Reviewer's report

Title: Study protocol for a randomized controlled trial comparing Memory Flexibility training (MemFlex) to Psychoeducation to enhance memory flexibility and reduce depressive symptomatology in individuals with Major Depressive Disorder

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Reviewer: Loren Mowszowski

Reviewer's report:

1. This paper details the protocol for a Phase-II randomised controlled trial comparing a novel psychological intervention, MemFlex, with a psychoeducation control condition. Both interventions follow the same administration procedure, i.e. comprising an initial face-to-face introductory session followed by eight self-guided home-based sessions utilising a participant workbook. The study aims to investigate the efficacy, feasibility and acceptability of MemFlex as a viable treatment option for improving cognitive flexibility with respect to autobiographical memory retrieval in depressed adults, with a view to reducing the risk of depression relapse and facilitating access to psychological intervention. Outcomes include depressive symptom severity and diagnostic status at three months post-intervention, as well as flexibility in autobiographical memory retrieval immediately post-intervention.

This protocol paper is extremely clear and well-written. The study design appears to be appropriate from a methodological perspective and will adequately enable the study investigators to explore the stated aims. Statistical analyses are appropriate. Whilst traditional power calculations were not undertaken, sufficient explanation is provided regarding the determination of sample size for this exploratory-phase trial. By and large, sufficient detail is provided so as to enable replication; however some minor suggestions may improve this further, as outlined in 'Discretionary Revisions', below.

Discretionary Revisions:

2. The aims of the study are clearly defined in the Background section. Whilst corresponding hypotheses may be readily extrapolated, some readers may benefit from explicit statement of hypotheses.

3. It remains somewhat unclear as to exactly how the questions of 'acceptability' and 'feasibility' will be operationalised. For example, currently the methods for adherence monitoring as outlined in the 'Treatment Integrity' section include only a record of the total number of sessions completed in the workbook. However, the methods for compliance monitoring as outlined in the 'MemFlex' section may offer a further opportunity to record adherence during the course of the intervention (such as with questions regarding the total number of sessions...
completed to-date, or request for a brief summary of some of the topics covered thus far to indicate engagement).

4. In the 'Process Measures' section, the authors allude to neuropsychological measures of verbal fluency and working memory to assess executive control. However, the protocol may benefit from more explicit identification of the specific measures to be administered here, for replication purposes. Additionally, executive functions are notoriously multi-factorial and whilst verbal fluency and working memory have indeed been linked with depressive symptoms, I wondered whether the authors considered measuring changes in response inhibition and set-shifting, both of which are widely established areas of impairment in depression and which may logically link with autobiographical memory retrieval specificity as well as cognitive flexibility.

Minor issues not for publication:
5. In the first sentence of the 'Participant Allocation' section, there appears to be a word missing. Should the sentence read, "...quasi-random numbers will (be) completed..."?

**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.