Reviewer’s report

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

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Reviewer: Alberto Quaglia

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General comments (Major Compulsory Revisions).
The present paper is a classical analysis of the relationships between educational level attained and mortality rates. It is not markedly original but some points reach a good degree of interest. In particular, it is noteworthy the special focus on elderly people.

From a general point of view, the text should be implemented through a larger and less cryptic development of some items. More specifically, the part of methods must describe more clearly the statistical procedures carried out, while the discussion would benefit from a wider interpretation of results. It must taken in mind that the paper has to be understood also by a not very expert reader.

Introduction
In the second paragraph which deals with the background on socio-economic factors and the elderly, there is a contradiction. In a first time the author affirms that a previous study investigated the matter by age and cause of death (To our knowledge, only one study investigated socioeconomic inequalities in mortality by age and cause of death.[7]), but only some lines under, the preceding sentence is denied by its contrary (This study included data from several European countries from North to South Europe but did not provide results by cause of death, age and country). (Minor Essential Revisions)

Owing to the importance of this reference, it would be better to move the comparison from the introduction to the discussion and only mention it here as background (obviously, after solving the inconsistency). (Discretionary Revisions)

Methods. (Major Compulsory Revisions).
General remarks.
It is not clear how the ranked variable of education was obtained. The complete formulation should be expressed with clear indication of the involved dimensions.
There is some confusion in the proposed example: it is not clear what should be intended for “highest” and “next highest” level of education: a more explicit formulation is needed.

It is not so clear the role of SII and how it should be interpreted with respect to inequality.
Specific points.

• In the first paragraph, page 4, the characteristics of the sample must be shortly described because the reader difficultly knows the specific reference and the paper has to be independent. (Major Compulsory Revisions).

• As regards the follow up it is sufficient to indicate: “Subjects were followed up for mortality from 1990 till the end of 1999”. The remaining details are obvious. (Discretionary Revisions)

• In the last paragraph at page 5 there is an important sentence “We also computed mortality rates by sex and age group, and by sex, age group and education level.” Unfortunately, in no other part of the paper these data are shown and there is a clear lack of a figure displaying this basic information. Such a figure would have the finality to connect the description of statistical methods and the results given in tables 2 and 3. Otherwise, the two tables would remain too much isolated, without a solid basis. (Major Compulsory Revisions).

• The author computed crude mortality rates without any adjustment. Age specific crude rates can be used when the age groups are small and the age structure within each group does not influence the disease distribution. However in the present study three large age groups are considered (45-59, 60-74 and 75 or more years) and it is better to standardise by age mortality rates within each group in order to make possible the comparison with other similar studies. (Major Compulsory Revisions).

Results.

• First paragraph, page 6: the considered age group is not 40-59 but 45-59 years. (Minor Essential Revisions)

• The author affirms “For total cancer mortality, this gradient was observed in the oldest age group neither for men nor for women, with a higher mortality rate among individuals with vocational secondary education than among individuals with primary education.” But in graph 1 (total cancer mortality) the distribution of educational level by age could differ in the oldest age group only by chance; for this reason it is suggested to include the confidence intervals by each bar. (Major Compulsory Revisions)

• Last paragraph, page 6: “A large increase was also observed for non cancer-non CVD deaths both in men (from 276 to 675 to 3642) and women (from 113 to 317 to 2989).” Please, check carefully the figures in table 3 with respect the text of results. (Minor Essential Revisions)

• Third paragraph, page 7: in order to demonstrate the absence of any particular bias due to the choice of the last open age group (75 or more years), it would be sufficient discuss this issue in the first three lines and excluding the detailed description of specific data not shown. “Additional analyses conducted in the age group 75-84 supported the results observed among subjects aged 75+. Relative inequalities were slightly higher and absolute inequalities slightly smaller than those found in the age group 75+” (Discretionary Revisions)
Discussion.
This part is well developed, however it could be improved by a paragraph dealing with the possible relevance and spin-off of such type of analyses for health care systems and social policies. (Discretionary Revisions)

**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.

**Declaration of competing interests:**
'I declare that I have no competing interests'