Reviewer’s report

Title: Type D personality is a predictor of prolonged acute brain dysfunction (delirium/coma) after cardiovascular surgery

Version: 2 Date: 06 Dec 2018

Reviewer: Michael Smith

Reviewer's report:

Thank you for giving me the opportunity to once again review this manuscript. Below, please find some comments on the Results and Discussion sections, for consideration.

Figure 2 could be revised to make it more informative. Please re-label the x-axes, to make clear that these represent 'Days' (assuming I've understood the figure correctly). Should the data presented in Figure 2 be accompanied by inferential statistics? From eyeballing the data presented in the figure, it appears that the Type D effects are driven by an exacerbation of coma and delirium during the days immediately following surgery, but this effect seems to normalise within a week. So there could be a moderating effect of time?

Given that SI and NA independently predict DCFDs, could the authors comment on whether it is Type D that is driving the observed effects, or whether it is the independent effects of NA and/or SI? There is much contention around this issue in the Type D literature (see, for example, Horwood & Anglim, 2017).

Page 20, lines 5-6 should be reworded, as they imply that mediation was observed, when no such analysis was performed.

Throughout the Discussion, including in the Conclusions paragraph the authors refer to 'Type D personality-associated depressive symptoms'. I'm not sure that this accurately captures what the data are telling us. The interaction between Type D and depression is indicating that the effect of Type D personality on DCFDs is being moderated by depressive symptoms, whereby, depressive symptoms in the presence of Type D personality inflates the Type D effect on DCFDs. In my view this effect is also misinterpreted on page 18 lines 11-15. The authors should consider throughout the Discussion their interpretation of the interaction effect.

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.

No

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
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I am able to assess the statistics

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