Author's response to reviews

Title: Measuring troublesomeness of chronic pain by location

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Author's response to reviews: see over
Dear Sir or Madam

Re: Corrections for Measuring troublesomeness of chronic pain by location – MS 1805078825776387

Thank you for arranging for this paper to be reviewed, we found that reviewers comments very helpful and have incorporated the majority of them into the new draft.

We have given a point-by-point response to the reviewers’ comments which is below.

Yours Sincerely

Suzanne Parsons, Dawn Carnes, Tamar Pincus, Nadine Foster, Alan Breen, Steven Vogel and Martin Underwood.
Reviewer one – Minor essential revisions

1) Abstract – The authors should be consistent in the use of the term troublesomeness grid throughout.
We have checked the text and have ensured that the term troublesomeness grid is used consistently throughout the text.

2) Background: The background of the project is fine and the aim of the work is clearly stated.
No alterations to make.

3) Methods: The range of scores on the CPG intensity and disability scales should be stated as this has been done for the EQ 5D and the GHQ 12. I would like to see the response rate details for the main study in addition to the pilot study. Also the percentage of people with chronic pain in the main study should be given. The first reference to tables in the text is to Table 2 and not Table 1 and appears in section one of the results on page 11. In fact, table 2 refers to criterion validity and not face validity and the reference to table 2 needs to be moved to the end of section 2 of the results. When talking about Table 1 the authors’ state that all but one of the correlations was statistically significant, but all the correlations shown in the table are significant. Figures 2-4 should be inserted after reference to the box and whisker plots to let the reader know the data is being shown as part of the paper.
We have stated the range of scores on the CPG intensity and disability scales. At the beginning of the results section we have provided the response rate details for the main study in addition to the pilot study. We have also stated the percentage of people with chronic pain in the main study.
We have corrected the references to tables within the text and they are now all appropriate. We have also corrected the statement on the significance of the correlations.

4) Discussion: The authors conclude that differences in non-response rates may be partly accounted for by differences in the time frames used. Why were the same time frames not used?
On the manikin, respondents were asked to mark areas in which they had experienced pain that had affected them for more than half of the days in the last year, and on the troublesomeness grid respondents were asked to indicate how troublesome each of the pains had been in the last month. We used these two different time frames, as both questions (the manikin and the troublesomeness question) had been validated to measure pain over these time periods and we felt that if we had altered the time frames then we may have invalidated the questions.

5) Figure one: It is not clear from the figure that the respondents were asked to specify what their other pains were, this is only clear in the text.
We have altered the figure accordingly.
6) Table 1: EuroQol should be replaced with EQ 5D. The symbol referring to the main study data appears to be in the wrong place. Presumably not just pain intensity correlations for low back pain were taken from the main study.
We have replaced EuroQol with EQ 5D and put the symbol referring to the main study data in the correct place.

Reviewer two

1) A primary concern that I had with the manuscript was in the rationale for why this measure is needed and the specific definition and conceptualisation of troublesomeness. The authors state that a primary purpose of the troublesomeness grid is to develop a measure that can be used to compare the burden of pain in different body regions. They go on to discuss some limitations of health related quality of life measures. The rationale was confusing because troublesomeness is not explicitly defined by the authors and their discussion of quality of life implies that it has something to do with this concept. However, in their description of how the measure came about the term bothersomeness is discussed. Further conceptualisation of troublesomeness is needed so that the reader can understand how this concept is the same or different than pain bother or pain burden. In particular, the authors should cite previous research definitions of this concept. I would like to see the authors particularly address how troublesomeness is different from pain intensity or pain presence in different body locations. What is the presumed advantage of measuring troublesomeness versus pain intensity in different body regions?

In terms of the conceptualisation of troublesomeness, we drew on the work on bothersomeness of asthma symptoms, which used the term bothersomeness to assess symptom severity amongst patients with asthma [1]. The term was first developed because of a need to find a single term which could act as a summary of outcomes for specific symptoms in a clinical situation. We felt that bothersomeness was a particularly useful concept for classifying patients who do not have a clear aetiology for their pain as it focuses on symptoms and not disease, and patients who did not have a clear aetiology for their pain were the focus of our research.
Other researchers in the USA and the UK have also explored the concept of bothersomeness in relation to sciatica and low back pain respectively [2; 3]. Dunn et al in the UK found that bothersomeness was a valid measure of the severity of pain in a group of primary care patients with low back pain. They also found that bothersomeness was associated with measures of pain, disability, psychological health and work absence, and they therefore concluded that it could be used as a substitute for longer measures if it is being used to classify patients with low back pain [3]. The UK BEAM trial of treatment packages for low back pain used the bothersomeness of low back pain as an outcome, but anglicised bothersomeness to troublesomeness [4]. We have continued to use the term troublesomeness in this study, as it was conducted in the UK.
Therefore, we believe that troublesomeness is a measure of the severity of pain as a symptom, and that it can act as a useful summary of outcomes for pain in both clinical situations and in research.

As far as we are aware, this study is the first to explore the concept of troublesomeness / bothersomeness of pain in different body locations, enabling us to eventually determine the comparative burden of pain severity in different body locations. Measuring troublesomeness in a number of body regions could be useful, as many of the available pain outcome measures either provide data on overall pain, or on pain in just one body location, and therefore don’t enable us to assess the comparative burden of pain. The available pain measures may also be too complex to use to assess patients in both clinical situations and in research projects. Therefore a set of questions assessing the troublesomeness of pain in a range of different body locations could provide us with a useful way of determining the comparative pain severity in different body locations, using a relatively simple measure of assessment which could be useful both clinically and in research.

2) The authors should state how the body regions they selected for inclusion on the grid correspond with the previous literature on painful body locations (for example, the 9 body regions identified by Lester, Lefebvre and Keefe, 1996)
We feel that the previous literature on painful body locations is a different body of work than that which explores patient perceptions of the troublesomeness of their symptoms. Indeed, one of the authors of this paper (D Carnes) has explored the clinical and diagnostic utility of the various methods of marking pain drawings for her PhD thesis. We believe that measuring the troublesomeness of pain is a different construct to measuring where pain is located.
We can provide a clear rationale though for the body regions that we selected. The data used in this study, was collected as part of a project which explored patients and practitioners’ beliefs and expectations about chronic musculoskeletal pain. Therefore many of the regions were selected to ensure that we could adequately collect data on the troublesomeness of pain in the axial region (neck, shoulders, upper back, lower back and hip/thigh). Other musculoskeletal pain regions were added to allow pain in the axial region to be compared to other musculoskeletal pains, e.g. elbow, wrist, knee and ankle.

3) Rather than calculating percent agreement for the test-retest reliability of the troublesomeness grid, the authors should re-do this analysis using the more appropriate statistic for this, the intraclass correlation coefficient.
With all due respect to the reviewer, we do not feel that it would be appropriate to calculate intraclass correlation coefficients instead of percentage agreements when examining the test-retest reliability of the troublesomeness grid. This is because the high level of negative marking on each item of the troublesomeness grid would give a misleadingly high correlation coefficient, overestimating the level of marked agreements [5].

Indeed, we have calculated the intra-class correlations for the test-retest reliability of the troublesomeness grid, for the five most prevalent areas, but we still feel that the
percentage agreements are more meaningful, as they enable us to calculate both exact agreement and near agreement (one point difference on the scale) between the follow up questionnaire and retest.
However, below are the intra-class correlation coefficients which could be added into table four if the reviewer considered it to be appropriate.

<table>
<thead>
<tr>
<th>Location</th>
<th>Intra-class correlation coefficient</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neck</td>
<td>0.80</td>
<td>0.57, 0.91</td>
</tr>
<tr>
<td>Shoulders</td>
<td>0.59</td>
<td>0.11, 0.81</td>
</tr>
<tr>
<td>Low back</td>
<td>0.89</td>
<td>0.76, 0.95</td>
</tr>
<tr>
<td>Hip/thigh</td>
<td>0.91</td>
<td>0.80, 0.96</td>
</tr>
<tr>
<td>Knee</td>
<td>0.91</td>
<td>0.81, 0.96</td>
</tr>
</tbody>
</table>

4) Additional sample description would be useful. Did the sample contain individuals with diagnosed chronic conditions? The authors state that they excluded individuals with terminal illness or severe psychiatric disorder. However, do they have other health information for their participants?
The sample did not contain individuals who had received a diagnosis for their pain from their GP. We knew this, as the names and addresses of all patients in the original sample were screened by their general practitioner to remove those who had terminal illness, severe psychiatric disorder and a diagnosis for their chronic pain. It is possible that some of the pain that we identified was due to yet to be diagnosed chronic conditions, as we were surveying a random sample of the population, but we made every effort to ensure that those known to have a diagnosis for their pain were removed. We do not have other health information for the participants, as this data was collected as part of an epidemiological survey of the prevalence of chronic pain and so we did not feel that it was appropriate to collect additional health information on our participants for ethical reasons. We have altered the text to provide more details on the sample.

5) I would like to see a section in the Results on descriptive statistics were the authors provide some descriptive information including means and standard deviations on their primary measures of pain, disability, quality of life and psychological distress of their sample. This could be accomplished with a table showing means and SDs for each measure. It would also be useful to see the frequency and means of the troublesomeness grid presented in tabular form. This would help to contextualise their results. The scores that are shown for pain intensity in Figure two appear to be very low at a mean around 4.0 on a scale of 0-100. Is this correct? If so, the authors should comment on potential floor effects of their measures. If the majority of the sample is reporting extremely low pain intensity how clinically meaningful are the analyses.
We have added a table into the results section showing the descriptive information on the primary measures of pain, disability, quality of life and psychological distress of the sample (Table one). However, although we agree with the reviewer that a table showing
the frequency of the troublesomeness grid would be useful, this analysis forms part of another paper which we are shortly submitting and therefore we have not added it into here. If the reviewer requires it, we can submit this paper to them as additional material. We have redrawn figure two using the correct figures. The mean pain intensity score is in fact 40 rather than 4.0 and so for this reason we feel that the pain intensity analyses are clinically meaningful.

6) It would be useful to see correlations between the primary variables. For example, what is the relationship between pain intensity and disability and is this different than the relationship between troublesomeness and disability. By examining the relationships between troublesomeness and other study outcomes in direct comparison to the relationship between pain intensity scores and other study outcomes, it may help the reader to understand the presumed advantage and disadvantage and possible independence of measuring the construct of troublesomeness.

We are slightly confused as to whether the reviewer received all of the tables when they were initially sent the paper for review, as we did include a table in the original paper showing the relationships between troublesomeness and the other study outcomes (Table two). We have included the table again in the revised version of the paper.

We have explored the relationship between pain intensity scores and the other study outcomes, but again this analysis forms part of another paper. However, we can report that the correlation between pain intensity and disability was 0.84 (p<0.01). If we take troublesome low back pain as an example, then pain intensity and pain related disability are more highly related, than troublesome low back pain and pain intensity (0.34; p<0.002) and troublesome low back pain and pain related disability (0.29; p<0.01). One conclusion from this is that troublesomeness is measuring a separate construct to pain intensity and disability. Our measurement of troublesomeness is also different to measuring intensity as we are focusing on individual locations, whereas intensity and disability are overall measures.

7) I had some difficulty understanding Figures 2-4. The title of Figure 2 is “Relationships between the most common troublesome pains and pain intensity from the CPG”. A more accurate title would seem to be “Mean Pain Intensity scores for individuals with and without troublesome pains” rather than “relationship” as the figure plots the number of individuals who either do or do not have troublesome pain in various locations and shows their mean pain intensity. In addition, it is not one figure, but rather a group of five figures. I do not think it is necessary for each body location to be graphically displayed. Similar concerns apply to figures 3-4.

We agree that the title for the figures suggested by the reviewer is more appropriate and have changed it accordingly. We have also relabelled the figures so that each is separately labelled. We have also limited the number of graphs to the two most prevalent troublesome body locations (low back pain and knee) (Figures 2a, 2b, 3a, 3b, 4a, 4b).

8) Table two shows the odds ratios and confidence intervals for logistic regressions predicting factors associated with troublesome pain in several body regions. It
would be useful for the reader if this analysis was explained in more detail. In particular, how were the variables used for the logistic regression calculated (i.e. how were they dichotomized).

We have provided more detailed on the logistic regressions within the analysis section of the paper.

References

5) Feinstein AR, Cicchetti DV. High agreement but low kappa: I. The problems of two paradoxes. Journal of Clinical Epidemiology 1990; 43 (6), 543-549