Reviewer’s report

Title: Using the Ages and Stages Questionnaire in the general population as a measure for identifying children not at risk of a neurodevelopmental disorder

Version: 0 Date: 10 Jan 2018

Reviewer: Ana Rita Goes

Reviewer’s report:

In this manuscript, the authors examined the accuracy of the ASQ in detecting children with neurodevelopmental disorders. The paper focus a highly relevant issue, considering that the accuracy of developmental screening tools in community settings is frequently proposed as an argument against their systematic use. My comments and concerns are presented below:

1. INTRO: The authors are urged to deepen the argument for developmental screening, including the presentation of specific data regarding the current detection of these delays and disorders.

2. INTRO: Please clarify the sentence "There is evidence to suggest that low cost-strategies in the community with parents decrease the risk for child developmental and behavioural problems" (page 4, line 39).

3. INTRO: The argument for using parent-completed screening tools is oversimplified, I suggest further detailing this.

4. INTRO: Please operationalise the expression "children at risk of a developmental delay who then go on to have a NDD" (page 5, line 7). This expression makes the reader imagine a prospective analysis (I discuss this option below), examining the accuracy of the ASQ to predict the future development and diagnosis of a disorder. I don't think this is the case of your study (I discuss the meaning of the indicator of NDD below).

5. INTRO: The authors mention reliability analysis ("This study uses population data to look at the reliability and validity of the ASQ as a screening tool"; page 4, line 59), but no reliability data is presented. This statement should be clarified.

6. INTRO: The objectives do not reflect all the analysis described and the results reported. In addition, the second objective should better reflect the analysis performed.

7. METHODS - Measures (Identification of Children with Neurodevelopmental Disorders): Please clarify the time points for which the parent reported checklist of chronic conditions diagnosed by a health professional was available.

8. METHODS - Measures (Identification of Children with Neurodevelopmental Disorders): further expand on the information regarding the HUI.
9. METHODS - Measures (Identification of Children with Neurodevelopmental Disorders): Clarify the way by which the two indicators were combined to determine the identification of a NDD.

10. METHODS - Sample: please clarify the statement "This sample was used to estimate sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) of the ASQ" (page 7, line 9) because, as is is, it is not clear if it refers only to children with a NDD (n=725) or to the whole sample (n=12,142), given that the previous sentence generates some confusion.

11. METHODS - analysis: please clarify/justify the analytic strategy for determining screening accuracy of ASQ at 24, 27, 30, 33, 36 and 42 months, given that the HUI was only collected for children 4 to 5 years old in the survey (and I'm not sure regarding the checklist nor the combination strategy). Were you estimating accuracy prospectively - the ability of the ASQ to detect the risk for a future diagnosis of a development delay/disorder? If I made a correct interpretation, this decision brings me some concerns. The argument for developmental surveillance is exactly that we should monitor child development over time because some signs may only be detectable as development goes on. Therefore, comparing passed/failed status on ASQ domains at 24, 27, 30, 33, 36 and 42 months with data from the HUI at 4/5 years old may be comparing really different profiles (e.g., the ASQ may not detect because the signs were not present or too subtle; the cut-off point at 24 months may not reflect the severity identifiable at 4/5 years old…). This kind of prospective analytic strategy is usually used for outcomes that we can only measure later (e.g., learning disorders). So, I urge you to present arguments in favour of this approach (other than these were the available data). I also suggest a revision of the first objective. Furthermore, it is not completely clear to me that the indicator for NDD really can be used as an indicator of a diagnosis at a later point in the time, given that I did not understood if you controlled for the age of the diagnosis.

12. RESULTS: There is an incomplete sentence "Approximately 25" (page 9, line 7).

13. RESULTS: The sentence "The sensitivity, specificity, PPV and NPV of the ASQ changed throughout development" is not accurate. The way you posed it, it seems like you evaluated sensitivity, specificity, PPV and NPV of the ASQ longitudinally (i.e., the accuracy of the ASQ result for each child changes overtime), but you were only making comparisons for different age groups using a reference criterion from a specific time point.

14. RESULTS (Screening accuracy of ASQ in identifying children at risk of NDD): Despite the visual effect of graphics for the report of accuracy data, personally I would prefer tables to better examine the different scores.

15. DISCUSSION: The authors are invited to discuss the accuracy results in light of the methodological and analytic approach used.

16. DISCUSSION: The differences found on accuracy scores for 1SD and 2SD should be further discussed.
17. DISCUSSION: The presentation of limitations should reflect the limitations of the analytic approach used (namely the criterion variable used) for estimating accuracy scores.

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

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 am able to assess the statistics

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Please indicate the quality of language in the manuscript:

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