Reviewer's report

Title: Trends in total and cause-specific mortality by marital status among elderly Norwegian men and women

Version: 2 Date: 25 May 2011

Reviewer: Lucia Galluzzo

Reviewer's report:

The Author has sufficiently addressed my major comments. There are a few minor issues that still need to be tackled, but this can easily be dealt with.

- Minor Essential Revisions

1. The source and categories of data about educational level is still rather confused. According to the sentence added to the Methods section (first paragraph, p. 4) it should seem that the source of the highest level achieved is the National Education Database since 1980, and the 1970 Population Census for educational level achieved before 1980 (and I assume that, given the age class analyzed, this should be the case for most of the individuals in the present study). On the contrary, in her cover letter, the Author specifies that data on education were extracted from the National Education Database (?), where information were recoded to reflect the present educational system (compulsory: up to 10 years; secondary: 11-13; etc.). Anyway, whatever the case might be, please clearly specify source and categories in the Methods section. And if the categories adopted do not reflect the actual educational situation of the elderly under investigation (compulsory: up to 7 years) but the current one, this issue must be mentioned among the study limits in the Discussion section. This because (as correctly stated by the Author in the Conclusion, Third Limitation, p. 13), educational level is the only socioeconomic factor controlled for, and most of the subjects should be “forced” in the lowest educational class, causing a partial distortion of the real potentially confounding role of education (as indicator of socioeconomic condition) on the association between marital status and mortality.

2. Since results shown in the last two charts of Figure 3 Other Cancers are neither described nor discussed I would suggest cutting them. As a consequence, other cancers should also be cut from the list of main causes of death under investigation both in text (p. 4) and Table A1.

3. In order to give a better description of the variable centrality (Methods, p.5), please add also the sentence included in the cover letter “the variable centrality measures the municipality’s geographical location relative to a centre with ... as well as related to the population size”, considering that for other countries this sort of information is usually defined as rural or urban area.

4. Results, 1st subsection, 2nd paragraph (p. 6): I would suggest rewording the second sentence as it is not true that never married men show an 'increasing
advantage’ as compared to their married counterparts. The risk is lower for never
married than for married at the beginning of the study period but there is no
significant difference between the two groups at the end of the study period.

5. Discussion, 1st subsection (p. 8-9): In epidemiology the term ‘incidence’
stands for the number of new cases of a condition that develop during a specific
time period. For this reason I would suggest avoiding the use of the word
‘incidence’ as synonym of occurrence, onset or risk, replacing it with these terms
as far as possible.

6. Discussion, 2nd subsection (p. 11): I’ve found the last sentence of the first
paragraph not very clear. I wonder if it refers to the present study or to the last
cited (reference number 6?), if ‘the increase in marital status differences in
mortality’ are related to external causes or to total mortality and, finally, ‘gender
differences were almost equal’ to what?

7. Discussion, 2nd subsection, Fourth study limitation (p. 13): I’ve got the
impression that my comment no. 4 regarding the study limit consisting in not
taking into account the association between cohabitation status and mortality
was not clear enough. Even in the sentences she added to the text, the Author
continues to overlap the term cohabitants, intended as persons living with
partners without formal marriage, with cohabitation status, which indicates the
condition of living alone or with someone else (spouse, partner, friend, relative,
caretaker, etc.). The two issues are different and merging the two questions as it
has been done in the paper is rather misleading, please check carefully the use
of the term ‘cohabitants’:
a. please change ‘...they are registered in one of the non-married groups’ to ‘
those living with a partner without formal marriage are registered ...’
b. thank you for the citation of our article but the point of interest in this context is
not exactly the lower mortality of men living with someone else but that our study
confirmed that cohabitation status, living arrangements or social networks, and in
general larger networks show a protective effect on mortality of elderly individuals
(Lund, Due, Modvig, Holstein, Damsgaard, & Andersen, 2002; Giles, Glonek,
Moreover, cohabitation status is a more relevant indicator of social support than
marital status, since it may account for more of the variation in mortality
(increased mortality of 25-42% respectively among non-married and living alone
men).
c. Given these premises, differences in mortality should be underestimated not
only ‘if the proportion of cohabitants is large’ (What does ‘cohabitants’ stands
for?) but also by the lack of data on cohabitation status.
d. in the last sentence of the paragraph, please specify if the ‘proportion of
cohabitants from 1993-2007’ includes married subjects or only people living with
a partner without formal marriage.

- Discretionary Revisions

8. Background, beginning of 2nd paragraph (p. 3): suggest reword from ‘,
especially with data on cause-specific mortality’ to ‘and only a small number of them analyze also data on cause-specific mortality’

9. Methods, 1st paragraph (p. 4): suggest reword from ‘The data is not publicly available’ to ‘The data are not available to the public’

10. Methods, last paragraph (p. 5): From ‘In these models, also the control variables ... and that this had not been taken into account.’ to ‘In these models, also the control variables were interacted with period in order to control their potential confounding role on the association between marital status and mortality over time.’

11. Results, 1st paragraph, last sentence (p. 6): add ‘and centrality’ between ‘while the regional’ and ‘distribution has been fairly stable.’

12. Results, 1st subsection, 2nd paragraph (p. 7): suggest reword from ‘Significant differences in mortality from prostate cancer are only found between never married ... widowers and married men in the third time period’ to ‘Significant differences in mortality from prostate cancer are only found between never married and married men in the beginning of the study period, where the first group shows a lower risk, while divorcees and widowers have significantly higher mortality levels as compared to married men only in the third time period.’

13. Results, 1st subsection, 4th paragraph (p. 7): at the end of the third sentence, add ‘in all non-married groups’ after ‘whereas females have experienced increased relative differences.’

14. Results, 2nd subsection (p. 8): replace the end of the 2nd sentence ‘except for divorced men.’ with ‘with no substantial gender differences, except for the divorced group where the increase is statistically significant only among women’. Suggest reword from ‘For example, the excess mortality ... from 1971 to 2007’ to ‘The highest excess mortality is among the never married group, with an increase of 0.8-0.9% per year from 1971 to 2007, respectively for men and women.’

15. Discussion, 1st subsection, beginning of the 2nd paragraph (p. 8): From ‘The lower mortality reported for most causes of death among elderly married Norwegians may be due to protective effects of marriage.’ to ‘The higher mortality found for most causes of death among elderly non-married Norwegians may be due to protective effects of marriage.’

16. Discussion, 1st subsection, 2nd paragraph (p. 9): After the reference number [21] replace ‘, and this may be one reason why never married men have lower mortality than married men ... of the study period)’ with ‘, and this may be one reason for the lower mortality for this cause of death observed among never married men in the beginning of the study period)’

17. Discussion, 2nd subsection, 1st paragraph (p. 10): Change ‘I was only able to identify...’ to ‘I was able to identify only’

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