Author’s response to reviews

Title: Social-emotional problems among Swedish three-year-olds: an Item Response Theory analysis of the Ages and Stages Questionnaires: Social-Emotional

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Author’s response to reviews:

Subject: Revision of manuscript Social-emotional problems among Swedish three-year-olds: an Item Response Theory analysis (BPED-D-19-00876R1)

Dear Dr. Farin Soleimani,

We truly appreciate the reviewers’ and your comments on our manuscript and believe it will increase the quality of the paper.

We have revised the manuscript accordingly and provided a point-by-point response to the reviewer’s comments, see below. You can also find all the changes with page and line numbers in the document called: Manuscript – with track changes.

Thank you again for accepting our manuscript with minor revisions. We look forward to hearing from you soon.

With warm regards,

Masoud Vaezghasemi

On behalf of the co-authors:
Eva Eurenius, Associate Professor
EDITOR'S COMMENTS:

1. The methods did not well describe.

2. No need to explain about the variables more than one time.

3. In statistical methods, just mention about other studies with suitable citation.

Our response: These points were also raised by the reviewers and we have revised accordingly as described in that sections below. Hopefully these revisions will fulfil your expectations.

ROSHANAK VAMEGHI, M.D. (REVIEWER 1):

Title:

1. You better change the title so that it reflects the fact that you are analyzing the ASQ:SE-1 based on the IRT model. For example: "Socio-emotional problems among Swedish three-year-olds: an Item Response Theory analysis of the Ages and Stages Questionnaire: Social-Emotional-1"

Our response: Thanks for the good suggestion. We have changed the title accordingly. Please check page 1, line 2.

Keywords:

2. I suggest that you replace the keyword "mental health" with "social-emotional development" (because it is still too soon to utilize the term mental health or mental illness or likewise for children of this age; and the keyword "preschool children" with "toddler" (because when speaking of preschool children, one usually refers to children about 5-6 years old).

Our response: We agree on your comment about “mental health” and have replaced it with “social-emotional problem”. Please check page 3, line 64.

We also understand your concern regarding the distinction between toddlers and preschool children, especially when it comes to 3-year-olds, however, we would prefer to keep the key word “preschool children” with arguments as follows: i) Centers for Disease Control and
Prevention (https://www.cdc.gov/ncbddd/childdevelopment/positiveparenting/preschoolers.html) defines children from 3 to 5 years of age as preschool children; and ii) U.S National Library of Medicine considers the MeSH term “child, preschool” to be between 2 to 5 years of age (https://meshb.nlm.nih.gov/record/ui?ui=D002675); iii) It is also very much acceptable to call 3-year-olds, preschoolers in the Swedish context.

Introduction:

3. Line 69: please make the following correction: "….can aid early detection of children's behavioral delays/disorders in order to ….".

Our response: We really appreciate your detailed and thoughtful comments! The text has been revised accordingly. Please check page 4, line 86.

4. Line 72: please clarify which version of the ASQ:SE you are talking about.

Our response: In the revised introduction we wrote about both ASQ:SE and ASQ:SE-2 and their differences. Please check page 4, lines 89-97. In addition, in the revised text under “the instrument” section we mentioned that we used the first edition of the ASQ:SE. Please check page 6, line 150.

5. Line 75: The age range that the newest version of the tool (ASQ:SE-2) covers is from 1 month-old to 6 years old. The older version of the tool that you are referring to has a narrower age range. Please correct this accordingly.

Our response: We have revised the text and clarified the above points. Please check page 4, lines 89-97.

6. Line 76: These are not seven easily distinguishable and differentiable "domains" or dimensions. Also, "emotional" is a better word than "psychological" for this age group. So they are better referred to as "seven social and emotional/behavioral areas comprising .....".

Our response: We have revised the text accordingly. Please check page 4, line 92.

In addition, each age range comprises of different number of items (not 31 items for all age groups).

Our response: We have deleted that sentence from the text. However, the right explanation is available in the method section page 6, line 155.
7. Lines 86-87: Unlike what is stated as the reason or objective for conducting the study in these lines, your results support the fact that except for Table 1, no other data provided in this manuscript "deepens our knowledge" regarding "young Swedish children's social and emotional functioning". So please correct the wordings such that it does not falsely imply this. Instead, the main focus of your study seems to be a psychometric analysis of the questionnaire, using the IRT model.

Our response: We have revised according to your suggestion Please check page 5, lines 115-116.

However, we don’t completely agree as we experience that the results to some extent have deepened our understanding of children’s social-emotional problems. We now know the characteristics of children with high level of social-emotional problems and the statistically significant differences in characteristics between boys and girls with the same level of social-emotional problems.

8. Line 88: please explain briefly the reason you chose to study this specific age group.

Our response: Lack of population based socioemotional data in Sweden on preschool children is the main reason. The reason for approaching 3-year olds specifically is that at this age there is an ordinary visit to the CHC nurse according to the Swedish National Child Health Programme and that it was considered feasible to add the ASQ:SE to this visit. In the methods part we mentioned: “The ASQ:SE 36-month interval was used for data collection within CHC at the 3-year-olds’ ordinary visit”. Please check page 5, lines 126-130.

9. Line 88 & 89: please correct as follows: "...to report the normative values for the questionnaire at age 36 months for Swedish boys and girls;

Our response: We have revised the text. Please check page 5, line 116.

10. Lines 90 and 93: Please clarify what you mean by "high level of social-emotional problems" or "high social-emotional problems".

Our response: “high level of social-emotional problems” which is based on the latent trait, had been described in the method parts. Please check headings: Social-emotional trait investigated by Item Response Theory and Item Characteristic Curve and threshold parameters. We have now clarified this point further both in the abstract page 2, lines 25 and 28, as well as page 5, lines 120 and 122.

11. Line 91: it is unclear what you mean by ASQ:SE items differing between boys and girls? If you mean that the ASQ:SE scores may differ between the two sexes, please correct the sentence accordingly.
Our response: We do not mean the differences based on the ASQ:SE total score. The differences in ASQ:SE total scores have been shown in table 1. We have investigated whether ASQ:SE items differ between boys and girls at the same level of social-emotional problems (latent trait) using TIF analysis. We had explained this point in the method section under the heading: Differential Item Functioning. Please check pages 8-9, lines 226-234.

Methods:

12. Line 100: please explain briefly what percent of 3-year-olds in Vasterbotten region normally receive child health care services at the child health centers?

Our response: Almost every child (about 3,000 children annually) turning three years of age visit the CHC. This is now clarified at page 5, lines 128-129.

13. Line 104: Does this 80% response rate mean that 20% of 3 year-olds in the region did not attend child health care centers for receiving health services, or does it mean that their parents did not show consent in their child participating in the present study?

Our response: The answer to your question above will clarify this together with a clarification we made at page 6, lines 142-144.

14. Line 109: Please specify the age range required for completing the 36-months ASQ:SE questionnaire?

Our response: The age range is mentioned in the next paragraph where we described the instrument in detail. Please check page 6, lines 153-154.

15. Line 110: Please explain (or give examples of) what you mean by "incorrect filling out", since this seems to be different from "questions left unanswered".

Our response: We have clarified this text. Please check page 6, line 148.

16. Line 104-111: You have not given any explanation regarding the setting in which the questionnaire was completed by parents, and how much time they generally had for answering the questions?

Our response: Many thanks for raising this point! We have included some texts explaining how the questionnaires were completed. Please check page 5, lines 131-137.

17. Line 114: what do you mean by "1.5 version"?
Our response: The text has been revised. Please check page 6, line 152.

18. In the section designated as "The instrument", please indicate for the information of your readers that in the ASQ:SE, higher points indicate higher levels of social-emotional problems.

Our response: We have clarified this in the text. Please check page 6, lines 159-160.

19. Lines 147-149: In the ASQ:SE, sometimes the answer "always/often" to a question scores 10 points and for some other questions it scores 0 points. The same is true about the answer "seldom/never" which sometimes scores 10 and at other times it scores 0. So, what you have written in terms of the ASQ-SE scoring system is wrong. It needs to be corrected. But even more important is that you make sure that you have considered this in your data analysis and that you mention it clearly in these lines.

Our response: Thanks for raising this point! We revised the text to make it clearer. Please check pages 7-8, lines 195-205 and the footnote for Table 2. You are right in saying sometimes the answer "always/often" to a question scores 10 points and for some other questions it scores 0 points. In our data, however, 0 means no behaviour problem in any item whether it is always/often for “positive questions” (i.e. does your child look at you when you are talking to him/her?) or it is seldom/never for “negative questions” (i.e. does your child cling to you more than you expect?). Therefore, this will not distort the analysis. Following your previous comment (18) we have included a text to clarify this issue as well.


Our response: Done! Please check page 8, line 219.

Results:

21. Line 195: Please correct as follows: "Further, the ASQ:SE scores were higher for boys (…..) than for girls (…..) across all quartiles. These results show that normative values for boys were nearer to the cut-off for social-emotional difficulties".

Our response: Done! Please check page 10, lines 258-262.

22. Line 281: Figure 3 needs more explanation in the text, especially in terms of 1- what the figure is demonstrating; and 2-what is exactly meant by "levels of the latent trait". In addition, the audience needs to know how data regarding "levels of the latent trait" was gathered in this study, which is better be explained in the Methods section.
Our response: We have described the ICC in the method section. Please check page 8, lines 216-223.

Discussion:

23. Line 289: Please correct as follows: "The ASQ:SE scores were higher for boys (...) than for girls (...) across all quartiles, which means that normative values for boys were nearer to the cut-off for social-emotional difficulties".

Our response: Done! Please check pages 16-17, lines 389-396.

24. Lines 39-42 as well as lines 295-298: Since ASQ:SE does not itself categorize its items into different domains (although it admits that it covers seven different behavioral areas), it is not appropriate to categorize the social-emotional problems implicated in ASQ:SE items into such categories as "emotional problems", "internalizing problems", "social interaction difficulties", and "externalizing problems". So please correct in the Abstract as well as in the main text.

Our response: Done! Please check the abstract and the main text page 17, lines 399-404.

25. Lines 309-311: Can the fact that very few parents reported problems on the items that you have mentioned, be due to the fact that actually very few children demonstrated such difficulties? If so, please clarify. If not so, please clearly mention that very few parents, whose children showed difficulties in these areas, reported "concerns" regarding it.

Our response: Yes, we meant that few children demonstrated such difficulties as reported by their parents. The text has been revised for more clarification based on your comment. Please check page 17, lines 413-414.

26. Lines 308-315: Since according to the ASQ:SE guidelines, it is not the answer to each and every item that poses the possibility of social-emotional problems, but it's the cumulative result of answers to all items in the questionnaire that puts forth such a likelihood, and since parental "concern" regarding each item only adds a 5 point score to the scoring achieved for the item and does not per se act as a determining factor in the diagnosis of possible social-emotional problems, what you have addressed in lines 308-315 and the way you have addressed it may falsely cause skepticism regarding the validity of the questionnaire, especially the "parental concern" issue. So, the word composition in these sentences must be carefully corrected to prevent such a false implication.

Our response: The “parental concern” issue was addressed in the study we referred to (reference number 10). Regarding the IRT analysis, the response option “concern” was not included. When we mentioned “... very few parents reported...” we did not intend to refer to the “concern” option. To clarify this point we revised the text. Please check page 17, lines 413-414.
27. Lines 313 to 315: Better correct the sentence as follows: "Thus we suggest that these latter problems be considered as red flags at times when the complete ASQ:SE is inaccessible or has not been carried out, as is still the situation…..".

Our response: Thanks for your valuable suggestion! The text was revised accordingly. Please check page 17, lines 417-419.

28. Line 321: You have quoted another study (reference number 10) in such a way that the reader may mistakenly take it as a proven fact. Please emphasize that "other authors have reported that …..". And please start the next sentence with this phrase: "One reason for such a discrepancy may be that at an early age…."

Our response: Done! Please check page 18, line 446.

29. Lines 326-328: As said before, since ASQ:SE does not itself categorize its items into different domains, it is not appropriate to categorize the social-emotional problems implicated in ASQ:SE items, as you have done. Instead, you better just mention the items in which boys or girls were more likely to have problems.

Our response: We have addressed this point in your previous comment.

30. Lines 317-340: It will be helpful to add in your discussion regarding the gender differences in the ASQ:SE scores, the fact that the developers of the tool have themselves admitted that girls usually score lower in ASQ:SE items than boys of the same age range (this is clearly stated in the ASQ:SE-2 User's Guide). They have even considered this fact in the instructions for referral: girls should be referred for more specialized assessment and even earlier therapeutic interventions, with scores lower than the cutoff point (i.e. the monitoring zone).

Our response: Done! Please check page 18, lines 450-453.

31. Lines 342-347: This paragraph is mainly a repetition of what was already said in the Methods and the Results sections and does not contribute to the discussion, and thus it's better to be omitted.

Our response: Done!

32. Lines 362-363: The sentence starting with the phrase "Future studies…." is not by any means reflecting either strengths or weaknesses of the study and seems to be irrelevant to this section. The same is true about lines 366-368. These lines better be omitted.

Our response: Done!
Conclusion:

33. Lines 47-48 & lines 371-372: Your conclusion (in the Abstract as well as in the main text) is not exactly reflecting the main results of the study. As said before, apart from Table 1, all other results reported in this manuscript reflect different psychometric characteristics of the ASQ:SE based on the IRT model/method, and not "knowledge regarding Swedish children's social-emotional problems". Please correct accordingly.

Our response: Considering your point, we have revised the text. Please check conclusion both in the abstract and in the main text.

MOHSEN VAHEDI (REVIEWER 2):

1. The reliability and validity of questionnaire must be explained clearly in method section.

Our response: Thanks for your comment. We have examined the internal consistency and unidimensionality of the instrument by applying confirmatory factor analysis. Please check the explanation in page 8, lines 210-214.

2. The explanation about statistical software usually explained at the end of statistical method.

Our response: Thanks for your comment, we have moved the text at the end of the method section. Please check page 9, lines 244-245.

3. The quantitative variables must be reported as mean±SD or med(Q1-Q3). No need to explain about the variables more than one time.

Our response: We appreciate your comment and you are right that both might not be necessary. However, since many other studies on ASQ:SE have reported both mean and median, we would like to keep both estimates in the table, simply for the sake of comparability with other studies.

4. In table 1, the cutoff is not clear.

Our response: Cut-off has been added in the Table. Please check Table 1.

5. In statistical methods, just mention about other studies with suitable citation. No need to explain about all of them completely.

Our response: We appreciate your comment. However, we believe these descriptions may help readers – who may not be fully familiar with the subject – to better understand the findings.
6. Revise the references. Some of them were not in format of this journal.

Our response: Done. Please check the reference list.

NASTARAN HABIBI (REVIEWER 3):

1. Please include all comments for the authors in this box rather than uploading your report as an attachment. Please only upload as attachments annotated versions of manuscripts, graphs, supporting materials or other aspects of your report which cannot be included in a text format.

Our response: We are not sure if this comment are for us or for the reviewers.

2. Please overwrite this text when adding your comments to the authors.

Our response: We are not sure if this comment are for us or for the reviewers.