Reviewer’s report

Title: Fossil fuels are harming our brains: Identifying key messages about the health effects of air pollution from fossil fuels

Version: 0 Date: 15 Apr 2019

Reviewer: Peter Howe

Reviewer's report:

This is a well-written new paper on an underexplored topic. As evidence mounts of the neurological effects of air pollution, it is important for health communicators to understand how messages about these health impacts engage the public. I would recommend publication pending a few minor revisions, discussed below.

- Page 7-8: I'd suggest providing some more information explaining Hypothesis 2. It makes sense that messages about the health effects of air pollution may be persuasive for Republicans, but it's not clear that the effect would necessarily be stronger for Republicans than Democrats after adjusting for initial levels of concern. Democrats would be expected to have much higher levels of concern and behavioral intention, but it's reasonable to assume that ceiling effects could limit the ability of a message to increase concern even more for Democrats, whereas Republicans are likely starting at a much lower baseline. This added context would be helpful.

- Page 9: Please explain why these particular demographic subgroups were targeted for the oversample. I would assume because they are particularly vulnerable populations or important decision makers in this context, but it would be good to state that explicitly in the text.

- Page 9-10: Citations for the MaxDiff and reach analysis methods used here would be helpful, as they may be unfamiliar to some readers.

- In the results section it would be useful to provide descriptive statistics for the dependent variables used in the study. While there is a table of demographic descriptives in the SI, a similar table for the DVs would be useful to help interpret the results.

- Related to the above comments, I would also suggest addressing the possibility that ceiling effects may have limited the ability to identify a partisan interaction in the treatment. A table of descriptive statistics for the dependent variables broken down by party affiliation (which could go in the SI) would help to illustrate whether ceiling effects were an issue, and if so it would be good to mention that in the discussion.
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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