Reviewer's report

Title: Reduced P300 amplitude during retrieval on a spatial working memory task in a community sample of adolescents who report psychotic symptoms

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Reviewer: Yusuke Moriguchi

Reviewer's report:

This article examined whether adolescents with and without psychotic symptoms showed different behavioral and neural pattern in a working memory task. Specifically, the authors gave the participants a Spatial Working Memory task, and the neural activations were assessed with ERP. The results revealed that there were no significant behavioral differences between the groups, but the participants with the symptoms showed the greater reaction time variability. At the neural level, the participants with the symptoms showed the reduced amplitude of P300 at PZ and POz.

Overall, the manuscript is well written, and the results were interesting and important. I believe that the manuscript have the potentials for publishing BMC Psychiatry.

However, there were some concerns that should be addressed before acceptance.

First, and most importantly, the authors found the significant neural differences, but not behavioral differences, between groups. Although the variability was different across groups, the behavioral differences were not significant. Thus, the important point was how the different neural processes contributed to the similar behavioral performances. For example, the psychotic symptoms group showed the reduced amplitude at the parietal areas. This may mean that the participants failed to update the changes in the environment or assign attentional resources to the targets. Nevertheless, their behavioral performances were comparable with those of control groups. This may suggest that participants with psychotic symptoms may recruit other brain regions and other cognitive strategies. The point should be argued in the manuscript.

Second, related to the issue above, the authors should argue the differences between the results of patients with schizophrenia and the results in the present study. That is, patients with schizophrenia showed abnormal behavioral and neural performances in WM task whereas participants with psychotic symptoms may show abnormal neural performances, but normal behavioral performances. If so, the neural responses can be used to index the symptom before the behavioral symptom was manifested. Please explain the points.

Third, are there any other studies on participants with psychotic symptom in WM
task using fMRI or other neuroimaging method? If so, the authors should argue the results citing the literature.

Forth, why did the author select participants in early adolescence (i.e., 11-13-year-old)? Intuitively, the psychotic symptom may be clearly observed in late adolescence. The authors should explain why they selected the age-range.

Fifth, was the task order fixed or counterbalanced? The Load and participants’ fatigue may be confounded if the task order was fixed.

**Level of interest:** An article of importance in its field

**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.