Author's response to reviews

Title: Consequences of spinal pain: Do age and gender matter? A Danish cross-sectional population-based study of 34,902 individuals 20-71 years of age.

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Author's response to reviews: see over
Dear Editor,

Thank you for the reviews, which we have carefully considered in view of improving the manuscript. Please see our comments below.

**General comments**

The manuscript has been formatted to conform to the journal style.

Any revisions in the manuscript have been highlighted with yellow with the exception of corrections of some minor typing or grammatical errors.

With regards to the consent issue, this is a postal survey sent out to twins who previously in a survey had agreed to participate in this study. As stated in the manuscript the survey has been approved by the Regional Scientific Ethics Committee and by the Data Protection Agency (file number: 20010201). Therefore this study follows the Danish ethical and legal regulations.

We have added a paragraph on “Acknowledgements”.

**Reviewer 1 (Sanna-Mari-)**

**Major compulsory revisions**

**Reviewer comment:** Methods, third paragraph:

Information on measurements of reduced physical activity and care seeking is inadequate. What kind of measurements were used? Also, sickness absence diagnoses were not recorded; why?

**Authors’ response:**

This information was obtained by using the Standardized Nordic Questionnaire on Musculoskeletal Disorders, which has been validated and used in numerous other epidemiologic studies. However, rather than asking the same questions for each spinal region, we changed the lay-out so that the same question was only asked once, but answers had to be given for each area. This way we could decrease the number of pages in our questionnaire. Responses to the questions on consequences were either ‘yes’ or ‘no’. Because this questionnaire was sent directly to the study participants, it was not possible to obtain diagnoses for sickness absence.
To avoid similar or further misunderstandings, we have now enclosed a translated version of the questionnaire as an Additional File, rather than referring to our previous publication on this issue, as was done in the original manuscript.

Reviewer comment: Results, second paragraph:
How many persons had more than one pain location in the spine? Multisite pain in the spine is quite common especially among older adults and could explain the age-related results regarding reduced physical activities reported here.

Authors’ response:
Of those who reported spinal pain within the past year, 47% had pain in more than one spinal area. We have added this information to the result section. The issue raised by the reviewer is pertinent, and we have in fact devoted our next publication to this topic. Therefore, we do not want to broach this subject now and we also do not want to detract from the aim of this publication by introducing sub-objectives.

Reviewer comment: Discussion:
Based on the results consequences due to LBP were more frequently reported than those due to NP or MBP. However, in the discussion the authors let this main finding without any comment; why?

Authors’ response:
Good point, as this was the main “different” finding. We have therefore added a new paragraph on this issue in the “general findings” subsection.

Reviewer 2 (Annette Leclerc)

Reviewer's comments:
The paper could be improved, first by adding some discussion about the levels found in this study, compared to those found in other population-based studies (or large population of active workers). It is plausible that the frequencies are different between countries. However, this might be discussed, rather than just saying that “studies in other countries may end up with different results”.

It would be informative to know whether some frequencies seems to be especially high or low in this sample, compared to frequencies found elsewhere, and why: reasons specific to the situation in Denmark (for example, more possibilities to change work or duties at work), reasons due to the definitions used (which is the exact content of “seeking care”? does it include all types of health care?), reasons due to the sample itself. Whereas comparisons (with other studies) can be difficult for the frequency of pain if the wording of
questions is not exactly the same, comparisons for seeking care or for sick leave are probably easier.

**Authors’ response**

As it was not the purpose of this study to compare prevalence estimates with those of other studies, but to look at the relativity of estimates from different spinal regions, when data were collected in one single study population, we do not wish to divert the reader’s focus from the main messages of the paper. However, we agree that it would be important to warn the reader of the fact that socio-economic factors specific to various countries may have an effect on the hierarchy of consequential findings. We have therefore included a discussion of this issue in the Discussion section.

Also, we have included a translated version of the questionnaire that we used as an Additional File, which provides all definitions of, for example, “seeking care”.

**Reviewer’s comments:**

“The majority of individuals with spinal pain did not report any consequence”. For the dimensions considered here, this is not really new, it is in accordance with other published studies, especially for low back pain. Among the reasons, at least for seeking care, is the fact that seeking care or not does not make much difference; maybe those who suffer from the neck or the back do not expect much from medical doctors or physiotherapists, especially for chronic pain.

**Authors’ response:**

We certainly agree, but we have not claimed that this is in any way a new finding and we are trying to keep the article sufficiently “slim” to make it readable. This explains why we have not included a number of potentially interesting topics to discuss. In fact, there is no limit to how long a discussion section can be, but we feel that it is also allowed to stimulate the readers into their own thoughts.

**Reviewers’ comments:**

“Most people reporting spinal pain manage without any serious consequences”. An important point here is that the population of those who suffer from spinal pain is not homogeneous. Since the prevalence of self-reported pain in the past year is as high as 55%, fortunately the frequency of severe consequences is not so high. The consequences are probably concentrated in some subgroups of those who suffer, possibly those with an acute episode and those which chronic pain and a high level of disability.

Differences between age groups: since the prevalence is high also among older people, it is plausible that a large part of spinal pains at these ages are minor problem (as in the younger age groups), even if the severity increases globally with age.

**Authors’ response:**
The one-year period prevalence of 55% is what we often see in epidemiologic studies on low back pain in the Nordic countries. And yes, it is fortunate that the consequences are much less frequent. We agree that the severe consequences will be found only in certain subgroups but it was outside the scope of this study to investigate this issue. The finding in relation to age is a curious one, and the reviewer’s thought on this appears plausible.

Reviewer’s comments:
Among those who take action when they have spinal pain one should include those who use self-medication, without visiting a medical doctor. This type of consequence has not been considered here, whereas it is probably rather frequent (and can be considered as a strategy under control of the person).

Authors’ response:
Yes, it is strange how differently people react to pain. However, no useful data were available in our data set to make it possible to investigate this issue any further.

Reviewer’s comment:
“Change of work” is expected to increase with age, just because the question deals with the whole past active life. With the method used in the analysis, it is probably not possible to see whether change of work occur mainly in older people (cf discussion bottom of page 11). In fact, the increase with age for “changed work” is small in figure 10, which suggest recall bias. Some of the changes in work or tasks at work might be omitted if the event happened many years ago. For disability pension, the situation is probably different (very low frequency in the youngest age groups, and recall bias much less plausible).

Authors’ response:
We agree, and this is important to mention in the Discussion of the results, as it may well affect our hierarchy of findings, if the change of work/work duties is under estimated. Memory decay is indeed likely to occur, since this estimate of change of work/work duties was based on “pain ever” as the denominator. We have included a text on this in the Discussion section.

Reviewer’s comment:
The topic of strategies used for coping with pain raises other questions. In the population, which are the strategies and the beliefs about what works for coping with pain? Is fatalism a reason for doing nothing? Do the evidence-based knowledge for management of pain is widely used by the medical doctors, and does it modify the beliefs in the community? After all, do not reduce one’s activity can be a reasonable strategy in order to cope with pain. Here a reference to population-based interventions would be relevant: Gross (Spine 2010) or Buchbinder.
Authors’ response:
The way people cope with pain certainly seems different. Interestingly, in a previous publication on this study population, we demonstrated that there is a strong genetic component not only to the reporting of spinal pain but also in relation to how people act when they have back pain (see Hartvigsen et al., reference No. 21). However, this topic cannot be dealt with briefly as a paragraph in the discussion section but requires a publication on its own, and for this reason we prefer not to dive into this subject in this article.

Reviewer’s comment:
And finally, one suggestion for future analyses based on these data: who are those who suffer from more than one spinal region?

Authors’ response:
The reviewer is obviously mind-reading; that is the topic of the manuscript that we are working on presently.