Reviewer’s report

Title: The CogBIAS longitudinal study of adolescence: Cohort profile and stability and change in measures across three waves

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Reviewer: Sara Haga

Reviewer's report:

I enjoyed reading this manuscript on the results of a large set of psychological measures completed by the same adolescents in the UK at three different points in time. I particularly value the longitudinal nature of the study, the mix of self-report and behavioural measures, and the clarity of the writing.

However, I have three broad concerns:

(1) The authors clearly define the aims of the manuscript, which are essentially descriptive. However, the way the introduction is set up (and the multiple references to 'outcomes', for example) still induced in me the expectation that the authors would be exploring the predictive value of some factors on mental health and resilience outcomes. I see how it might be difficult to introduce the CogBIAS-L-S without creating this expectation, but addressing this issue head-on (e.g., by stating what the manuscript will and won't focus on) might help.

In the introduction, I also felt the need to learn more precisely what is it that distinguishes CogBIAS-L-S from previous research on adolescence risk and protective factors (is it 'just' its longitudinal nature?) and from other longitudinal studies (is it 'just' more comprehensive?).

(2) The reliability of the behavioural measures in general is strongly questioned throughout the paper. These concerns may be warranted, but I would need to see more data to reach the same conclusions. First, only one kind of reliability was assessed, namely internal consistency. Second, I'm not convinced that the method used to calculate the internal consistency of the RT measures is the most appropriate one. For instance, a child-adapted flanker task (very similar to the one used in CogBIAS) has obtained very good test-retest reliability results, but it has practice effects (Zelazo et al, 2013). In tasks where practice and fatigue effects are likely (e.g., repetitive tasks such as the ones in question here), decisions on how to split trials into halves are crucial. For example, comparing halves that contain a majority of initial vs. final trials will likely contribute with sub-par estimates of reliability to the mean split-half reliability coefficient (see e.g., Green et al., 2016). An odd-even split might be more appropriate and information on which trials are being considered (e.g., congruent and incongruent trials separately, difference scores, correct responses) should be given.
(3) Similarly to the introduction, the conclusion section (both in the abstract and in the main text) seems a bit disconnected from the manuscript's aims. The collected data were not presented as a test that would disambiguate between different theoretical models. Thus, I was surprised to see reference to a particular class of models, as the results would be consistent with other theories, as well. I suggest a more comprehensive discussion of theoretical approaches supported by these results or, even more informative, of those approaches whose predictions would be inconsistent with the present results.

Narrower issues:

* I don't believe it's sound to calculate the mean of the parent's level of education, because the data are ordinal at best (p. 7). Moreover, I'm not sure both parents' level of education should have the same weight (e.g., What if participants live primarily with one of the parents? Could mothers' (or fathers') level of education have more impact than the other in some domains of their children's lives? Could the highest level (independently of whether it's the mothers' or the fathers') be the most influential?). Referencing the literature that supported the authors' decision would be helpful.

* I think one should be very cautious in interpreting the Risk Involvement scores as they are currently calculated (p. 11). For example, a score of 6 may indicate that the participant chose the value "1" (meaning 1-2 times in 12 months) for six of the items (something like 6-12 times in a year), or that the participant chose the value "6" (meaning daily) for one of the items. Most probably, these two instances do not have the same psychological meaning. Again, the scale is ordinal and non-integer values are hard to interpret. For this reason, I recommend re-analysing these data and choosing another example for the illustration in p. 23.

* I felt the need for more information on why faces showing pain (and not sadness, for example) were included in the pictorial dot-probe task and on the meaning of the empathy concept used in this context (p. 13). Additionally, in the description of the task, it's not immediately evident that the probe shows up in the centre of the place previously occupied by one of the faces.

* I was surprised to read about the food-related measures (e.g., p. 15) and the saliva samples (p. 18). Adding a brief previous mention or explanation of why these measures were part of the battery would be helpful.

* In p. 21 the authors write "in order to test whether results were significant from 0" and then again in p. 22 "were significant from 0". Does this mean statistically different from 0? And what does it mean in substantive terms?
(The interpretation is given in the discussion. However, I think it's likely that many readers won't be fluent in growth curve analyses, so presenting the results extra clearly is very useful.)

* In p. 25 the authors state "However, Negative Life Events did show high stability across waves, suggesting that negative experiences were dependent on individuals in the current sample". This statement is statistically accurate, but I fear some readers might inadvertently mistake this statistical dependence on the individual for causality. I believe this stability is better understood in terms of some negative life events (e.g., a parent losing a job) potentiating other negative life events (e.g., moving to a smaller house) or negative life events being a reflection of harsher contexts.

* I couldn't find the meaning of the ? marks in the legend of Table 2

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

Yes

**Does the work include the necessary controls?**
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