Reviewer’s report

**Title:** Independent external validation of cardiovascular disease mortality in women utilising Framingham and SCORE risk models: a mortality follow-up study

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**Reviewer:** Ivanny Marchant

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**Summary**
In the article “Independent external validation of cardiovascular disease mortality in women utilising Framingham and SCORE risk models: a mortality follow-up study” by Goh et al., the authors report the findings of an external validation study designed to evaluate the applicability of three different risk estimation systems: Framingham, SCORE for low risk regions and SCORE for high risk regions in a cohort of 4487 Australian adult women (age range 20 – 69 years) by comparing the risks predicted and the risks observed over ten years of follow up. The manuscript is well written and adheres to relevant standards. It contains, however, some shortcomings that merit to be revised.

**Major Compulsory Revisions**
(which the author must respond to before a decision on publication can be reached)

- **Methods:**

  Why did the authors choose the Framingham and SCORE models? As the authors have stated, there is a number of published risk predictors that could be used in cardiovascular primary prevention. They should introduce why they chose the Framingham and SCORE risk equations to evaluate their applicability in the study population.

- **Discussion**

  1. It appears difficult to know whether this paper represent a useful contribution to the field given the shortage of arguments in the discussion. Focused on calibration aspects, the present results are compared with the results obtained from an important number of validation studies in many different populations. In contrast with the big number of references, the discussion seems rather superficial; with no explanations on the possible causes of calibration defaults; or the eventual similarities/ differences between the cohort study population and the populations they refer to.

  2. Regarding discrimination thresholds, their implications on the size of treatment target populations and expected benefit from treatment should be discussed as well as its economic consequences.

  3. The authors made the assumption that no one presented with left ventricular hypertrophy in their cohort because the data was not available. Such an
assumption may have introduced some bias in the risk estimates leading to underestimation of CVD risk by the Framingham risk predictor. Ideally, the magnitude of this potential gap could have been estimated or at least been considered as one of the limitations of the study. It is likely that the prediction by Framingham will be improved by taking into account the presence of left ventricular hypertrophy in Australian populations.

4. It would be desirable/useful to have a comparison between the performance -and implications of use - of the two risk scores retained (Framingham and SCORE-low). This would add value to the article since more interesting research questions would be addressed.

- Conclusion

1. The authors indicate that Framingham and SCORE-low model are recommended for use in the Australian population. Since the study population consisted of Australian women aged 20 to 69 years, conclusions could only be extended to the adult women Australian population.

Minor Essential Revisions
(such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

Discretionary Revisions
(which are recommendations for improvement but which the author can choose to ignore)

Figures:
- Error bars for the risk estimates should be included in order to judge for the accuracy of the estimates within each category.
- Why did the authors use lines to join the predicted risks points? As these are point estimates, there is no need to connect them.

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