Reviewer's report

Title: Idiopathic Environmental Intolerance attributed to Electromagnetic Fields (IEI-EMF): A systematic review of identifying criteria.

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Reviewer: Eric van Rongen

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There is an increasing interest in ‘electrohypersensitivity’, both from the part of people attributing their symptoms to exposure to electromagnetic fields, their physicians and a growing number of researchers in this area. Studies have show a variety of definitions and criteria for inclusion, which makes them sometimes difficult to compare. This paper provides a useful overview of these definitions and criteria, but lacks recommendations of which definitions and criteria could be used in future studies in order to better compare studies.

Major Compulsory Revisions

1. Abstract, Conclusions: ‘Further work is required to produce consensus criteria not only for research purposes but also for use in clinical practice.’ – the paper would considerably gain importance if a proposal for this would be given.

2. Discussion, Possible subgroups, 4th para: ‘Table 5 illustrates a number of proposed aspects for IEI-EMF’ – it is nice to provide these in the table, but they need to be discussed in the text too.

3. Discussion, Possible subgroups, 6th para, 2nd sentence: ‘Nevertheless, without the harmonization of the conceptual framework…’ – and then the reader expects that to be provided here. So please do.

4. Conclusions, 2nd sentence: ‘the necessity to develop uniform criteria’ - and this paper should do that!

Minor Essential Revisions

5. Abstract, Results, 3rd sentence from end: insert full stop after ‘source-specific’.

6. Introduction, last para: delete ‘a’ before ‘widely supported case definition criteria’.

7. Methods, Data extraction, first sentence: ‘(Tables 2 & 3)’ – and 4!

8. Discussion, 4th para, 1st sentence: ‘IEI-EMF, as it appears in the literature IEI-EMF is still predominantly a self-reported condition’ – delete the second ‘IEI-EMF’.

9. Discussion, Possible subgroups, 1st para, 1st sentence: ‘IEI-EMF is a heterogeneous condition,’ – you don’t know that. Calling it a ‘condition’ (just like ‘disorder’) might already be a step too far. The heterogeneity derives for a large
part from the heterogeneous inclusion criteria.

10. Discussion, Possible subgroups, 6th para, 1st sentence: ‘possible cultural differences’ – this isn’t discussed anywhere. Discuss or leave out.

11. Conclusions, 2nd sentence: ‘The lack of validation and heterogeneity...’ – this could be read as lack of heterogeneity, but that is not what you mean. Reformulate this to be clear.

12. Tables: please check accuracy of names. In many cases the ‘ö’ has been replaced by ‘o’. I think in general the reference list is ok.

13. Table 3, Hietanen et al 2002: ‘f.g.=65.’ should be ‘f.g.=65%’

14. Table 3, Osterberg et al 2004: this is a case-control study and should be in table 4.

15. Table 4, Hocking 1998: ‘N=0.’- so no subjects at al??

16. Table 4, Hillert et al 1999: ‘a.r.=20#.’ – something is missing here.

17. Table 4, footnote: start the abbreviations at a new line.

18. Table 4, footnote, 1st sentence: ‘Osterberg et al.’ – first: this is not in this table, but in table 3 (see earlier remark; second: do you mean Östergren et al (which is in the ref list but not in any table)?

Discretionary Revisions

19. Abstract, Results, 2nd sentence from end: ‘The case definition was in most of the cases exclusively based on subjective report.’ – and in the other cases?

20. Abstract, Results, last sentence: ‘Experimental studies used a larger number of criteria than observational ones.’ - but still the same 4 mentioned earlier?

21. Introduction, 1st para: ‘the underlying cause’ – I’d say ‘the possible underlying causes’.


23. Introduction, 1st para: ‘case definition’ – this is very broad in this context, since you are talking about ‘environmental exposures’ here.

24. Introduction, 2nd para: ‘its estimated prevalence varies considerably’ – true, but that is also depending very much on the chosen definition and the method of inventarisation; this is of course discussed later in the paper but could be mentioned here already; much higher % than given here are shown in fig 3 (up to >20%).

25. Methods, Inclusion criteria, last sentence: ‘there is no robust evidence for prevalence of the disorder in this population group’ – true, but that is also the case for >14-y-olds! I would prefer another argument – are there any studies on <14-y-olds? Also, I wouldn’t call it a disorder, that gives it more of an established feeling than warranted.

26. Methods, Data extraction, first sentence: ‘female gender distribution’ sounds strange – I’d say ‘gender distribution’ or ‘male/female ratio’ or something like that.

assume that was always the case.

28. Results, Study characteristics, first para, last sentence: ‘In 37 studies the case definition procedure was solely based on the subjective report of the respondents.’ – and in the other studies?


30. Results, Observational studies, 4th para: ‘The prevalence of the disorder’ – do you mean the prevalence in the population? If you want to say something about prevalence (which is not the objective of this paper) this para should be more elaborated, e.g. are the population studies representative for the entire population, what is the possible explanation for the huge difference between the studies of Eltiti [56] and Mohler [86] and the rest.

31. Discussion, 4th para, last sentence: ‘In addition, the large variation in estimates of the prevalence of IEI-EMF in the population-based observational studies is influenced by the heterogeneity in the identifying criteria.’ – some elaboration would be helpful for the reader.

32. Discussion, Possible subgroups, 2nd para, 2nd sentence: ‘Previous studies have identified occasionally high levels of other diagnoses in such patients which might adequately account for their ill-health’ – strange formulation: what are high levels of other diagnoses?

33. Discussion, Possible subgroups, 3rd para, 5th sentence: ‘NSPS and other possible physiologic reactions’ - perhaps it is better to make a distinction between subjective and objective reactions?

34. Discussion, Possible subgroups, 5th para: ‘Based … etiologic associations.’ can be removed. This is all unnecessary excuses.

35. Discussion, Possible subgroups, 6th para, 1st sentence: ‘which will be used’ – better ‘should’ or ‘could’.

36. Discussion, Possible subgroups, 7th para, last sentence: ‘the main issue at this point of time should not be the recognition of IEI-EMF as a clinical syndrome, but the recognition of its multidimensional nature.’ – So? How does that help the people with symptoms?

**Level of interest:** An article whose findings are important to those with closely related research interests

**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