

Review of: "Prediction and Analysis of Structural Brain Health Indicators Using Deep Learning Models with Functional Brain Images as Input"

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Potential competing interests: No potential competing interests to declare.

The paper is well written with a good contribution to the knowledge. Hence the authors should consider the following observations.

General Comments

I would like the authors to clarify the following questions and address the authors' responses in the abstract and body of manuscript: a) What were the main findings of the study? b) How was the study conducted, and what were the key methods used; and c) What implications do the study's results have for the treatment of disorders such as Alzheimer's disease?

1. ABSTRACT:

The objectives of this study are generally clear and to the point; however, I believe that there are some ambiguous points that require clarification or refining. In my opinion, The conclusion part of the Abstract is not very clear i.e "Sparse modeling of the output clusters revealed brain regions strongly associated with the GM-BHQ, such as the amygdala..." I suggest the authors to provide evidence such as p values, etc to show how the output clusters were strongly associated with the GM-BHQ. In general, the summarized results of the manuscript should be seen here.

2. INTRODUCTION: The introduction is well placed; however I would suggest the following,

I believe that adding more information on functional and structural MRI, will provide a better and more accurate background. Thus, I suggest making such effort to provide a brief overview of the pertinent published literature on information about the properties of functional MRI, for example functional connectivity

(<https://doi.org/10.3390/app112311392>; structural connectivity <https://doi.org/10.3389/fpsy.2022.1027907>;

<https://doi.org/10.3389/fpsy.2023.1188603>

3. METHODS:

Here, the authors used a very large data, which is a very positive thing however, it is not very clear if the subjects selected from the database were age- or gender- matched. If not, there's a chance that their observations may be subject to these confounders

I recommend that the authors cite more references for this section to ensure the reliability and the integrity in evidence that the authors have built the proper study design and have chosen the appropriate methodology

4. DISCUSSION: After the short summary of this study detailed in the previous sections, I recommend that the authors discuss and fully develop this section by focusing on the current issues addressed to this review. I suggest, toward the end of this section, clearly stating the potential of this article complementing as the extension of the previous understanding, the implication of the authors' opinion, how this article could facilitate future research, the ultimate goal, the challenge, the knowledge and the technology necessary to achieve this goal, the statement about this field in general, and finally the importance of this line of research.

5. CONCLUSIONS: This part is very well placed in my opinion.

Best regards.

Nyatega.