Reviewer's report

Title: Does mentoring new peer reviewers improve review quality? A randomized trial

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Reviewer: David P Sklar

Reviewer's report:

The authors are to be commended for designing and implementing an intervention to improve the training of new peer reviewers for a medical journal. This is a topic area that gets relatively little attention considering the importance of peer review in scientific publishing. The authors analyzed the impact of a mentorship program upon the initial and subsequent review quality for new reviewers and showed that the mentorship by senior reviewers for the initial three reviews by the new reviewers did not yield higher quality scores for the new reviewers compared to a control group of new reviewers who were not mentored. As a negative study that might discourage others from pursuing a similar strategy, I have several areas of clarification I would like the authors to address.

1. Major Compulsory Revisions:

Was there any consent process for participation? If so could you describe it and if not explain why it was not required.

2. How were the mentors trained? Was there any standardized instruction of the type of feedback to provide? Was the control group also able to access editors or others for feedback on their reviews. According to the survey of the participants it appears there may have occurred in some cases. Was there any evaluation of the performance of the mentors in providing the mentorship?

3. The scoring system for reviewers results in a clustering of scores at 3, 4, and 5. How does the distribution of scores and the number of participants impact the ability of the study to detect a difference in scores between the participants. Although a sample size calculation was not done could you provide an estimate of what size of effect would have been statistically significant based upon the sample size and the distribution of scores among all reviewers. What percentile of current reviewers would fall within the range that would have been needed for statistical significance?

4. Has there been any analysis of the reviewer scoring system for reliability?

Minor revisions:

Although you provide the mean review scores for the initial 3 reviews, you do not provide that for the subsequent scores except in the Table. I think it would be helpful to also include the mean and median review scores for the subsequent
reviews in the results and perhaps in the abstract.

Discretionary Revisions:

It would be helpful to have more discussion concerning whether the mentorship process might be improved, standardized, lengthened or in some other way improved before being abandoned as a failure.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests.