PEER-REVIEW REPORT

Name of journal: *World Journal of Clinical Cases*

Manuscript NO: 81459

Title: The functional role of frontal EEG alpha asymmetry in the resting state in patients with depression: A review

Provenance and peer review: Invited Manuscript; Externally peer reviewed

Peer-review model: Single blind

Reviewer's code: 05794765

Position: Peer Reviewer

Academic degree: DNB, MBBS, MRCP

Professional title: N/A

Reviewer's Country/Territory: New Zealand

Author's Country/Territory: China

Manuscript submission date: 2022-11-23

Reviewer chosen by: AI Technique

Reviewer accepted review: 2022-12-12 19:25

Reviewer performed review: 2022-12-23 00:44

Review time: 10 Days and 5 Hours

Scientific quality	[Y] Grade A: Excellent [ ] Grade B: Very good [ ] Grade C: Good [ ] Grade D: Fair [ ] Grade E: Do not publish
Language quality	[Y] Grade A: Priority publishing [ ] Grade B: Minor language polishing [ ] Grade C: A great deal of language polishing [ ] Grade D: Rejection
Conclusion	[Y] Accept (High priority) [ ] Accept (General priority) [ ] Minor revision [ ] Major revision [ ] Rejection
Re-review	[Y] Yes [ ] No

| Peer-reviewer | Peer-Review: [Y] Anonymous   [   ] Onymous |
| statements | Conflicts-of-Interest: [   ] Yes   [Y] No |

SPECIFIC COMMENTS TO AUTHORS

1. Title: The title reflects the subject well. 2 Abstract: abstract summarize and reflected the work well 3 Key Words: focus of the manuscript and key words are appropriate. 4 Background: The manuscript adequately described the background, present status and significance of the study well.   5 Methods. It was a general review; would have been better with a systematic review. Authors provided comparison of methods of various studies they reviewed which appears sufficient.   6 Results. Not applicable 7 Discussion. Are good on topic and review is well summarized with adequate number of studies. Review covered various areas including adults, adolescents, children and older adults; prenatal and post-natal depression addressed research aspects needed a d touched up on genetics.   8 Illustrations and tables: Tables sufficient, good quality and appropriately illustrative, with labelling of figures using arrows, asterisks, etc., and are the legends adequate and accurately reflective of the images/illustrations shown. 9 Biostatistics. Not applicable. 11 References. Appropriate and adequate references were provided. 12 Quality of manuscript organization and presentation. the manuscript is well, concisely and coherently organized and presented. The style, language and grammar accurate and appropriate.   14 Ethics statements. Is not important in this article.   Recommendations to authors: This is a well written article and covered many aspects of frontal EEG in depression. It is of interest of good readers.   They may add a discussion on availability/non availability of studies on other antidepressants including conventional and other newer antidepressants.   I would also suggest the authors discuss effect of ECT on a frontal EEG asymmetry. Studies if available may be summarized, if not available this may be mentioned briefly and makes the article more complete. I would

recommend to add a few sentences on future research needs in conclusion of this article.

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Peer-review model: Single blind

Reviewer's code: 06480536

Position: Peer Reviewer

Academic degree: MD

Professional title: Doctor

Reviewer's Country/Territory: China

Author's Country/Territory: China

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Reviewer chosen by: AI Technique

Reviewer accepted review: 2022-12-31 08:18

Reviewer performed review: 2023-01-11 12:12

Review time: 11 Days and 3 Hours

Scientific quality	[ ] Grade A: Excellent [Y] Grade B: Very good [ ] Grade C: Good [ ] Grade D: Fair [ ] Grade E: Do not publish
Novelty of this manuscript	[ ] Grade A: Excellent [Y] Grade B: Good [ ] Grade C: Fair [ ] Grade D: No novelty
Creativity or innovation of this manuscript	[ ] Grade A: Excellent [Y] Grade B: Good [ ] Grade C: Fair [ ] Grade D: No creativity or innovation

Scientific significance of the conclusion in this manuscript	[Y] Grade A: Excellent [ ] Grade B: Good [ ] Grade C: Fair [ ] Grade D: No scientific significance
Language quality	[Y] Grade A: Priority publishing [ ] Grade B: Minor language polishing [ ] Grade C: A great deal of language polishing [ ] Grade D: Rejection
Conclusion	[ ] Accept (High priority) [ ] Accept (General priority) [Y] Minor revision [ ] Major revision [ ] Rejection
Re-review	[ ] Yes [Y] No
Peer-reviewer statements	Peer-Review: [Y] Anonymous [ ] Onymous
	Conflicts-of-Interest: [ ] Yes [Y] No

SPECIFIC COMMENTS TO AUTHORS

Depression is a leading cause of disability worldwide and contributes greatly to the global burden of disease. At present, the diagnosis of depression depends on interviews and various mental scales. This method is very subjective, time-consuming and with poor consistency. The objective biological markers of depression are worth studying. The author selects a very specific subdivision field, FAA (front EEG alpha asymmetry), which is of great significance and demonstrates its potential. This article reviews various studies of FAA from multiple perspectives, including rest-state clinically depressed individuals, children inherited from generation to generation, the influence of aging, the stability of FAA indicator and so on. Based on all of these, conclusions are presented for future researches. The review is rigorous, inspiring and with adequate details.   In my opinion, further improvements can be made in the following fields. 1) In the review, "Frontal EEG alpha asymmetries are usually calculated by subtracting the EEG power in the right frontal cortices from the EEG power in the left frontal cortices". It is the core problem in the review and more details of the calculations should be presented and discussed.   2) Many EEG datasets have been provided for training and validation. Take

[1] as an example.   [1] Cai, H., Gao, Y., Sun, S., Li, N., Tian, F., Xiao, H., Li, J., Yang, Z., Li, X., Zhao, Q., Liu, Z., Yao, Z., Yang, M., Peng, H., Zhu, J., Zhang, X., Hu, X., & Hu, B. (2020). MODMA dataset: a Multi-modal Open Dataset for Mental-disorder Analysis. arXiv preprint arXiv:2002.09283 3) What about the number of EEG electrodes for FAA? If there are only a few electrodes for signal recording, does it work well? If too many electrodes are required, it will lead into more cost.   4) FAA can differentiate depressive patients and healthy controls. We are wondering whether it can be used to quantify the degree of depression.

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Creativity or innovation of this manuscript	[ ] Grade A: Excellent [ ] Grade B: Good [Y] Grade C: Fair [ ] Grade D: No creativity or innovation

Scientific significance of the conclusion in this manuscript	[ ] Grade A: Excellent [ ] Grade B: Good [Y] Grade C: Fair [ ] Grade D: No scientific significance
Language quality	[ ] Grade A: Priority publishing [Y] Grade B: Minor language polishing [ ] Grade C: A great deal of language polishing [ ] Grade D: Rejection
Conclusion	[ ] Accept (High priority) [ ] Accept (General priority) [ ] Minor revision [ ] Major revision [Y] Rejection
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	Conflicts-of-Interest: [ ] Yes [Y] No

SPECIFIC COMMENTS TO AUTHORS

First, the title says "a review", the text states that this is a systematic review. This is a significant difference. Second, the abstract does not do justice to the complex facts and shows a lack of method awareness. The difficulties in clinical diagnosis are pointed out, and EEG mapping is recommended as a solution. Clinical and basic research are mixed here. However, the authors themselves concede that their depression marker "right frontal EEG alpha asymmetry" disappears in older patients. The fact that right frontal EEG alpha asymmetry persists with antidepressants and clinical improvement suggests that it may be a trait marker that indicates vulnerability to depressive disorders (and not depressive symptomatology). However, a trait marker is not very helpful for the clinical diagnosis, since the current condition is to be evaluated here. Therefore, a state marker would be more helpful. Regrettably, up to now, there are no reliable depression markers that surpass the fairly valid diagnosis based on diagnostics such as the DSM-5 in terms of accuracy. The conclusions from a positive right frontal EEG alpha asymmetry finding in patients with maternal depression are also formulated somewhat imprecisely. Does this mean that the right frontal EEG alpha asymmetry in this case depends on genetic

factors or on a life event? Or both? This was not spelled out clearly. In any case, these patients are affected by both, genetic factors and a life event, which makes an etiological assignment particularly difficult in this case. Third, the main problem, however, is the methodology that the authors have not made sufficiently transparent. Systematic reviews should currently be carried out in accordance with the PRISMA guidelines (available at https://www.prisma-statement.org). In the following I quote some items from the PRISMA checklist as an example: (1) specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses; (2) specify all databases, registers, websites, organizations, reference lists and other sources searched or consulted to identify studies; (3) specify the date when each source was last searched or consulted; (4) present the full search strategies for all databases, registers and websites, including any filters and limits used; (5) specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record. and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process; etc. In addition, I recommend using the PRISMA Flow Diagram (confer: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71). Regrettably, your work does not follow the PRISMA guidelines, nor was a similar or comparable methodology used.