Reviewer’s report

Title: The effect of induced optimism on the optimistic update bias

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Reviewer: Sharinaz Hassan

Reviewer's report:

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This is an interesting article and may contribute a new insight into depression treatment. Here are more specific comments in relation to each section in the manuscript.

1. Abstract: Abstract has included all the relevant information and summarise the study. Some parts are missing for example, in results: Why is the comparison of dysphoria and optimism in the induced optimism manipulation condition was not reported, i.e. depressive and optimistic view outcomes, and the result's last sentence is not clear. What do you mean by 'Increased update bias by induced optimism was not depend on participant's engagement of induced optimism manipulation'? Do you mean that the induced optimism manipulation (condition x group x time) has no effect on the increased update bias.

2. Background:

- Some of the references are not according to the APS format. e.g. Hecht (Hecht, 2013), Garrett & Sharot (Garrett & Sharot, 2017).

- Define dysphoric in the beginning part in the background section.

- line 14-21, pg.6: Miranda et al 2017: Results of these studies suggest that experimental manipulation can affect one's optimistic view of future even with mild depressive symptoms" earlier authors mentioned moderate depressive mood showed decrease in pessimism about future events. Please be consistent or refer to depression in general.

- Line 33 Hypothesis - How about the low dysphoria compared to the mild and high dysphoria. It should be more than one hypothesis here.

- Line 39 - 45: Participants were recruited and randomly assigned to two conditions..... this part is meant to be under the method section.
3. Method:

- A separate headline for the measures is required to report the instrument or measurement used with the reliability and validity scores.

4. Results:

- Table 1 is confusing - SD is usually presented in a bracket next to the mean scores and asterisk is recommended to put aside the mean score for the significant results.

- Comparison of the update bias to examine the interaction between the condition and dysphoria group in the update bias score - significant interaction was found however no effect size reported. This is important to see the actual difference in the mean values (small, moderate or large ) between the 3 dysphoria groups.

- Figure 1 - written moderate dysphoria instead of high dysphoria.

- Comparison of response to positive and negative events in the inducing optimism - Where is the evidence to support the claim that participants yes responses to positive events were more than negative event (Line 33-34) table or figure is missing.

5. Discussion:

- The first/earlier part in the discussion is more like a repetition of the background information or literature review (line 44 - 65). It would be ideal to summarise the findings and indicate if the hypothesis/hypotheses have been supported or not.

- Line 7 - 12: We divided participants into three groups (low, mild, high dysphoria) by baseline dysphoria measured using CES-D score, and assigned these three groups to induced optimism or control condition which induce optimism- this does not make sense. Perhaps you can clarify that both groups have been given an induced optimism program and mention what the different between intervention vs control.

- Line 25 - 30: Another result of present study showed participants in the induced optimism condition engaged mental rehearsal task regardless of the levels of dysphoria, because participants more respond to positive event than negative event as a whole - can you provide any potential rationales for this outcome.

- Line 6 (pg.12) : "These results suggest that mild depression has a distinctive profile compared to moderate or severe depression" - there is no clear evidence to support this statement and the previous sentence on ecological validity of the belief updating task is not coherent to support this.
- Pg 12, line 20-23: "Third, the current results did not show the update bias in the low dysphoria group ....." - Why is the third point considered as limitation since this is the actual result.

6. Conclusion:

- Line 41: " In conclusion, this experiment provides the first evidence that induced optimism by make expectation changes about the future more optimistic - this sentence does not make sense.

- Line 45 : This means imagining positive future enable to increase optimism to a certain extent as well as the best possible self-intervention which is often used for manipulate optimism - sentence structure is confusing.

Overall comment: The discussion section is not comprehensive and thorough details on possible rationales are needed. For e.g. in-depth discussion on reasons for low and high dysphoria not associated with induced optimism. What is the possible explanation for no significant outcomes for the depression (CES-D). And since there is no effect size, it is a bit hard to conclude the induced optimism program is effective to alter the dysphoric people's perception about the future.

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

No

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Yes

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

Yes

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