Reviewer's report

Title: Associations between number of sick-leave days and future all-cause and cause-specific mortality. A population-based cohort study

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Reviewer: Chris Jensen

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Very interesting to read a paper on register-based analyses of sick leave and mortality in an entire population. I believe there are some shortcomings, even though some of them may be due to a misunderstanding from my part about the Swedish compensation system. If I understand the paper correctly I raise the following points that should be addressed:

Major Compulsory Revisions:

1. p.5 line 101: Should be explained here why you have a category 1-15 days, when they are not registered for employed people.

2. Results: The group 1-15 days of sick leave does not include employees with 1-14 days of sick leave. Therefore this group is not comparable with any of the other groups and it seems irrelevant to compare their RR with that of the others. One cannot conclude (in Conclusions) that even relatively few sick leave days means an increased risk of mortality, without specifying that this was only documented for at least 16 days of sickness absence. For instance, in the group 1-15 days, there must be many unemployed people, which we know have an increased risk of mortality. A way to deal with this would be to include them in the reference group, as employees with 1-14 days of sick leave must be in the reference group. This would also mean that the reference group has relatively less unemployed people and students that any of the other groups? This needs to be handled.

3. p.10: The discussion about whether only a few causes of sick leave are due to diseases that may be mortal is relevant. It is not entirely clear whether the authors expected to find no association between sick leave and mortality, but such an expectation would in my opinion be wrong. The question is whether there is a higher risk than one could expect from sick leave due to mortal diseases, even after a two-year wash-out period. This is not possible to determine from these analyses, which should be clearly stated. Of course, it still may be argued that the relative risks indicate a higher mortality than expected.

Minor essential revisions:

4. p.5 line 110: Median number of inpatient care must be for those who were hospitalized, not for the entire cohort?
5. A two-year wash-out period is somewhat arbitrary. It may take longer to die from any of the 3 specific causes used here. This should be discussed.

Discretionary Revisions:

6. p.13: It is stated that “Hence, part of the increased risks may have been attributed to other types of impaired health among sick-listed people, and not only to the sick leave itself.”

It is difficult to imagine how sick leave itself should increase the risk without suggesting any mechanism. In my view sick leave can only be a marker of other causes of mortality, but these may well be attributed to factors that are not impaired health per se, which seems to be the important point.

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