Author’s response to reviews

Title: Translation and validation of the Neck Disability Index in a Greek population

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Author’s response to reviews: see over
Reviewer: Roger David Adams
We thank the reviewer because he leads us to avoid unnecessary information in the revised manuscript and add some important standards in the translation method.

In particular:

**Major Compulsory Revisions**

1. We hold with your suggestion regarding the obtaining of permission and authorization and we made the appropriate changes at pages 4 and 11 of the revised manuscript.
2. The title of the manuscript is changed to: Translation and validation of the Greek version of the Neck Disability Index in a sample of neck pain patients.
3. In the methods section of the revised manuscript (methodology of the translation process, page 4) extra information is being given regarding the first and second language status of the translators taking in mind the standards set by Beaton et al. (2000).
4. The word “population” has been replaced with the word “sample” at page 3 of the revised manuscript.

**Minor Essential Revisions**

1. The last name Nunnally is corrected at pages 6 and 13.
2. The Greek version of the NDI has been sent to the editors as an additional file.
Reviewer: Chad Cook

We thank also this reviewer who raised important comments and suggestions on eligibility criteria of the study participants and methods used to study sensitivity to change.

In particular:

**Major Compulsory Revisions**

* We hold with your suggestion to include a figure demonstrating the flow of the cross cultural translation. A figure describing the four-stage procedure and the interaction between the Greek team and the developer is already incorporated in the revised manuscript.

* According to Riddle (1998), Redelmeier (1996) and Stucki (1996), the threshold for an important improvement varies depending on where the individual patient’s condition is at baseline. Specifically, Riddle (1998), when testing the sensitivity to change of the Rolland Morris Questionnaire, concluded that if the patient was at the healthy end of the RMQ scale, a change of 2 RMQ points would be the best threshold. If the patients were very disabled by their back pain, a larger amount of change was found to be the most accurate cutoff (8-13 RMQ points). In our study the majority of patients scored very low (less pain and disability) in the NDI scale thus explaining the low value of the Minimal Detectable Change.

**References**


**Minor Essential Revisions**

* Eigenvalue is now written correctly in the text.

* Regarding this suggestion, an explanation of benefit of the NDI translation follows the purpose statement in the revised manuscript.

* Patients who did not meet the eligibility criteria and were excluded from the study were three (page 7). Furthermore, we would like to clarify that those three patients did not meet the third criterion regarding the existence of a specific neck disorder (two patients had symptoms below the elbow sensory loss and weakness and the third patient had symptoms below the elbow, weakness and a positive Upper Limp Tension Test). All three patients were
referred to specialists and an MRI scanning confirmed cervical radiculopathy. To conclude, only one patient had a positive ULTT.

Reviewer: Serge Poiraudeau

Many thanks also to this reviewer for his very important methodological comments. They led us to review additional areas of literature, to reconsider the used Exploratory Factor Analysis and re-discuss a problematic item in the translation process.

In particular:

Major Compulsory Revisions

1) Following your suggestion, we present the results of the Bland and Altman analysis in the revised manuscript. We have also incorporated the related paper at the references.

2) Regarding your second major compulsory revision, we repeated the Exploratory Factor Analysis using principal component analysis and orthogonal rotation according to the varimax method. With an acceptable Eigenvalue above 1.5, there was one factor extracted with Eigenvalue 4.48 explaining 44.77% of variance. The loadings of all items are presented at table 3 in the revised manuscript.

3) The driving item is indeed problematic in this population due to low applicability (older age patients stated that they do not drive thus leaving this item blank). Reviewing articles related to ours, we located different approaches to overcome such a problem. One of them, not extensively used and described in other papers, is the use of appropriate statistical methods to handle missing data. ICC and Spearman correlation coefficient are indeed grossly the same with and without the driving item which means that deletion of this item would not affect the psychometric power of the tool. Nevertheless we decided to keep up with the initial thought and introduce the related bibliography to our references.

4) Following your last suggestion, we calculated the values of the MDC by tertile of severity on the NDI score at baseline. The results are as follows:

1st tertile (healthy end of the scale)—MDC= 1.11
2nd tertile—MDC= 2.2
3rd tertile—MDC= 4.5