Reviewer's report

Title: Educational inequalities in mortality associated with rheumatoid arthritis and other musculoskeletal disorders in Sweden

Version: 0 Date: 25 May 2018

Reviewer: Rebecca Cleveland

Reviewer's report:

This manuscript reports results from an investigation of the association between education and RA/MSK-specific mortality after a median of 12 years follow-up. The manuscript is based on results from data arising from 3 different types registries containing data on residents of the Skane region of Sweden. The manuscript is well-written but would benefit from a little more detailing of the methods and expanding the discussion to include how education impacts mortality in general, how that compares to what was observed for MSK deaths and what the implications are specifically for MSK. In addition, this manuscript could greatly benefit from a sample size flowchart showing the data sources and how they arrived at the final sample size.

Specific comments:

Methods:

1) How were you able to ascertain if/when someone moved into/out of the Skane region? How often are the registries updated? Also, what about people who were not Swedish born, how were they accounted for (i.e., how were they picked up by the registries)?

2) Does LISA contain information for all people? Is it specific to those who lived in Skane? If so, how does it pick up people who moved to the region later?

3) Were the LISA data and Swedish Population Register data collected at roughly the same time? If not, how were they linked up and how was the differing data collection times accounted for?

4) Were the subjects' education and other covariates assessed at study entry only or were they updated over time?

5) Is there any other information on covariates? All that is mentioned is sex, marital status and country of birth.
6) Is anything known about healthcare utilization and treatment for their condition? What about treatment for other conditions like high blood pressure or heart conditions? I'm thinking of these in terms of comorbid conditions to be used as covariates.

7) Bottom of page 6, top of page 7: It is mentioned that the age strata refer to "attained age". Is this attained age at study entry or final point (death/censoring)?

8) There needs to be more detail for how the 'any mention' method of assigning mortality was carried out. For example, in your analyses was each subject contributing other causes of death? If so, was the number of contributions accounted for? All of this needs to be described in the methods.

9) MSK and RA are associated with many factors that have a much higher risk of death including CVD and diabetes. Was a competing-causes approach considered in sensitivity analyses? If so, what were the results? That might be a good addition to the appendix.

Results:

1) It would be informative to have a table of frequencies of other causes of death that were also listed on the death certificates.

Discussion:

1) There needs to be something in the discussion about women having more RA and MSK than men and therefore would probably be more likely to have one of those listed in their death record.

2) Also, as can be found in many published manuscripts, those with low education have higher rates of mortality in general. How do the numbers in this study compare to death in general? What are the implications for the results of this study in light of previous literature? I did not see that in the discussion.

3) Some mention needs to be made of the limitation of predicting MSK mortality without considering other contributing causes.
4) While this is a nice first pass at looking at education as a predictor of MSK deaths, I think a more sophisticated analysis using other MCD approaches may give us a better idea of how much impact MSK causes of death are more likely to be due to, in part, having lower levels of education.

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

Yes

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

Yes

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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