

Dear Reviewers and Editors,

Great thanks to you and the anonymous referees for the time and efforts you spent on our manuscript entitled "The Alterations of Sleep Deprivation on Brain Function: A Coordinate-Based Resting-State Functional Magnetic Resonance Imaging Meta-Analysis" and the potential consideration for publication in the World Journal of Psychiatry.

According to the comments, we have revised the manuscript and would like to resubmit it for your consideration. We have addressed the comments raised by the reviewers, and the amendments are highlighted in the revised manuscript. Point-by-point responses to the reviewers' comments are listed below this letter.

We sincerely hope that this revised manuscript has addressed all your comments and suggestions. We appreciated for reviewers' warm work earnestly, and hope that the correction will meet with approval. Once again, thank you very much for your comments and suggestions.

Yours sincerely,

QINZHANG

We would like to express our sincere thanks to the reviewers and editors for the constructive comments. We believe that the comments have been very useful to improve the quality of the manuscript.

Replies to Editors and Reviewers

Reviewer 1

Specific Comments to Authors

1. Thank you for the opportunity to review this interesting paper. I have a few comments:
How was the quality of the included studies assessed?

Answer:

Thank you very much for your suggestion. We have added the part of the "Quality assessment" section into our study, outlining the evaluation process as follows: The quality of the included studies was assessed using the Newcastle–Ottawa Scale (NOS), a well-established tool for retrospective studies. The NOS comprises three levels with a total of eight items: (1) four items for subject selection; (2) one item for comparability between groups; and (3) three items for outcome measurement. The total possible score is 9 points. Studies with a score ≥ 5 were eligible for data analysis. Each study was reviewed and rated by two authors (Qin Zhang and Yongzhe Hou) independently. If rating disagreements arose, the papers were discussed by the authors' group to determine a consensus score. We're hoping that it will improve the quality of the manuscript. (Page 10, Line 16)

2. intervention studies were excluded. However, you mentioned that "we merged experiments from various publications". Could you please explain?

Answer:

Thanks for your constructive suggestion. By methodological declarations, during the process of conducting a meta-analysis for the same cohort of subjects, when the time

frame and selection criteria for the study participants are identical, it is permissible to select one study as representative.

If necessary, a synthesis of data from both studies can be undertaken, given that they pertain to the same demographic. For instance, in the study conducted by Feng Pan et al., within the same dataset (with identical time frames and selection criteria for study participants), multiple analytical methods (zALFF, zReHo & fALFF) were employed to investigate alterations in cerebral functional activity induced by sleep deprivation. Therefore, during the inclusion of studies, it suffices to amalgamate the respective analytical approaches.

3. "We identified several studies with the same or overlapping samples". How confident are you with having several studies with the same sample?

Answer:

Thank you for the comment. The ALE meta-analysis serves to consolidate reported coordinates from distinct experiments or studies conducted on the same sample using varied analytical methodologies. During our 'Data Selection and Extraction' phase, we observed that Feng Pan et al.'s study employed different data analysis methods (specifically zALFF, zReHo, and fALFF) to investigate changes in local brain function pre and post-sleep deprivation within the same pool of participants. However, utilizing zALFF, zReHo, or fALFF methodologies, all serve as indicators of altered local brain functional activity.

Therefore, during the study inclusion process, it's prudent to aggregate the sample size for sleep deprivation just once, while keeping the analytical method results

segregated. Failure to do so may potentially yield false-negative outcomes. Once again, we appreciate your valuable inquiry.

4. I understand that you performed sensitivity analyses but this could have been avoided.

Answer:

Thank you for posing your valuable question. The purpose of our sensitivity analysis is to assess the stability of our findings. In this study, we systematically eliminate one study at a time to observe whether alterations in the conditions lead to changes in the results, thereby gauging the stability of the conclusions drawn from the meta-analysis. If the outcomes before and after the sensitivity analysis exhibit no fundamental changes, it indicates a higher level of confidence in the meta-analysis results.

Therefore, the results of our study are relatively reliable.