Reviewer’s report

Title: Mortality among Norwegian medical doctors 1960-2000

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Reviewer: Netta Mäki

Reviewer’s report:

Mortality among the medical doctors has been studied to some extent, but not recently. Overall, this paper is an interesting updating on the subject, and the register-based datasets used in the analyses are excellent. However, the most important complication relates to the chosen method. I am not convinced “incidence rates” are appropriate for these data. There are also some other weakness in the article, and, furthermore, it seems to be somewhat hastily written.

Major Compulsory Revisions

1. The paragraph “Statistical analyses” is written unclearly, and to some extent, even inaccurately. Do I understand correctly that tabulated data (the cells in the data include number of deaths and person-years) were used? To my knowledge, for these kinds of data, Poisson regression model is the conventional approach usually used. Why did you choose otherwise?

2. Why did you form the occupational groups using the information on education? This way it is possible that the groups include those who have a certain examination, but who do not practice that particular profession. This is likely especially if the mortality follow-up time is long (which is not mentioned in the text, see number 7, below). This possible source for bias is not even discussed. This contradiction is emphasized by the strong focus on work life in the first paragraphs of the Introduction.

Minor Essential Revisions

1. Hypothesis number 1 is “that over the study population doctors have a low and decreasing mortality”. However, the analyses do not answer to this question. Instead they may tell that doctors have low relative mortality and that mortality decreases compared with the rest of the population (this can, however, take place even if their mortality increases).

Also in Abstract/paragraph Interpretation the authors say that mortality rates for doctors decreased even though no mortality rates were studied! Similar lapse is in the last paragraph of the Results.

2. The main point of this article is not clear all the time. I think the authors have included too much information, and for example, the most interesting results in
Table 4 are not promoted enough. After all, there are not many datasets that can be utilized to study causes of death behind these mortality differences!

I suggest that you delete Figure 1 because all the information is already in the Table 2, and only show Table 3 if the interaction between occupation and age really is significant. These results can shortly be reported in the text.

3. A large part of the socioeconomic difference in mortality is caused by different living arrangements. Highly educated are much more likely to be married or live with a partner. Marriage and partnership, on the other hand, are associated with healthier life style, better health and lower mortality. Is it possible to adjust for marital status or living arrangements? At the very least this should be discussed.

4. In the Introduction the authors use the concept of “standard mortality rate” (second paragraph) and “standardized mortality rate” (third paragraph), though it should be “standardized mortality ratio”. In both cases the numbers represent relative mortality, not mortality rates.

5. Introduction: Has the status of doctors really lowered? Even if the attitude towards academics has changed, it does not necessarily mean less prestige.

5. Why were theologians and police used as one of the reference group? This is not explained.


7. There is inconsistency in the years included in this study. In the title and in Figure 1 it says 1960–2000 but in the Tables 1960–1999. Is the information on education from the first or last day of the year? Does mortality follow-up start immediately after the census? For how long is mortality followed up?

8. Higher suicide mortality among doctors is studied and discussed in the previous paper by the authors. However, the most important points should be repeated in this study because suicide stands out also in these results.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests.