Reviewer's report

Title: Testing assumptions for endophenotype studies in ADHD: Reliability and validity of tasks in a general population sample

Version: 1 Date: 5 July 2005

Reviewer: Jeffrey N Epstein

Reviewer's report:

General

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

1. The first sentence of the Discussion reads, "With a general population sample of children, we demonstrated moderate to good test-retest reliability for the majority of variables from the go/no-go and fast tasks, and an association between performance on these tasks and teacher, but not parent, ratings of ADHD symptoms." This is a nice summary of the study's findings. I would encourage the authors to review their Methods and Results sections and remove everything that doesn't pertain to this straightforward statement in the Discussion. In its current form, analyses are conducted that do not directly pertain to the stated study hypotheses. For example, analyses are conducted on the test-retest reliability of the WISC and correlations between WISC scores and ADHD symptoms. This is ancillary to the primary hypotheses and detracts from the primary aims of the manuscript.

2. The authors cite the study conducted by Leth-Steenson et al. (2000) and use a similar spatial attention task as used in the Leth-Steenson et al. study. However, one of the primary conclusions drawn by Leth-Steenson et al. was that ordinary mean RT and RT SD are inadequate as indicators of central tendency and variation. Rather, Leth-Steenson et al. use ex-Gaussian indicators to estimate central tendency and variation with some interesting results. The present study uses only RT and RT SD to estimate performance. It is unclear why these ex-Gaussian estimators were not utilized in the present study. Indeed, the test-retest reliability of these indicators is an important research question as well. Moreover, the authors chose to normalize 2 go/no-go task variables rather than trying to model those distributions. This is particularly problematic if RT was the distribution that was normalized given the findings of Leth-Steenson et al.

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

1. From the description of the go/no-go task, it seems that data were presented in blocks. However, it is unclear how many trials per block or how many blocks were involved on the task.

2. The following two sentences are taken from the Results section. "Following the practice recommended by Rousson, Gasser and Seifert [31], we focus on inter-class rather than intra-class correlations (although report both to enable a comparison with previous research). Rousson et al. [31] recommend the use of intra-class correlations." There appears to be an error here. If Rousson et al. recommend INTRA-class correlations, why do the authors use INTER-class correlations?

3. Authors use the word "improvement" throughout the Results section to reflect better performance, usually in the context of interpreting correlations. "Improvement" carries the connotation of getting
better over time. However, the authors are referring to higher scores on neuropsychological variables of interest. A change in phrasing may improve clarity.

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Discretionary Revisions (which the author can choose to ignore)

1. The Tables and Results present a lot of statistical tests. One way of reducing the number of statistics presented in the manuscript is to report only the simple correlations and not report the partial correlations. Particularly since the magnitude of correlations across the simple and partial correlations are the same and the pattern of results is consistent, it seems that a more parsimonious presentation of the study results would just include the simple correlations and a statement stating that the results did not change as a result of partialing out for age.

2. Interpretation of the study findings relies heavily on a state-regulation model of ADHD. However, other theories (e.g., delay aversion theory) could also explain some of this study’s findings. Incorporating other theoretical interpretations of the study results has the potential to improve the manuscript.

What next?: Accept after minor essential revisions

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: No

Declaration of competing interests:

I declare that I have no competing interests