The hippocampus and executive functions in depression: Comments on the article

It is with much interest that we read the recent article published in this journal titled “The hippocampus and executive functions in depression.”[1] We appreciate the authors’ efforts in undertaking such a study which throws some light on the neural correlates of this common condition. However, we would like to raise a few questions to enhance the reader’s understanding of the study findings.

1. The rationale for choosing the sample size (n = 50 in each group) has not been mentioned. Was it based on previous similar studies? The low sample size and the predominance of first episode depressive patients may have contributed to the lack of correlation between hippocampal volume and cognitive measures as expected in depressed individuals as well as in normal ageing.[2]

2. That the sample was wholly of male gender also may limit its generalization to the universe of depression where there is a well-documented female preponderance.[3] The diagnosis of major depression has been mentioned to be made by the International Classification of Diseases-10 Diagnostic Criteria for Research categories of F32 and F33 and also using “Structured interview and Diagnostic and Statistical Manual for Mental disorders IV” (DSM-IV). Does this mean that DSM-IV criteria were applied through a clinical interview as is commonly done or was another structured instrument such as the Structured Clinical Interview for DSM-IV Axis I disorders used?

3. The presence of strict exclusion criteria such as substance use and psychiatric comorbidities often affects the representativeness of the sample given that these are common concomitants of depression. The authors, perhaps, could have controlled for effects of these confounders in the statistical analysis. Perhaps, more pertinently, the authors could have excluded cases with low IQ about which there is surprisingly no mention in the text though prior research suggests its relevance[4]

4. It is evident that adequate matching of cases and controls has been done which is certainly a strength of the study. However, certain aspects in choosing controls raise a few queries. For example, how was their physical health status verified? Was any validated instrument used to screen for family history of depression such as the Family Interview for Genetic Studies?[5] These would have a definite bearing on their performance in the cognitive tests.

5. It is mentioned that the same operator did the imaging and volumetric analysis for all the subjects, which is certainly desirable. However, soon after there is a mention of inter-rater reliability in assessing hippocampal volumes and therefore one is unsure about what the authors intend to convey. From the degree of freedom mentioned (31), it appears that inter-rater reliability was checked only for 32 cases. It would improve understanding if the authors can elaborate this further.

6. There is no mention about blinding of the rater (toward the case/control status) involved in administering Wisconsin Card Sorting Test. Perhaps, the authors can throw more light on this important issue which may introduce an element of bias in the results.

In summary, the study has provided some insights into the neural correlates of depression and has attempted to explore the correlation of hippocampal volumes and executive functions among a clinically depressed population. Further studies in this regard should preferably be based on a larger and more representative sample. Considerations on the current disease status, duration of illness and treatment status would provide more inputs to answer similar research questions in future studies.

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Conflicts of interest
There are no conflicts of interest.

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REFERENCES

1. Khan SA, Ryali V, Bhat PS, Prakash J, Srivastava K, Khanam S, et al. The hippocampus and executive functions...
in depression. Ind Psychiatry J 2015;24:18-22.
2. O’Shea A, Cohen RA, Porges EC, Nissim NR, Woods AJ. Cognitive aging and the hippocampus in older adults. Front Aging Neurosci 2016;8:298.
3. Piccinelli M, Wilkinson G. Gender differences in depression. Critical review. Br J Psychiatry 2000;177:486-92.
4. Alloway TP. Working memory and executive function profiles of individuals with borderline intellectual functioning. J Intellect Disabil Res 2010;54:448-56.
5. National Institute of Mental Health. Genetics Initiative: Family Interview for Genetic Studies (FiGS). Rockville: National Institute of Mental Health; 1992.

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