

## Minor Revision

Zoltan Dienes, 13 Nov 2023 14:47

*The reviewers are almost entirely happy with your extensive revisions; they make a few minor points still for you to consider. A further point: for row 1 of your table, spell out the inferential chain a bit more explicitly; e.g. first you will test the interaction; then if significant, you do two pairwise comparisons; then what follows if each of them is or is not significant? Make your reasoning process completely clear in advance.*

We thank the recommender for his positive feedback. We have adapted the first row of the hypothesis table (p. 22) as follows:

*"A significant interaction in the LMM will be further analyzed using pairwise comparisons. A main effect of condition or a difference in perception between oddball and baseline in the 2nd test would indicate that the oddball paradigm is working as intended, either for both conditions or for only one of them. If no difference is perceived in one specific condition, the oddball might not have been salient enough to change perception. According to our main hypothesis, we would not expect a change in the modulation of the ongoing oscillations if there is no change in perception related to the oddball condition. Yet, if perception and modulation of ongoing oscillations are dissociated, the oscillations might be modulated even without a change in the perception ratings."*

We hope that these further explanations fully explain the inferential chain that we will follow in our analysis.

**Review by Björn Horing, 05 Nov 2023 09:27**

*First of all, I thank the authors for having invested a lot of effort, which they hopefully felt as improving and not as complicating the proposal. Second of all, my remaining concerns are subordinate to several protocol constraints pointed out by the authors:*

*For example, I understand that while it is thinkable to use different temperatures for the current [0 +3 - 3] configuration, like [0 +3 +1.5], discriminability is counteracted by tolerability. The authors concur that the protocol might depend on the actually non-painful quality associated with the low oddball (or even \_relief\_, by not reaching the painful temperature implicitly predicted by the subject). I would only expect them to discuss this dimension when interpreting their data.*

*As another example, I feel like there is not a conceptual but an effective contradiction in the replies to my comments:*

- *I.1 ("the baseline frequency may be reinforced..."), asserting that there is no differential influence on the baseline frequency by high/low oddball (in the sense of a direct effect of the oddball harmonics), and*
- *II.2 ("Another section reads..."), acknowledging that "Given that the baseline stimuli could be perceived at different levels of painfulness given the condition, it is conceivable that this could have an influence on the modulation at the baseline frequency" (in the sense of an indirect, carry-over effect of the different temperatures)*

*This is not existential for the experiment as long as, again, any interpretation is tempered by possible alternative explanations.*

*In conclusion, I am satisfied with the proposal, and I am looking forward to the results of the study.*

We thank the reviewer for his acknowledgement of our efforts made in the previous rebuttal and the positive evaluation of our work. We apologize for the contradiction in our previous statements. We will ensure that our interpretation of the data considers the non-painful quality associated with the low oddball and explore alternative explanations, which we will carefully address in the discussion of the data. Your satisfaction with the overall proposal is encouraging, and we look forward to sharing the results of the study with you.

**Review by Markus Ploner, 13 Nov 2023 10:38**

*On page 14, there is still an error in the definition of the beta band. Otherwise, my comments have been convincingly addressed. I wish the authors good luck with their study.*

We apologize for the typographical error in the changed frequency band limits. We have now adapted the beta frequency band limits on p. 14 to to 13-30 Hz, conforming to the COBIDAS recommendations.