Reviewer's report

Title: Decreased and increased white matter fractional anisotropy are involved in perimenopausal depression

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Reviewer: huafu Chen

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Minor Essential Revisions

This manuscript investigated whether white matter abnormalities are involved in the high-susceptibility of women to depressive disorders during perimenopause. To this end, the authors used a VBA method and found that SSD patients had significantly decreased FA in the left insula, while increased FA in the left ventral lateral thalamus and left/right brainstem in the midbrain. Moreover, they found that the mean FA value in the left insula was positively related to plasma estradiol levels. Overall, this manuscript is well written and the findings are interesting. I just have several minor suggestions to help improve the manuscript.

1. In the introduction section, the authors introduce previous DTI findings of depression. This reviewer finds three more recent studies which also investigate the changes of FA in the patients with depression. Thus, these studies should be referred in this study.
   1) Disrupted white matter integrity in first-episode, drug-naive, late-onset depression. 2014
   2) Altered white matter integrity of forebrain in treatment-resistant depression: A diffusion tensor imaging study with tract-based spatial statistics. 2012
   3) Altered white matter integrity in young adults with first-episode, treatment-naive, and treatment-responsive depression. 2012

2. How many B0 images (non-diffusion image) acquired in data acquisition? The authors should point out this issue in the MRI Data acquisition and processing section.

3. Also, in the MRI Data acquisition and processing section, field of view = 256 × 256 mm should be “256 mm × 256 mm” or 256 × 256 mm2.

4. In the statistical analysis section, the authors should clarify why they use a brain mask rather than a white matter mask.

5. In Table 2, the maximum and minimum T values were 4.16 and 4.86, respectively. Moreover, the significance threshold used in this study was p < 0.001, which was correspond to T = 3.277. However, in the Figure 1, the range of T values were [3, 4]. This reviewer recommended that the ranges of T value should be [3.277, 4.16] and [-3.277, -4.86].

Level of interest: An article of outstanding merit and interest in its field
Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:
I declare that I have no competing interests