Reviewer’s report

Title: Autism, Spectrum or Clusters? An EEG Coherence Study

Version: 0 Date: 28 Sep 2018

Reviewer: Cristina Berchio

Reviewer’s report:

The paper by Duffy et al. analyzed whether the clinical characterization of autism can be assessed using a cluster procedure on resting state EEG data. The idea is certainly attractive, but I have some major concerns that prevent me to endorse its acceptance at the present stage.

Major points:

The paper should focus on a discussion and/or illustration of how this cluster procedure and results approaches the current debate clinical topics (i.e. diagnosis) in autism.

To this end, authors should try to enlarge the introduction/discussion.

Title: I must urge caution

Minor points:

Introduction

Line 18: please clarify 'Personality issues'

Line 34: please clarify 'three-dimensional space of human behaviour'

'Evidence on autism spectrum disorders and cluster analyses': this part of text appears as a list of discrete studies. Please try to made this part as homogeneous as possible.

Hypotheses and expected results should be formulated in the Introduction section.

It would be good to discuss the cluster procedure in this section (I also suggest to put less emphasis on the specific software used in this study. This is a general observation for the entire manuscript).

Methods
I suggest move goals and hypotheses on the Introduction section.

Please provide here more details regarding the software package NBclust

Wide range: 2 - 12 years old: this should be discussed and recognized as limitation of this study

Subjects previously studied: the label 'CON' is quite unusual, why not TD children? ;

For the diagnosis: what about the ADI-R?

EEG data collection protocol

Down-adjusted by software: please clarify.

'Effects of residual eye blink and muscle artifact upon these coherence measures were removed by multiple regression using anterior slow delta and high frequency frontal-temporal EEG as indicators (independent variables) of residual eye and muscle artifact respectively' are there any reference that can justify this procedure?

Conclusion/Discussion

Overall, this part is poorly written.

Again, any clinical conclusion should be articulated with caution.

Moreover, clinical remarks should added and elaborated: please discuss the current literature on autism spectrum disorders and criteria of diagnosis

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

Unable to assess

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 recommend additional statistical review

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

- Acceptable

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