Reviewer's report

Title: Trends in electrocardiographic abnormalities and risk of cardiovascular mortality in Lithuania, 1986-2015

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Reviewer: Denes Stefler

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This study examined the changes in the prevalence of ECG abnormalities over a 20-year period in Lithuania, and also explored how this information could affect the predictive models for CVD and CHD mortality. The authors identified important trends in the prevalence of ECG abnormalities for both men and women, found that presence of ECG abnormalities was significantly related to CVD and CHD mortality, and that inclusion of this information in predictive models improved their predictive ability.

The study is interesting and relevant for both clinical and public health practice. Further advantage is that it was carried out in a population where such data is relatively scarce. The manuscript is well-written.

I have the following comments:

1. In the methods section, some more detail is needed in the description of the study sample. In the text, or potentially in supplementary table, please provide response rates for all four survey waves separately. Also, please indicate how many (what proportion of) participants were excluded due to previously diagnosed MI in each of the waves. How were individuals invited to the study? Were they sent letters or via phone calls?
2. Regarding the measurements, please state where the measurements were taken place (in hospital? In GP office? at home?) and who did the measurements (doctor? trained nurse?).
3. Do the authors have any information on the participants socio-economic position (i.e.: education) and other chronic diseases? If they do, have they considered including them in the Cox models?
4. In table 4, please indicate the number of men and women who died during follow up due to CVD or CHD. Some of the associations are likely to be not significant only because of the low number of outcomes and the consequent inadequate statistical power (i.e.: ischemia or possible MI vs CHD mortality in women). Also in table 5, the differences in NRI between men and women are probably only the result of the
different statistical power in these groups (point estimates are identical or very similar).

5. It is interesting to see that the prevalence of ST abnormalities (and the related ischemia) was more than double in women compared to men in 1986-87 but the rates were similar in 2006-08. The authors provide some explanation for this (i.e.: change in lipid levels), but can the differences in lipid levels explain the large gender gap in 1986-87?

6. The conclusion in the abstract and in the manuscript text is just the repetition of the study’s main findings. It would be preferable to add some thoughts about the potential clinical and public health implications of these findings.

7. In the limitations, please add some comments about the moderate response rates and their potential implication on the generalisability of the findings.

8. Abstract line 38: The HR for the association between possible MI and CVD death for women is missing.

9. Background page 3 line 28: please add "age-standardised" before the term "mortality rate".

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

Yes

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Yes

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

Yes

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

**Quality of written English**
Please indicate the quality of language in the manuscript:

Acceptable
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