Reviewer's report

Title: A voxel-based morphometric study of regional brain volumes in anorexia and its subtypes

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Reviewer: Angela Wagner

Reviewer's report:

The authors studied structural brain abnormalities in 14 women ill with anorexia nervosa (AN) and 21 control women using Voxel based Morphometry. No total brain tissue differences were found. However, regional grey matter volume differences were detected in the anterior insular cortex, parahippocampal gyrus, fusiform gyrus, cerebellum, posterior cingulate and dorsolateral prefrontal cortex, which seemed to separate also the smaller subset of restricting and binge/purging type patients with AN.

This is a well-written and well organized manuscript that uses state of the art methods to address a topic of considerable clinical relevance in the field of eating disorders.

Discretionary Revisions

Methods/ Participants: Healthy controls unequal in numbers to the AN set cannot really be age-matched.

Minor Essential Revisions

1. Background, line 8: engage in compensatory behaviours (binging or purging or both).

2. Discussion, 2. Paragraph, line 18: dot is missing at the end of the sentence “…appetitiveness of food.”

3. Table 1 EDE-Q(Q22), No. of vomits in month: states an average score of 58 (5.8?) in AN, but 8 in BPAN.

Major Compulsory Revisions

1. The numbers of the AN participants tested in this study are relatively small, but were well controlled for age etc.. However, dividing the sample set into even smaller sample subtype sets is definitely putting it on the low side. So it seems questionable to draw any conclusion out of this second analysis which only compares 8 RAN and 6 BPAN without the inclusion of controls in this analysis. A justification for that should be added. Although in general the subtype analysis would add novel information, it seems more appropriate to present it as a very careful outlook of those data and not claim that this was a goal of the study.

2. Results /Participant Characteristics: The binge-purging behavior of the BPAN should be more specified how often per week for at least how many months etc. to help justify that the subtype sample sets are homogenous.
3. Table 1, EDE-Q (0-6), restrained eating: some clarification why the score is higher in BPAN than in RAN (although not statistically significant) should be added.

4. Duration of illness should be added as a variable for the correlation and regression analysis for the AN group and results displayed.

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

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests.