Reviewer’s report

Title: Correlation between subjective and objective hearing tests after unilateral and bilateral cochlear implantation

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Reviewer: Aaron C. Moberly

Reviewer’s report:

I reviewed the manuscript "Correlation between subjective and objective hearing tests after unilateral and bilateral cochlear implantation." This is a succinct report of a study correlating objective and subjective measures in adults with unilateral and bilateral CIs. Overall I like this paper, but I think it could be strengthened by addressing a number of issues:

1. The paper could benefit from editing by a native English speaker. It is currently somewhat difficult to read.

2. In the Background, the authors state on page 3, line 31, that "in today's healthcare, the subjective experience of patients gains in importance." I don't disagree, but the authors should expand on why they think this and/or cite papers to support this idea.

3. There are a number of recent studies that the authors do not cite along the lines of this topic, even including a meta-analysis of objective and subjective measures in CI users. These studies should be cited. These include the following:

4. The authors mention a few previous studies along these same lines. What is it that this paper aims to add to the literature? This should be explicitly discussed in the Background. Two things worth noting that are novel about your study is the inclusion of objective spatial hearing tests, and comparison of unilateral vs bilateral CI users.

5. Along those same lines, the authors don't explain why they are comparing correlations of objective and subjective measures in unilateral vs bilateral CI users. This topic is worth
examining in this study, but the authors don't make an argument as to why the correlations would be different. They should expand on this in the Background.

6. There is a previous report of the results of this randomized study of unilateral vs bilateral CI implants. It would be good for the authors to summarize the findings of this previous report in the Background. A summary of group differences should also be included in the Results. I say this, because we need to know if the two groups (unilateral vs bilateral CI) were equivalent across other measures. If not, could that impact the results of this study?

7. It would be good to provide a bit more detail on the subjective assessments. For example, it is unclear if higher scores represent better outcomes. How are these scored, what are the ranges of performance, etc.?

8. For the objective measures, can the authors describe why sentence presentation levels were randomly selected (page 5, line 29). Most readers will probably not be familiar with the U-STARR and SISSS.

9. For the SISSS description, the last sentence is unclear. I don't understand what the cut-off value of 30 dB means. Please clarify.

10. In Results, page 7, lines 18 and 20, it makes more sense to call correlations "weakest" and "strongest" instead of "lowest" and "highest," since the correlations were negative in direction.

11. Page 7, line 42, this bit about multiple testing correction should be moved to Methods.

12. I think the authors should reconsider how they compared correlations between bilateral and unilateral patients at the bottom of page 7, and they should get a statistician involved. Currently the authors just ran these correlations separately for the two groups (unilateral vs bilateral), and the results weren't significant after correcting for multiple comparisons. However, I know there is a method to compare the magnitude of correlations between two groups, at least for Pearson correlations. I assume there is a similar method for Spearman correlations, and involving a statistician would be helpful. It may be that the differences in correlations are different between groups, even if the subset correlations themselves were not significant when the groups were split.

13. In Discussion, the statement on page 8, lines 18-21, seems unnecessary about what a high and low correlation means. I would remove.

14. Assuming the revised analyses still suggest that the correlations are not different between unilateral and bilateral CI users, I'm not sure I agree with with the authors' interpretation on page 8, lines 39-45, particularly the last sentence that unilateral CI patients seem to be less capable to indicate their own performance than bilateral patients. I think the authors should temper this statement that it is a possible interpretation of the findings. It could also be that subjective measures are simply more sensitive in bilateral users, because
unilateral users might be affected more by the status of their other ear (hearing aid vs no-aid, etc.).

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

No

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Yes

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

No

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