Reviewer’s report

Title: Cardiovascular mortality and risk behaviours by degree of urbanization before, during and after the economic crisis in Spain

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Reviewer: Nisha Naicker

Reviewer’s report:

National Mortality Data is a valuable source of information for surveillance, assessing trends and for planning relevant public health interventions. Thus this paper highlights the use of this type of data.

There are a few queries:

1. introduction- few references missing for the text- para 2, line 34-44, para 3 line 52-54. In the intro - there should be information on the risk behaviours that was included in the analyses. A definition of what is meant by an economic crisis is necessary.

2. Methodology- the ICD 10 codes used for cardiovascular diseases (100-199) included cerebrovascular diseases 160-169 (which could be linked to the risk factors) and valvular diseases 134-137. Not all the diseases involving the valves are linked to the risk factors- a note must be made as to why all related CVS diseases were included.

   - In the National surveys- where there any other risk factors that were included- family history, actual socio-economic data etc. Need to clarify why only these three factors (obesity, smoking and exercise) were considered. Also what is the quality of the National Mortality data- please describe briefly. Will there be any limitations using this data.

   - The age cut off of 75 years is quite high for premature death- what is this based on. What is the average life span of men and women in Spain.

   - Reference the BMI of >30 == obesity.

3 Results: the Figure 1 is not very clear - needs a higher resolution.

   In table 1 for men in large urban areas and in rural areas for 2005 the number of deaths is greater than the total population in these areas. is this correct- if yes please explain?

   For the percentage ratio- state that the reference (denominator) was the large urban areas- didn't see this in the methods.
4. Discussion: what were the reasons for differences between men and women in terms of risk factors and mortality. The discussion needs to be improved. It's very superficial currently.

What is the public health impact of these findings? How will this information be used to improve the health of the population?

5 References- reference 16 is missing.

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

No

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

No

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

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