Reviewer's report

Title: Socioeconomic inequalities in cause specific mortality among older subjects in France

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Reviewer: Bjorn Heine Strand

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- Major Compulsory Revisions

This is a well written manuscript investigating educational inequalities in cause specific mortality in France with focus on the older population. The longitudinal data have high quality and the investigators use sound and traditional methods, focusing both on relative and absolute inequalities.

I have some concerns though.

1. It is somewhat hard to grasp the main intention of the paper. Is it to show that inequalities changes with age, or is it to show that cancer is not so important explaining the absolute mortality inequalities among the old? And what is most important to consider; the decreasing relative inequalities or the increasing absolute inequalities? What do the large increasing absolute inequalities with age mean - how should we interpret them? All this might be hard to grasp. It is complex to compare inequalities across age groups because the mortality rate differs so dramatically. And it is almost mathematically guaranteed that the relative differences will decrease as the nominator and denominator increase so much. This has been much debated in the inequalities literature. I would welcome a clearer description of these issues in the introduction. It could also be worth looking at the method used by Leyland et al, where the SII is divided by the mean mortality rate so comparing inequalities across age groups makes more sense. (Leyland AH, Dundas R, McLoone P, Boddy FA. Cause-specific inequalities in mortality in Scotland: two decades of change. A population-based study. BMC Public Health. 2007; 7: 172). See Fig 1 for this illustrated nicely.

2. Possibly the most important output from this paper is the distribution of causes summing up the SII at the different ages; cancer reducing importance 40% to 33%, to 15% among men and from 28, to 19 to 3% among women. At the same time there was an increase for CVD till 31% in men and 45% in women. I would welcome a broader discussion around these findings. For example, what are the public health implications of these findings? Is it important to know that cancer falls in importance with increasing age explaining mortality inequalities? And what are the explanations for this falling importance? Are there other mechanisms than alcohol and the size of the rates themselves?

3. There are large gender differences in cancer inequalities; especially lung cancer is interesting with positive association in women and inverse in men.
guess this will reflect smoking patterns? More discussion is welcomed.

4. It is described that it is of extreme importance to study social inequalities in mortality in the older population due to its increased size. I would like some more justification for this importance.

5. The mechanisms through which education may impact health are diverse and some are mentioned in the paper. I wonder if some of these mechanisms are more important at certain ages?

6. The confidence intervals were computed with Bootstrap. Why was this chosen? Why not use the CI's from the Cox regression?

7. The conclusion is much built upon European comparative studies, but the present study only includes results from France and I do not quite follow why not a similar pattern like this one is to expect in other countries.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.