Reviewer's report

Title: Risk Factors of Stroke in Western and Asian Countries: A Systematic Review and Meta-analysis of Prospective Cohort Studies

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Reviewer: Kevin McGeechan

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The authors have conducted a systematic review to identify studies that have reported on the association between specific risk factors and incident stroke. They have then summarised the information using meta-analytic methods separately for studies of Western and Asian populations. They then compare the pooled relative risks for the selected risk factors between these two groups to determine whether the risk factors for stroke differ between Western and Asian populations.

There are a number of problems with this paper including how the studies have been selected, why particular risk factors have been chosen, the compatibility of different measures across studies, failure to test the main hypothesis and a lack of clarity in reporting results. I have detailed these issues below.

- Major Compulsory Revisions

1. The authors appear to have limited their review to studies whose primary focus was stroke (page 12, line 26-27) and excluded studies that have investigated CVD outcomes more generally but which may have reported on stroke outcomes. This excludes studies such as Framingham, Cardiovascular Health Study, Rotterdam etc. This is a major flaw as many studies have been excluded that would provide valuable information on this topic. If these studies are to be excluded the authors should provide a compelling reason for this.

2. The search criteria (p6, lines 9-11) is not clear. It appears that brackets are missing. This should be rewritten.

3. I do not understand the reason for exclusion criteria 6 (p6, line 22). Who are the exposed and non-exposed groups?

4. Why were the 7 risk factors chosen (p8, line 20)?

5. How comparable are the definitions of each of the risk factors across the studies? And for dichotomised risk factors, is the underlying distribution of the risk factor similar across studies?
6. In table 1, under the column Risk factors, are these the only risk factors recorded in the study or the only ones reported?

7. I do not understand the columns in table 2 headed “Amount of references”. Why are there different number of references in the two BMI categories, and the two SBP categories?

8. The main purpose of the paper is to identify whether Western and Asian populations have different risk factors for stroke. Why have no formal tests of a difference in relative risks for the subgroups defined by Western/Asian been carried out?

9. No definition is provided of what constitutes a Western and an Asian study.

10. It is not clear how the smoking variable has been analysed (p8, line and table 2). Were separate analyses carried out for each possible way that smoking was reported?

11. Also for SBP and BMI (p9 line 16, and table 2). Did all studies report on the three categories indicated for each of these variables? If so why is an overall P-value not reported, rather than individual P-values for each category.

12. No information is provided on how to interpret the quality ratings (page 9 line 11). What does a value of 1, 2 stars etc indicate?

13. P12, line 13. It states that quality was significantly higher in Western studies compared to Asisan studies. I could not find a formal test to support this conclusion.

14. P10, line 29 states that Asian populations more commonly experience hemorrhagic rather than ischemic stroke, and the reverse is true for Western populations. Why then are these two outcomes not investigated and reported on separately?

15. What sort of randomised controlled trials would the authors suggest? (p13, line 5)

16. What “different intervention approaches” would the authors suggest for Western and Asian populations based on their results? (p13, line 14)

- Minor Essential Revisions

1. When referring to the studies in the text I would prefer to see the study acronym, or location, rather than the first author of the paper.

2. The writing is variable. Some passages are well written and clear (much of the methods and results), whereas others are less clear (the abstract, introduction and parts of the discussion).

**Level of interest:** An article of limited interest
Quality of written English: Needs some language corrections before being published

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interest