Author’s response to reviews

Title: Gender-based differences in letters of recommendation written for ophthalmology residency applicants

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Author’s response to reviews:

We would like to thank the reviewers for their insightful comments. Please find our responses below.

Reviewer #1:

"The manuscript covers an interesting topic. The issue of bias in letters of recommendation is important and needs further study. The study would have been more practical if the letters were interpreted by program directors rather than a computer program. This study may serve as an initial review and the authors should recommend further study using interpretations by actual program directors."

We agree that interpretation of the letters by a computer program rather than residency program directors is a limitation of our study that should be mentioned. We have expanded the last paragraph of the Discussion to include this limitation and suggest a future study in which the results from our study are presented to program directors for their interpretations. In the past half year, 4 similar studies were published using the same or similar text analysis programs to determine gender-based differences in letters of recommendation in diagnostic radiology, urology, and general and transplant surgery applications. We feel those studies support our primary motive to use an objective methodology to bring awareness to gender biases that may impact residency selection processes. They have been added to the Background section.
"BACKGROUND The second paragraph of the discuss section should be moved to the background."

This has been done.

"METHODS Further description regarding how words were classified would assist with the interpretation of the results. The study is limited as it only addresses a single discipline."

The third paragraph of the Methods section discussing the LIWC text analysis software was lengthened to explain how nearly 6,400 words and word stems were placed under the appropriate output variable(s). An example using the word “cried” was added to provide clarity.

"RESULTS A brief explanation regarding why subgroup analysis was not pursued is needed. Could this explain the other results?"

Subgroup analysis was not pursued with respect to URM status because there was a difference in USMLE Step 1 scores and UGPAs, which would confound the results. Subgroup analyses was not pursued for USMLE Step 1 scores, UGPAs, proportion of URM applicants and Gold Humanism Honor Society members, number of academic and service activities, and gender distribution of letter writers because there was no difference between male and female applicants in these parameters. We have added these explanations in the Results section (paragraph 2).

"DISCUSSION While the computer program generated differences in the words selected by gender, are the groupings important to program directors?"

Thank you for making this excellent point. Please see our response to first comment above. In addition, two of our co-authors, Stacy Pineles and Jamie Rosenberg, are program directors and believe these results are important to be aware of and lay groundwork for future studies.

Reviewer #2:

"The study was clearly written. The authors explained the research question and findings well. However, the authors put a lot of information in the Discussion section, such as explanation of the measures in LIWC and the importance of letters of recommendation, that should have been in the Methods and Background sections, respectively."
The two misplaced paragraphs in the Discussion section were moved into the Methods and Background sections, respectively.

"Additionally, the article would be strengthened if the authors discussed how bias language in letters of recommendation was measured in previous research in the Background section."

We expanded the last paragraph in the Background section to cite 5 recent studies that analyzed gender biases in letters of recommendation written for residency or fellowship applicants to other medical specialties, namely diagnostic radiology, urology, emergency medicine, and general and transplant surgery. Those studies also used LIWC or another similar text analysis software.

REQUESTED REVISIONS:

"Design: explain LIWC measures in greater detail in the Methods section."

The third paragraph of the Methods section discussing the LIWC text analysis software was lengthened to explain how LIWC reads each word of the text being analyzed and increments the output variable(s) that contain(s) the word, and that nearly 6,400 words and word stems were placed under the appropriate output variable(s). An example using the word “cried” was added to provide clarity.

"Execution: explain how previous research measured gender bias in the language of letters of recommendation"

Please see our second reply above.