Reviewer's report

Title: Serum brain-derived neurotrophic factor concentrations and personality trait in patients with major depression

Version: 2  Date: 26 October 2014

Reviewer: Harris Eyre

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Major Compulsory Revisions (which the author must respond to before a decision on publication can be reached)

1. The authors state ‘The aim of the present study was to reveal the association between peripheral BDNF concentrations and personality traits evaluated by the TCI in patients with MDD.’ This is a leading aim... The authors are suggesting the aim is to reveal an association, but what if there is no association? The aim needs to be corrected to say the authors ‘explore’ for a possible association’

2. Why did the authors not explore the associations between other personality traits and serum BDNF in the sample? Why focus just on HA and SD scores? It seems like a more appropriate method to explore the association with all personality traits (in TCI). If not, then there must be a very strong reason to only explore HA and SD scores.

3. In the second para of the background section, could the authors please describe more details about the ‘number of studies suggest that depressed patients show high HA and low SD as measured on the TCI’. Is what populations are these findings – inpatient, community? How was depression diagnosed in these studies – self report, SCID? What numbers or size were these studies? Cross-sectional or prospective? The reader needs to be able to assess the size and quality of the existing literature, and at present this is too vague. This is a key part of the manuscript as only SD and HA are explored in association with serum BDNF. Note also the background section is generally 2 pages in length, so there is room to write in more details.

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

4. In the abstract, the method for diagnosing MDD should be mentioned. Covariates, if used, should be mentioned.

5. Please reference the first sentence of the first para of the background section of the manuscript.

6. In the third sentence of the first para of the background section, please describe if these studies are cross-sectional or longitudinal. This is important to know as it indicates the quality of this field.

7. At the end of the first paragraph in the background section, could the authors please outline a reason why they think ‘not all depressed patients demonstrate
decreased serum BDNF concentrations’? This needs to then link to the second paragraph.

8. Please outline in more detail what the concepts of Harm-Avoidance and Self-Directedness refer to. The general psychiatry reader won’t know what these refer to.

9. Is it true that no other temperament dimensions or character dimensions relate to depression?

10. In the first sentence of the third paragraph of the background section, the authors state ‘The relationships between BDNF and personality traits have been reported only in health subjects’. What does BDNF refer to here? Plasma, serum, CSF, genetics?

11. On the note of genetics, it is worth mentioning the VAL/MET polymorphism of the BDNF gene as a biomarker in psychiatry. Why have the authors chosen to look only at serum and not genetics? Why is serum better to explore here than genetics? A rationale must be given.

12. In the Subjects section of the Methods – please indicate who diagnosed the MDD. A senior psychiatrist, a medical student? It is relevant to the reader.

13. In the Methods section and under Personality Trait Measurements – please provide an overview of what data/domains the TCI covers.

14. Covariates or confounding factors need to be very clearly stated in the methods section.

15. The authors do a good job of reviewing the background literature in the second para of the discussion section. Could they please reflect on the relevance of each of these studies to their own study? What is the link?

16. In the final sentence of the second para of the discussion section – please outline what ‘differences in subjects’ means. Differences in diagnosis, age, sex, comorbidities etc etc.

17. In the final para of the discussion section, can the authors outline evidence for and against antidepressant classes differential regulating BDNF levels. Do all antidepressants affect BDNF the same, or not?

18. Please comment on the sample size of this population in the limitations section. Please comment on the limitation of only exploring SD and HA, and not a wider array of personality traits. Outline pros and cons of serum BDNF vs. genetic BDNF testing VAL/MET.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.
Declaration of competing interests:

No competing interests.