Reviewer’s report

Title: A plea for taking all available clinical information into account when assessing the predictive value of omics data

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Reviewer: Renaud Tissier

Reviewer's report:

Report on A plea for taking all available clinical information into account when assessing the predictive value of omics data (BMRM-D-19-00050)

This manuscript aims to demonstrate the importance of clinical variables when building prediction models of health outcomes. Clinical variables are often disregarded in the context of omics research but contains information shared with omics data and easier to access. To prove it the authors assess the added prediction of omics data on clinical variables using different level of complexity when building the clinical variable model. The problem is well motivated and the demonstration is clear.

Some suggestions:

1) It is not clear in your method description what happens when clinical variables are not significant in the first model. Are they removed or kept? In the M2 model 2 or 3 variables are added, depending on the dataset, and according to performances of the M2 model it is not clear if all the variables are relevant.

2) If the authors state in the introduction that in omics research clinical variables are often neglected in the prediction model itself, it could be fair to state that the clinical variables are often used to defined more homogeneous subgroups of samples on which prediction models are built (as the authors do by excluding samples based on clinical variables).

3) The impact of the complexity of the clinical variable model on the omics part of the prediction model is not enough discussed. Does including more clinical variables impact the number of omics variable selected in the model? Having a simpler combination of omics markers could also be a strong point for the inclusion of more clinical covariates.

4) Many tables and figures. Some tables and figures contain redundant information and should be removed (table 2 and table 3).
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.

I am able to assess the statistics

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Please indicate the quality of language in the manuscript:

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