Reviewer’s report

Title: Grading and Assessment of Clinical Predictive Tools for Paediatric Head Injury: A New Evidence-Based Approach

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Reviewer: Elaine Rabin

Reviewer's report:

This work presents an application of a previously-described method for assessing clinical prediction tools, GRASP. As the authors rightly note, with the proliferation of clinical prediction tools, it is useful to classify them by their rigor, degree of validation, usability and potential impact. I am intrigued by this concept and the GRASP tool seems well thought-out, so I would certainly recommend consideration of this work for publication. However, I have a few issues with the manuscript that I’d suggest reviewing prior to acceptance.

First, the development and prior testing (if any) of GRASP is not well-described, though the authors repeatedly refer to it as "evidence-based". It is referenced (ref #36) but by following the link I only find a conference agenda without other information available for the relevant talk. Either more information should be given in the current manuscript or there should be a more robust reference. Or are the authors using "evidence-based" to refer to the fact that the GRASP tool considers evidence for a prediction tool in ranking it? If so, the wording is confusing as is.

Next, the paper is split into 3 parts: A literature review to identify pediatric head trauma prediction rules, a ranking of the identified rules using GRASP, and then what appears to be a descriptive analysis that the authors describe as "a comprehensive and objective analysis to answer the question of what makes certain tools more widely accepted and successfully implemented than others." The third section seems only partly relevant and perhaps the basis of a separate paper, though I have a few more concerns about this section (below).

The literature review was performed using a method with which I am unfamiliar, but intuitively seem that it would yield appropriate results. It was performed with "no specific time frame", which I presume means it used the default time frame of each search engine. It would be good to list these if so.

The grading of the identified tools was a nice illustration of the application of the GRASP tool. The output is a bit unwieldy and thus I am not sure how much use would be made of the tool by the average clinician, though researchers and those with more developed interest in evidence-based medicine will likely appreciate it.

The third part, correlations of the resulting rankings and various aspects of the tools is of less convincing value, partly because the authors assume some causality from the correlations that is not obvious a priori. For example, more citations makes it more likely that a tool has been externally
validated, etc, and external validation is an input for the GRASP ranking. So does a higher ranking yield more citations, as the authors suggest, or do more citations yield a higher ranking. Also, the authors suggest that this analysis might help those developing clinical prediction tools develop better ones, but tool developers have little control over some of the characteristics analyzed, such as the country of origin or the year of development. Finally, the N for much of the analysis seems to be 5, which is underwhelming.

More minor comments:

- The writing overuses commas. Reducing their use would make the manuscript more readable. (Example: line 180)
- The abstract background only refers to 1 of the 3 objective stated in the manuscript.
- p 3 line 69- typo- missing the word "One"

Thank you for the chance to review this work.

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.

No

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 am able to assess the statistics

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