Author’s response to reviews

Title: Are environmental characteristics in the municipal eldercare, more closely associated with frequent short sick leave spells among employees than with total sick leave? A cross-sectional study.

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Author’s response to reviews: see over
Cover letter

We want to thank the editor and reviewers for the constructive feedback; it is deeply appreciated. We hope our revisions address the concerns put forward by you.

To ease the identification of revisions made in the manuscript, we have underscored new sections and passages and copy-pasted the deletions into the cover letter. Elsewise it is explained in the responses below.

Point-by-point response to the editor:

Comment: “It is particularly necessary to embed the research question better in the empirical and theoretical literature, even though the data are cross sectional.”
Response: We have tried to improve the background according to V. Peter’s comments and used these points throughout the manuscript. Please look into the responses given to V. Peters comments.

Comment: “I disagree with the recommendation to avoid the terms 'independent' and 'dependent' variables in the statistical model.”
Response: We have stuck to the original terms “independent” and “dependent” in the manuscript.
Point-by-point response to reviewer 1:

Major Compulsory Revisions

1. In the research question the association between sick leave patterns and psychosocial work factors is mentioned. This assumes a correlational research which is underlined in the method section on page 7. However, on page 17, a hypothetical intermediate factor (general health) is mentioned and on other places ‘independent’ or ‘dependent’ variables are mentioned which seems to suggest a causal pathway. General theoretical findings are described in the literature between job demand, decision authority and social support, which by the way are not all used in the method (social support). Why not use a general theoretical framework like the Job Demands Resources model (e.g. Schaufeli, et al., 2009) which describes relationships of demands and resources with health and sick leave. Not to test the model, but to elucidate the theoretical relationships found in the literature between psychosocial work characteristics and sick leave. This framework would also underpin your hypothesized function of general health as an intermediate variable and increases the relationship between background and method section.

2. To enhance the international relevance of this study and to support the cutoff of 14 days the suggestion is to add other international literature on defining sick leave per year in that part (First, sick leave was measured as the total number of sick leave days including all spells ended in 2005).

3. Conclusions were drawn with respect to table 3 in the results section (e.g. ‘higher’ ‘were more likely’). Using t-tests between and/or ANOVA for the differences between the several groups could underpin these conclusions. Please provide a rationale why this was not done.

4. The comparisons with other studies at page 14 could be improved by including comparisons with the study mentioned at page 5 in the introduction (NRCWEE) and by using literature on the specific work characteristics mentioned in the study (work pace, bullying, emotional demands, etc.) (see for example Beemsterboer et al., 2009). This could also underpin the innovative way of measuring sick leave to sort out the relationships between work characteristics and sick leave. Furthermore, you probably won’t have to use new analyses in the discussion of which most of them are not shown. Removing these analyses will improve the outline of and produce a more concise discussion.

Response to 1:
We have tried to add the theoretical framework of “The Job Demands Resources Model” and connected it to the original section of the background. Please look for underscored paragraphs at page 5, line 5-14 and line 18-20. Further more; we have used the reference by Schaufeli et al. 2009 suggested by you in the discussion. Please look for underscored paragraphs at page 16, line 5-7 and line 21-24; page 17, line 1-3; page 18, line 16-18; page 21, line 3-6.
Response to 2:
We have added references of studies conducted in other countries than Denmark and thereby with social security systems different than that of Denmark. Please look for underscored references at page 8, line 19.

Response to 3:
We have added test results to Table 3 (column 6 and 11) derived from t-test, one-way ANOVA, and chi2, respectively. This is also explained in the statistical analyses section. Please look for underscored sentences on page 11, line 4-6.

Response to 4:
We have briefly discussed the findings of Borg et al. Please look for underscored paragraphs at page 15, line 14-18 and line 21-23.

We have not included the study by Beemsterboer et al. 2009, because it reviews determinants of sick leave frequency and duration in many occupational settings, this does not correspond well with the job demands-resources model, which claims that every occupation may have a unique set of work demands and resources. We have added paragraphs in the discussion using the references studying the work environment in the health care sector. Please look at page 16, line 1-5.

As suggested we have deleted several passages from:
Page 15, line 14: “Very few studies have analysed associations between the frequency of sick leave spells, sick leave length and the working environment while adjusting for the length and the number of spells. This hampers the comparison of our results with those of others.”

Page 16, line 21: “This hypothesis was explored in sensitivity analyses (results not shown). Instead of using 3-9 and 2-13 mixed spells, we used 4-9 and 5-9 as well as 4-13 and 5-13 spells, respectively. This increased the odds ratio of having unfavourable scores in emotional demands to 1.81 (95% CI: 1.0-3.2) and 1.71 (95% CI: 0.9-3.2) compared with 1.62 (95% CI: 1.1-2.5, Table 5). This tendency was not as clear for physical work load and role conflict. However, for influence and commitment to the workplace (viewed upon as resourceful work factors), the odds ratio for unfavourable scores rose when using 4-13 and 5-13 mixed spells, respectively, compared with the odds ratio for 2-13 mixed spells.”

Deleted passage at page 21, line 15: “The more frequent spells in the mixed spell pattern the better indication of unfavourable scores in emotional demands, influence and commitment to the workplace.”
Discretionary Revisions

5. On page 5: ‘It was hypothesized that differences in psycho-social and physical working environment along with lifestyle factors explained the higher sick leave level: it is unclear if this was the conclusion of that study.

6. On page 5: maybe you should add a reference to the sentence: ‘However, few studies have analysed if psychosocial work factors are more strongly associated with frequent short-term sick leave than with long-term sick leave’ or add ‘among elderly care workers’.

7. On page 6: Provide a rationale for the age moderation in the associations based on literature

8. On page 7: the aim or purpose is to launch interventions at improving the work environment. This contradicts with the statement in the discussion section that a crossectional study doesn’t allow to draw conclusions …

9. On page 9: can you elucidate why a cutoff point of 40 years is used

10. On page 9: information about reliability (e.g. Cronbachs alpha) would add extra value to the method section and consequently to the discussion with respect to the method.

11. On page 13: information about which test is used to test for differences between the groups (the test showed an overall significant……(table 5))

12. On page 18: Donders et al. (2012) published a study on the moderating role of age, maybe this is useful for your discussion.

Response to 5:
The sentence at page 5, line 19 “It was hypothesized that differences in psycho-social and physical working environment along with lifestyle factors explained the higher sick leave level” has been deleted.

Response to 6:
Reference 14 has been added. Please look for the underscored reference at page 6, line 4.

Response to 7:
We have added two references; and the one by Donders et al. states that this age-moderating-phenomenon is rarely studied. Please look for underscored paragraph at page 6, line 15-16.

Response to 8:
To clarify the aim and conclusion we have deleted the following passages:
Page 20, line 13: “Future research should test the reproducibility of our results, also in other trades and settings.”
Due to the cross-sectional design of the present study, we could draw no conclusions as to whether a possible effect of being exposed to unfavourable work factors may induce a change in sick leave pattern.”

And we have added new passages; please look for underscored sentences at page 21, line 6-8.

Response to 9:
We have added a sentence to elucidate why this cut-off point was chosen, please look for the underscoring at page 10, line 4-5.

Response to 10:
We have calculated the scale reliability score (Cronbach’s alpha) as requested. Please look for underscored paragraphs at page 11, line 3-4; and page 12, line 6-8.

Response to 11:
“Wald-test” has been added to the sentence on page 10, line 14 as well as in the results section on page 13, line 20, please look for underscored words.

Response to 12:
We have used the study by Donders et al., please look for underscored paragraphs at page 19, line 9-13 and line 23-24; and page 20, line 1-2.

The conclusion has been altered due to the revisions suggested by reviewer 1; please look for underscored sentence at page 21, line 20-21. As well as in the abstract at page 4, line 1-2 in the abstract
Point-by-point response to reviewer 2:

There are a few discretionary/minor essential comments on the content:

1) Page 6: “According to the literature, an association between total sick leave length and a poor working environment is more likely to be due to a frequent short-term sick leave pattern than a non-frequent long-term sick leave pattern.” References about this? Or is it really more hear-say than based on literature?

2) Page 16-17: The difference between measures of sick leave may be less than argued. E.g. the measure of short term absence in reference 12 is intended to be 10 working days, which is very similar to 14 calendar days.

3) Page 20: The connection is not clear from the findings to the statement that the study can inform interventions to improve occupational health care.

4) Page 26, table 2: a single line starts with a capital letter (Male) as opposed to the rest. In the columns describing participants with at least one spell of absence, it is not possible to have 0 absence days. Thus, the “result” should rather be “not available” or “-“ than “0 (0)”.

5) Page 29, table 5: “test for overall difference”. Could this be specified more precisely?

6) Page 30, table 6: The limit between “young” and “old” (i.e. 40 years) is not given here or in the abstract.

Response to 1:
The “is” has been replaced by “may be”, please look for underscoring at page 7, line 4. Reference “12-14” and “11” has been added; please look for underscored references at page 7, line 6.

Response to 2:
It is a good point.

Response to 3:
Please look for the corrections done according to reviewer 1, comment 12. And the underscored sentences in the conclusion at page 21, line 20-21. As well as in the abstract at page 4, line 1-2 in the abstract.

Response to 4:
In Table 2, column 1; “Male” has been replaced by “male”. In Table 2, column four, five, six, and seven the “0 (0)” has been replaced by “not available”.
Response to 5:
In Table 5 “Wald-test” has been added to the explanation under the sign “#”.

Response to 6:
Please look for the underscored sentence in the abstract, page 3, line 19. “Old age (>40)” and “Young age (=<40)” has replaced the headline of column four and five in Table 6.