Reviewer’s report

Title: Quantifying cognition at the bedside: A novel approach combining cognitive symptoms and signs in HIV

Version: 0 Date: 31 Jul 2015

Reviewer: Ganesh Babulal

Reviewer’s report:

The authors present a compelling study that sought to investigate if cognitive impairment as evaluated by self-report and performance-based tests could be combined into a single cognition construct as analyzed via the lens of Rasch Measurement. Overall, this manuscript is very strong. It presents a critical area (one that could be applied to other disease processes), challenges current clinical methodology and uses a more precise measurement to confirm the hypothesis. I have a few comments about the methods and interpretation of the results. The authors used two different samples with data being collected at two different time points. There was no description about differences (if there were) in terms of recruitment, test administration and data collection. It would be helpful for the authors to conduct sensitivity analyses to determine if there are anything differences and report so, accordingly. The authors conclude that the final set of 37 items could be administered in less than 30 minutes. The time is the common rate-limiting step in evaluating cognitive domains. I do believe the 30 mins is impractical and unrealistic, especially given for a brief measure for assessing cognition. I would recommend the authors address this in their limitations and future steps to make this a more brief and stronger measure.

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.

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.

Yes
I am able to assess the statistics

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

Acceptable

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