Reviewer's report

Title: Geographical variation in cardiovascular incidence: results from the British Women's Heart and Health Study

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Reviewer: Chiara Melloni

Reviewer's report:

The authors describe incidence of cardiovascular disease in four different regions of UK, using the British Women's Heart and Health Study database.

- Major Compulsory Revisions

Appendix: please clarify definition of MI and unstable angina
For MI: 1) ECG evidence of MI. I suggest the authors to further clarify it.
Both UA and MI have positive markers. Is this correct?

Full test:

Statistical methods:
the last 2 sentences of the first paragraph are hard to follow. It is not clear how the numbers (lost to follow-up or non-return of record review) provided in this page relate to or complement the ones presented at the beginning of methods section (completion of questionnaire at 3 and 7 years).
A flow chart with number of patients approached, number respondent at baseline, number at 3 and 7 years who returned questionnaire and lost to follow up or non-return might be helpful to the reader.

third paragraph: the authors should clarify what they refer to with "event indicator"

Results:
Third paragraph: the authors state that “the estimates based on the observed data for all events combined suggest that compared with South England incidence is lower in all other regions" however, none of the results presented on table 3 really show this. Nothing appeared to be significantly lower. The author should explain if they were referring to this specific table and justify their conclusions or to other data not shown.

Similarly, the third sentence of the discussion states “ For CVD incidence, much of the variation between regions was explained by imputing missing covariates values”
It is not fully clear to which variation they are referring to. When imputed values are added HR and 95% CI change of some degree, especially for the fatal event
with the point estimate moving from one side of 1 to the other but none reach statistically significance.

Part of discussion and conclusion seem not to be supported by the data. is there variation or not? authors state that there is difference in incidence of CVD across regions and then in the first sentence of the second section of discussion "explanation of finding" they state " the absence of continued divergence of the regions..." Please clarify

- Minor Essential Revisions

Abstract:
Methods: Please correct name of the study, “heart and heart study " with “Heart and Health study”

Full test:
Methods- Outcomes: please report the number of self-reported cases were excluded because of missing year.

Table 2
Below each region (on the first row) please add the total # of responders at baseline

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.