Author's response to reviews

Title: Reliability of the Multidimensional Pain Inventory and stability of the MPI Classification System in chronic back pain

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Author's response to reviews: see over
Cover letter with point-by-point response to the concerns of the reviewers

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Reliability of the Multidimensional Pain Inventory and stability of the MPI Classification System in chronic back pain

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All changes of the manuscript are coloured red

Reviewer 1: Roger Hilfiker

Minor essential revisions:

1. Methods, Setting and Participants, first paragraph: consider using numbers for the inclusion criteria
   We agree with the reviewer and adapted the text.

2. Methods, Outcome Measures: is the MPI really a Likert scale?
   We agree with the reviewer that in a strict sense the MPI is not a Likert scale (only the poles 0 and 6 are described in words) and we therefore adapted the text.

3. Methods, Paragraph 3: Which formula for ICC was used?
   In our study the test-retest reliability of the self-reported MPI questionnaire (and not test-retest reliability of a physical performance measure) was tested. Each patient filled out the MPI on 2 occasions. It is obvious that the average of these observations should have a higher reliability than any single item, since the errors are random, and those associated with each observation are averaged out (In: Streiner and Norman, Health Measurement Scales, third edition 2003, page133-136). In SPSS 20.0 the standardized analysis or procedure from the menu reliability was performed. The equation for the consistency version of ICC is: \( ICC_{1,1} = \frac{\sigma^2_{\text{subjects}}}{(\sigma^2_{\text{subjects}} + \sigma^2_{\text{error}}) / k} \).
   We therefore agree with the reviewer and adapted the text in the manuscript (consistency instead of agreement).

4. Methods, Paragraph 2: correct standards for kappa
   We agree with the reviewer and adapted the text.

5. Discussion, Interpretation of MPI classification changes: typing error of a question mark in « …locus? of control, … »?
   The question mark is indeed a typing error and we removed it from the text.

6. Discussion, Stability of MPI Classification System compared to other research samples: discuss in more detail the differences in results between the current study and the studies of references 10-12
   We agree with the reviewer and extended the discussion in more detail, pointing out the differences between patients with fibromyalgia and patients with spinal disorders.

7. Table 1: what is the difference between College and University graduate?
   We defined College graduate for „Mittelschule“ (German) and University graduate for „Technikum“ and „Universität“ (German)
Reviewer 2: Hannu Luomajoki

Minor essential & discretionary revisions:

1. Abstract, Results: little bit unclear, please reword second sentence
   We agree with the reviewer and adapted the second part of the first sentence.

2. Abstract, Discussion: write „was moderate to good“
   We agree with the reviewer and adapted the text (also in accordance to our statement in the first sentence of the Conclusions at the end of the manuscript).

3. Background: mention the STarT Back Screening Tool (Hill JC et al., 2008)
   We agree with the reviewer that the development of this Subgroups for Targeted Treatment (STarT) Back Screening Tool and its corresponding clinical testing in the RCT in 2011 are important milestones and relevant for our paper. We added reference 4 in the first part of the Background (Hill JC, Dunn KM, Lewis M, Mullis R, Main CJ, Foster NE, Hay EM: A primary care back pain screening tool: identifying patient subgroups for initial treatment. Arthritis & Rheumatism 2008, 59(5):632-641).

4. Methods, Statistical analysis: consider calculation of SEM and SDD
   We agree with the reviewer that the calculation of Standard Error of Measurement (SEM) and Smallest Detectable Difference (SDD) are important clinimetric properties of a measurement tool, but also – as reviewer 2 already stated – these calculations are not very typical in questionnaires. In our study the test-retest reliability of the self-reported MPI questionnaire (and not test-retest reliability of a physical performance measure) was tested. This is the reason why we decided not to calculate and describe SEM & SDD.