Reviewer's report

Title: Does transportation noise cause neurobehavioral effects in primary school children? A cross-sectional study

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Reviewer: Lorraine Maxwell

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Review for Environmental Health: MS ID: 2120105414310179

“Does transportation noise cause neurobehavioral effects in primary school children? A cross-sectional study.”

All of my comments fall within the “minor essential revision” category.

Is the question posed by the authors new and well defined?

Yes, the question posed by the authors is well defined. Although the question they pose is not entirely new, the authors’ stated goals are to expand on previous findings related to the effects of noise on children’s cognitive performance. The authors’ argument is that previous findings related to noise and children’s cognitive performance have been affected by several methodological problems. One, they relied primarily on children’s exposure at school and their noise exposure at home has not been examined concurrently, two, measures of cognitive ability were measured with paper and pencil tests, and three, most of these measures were tests related to reading (either comprehension or spelling and grammar).

Are the methods appropriate and well described, and are sufficient details provided to replicate the work?

The appropriate methods are used for this study and they are well described. However, it is not clear whether or not the measures used in this study are language specific so it is hard to know how difficult it would be to replicate the study in other countries.

Are the data sound and well controlled?

The data seem sound and well controlled. Does the manuscript adhere to the relevant standards for reporting and data deposition?

Are the discussion and conclusions well balanced and adequately supported by the data?

There are a couple of minor essential revisions that I think would be helpful related to the discussion and conclusions. One, the authors identify methodological shortcomings in previous research on this topic but reach the conclusion with this study that indeed certain cognitive tasks are negatively affected by noise exposure. It would be helpful to indicate how the ages of children in previous studies compare to those in this study. Although the study is somewhat dated, Hambrick-Dixon (1988) investigated attention and noise with
kindergarten aged children by having them press a telegraph key. Young children’s use of computers was not prevalent in 1988 but it is an example of another study done without a paper and pencil measure related to noise.

Two, since the NES in this study is administered with a computer perhaps some comment on how this mode might affect outcomes. Some children may be better than others at using a computer irrespective of their noise exposure condition. I realize that it might be hard to test for this since it could be confounded with noise exposure but the issue should be addressed.

Do the title and abstract accurately convey what has been found?
Yes, this aspect is fine.

Is the writing acceptable?
Yes. However, the use of the word “faults” for the errors made by the children on the NES or paper and pencil test is unfamiliar to me. Perhaps it is a term used with these measures or a term more commonly used in European journals. There are a couple of places with spelling/typographical errors. Since the pages and lines are not numbered it is difficult to cite them but one such example is the last sentence under “Interpretation of the results”. The word “are” is used too many times and the word “were” appears but should be “where”. There are several other such errors. These are minor and can be easily corrected. If “faults” is appropriate for this audience then it is fine. I understood its meaning but was not familiar with the terminology.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
I declare that I have no competing interests.