Author's response to reviews

Title: Sick-leave track record and other potential determinants of a disability pension A population based study of 8,218 men and women followed for 16 years

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Responses to reviewers’ comments

Reviewer #1 (Jane E Ferrie)

Minor essential revisions
1. Variety of determinant comprehension. The classification of smoking habits used in this study is that recommended by the WHO (and described in their monograph “Cardiovascular survey methods”). We have previously tested the predictive power of this classification versus pack-years prospectively regarding coronary heart disease. Pack years were inferior to the WHO classification from this point of view, probably because of less precision. A note on the influence of the variety of determinant comprehension and on the choice of classification of smoking habits has been inserted in the Discussion section, page 17, second paragraph.

2. General public health interest and implications. A short note on the general public interest of this report has been inserted in the Introduction section, page 4, second paragraph, and another short note on implications has been added to the Discussion section, page 18, last paragraph.

3. First day of sickness absence. The text has been harmonized on this point, page 16, second paragraph.

4. Synopsis of study design. The reviewer’s suggestion has been effected, page 5, second paragraph.

5. Pension owing to labour market condition. In a previous version of the manuscript we had a fairly extensive description of this anomaly of the system, but it was deleted due to space limitations. A short version of the deleted text is now back, page 7, second paragraph. Briefly, the government at the time had the ambition of “full employment” (open unemployment ≥1%). Unemployed people were therefore offered salaried vocational training or, if they were close to old age pension, disability pension even in the absence of disease. However, the volume of this type of disability pension was minute.

6. Ordering women and men. The text has been harmonized on this point.

7. Terminology. In the research group we had a discussion of the terminology before the manuscript was finalised. Initially we had the terminology suggested by the two reviewers, but some of the members with English as mother’s tongue and being experts in the field suggested the terminology now prevalent in the manuscript. However, since the two reviewers appear to take the same view we have followed their suggestions.

8. Various courses of events for the pension diagnoses. In an earlier version of the manuscript we had a figure based on the case-referent design and a table based on the cohort design showing very similar courses independent of disability pension cause. Once again, owing to space limitations the two illustrations were deleted and only a short note in the text remained. The figure, being the most easily interpreted by the two illustrations, is now back again and the Results text has been modified accordingly, page 13, first paragraph.

Discretionary revisions
1. **Causes of death codes.** The reviewer’s comment is of course correct. However, for the sake of completeness and considering the fact that we would only save a few words we decided to leave the text untouched on this point.

**Reviewer #2** (Sturla Gjesdal)

Major compulsory revisions

1. **Data origin.** All determinants, except track record data, were obtained from survey data. We are well aware of the fact that Norwegian studies are using socio-economic data obtained from “Trygde”. However, our research group was the first to obtain data from the Swedish National Social Insurance registers, and we got them only after long-term negotiations, since the Insurance regarded academic research on these data unethical. As a result we were allowed to obtain only data relevant to the sick spell (dates, degree and type) and disability pension (the same variables plus diagnoses), but no additional data about the persons involved. Today, the situation is somewhat different. However, we needed socioeconomic data for the complete samples, whether being on sick leave or not, and we needed such data from the baseline examinations. Such data were not available in the Insurance’s registers, and we therefore used survey data, as indicated in the text.

2. **Previous studies.** We are well aware of the studies the reviewer are referring to, but tried to use only the most relevant studies from our perspective (studies reporting on similar determinants as we did). However, we have now included the studies mentioned. Regarding the pros and cons of long-term studies see item 1, reviewer #1.

3. **Terminology.** See item 7, reviewer #1

4. See item 2.

5. **Amount of text, repetitions, language.** The text contains 4500 words. According to the Instruction to authors there is “no explicit limit, but authors are encouraged to be concise”. Due to the intricate nature of the subject the text is fairly voluminous, but we have tried to be as concise as possible. We are not aware of repetitions. It would have been valuable if the reviewer had given some examples. However, we have scrutinised the text on this point and made some changes in various places. Regarding language, manuscripts from our research group always undergo professional language revision before submission. In this case, the manuscript was revised by two persons with English as mother’s tongue, one of the authors and a professional translator. So we are confident that the English language is satisfactory.

6. **Aim.** The aim text has been revised, page 5, second paragraph.

7. **Dependence on last sick leave.** Yes, most disability pensioners became so after long-term sick spells, except those being granted disability pension owing to labour market conditions (these were few). The reason why we started out with the case-referent design was to obtain evidence that sick spell durations increased progressively over time among both referents and cases (future disability pensioners), but mostly among the latter. This is a pre-requisite for using logistic regression or proportional hazards regression. If durations had been stable on a low level and increased only during the last few years, or had been high all the way the analysis programme would have signalled a model fit problem. It didn’t, the model fit was excellent. This means that exclusions of the last year or years, i.e., right truncation of data, has
no influence on the result. We tried right truncation of one to ten years, with no effect on the results (effect only on statistical power). A short note on these circumstances has been added in the Methods section, page 9, second paragraph.