Author's response to reviews

Title: The association between history of diabetic foot ulcer, perceived health and psychological distress: the Nord-Trondelag Health Study

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Author's response to reviews: see over
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Re: MS: 7299840872514838. The association between history of diabetic foot ulcer, perceived health and psychological distress: the Nord-Trondelag Health Study.

Thank you for considering our manuscript for publication in *BioMed Central - Endocrine Disorders*. We appreciate your interest and the reviewers' considerations. Their comments were very helpful and constructive.

Our responses, and changes made in the manuscript, can be found in the "Responses to the Editor and Reviewers" section below and in the uploaded revised manuscript.

Please do not hesitate to contact us if further clarification or adjustment is required.

On behalf of the authors,

Yours sincerely

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Responses to the Editor and Reviewers

Response to Editorial comments

RE: Include more context information within the background section of your abstract, in addition to the aims of your study.
We have included more context information within the background section of the abstract.

RE: Please also ensure that your revised manuscript conforms to the journal style. It is important that your files are correctly formatted.
We trust we have met the formatting guidelines for publication in your journal and that our files are correctly formatted. We will follow your recommendations and revise the format if we might have misunderstood.

Response to Reviewer 1:

Re: 1. Although the authors discuss the use of the self-report measures of foot ulceration among the study limitations, this reviewer wondered whether there might be ways of validating the self-reports, by, for example, verifying ulcer self-reports with medical records.
We agree that this may be a weakness in our study, but in this large epidemiological study we did not have the possibility to validate this information by clinical data or by interview.

It is especially relevant in view of qualitative studies showing that patients’ understanding of what the foot ulcers mean is very poor to non-existent and therefore the self-reports are highly unreliable. Related to this, how did the authors come up with a 3-week timeline as a diagnostic cut-off for an ulcer? Perhaps they could cite the source.
The diagnostic cut-off time for an ulcer was discussed within a group of clinical experts. The 3-week timeline was found to be a natural cut-off, because when ulcers need more than 3 weeks to heal, they are likely to have a diabetes related etiology.
Moreover, in the case of diabetes diagnosis, while those answering affirmatively were verified based on biochemistry results, it is likely that a substantial proportion of subjects might have been unaware of their diabetes and therefore were misclassified. Midthjell et al (1992) (HUNT 1) validated the question: “Do you have or have you had diabetes?” and concluded that it provides reasonably accurate information about diabetes mellitus. However, it is possible that some subjects with diabetes were included in the non-diabetic group. Among those without known diabetes, a total of 62,757 delivered a non-fasting venous blood sample for glucose measurement. Of these, 217 persons had glucose levels above 11 mmol/l, and this group was followed up separately, but not included in the group with known diabetes due to uncertainty whether this was a permanent condition. Therefore it might be that the number of subjects classified as having diabetes based on self-report is underestimated.

Re: 2. Diabetes-specific variables do not seem to include other important complications of diabetes such as nephropathy and, in particular, neuropathy. A study by Vileikyte et al (Diabetes Care, 2005) shows that it is neuropathy and its symptoms, including pain, loss of feeling, and in particular unsteadiness, that are important determinants of depression. I would recommend to include and discuss this important study, as some of their results echo with those of the present report (e.g., the lack of independent association between ulcers and depression).

We have included and discussed the study by Vileikyte et al (Diabetes Care, 2005).

Re: 3. Psychological assessment. While this reviewer is familiar with HADS and SRH, the 4-item measure of psychological well-being is somewhat less known. Is it an abbreviated version of some widely-used scale (could you please cite the source) or an “in-house” designed instrument?

The original index was first formulated in 1990 as a brief assessment of psychological distress in a broad population sample, showing a very high correlation (r = 0.85) with the more voluminous Hopkins Symptom Checklist (HSCL-25) (Moum et al. Psychol Med 1990). It has since been used in numerous publications from the two first waves of the Nord-Trøndelag Health Study as well as in Norwegian nation-wide samples (Røysamb E et al. Pers Indiv Differ 2002).
Re: 4. Increasing evidence points to the importance of assessing diabetes-specific and/or ulcer-specific distress rather than just generalized distress, as the former seem to have stronger associations with predictors. Perhaps the authors would consider the inclusion of some of this literature into their discussion? Similarly, when citing generic studies on SRH and mortality, they might wish to consider studies specifically examining the link between SRH and poorer outcomes in diabetes.

We agree and have included this in the Discussion section according to the reviewer’s comment.

Re: 5. The authors recommend that in future research patients with ulcers should be monitored to identify potential need for intervention (what kind of intervention?) In the same para (p14) they state the need for assessing whether patients with ulcers are at higher risk for mortality (see your ref 6, this is exactly what that study shows). Wouldn't it be better to re-phrase by stating "to determine whether SRH is a predictor of mortality in patients with past foot ulceration"

We agree that this was unclear and have re-written this paragraph (Page 14 / para 2).

Response to Reviewer 2:

The paper can be published without further revision.