Reviewer’s report

Title: Methodological limitations in experimental studies on symptom development in individuals with idiopathic environmental intolerance attributed to electromagnetic fields (IEI-EMF) – A systematic review

Version: 1 Date: 26 Jul 2019

Reviewer: Stacy Eltiti

Reviewer's report:

Overall this is a much stronger manuscript than the previous submission and the authors have carefully taken into consideration the reviewers comments. The following comments are based on the new changes to the manuscript and are suggestions on how to make these section clearer to the reader.

P. 12 lines 9 - 14 makes it sound as if some analyses were conducted using t-tests and others Mann-Whitney-U tests; however, given that all of the data was not normally distributed (p. 16 lines 1 - 3) it appears no t-tests were conducted. See comments below on how to help make this clear to the reader.

P. 12 line 54: specify which online tool was used to calculate the power analysis.

P. 12 line 54: states that power analysis was conducted on Student's t-test; however, in none of the resulting analyses were t-tests utilized. Instead given that non-parametric tests were used for all analysis and non-parametric tests are less powerful than parametric tests, the power analyses should be based on Mann-Whitney-U tests.

P. 16 lines 1 - 7: this should be moved to section 2.6 (statistical analysis) in which you describe the data analysis. It would be helpful for the reader to know going into the results section that although parametric tests were planned given that the data were not normally distributed non-parametric tests were conducted.

P. 16 lines 1 - 3 - specify which statistical analyses were used to test for normality of the data.

P. 16 lines 40 - 50 move to section 2.6 (statistical analysis) as this would fit in better in that section rather than the results section.

P. 16 line 50 states that the power was estimated to be .45. This is very low and should be noted in the test along with the power analysis.
P. 17 line 47 - p. 18 line 28: It would be helpful to separate this text into two separate paragraphs for clarity. One paragraph should focus on homogeneity of participant (p. 17 line 47 - p. 18 line 5) and the other should focus on medical or mental disorders that explain symptoms (p. 18 line 5 - line 28). As the text currently reads the argument does not make sense. It would be helpful to restructure the argument to first talk about how the majority of studies used heterogeneous sample; however, those that have use homogeneous sample has also not found an effect. Even though heterogeneous samples may be one reason for different results the data from studies that use homogeneous sample do not support this as such and this should be made clear to the reader. You might want to restructure the paragraph along the following lines:

In 23 (82%) studies, the selection of study participants may have introduced substantial bias in the results. These studies did not consider a careful assessment of potential participants before enrollment in the study (i.e., at least one key question within the domain selection bias was judged to be at high risk of bias). Heterogeneous study groups may have been the result of such selection procedures and the applied exposure parameters were probably not appropriate for all participants. However, five (18%) studies had applied strict inclusion criteria in an effort to identify individuals with symptoms that could be related to EMF exposure and ensured that the participants and the design of the experiments were matched [22,52,58-60]. It is important to note that four [22,58-60] of these five studies were unable to find an effect of exposure on well-being or symptom development.

P. 21 lines 57 - 59 - see comment above referring to recalculating the power estimate for a Mann-Whitney-U test.

p. 17 line 62 - enrollment is misspelled

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