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PEER-REVIEW REPORT

Name of journal: *World Journal of Psychiatry*

Manuscript NO: 112056

Title: Innovations and Approaches in Depression Detection Via Functional Near-Infrared Spectroscopy: A Mini Review

Provenance and peer review: Invited manuscript; Externally peer reviewed

Peer-review model: Single blind

Reviewer's code: 08726294
Position: Peer Reviewer
Academic degree and professional title: PhD, Researcher
Reviewer's Country/Territory: China
Author's Country/Territory: China

Manuscript submission date: 2025-07-16

Reviewer chosen by: AI Editor

Reviewer accepted review: 2025-07-17 04:14

Reviewer performed review: 2025-07-21 00:27

Review time: 3 Days and 20 Hours

Content to be reviewed	Does the manuscript's content fall within the scope of the journal? **Yes** Is there any Key Word that is not included in the manuscript title? **No** Do authors' affiliations correspond to the content of the manuscript? **Yes** Does the Abstract contain the contents of each part of the manuscript (IMRaD)? **Yes** Are the Key Words complete? **Yes**

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	Is the content of the Introduction adequate? **No** Is the content of the Materials and Methods complete? **Not Applicable** Is the description of the experiments clear and complete? **Not Applicable** Are the experimental data presented in the manuscript's biostatistics content reliable? **Not Applicable** Are the experimental data of the Results true and reliable? **Not Applicable** Are the quality and resolution of the images up to standard? **Not Applicable** Do the selection and design of the figures and tables follow the principles of necessity and clarity? **Not Applicable** Is there any duplication between various parts of the manuscript and between the main text and the content presented in the figures and tables? **Not Applicable** Are the figures and tables numbered consecutively in the order in which they appear in the manuscript? **Not Applicable** Is the content of the Discussion reasonable? **Yes** Is the Conclusion reasonable? **Yes** Are all references necessary and reasonable? **Yes** Do authors omit important references? **No** Are all references related to the topic of the manuscript? **Yes** Do authors only cite their own earlier publications? **No** Is the manuscript's text correct, concise, and clear? **Yes** Will the manuscript's content be of interest to readers?

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	Yes Are additional experiments needed for the study? **No** Does the research scope comply with ethics? **Not Applicable**
Scientific quality	Grade B (Very good)
Novelty of this manuscript	Grade C (Good)
Creativity or innovation of this manuscript	Grade C (Good)
Scientific significance of the conclusion in this manuscript	Grade B (Very Good)
Language quality	Grade C (Good)
Does this manuscript describe a study of the existing knowledge system?	Yes
Does this manuscript report a revolutionary innovation?	No
Does this manuscript report an unconventional innovation?	No
Conclusion	Major revision
Re-review	Yes
Peer-reviewer statements	Peer-Review: Anonymous
	Conflicts-of-Interest: No
Are your review comments generated by AI tools?	No

SPECIFIC COMMENTS TO AUTHORS

Thank you for inviting me to review the manuscript titled "Innovations and Approaches in Depression Detection Via fNIRS: A Mini Review", which reviews the application of fNIRS in depression, particularly the role of machine learning. The role of machine

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learning in this has some contributions to the field of mental health. However, I have some suggestions for the authors.

1. Introduction is too long, a brief description of what the title and keywords relate to and the shortcomings and differences in existing research would be sufficient, the current content seems to be longer than the content of fNIRS applications in depression that the article is mainly intended to summarize. 1.3 seems to be more appropriate to be incorporated into 2. Depression Detection via fNIRS.

2. are there only 2 resting-state studies?

3. the current structure of the article is not appropriate. the most critical and salient aspect is the application of machine learning to fNIRS in depression, which should be focused and detailed.

Suggested presentation is as follows:

Introduction: definition and epidemiology of depression - etiological mechanisms - lead to why fNIRS is a favorable detection tool (long used clinically to differentiate between depression and schizophrenia) - lead to the innovativeness and importance of machine learning；

And then the second part describes the previous fNIRS studies in depression；

And the third part focuses on highlighting the use of machine learning in the fNIRS in depression. characteristics and importance in fNIRS research；

Conclude with a discussion, or integrate the discussion into the second and third parts, and conclude with a summary.

4. the references do not account for a large proportion of the literature in the last three years, in addition to the formatting is not uniform, with 11 references being otherstyle.

5. Authors should also pay attention to language presentation, which should preferably be scrutinized by a professional native English speaker.

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PEER-REVIEW REPORT

Name of journal: *World Journal of Psychiatry*

Manuscript NO: 112056

Title: Innovations and Approaches in Depression Detection Via Functional Near-Infrared Spectroscopy: A Mini Review

Provenance and peer review: Invited manuscript; Externally peer reviewed

Peer-review model: Single blind

Reviewer's code: 08345064
Position: Editorial Board
Academic degree and professional title: Assistant Professor, PhD
Reviewer's Country/Territory: China
Author's Country/Territory: China

Manuscript submission date: 2025-07-16

Reviewer chosen by: AI Editor

Reviewer accepted review: 2025-07-17 02:58

Reviewer performed review: 2025-07-23 08:49

Review time: 6 Days and 5 Hours

Content to be reviewed	Does the manuscript's content fall within the scope of the journal? **Yes** Is there any Key Word that is not included in the manuscript title? **Yes** Do authors' affiliations correspond to the content of the manuscript? **Yes** Does the Abstract contain the contents of each part of the manuscript (IMRaD)? **Yes** Are the Key Words complete? **Yes**

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	Yes Are additional experiments needed for the study? **Yes** Does the research scope comply with ethics? **Not Applicable**
Scientific quality	Grade B (Very good)
Novelty of this manuscript	Grade B (Very Good)
Creativity or innovation of this manuscript	Grade C (Good)
Scientific significance of the conclusion in this manuscript	Grade C (Good)
Language quality	Grade B (Very good)
Does this manuscript describe a study of the existing knowledge system?	Yes
Does this manuscript report a revolutionary innovation?	Yes
Does this manuscript report an unconventional innovation?	Yes
Conclusion	Major revision
Re-review	Yes
Peer-reviewer statements	Peer-Review: Anonymous
	Conflicts-of-Interest: No
Are your review comments generated by AI tools?	No

SPECIFIC COMMENTS TO AUTHORS

Depression now affects over 280 million people worldwide and is projected to become the leading cause of disability by 2030, yet its diagnosis remains challenging, spurring demand for innovative approaches. This gap has intensified the search for objective,

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low-cost biomarkers that can be deployed quickly in primary-care or community settings. Against this backdrop, the authors' proposal that functional near-infrared spectroscopy (fNIRS), which is a portable, non-invasive optical imaging technique, could serve as a scalable depression-screening tool is both timely and compelling. This topic is both important and useful. The success application of this approach could quickly translate into better patient care and improved mental-health outcomes. The mini-review would benefit from three specific refinements.

First, regarding scope and sample size, the article provides a concise synthesis of resting-state and task-based fNIRS studies, but the cumulative participant total remains below 1,000.

This limitation markedly reduces statistical power and weakens the persuasiveness of the findings. The authors should explicitly discuss it and future studies should recruit a broader, more diverse participant pool.

Second, although the review spotlights facial, emotion recognition and verbal-fluency tasks, it leaves out essential details, such as the exact stimuli, timing, and baseline duration, which strongly shape the observed haemodynamic signals. Similarly, the manuscript lists several analytical pipelines and machine-learning classifiers, but offers no side-by-side comparison of their merits, drawbacks, or best-use scenarios. The authors should therefore include these missing details.

Third, In the discussion part, the author did not show the limitation and future direction of the applications of fNIRS. The authors should add some sentence including the forward-looking discussion underplays current fNIRS constraints such as depth sensitivity, susceptibility to systemic physiological noise, and absence of standardized acquisition protocols for psychiatric screening and etc. A clearer roadmap should therefore outline multi-site harmonised data collection with more participants, integration with complementary biomarkers and prospective cost-effectiveness trials in

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primary-care settings.

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RE-REVIEW REPORT OF REVISED MANUSCRIPT

Name of journal: *World Journal of Psychiatry*

Manuscript NO: 112056

Title: Innovations and Approaches in Depression Detection Via Functional Near-Infrared Spectroscopy: A Mini Review

Provenance and peer review: Invited manuscript; Externally peer reviewed

Peer-review model: Single blind

Reviewer's code: 08345064
Position: Editorial Board
Academic degree and professional title: Assistant Professor, PhD
Reviewer's Country/Territory: China
Author's Country/Territory: China

Manuscript submission date: 2025-07-16

Reviewer chosen by: Shi-Rui Bai

Reviewer accepted review: 2025-09-26 05:57

Reviewer performed review: 2025-09-28 06:20

Review time: 2 Days

Content to be reviewed	Does the manuscript's content fall within the scope of the journal? **Yes** Is there any Key Word that is not included in the manuscript title? **Yes** Do authors' affiliations correspond to the content of the manuscript? **Yes** Does the Abstract contain the contents of each part of the manuscript (IMRaD)? **Yes** Are the Key Words complete? **Yes**

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Scientific quality	Grade B (Very good)
Novelty of this manuscript	Grade B (Very Good)
Creativity or innovation of this manuscript	Grade C (Good)
Scientific significance of the conclusion in this manuscript	Grade B (Very Good)
Language quality	Grade B (Very good)
Does this manuscript describe a study of the existing knowledge system?	Yes
Does this manuscript report a revolutionary innovation?	Yes
Does this manuscript report an unconventional innovation?	Yes
Conclusion	Accept
Peer-reviewer statements	Peer-Review: Anonymous
	Conflicts-of-Interest: No
Are your review comments generated by AI tools?	No

SPECIFIC COMMENTS TO AUTHORS

The revision manuscript has reorganized the structure and language in response to the previous feedback. The inculsion of table has significantly improved the clarity of the conclusions. However, noting the limitations of the reviewed studies only in the conclusion is insufficient. I recommend adding a dedicated section on limitations at the end of the Discussion. With this minor revision, I recommend acceptance.

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