Reviewer’s report

**Title:** Vocal and Motor Behaviors as a Possible Expression of Gastrointestinal Problems in Preschoolers with Autism Spectrum Disorder

**Version:** 0  **Date:** 13 Aug 2019

**Reviewer:** Arianna Benvenuto

**Reviewer's report:**

This manuscript reports a study which investigate the complex behavioral manifestations of gastrointestinal problems in a population of 85 young children with autism spectrum disorders and also evaluate the potential implication of recognition of these behaviors as clinical markers of GI disorders in ASD children.

This topic has good relevance for clinicians managing young children with ASD, especially for nonverbal or minimally verbal children that cannot express pain or discomfort through speech.

Although the hypothesis and results of the study is fascinating, there are some queries that should be addressed to help with the clarity and impact of the manuscript.

**Background:**

the aims of the study should be better focused on the topic area of your research, which is the identification of specific pattern of behavioral manifestations potentially correlated to the expression of GI problems and the impact of those associated behaviors on the GI disorders diagnosis in ASD children with low communication skills;

- at line 23, please change with "investigate the correlation between GI symptoms and presence and type of the AB reported in the Consensus report in an Italian sample of preschoolers with ASD"

- at line 24, please change with "to evaluate potential differences in the expression of AB in verbal vs non-verbal ASD subjects with GI problems"

**Methods:**

- There is no actual description of what study type this is (observational, prospective....), but a description of what was done. This should be addressed.

- Inclusion/exclusion criteria of the study should be more detailed:
1. Please clarify why subjects with a diagnosis of organic GI Disorder were excluded: did you expect any difference in frequency or type of GI symptoms or AB in organic versus functional GI disorders? If you decided to study only children with functional gastrointestinal disorders, you should better argue your choice and also mention data about differences in clinical manifestation in the background session.

2. In the "Instrument" section (pg 7), authors described the total score of Gastrointestinal Severity Index that they considered clinically significant for the classification of a subject within the GI group. This information should be appropriately placed in the "Procedure" section (pg 9), in order to better describe inclusion criteria of the two subgroups "GI vs NGI" of the study.

- No information about pharmacological treatment for GI symptoms and specifically about prebiotic/probiotic therapy has been provided. Several literature studies reported that patients with ASD and GI disorders often use probiotic supplementation in order to alleviate GI symptoms as well as improve behavioral issues, so this could be an important confounding factor in terms of expression or intensity of GI and AB manifestations. Please clarify if you investigated the use of pharmacological/probiotic therapy in your sample or if you decided to exclude treated patients.

- A general description of clinical features of the whole sample has been reported in Table 2. It would be relevant to expand this description in the text and actually discuss if any differences has been found between the two groups of GI and NGI children. Specifically, differences in symptoms severity (ADOS score), developmental/adaptive level (GMDS and VABS score) and Internalizing, Externalizing and Total Problems (CBCL score) could influence both presence and intensity of AB in the two studied groups; in this view, these variables should be considered and appropriately discussed both in Methods and Results sections.

Results

- The results section include general results about the whole sample and then specify differences about two different subgroups: GI vs NGI and verbal vs non verbal ASD children. It could be interesting to know the percentage of GI symptoms in verbal vs non verbal subgroups, in order to identify any specific clinical phenotype or differences in the incidence of GI disorders in children with higher communication skills: it's possible that a diagnosis of GI disorder could be made earlier in verbal individuals due to their ability to express pain/discomfort and consequently influence intensity or frequency of AB manifestation; authors could also used their own results to strengthen data about the association between GI symptoms and verbal skills in subjects with ASD reported in the "Discussion" (pg 13).

- Pag 10, line 11: please clarify the sentence "GSI total score (mean ±SD) was 3.69 ± 2.76, while the 6-GI score (mean ±SD) was 2.09 ± 2.00."; is GSI total score referred to whole sample or GI Group? If it refers to GI Group, please report also the comparision with NGI Group values.
Minor revisions:

Background: pag 4 grammar: please change "quality of life both of the child and their parents" with "quality of life both of the children and their parents"

**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.

Not relevant to this manuscript

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

Needs some language corrections before being published

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