Reviewer's report

Title: Monitoring Neurocognitive Functioning in Childhood Cancer Survivors: Evaluation of CogState Computerized Assessment and the Behavior Rating Inventory of Executive Function

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Reviewer: Elizabeth Salerno

Reviewer's report:

This is a well-written manuscript that has high clinical relevance given current advances in cancer survivorship, specifically among pediatric survivors. The authors examined the sensitivity and specificity of 2 different tools in an attempt to identify children who score below average on standardized academic performance measures. There are a few comments and concerns below that may help bolster the impact of this manuscript.

Concerns/Comments:

1. The authors might temper the conclusion in the abstract - as it stands, it appears as if both the BRIEF-MCI and CogState Composite have adequate sensitivity to detect those children in need of intervention; however, the results are quite the opposite. It might be more informative and transparent if this conclusion highlights the specificity of these tools and future implications of this work.

2. In the introduction (page 4, line 109), there is no clear explanation of the "computerized testing" being employed. It would be helpful to explicitly state how measures such as the CogState differ from the standard neuropsychological tests. I'm curious how such assessments reduce practice effects, especially since citation 14 doesn't provide any insight and even emphasizes that practice effects account for a large percentage of explained variance in cognitive changes over time.

3. It will also be important to consider how and if these tools adequately capture the full extent of cancer-related cognitive impairment. Page 11 highlights future leverage of newer computerized assessments of cognition; however, recent work has highlighted discordance between objective and subjective measures of cognition after cancer. What are the implications of this in pediatric cancer survivors specifically? Can we simply ask kids if they're struggling academically? It would be helpful to flush this out a bit more.

4. I wonder if there are other academic performance outcomes that can be used that may be more relevant to the cognitive tasks measured by CogState (attention, working memory,
processing speed), such as daily classroom behaviors, grades, etc simply because the
cognitive processes measured by CogState may not readily transfer to performance on the
Connecticut Mastery Test or Academic Performance Test, thus attenuating any
associations.

5. Understandably, the sample isn't large enough for stratified analyses, but are the authors
able to provide more detailed treatment information in Table 1 (e.g., chemotherapy,
radiation, neurosurgery)? This may have implications for the extent of cognitive
dysfunction.

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

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