surprising observation. We attempted to strike a balance between highlighting this finding but not overstating it (since it was not a prespecified hypothesis). Accordingly, we have not elaborated it further, but it should be a focus for future research.

Comment 5: Discussion: It seems the hypothesis has been disproven, but you found something else important. Since 2014, we have made NO progress at increasing the proportion of female principal authors. OR we did, and COVID impacted those numbers. COVID studies have obviously been one since COVID, but its unclear when the non-COVID studies were actually performed vs published. What I'd really love to see is this study, but looking at publications from Jan 2019-August 2019, compared with this data. Did female authorship drop off in 2020 or have we made no progress since 2014 (which successfully increasing women in academic medicine)?

Response: We agree that this is an important observation and merits further study. However, we believe that comparing the publication the sex distribution of authors between 2019 and 2020 is beyond the scope of this paper and was not part of our prespecified hypotheses. We will consider conducting this analysis in a subsequent manuscript dedicated to testing that hypothesis. REVIEWER 2: Dr. Tove Godsken, Uppsala Universitet

Comment 1: Thank you for the opportunity to read this interesting paper, close to the field of publication ethics. The authors present the results of a study of female and male authors in high-impact academic medicine journals over the last year during COVID-19. The paper has the potential to be an important paper and of relevance for the readers of BMJ Open. The study is thoroughly done; the manuscript is well written, and the results can be easily followed. This paper was a pleasure to read.

Response: Thank you for the positive feedback and appreciating the value of our work.

Comment 2: At page 10 lines 51-53 says “Preliminary analyses of American medical publications suggest that female principal authors’ publishing rates have dropped 19% during the pandemic when compared to the previous year”. I suggest that this sentence could be a part of the rationale at page 4 because it say something about the importance of doing your study.

Response: We agree and have moved the statement to the paragraph regarding rational behind this study. The introduction section now states (page 4, paragraph 2):

“The need for solutions to the challenges created by COVID-19 has resulted in valuable academic opportunities within the medical sciences. The short window to pivot towards COVID-19 research, coupled with the barriers experienced disproportionately by women has contributed to greater uptake of COVID-19-related academic opportunities by men⁹⁻¹³. Preliminary analyses of American medical publications suggest that female principal authors’ publishing rates have dropped 19% during the pandemic when compared to the previous year¹⁴. High-impact publications are important measures of academic productivity and hold implications for academic promotion, research funding, and other professional opportunities^{6 15-17}. It has been demonstrated that, in general, men are more likely than women to publish in high-impact medical journals¹⁸. It remains unclear if this disparity extends to the novel realm of COVID-19-related publications.”

Comment 3: The Covidence data extraction tool link is not valid <https://covidence-production.herokuapp.com/home>

Response: Thank you for alerting us to this. We have updated the link (page 6, paragraph 1) to <https://www.covidence.org/>.

Comment 4: At page 9 line 43 remove “a”.

Response: Thank you, we have removed the “a”.

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