Reviewer’s report

Title: The Autism-Tics, ADHD and other Comorbidities inventory (A-TAC): Previous and Predictive Validity

Version: 1 Date: 23 Aug 2017

Reviewer: Somer Bishop

Reviewer's report:

Thank you for the opportunity to review this revised manuscript about the validity of the A-TAC in a population-based sample of 9 and 12 year old children from the CATSS. I reviewed the original submission, and while the authors have been somewhat responsive to my and the other reviewer's suggestions, I continue to have concerns about the way the data are presented, as well as the conclusions drawn on the basis of these data.

Most importantly, it is my opinion that the authors need to temper their conclusions about the utility of the A-TAC in research and clinical practice. Statements such as "the A-TAC is a solid instrument for screening child psychiatric conditions" and "a well-performing broad assessment tool for NDDs" are potentially over-stated and not clearly supported by the data. Especially if the authors do not more explicitly state that these findings do not necessarily extend to other populations (e.g., younger children), there is risk that people could select the A-TAC as a screening tool in a situation for which there is not solid empirical support.

I am particularly concerned about the very low sensitivity values and the very poor PPVs. Sensitivities of .42 and .56 for detecting ASD and ADHD, respectively, are not acceptable for a screener. The PPVs are also very low. PPV indicates the probability that a screen positive actually has the disorder, indicating a large number of false positives in this sample (and again not seeming to match up with the high specificities reported).

I still cannot understand Table 2. It would be helpful to know exactly how many false negatives and how many false positives there were for each of the disorders. It appears there were at least several hundred. Therefore, there may in fact be adequate power (for some diagnoses) to undertake additional analyses to understand for whom the A-TAC works best/least well.

In summary, I think the authors should go back to their data and think carefully about how it may or may not inform recommendations about use of the A-TAC in specific situations (e.g., with children of different ages and phenotypic profiles, type of research design or clinical need, etc.).

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?
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.

No

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I recommend additional statistical review

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

Declaration of competing interests
Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?

5. Do you have any other financial competing interests?

6. Do you have any non-financial competing interests in relation to this paper?

If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.
I declare that I have no competing interests

I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license (http://creativecommons.org/licenses/by/4.0/). I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal