Reviewer’s report

Title: Associations between indoor environmental quality in schools and symptom reporting in pupil-administered questionnaires

Version: 0 Date: 12 Nov 2019

Reviewer: Juan Pedro

Reviewer's report:

The topic of the relationship between built environment conditions and health is of high interest. Knowing how students are affected by environmental conditions is highly relevant, specially if we can find associations between self-reported data and 'relatively easy' evaluable variables. The article is excellently written and I strongly recommend it for publication.

According to the authors, this study was conducted to evaluate the relationship between indoor environmental problems in schools and health in primary and secondary students. The authors use existing IEQ data and assess its quality with independent experts. They evaluated the students' health by using self-reported surveys, and interestingly, they ask them to differentiate among school related symptoms and non-school related symptoms. The authors found associations between respiratory health (mainly, but also some general health and skin symptoms) and IEQ variables such as the presence of mold. Most importantly they show a dose-response effect, as the symptoms got worse with increasing IEQ problems in the schools. Some of the symptoms were found to be stronger in the school environment, according to the self-reported assessments.

The paper does not have major shortcomings. The article is clearly written and sampling and analysis methods appear to be sound. The authors should consider including some infographics/figures to facilitate understanding. More and more, the general population is reading scientific papers. Easing their way into literature is a must for the scientific community.

A few of small minor comments for the authors to consider/answer: (numbers express the line number)
106-108: How do the authors think this could bias the results towards those more affected by the symptoms?
111-112: Why do the authors think the parents response rate was so low, and how would they improve it?
121: I sugest the adding the text in ":: "The additional analyses" &gt; 'for supplementary evidence' &gt; "were conducted…"
126: Are the questionnaires available? They should be so the readers can fully evaluate the associations found.
137-146: What time of the year were the questionnaires given to the students? How did the authors deal with cold and flu waves during the winter and their possible confounding effect?

152-157: Can the authors comment on the reliability of the location-related assessment by the students, the younger ones in particular? Being able to read the questionnaire would help us evaluating that. Do the authors think the students could be bias against the school environment (or inversely)?

166: How was "insufficient ventilation" evaluated?

168: It is unclear what "coating damage and emission due to moisture damage in concrete floor" means and how it should be interpreted. Emission of what?

176: it is unclear how the authors created the score (10 ranges by using 7 variables). In pro of clarity, the authors should provide this to the reader.

204: more context should be given for the term "latent classes of school building". Not straightforward. Maybe move 209-220 to 203, and add a bit more of the specifics of the analysis.

229: "the most prevalent symptoms" were the respiratory and general groupings.

General: How did the authors account for multiple comparisons? Any correction applied to the statistical tests?

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Please indicate how interesting you found the manuscript:

An article of importance in its field

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Please indicate the quality of language in the manuscript:

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