Author's response to reviews

Title: An examination of the psychometric structure of the Multidimensional Pain Inventory in temporomandibular disorder patients: a confirmatory factor analysis

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Author's response to reviews: see over
Answer to Richard Orbach

Major Compulsory Revisions

1. The scores of the original instrument and the Spanish version are not equivalent. The paper states that the content of most of the scales in both versions of the MPI are equivalent and relevant. Thus, the adaptation of the instrument to Spanish is reliable, and its application to the temporomandibular patients is a first step in this direction.

Confirmatory factor analysis is a valid strategy to test if the original structure of an instrument is applicable to a different sample other than the original sample deriving from the instrument. This method assumes certain limitations; however, the results are more complete than the exploratory analysis, and it has been chosen by a number of authors to carry out the adaptation of the MPI to other languages (see the manuscript references 21, 22, 23, 24). As the reviewer stated, modern scaling methods can have certain advantages but these strategies overlook the objectives and aims of this first step in the adaptation of the instrument. Of course, these options can and will be contemplated in future papers.

2. The process of back translation and the conceptual analysis of the items carried out by the team that participated in the elaboration of this paper make an attempt to guarantee the cultural equivalency of the original instrument to the Spanish version. It is worth mentioning that the MPI has also been adapted in other European countries. In these adaptations, the results generally reaffirm the validity of the evaluating constructs, making it more equivalent in the Spanish population. A previous MPI version in Spanish (Ferrer et al. 1993), in spite of having certain limitations, indicates an equivalency of scale contents evaluated in comparison with the original instrument. Finally, regarding the sample study, the results with temporomandibular patients show equivalency between North Americans and Spanish samples (Galdon et al.) in other evaluated constructs. So it can be assumed to be cultural equivalency in both versions of the instrument.

3. The obtained results show that both versions converge in the evaluation of the basic aspects of chronic pain although differences do appear in some of the scales. These differential aspects are specified in a new table, naming the scales in accordance with the content in the temporomandibular patient sample. The different names in the scales of the Spanish version do not mean the existence of a different construct, but rather a subtle difference of content in this sample and therefore must be shown.

MINOR ESSENTIAL REVISIONS

1. The English in the entire article has been revised and corrected by experts.

2. The results show scales of two items whose content, relevance and psychometric properties are maintained, as is specified in the paper.

3. It isn’t contradictory, the instrument is focused on the evaluation of the chronic pain patient and this evaluation is made mostly with therapeutic purposes.

**Answer to Edward Vega**

**Major Compulsory Revisions**

1. The description of the Spanish version of the MPI (Ferrer et al, 1993) has been explained better and criticised, and mainly justifies the need of a new version.

The aims have also been described in a better way. The utilisation of the confirmatory factor analysis is a valid strategy to test that the original structure of an instrument is applicable to a different sample from which the instrument was derived and assumed valid. This method supposes certain limitations, but it is stricter than the exploratory method and has been chosen by many authors to carry out the adaptation of the MPI to other languages (see the manuscript references 21, 22,23, 24) . Likewise, psychometric properties of the Spanish version have been described and analysed as a starting point in our paper.

2. The process of elimination of some items has been explained more clearly and described in the Methods section as the reviewer suggested. The steps given to derive the structure in the temporomandibular patient sample have been clarified.

The paper does not try to suggest that previous exploratory analysis were carried out. This was bad use of the language and has been corrected.

3. A table was added in which the original structure was compared with the obtained Spanish version. This paper does not intend to compare diverse instrument structures. Given a bad adjustment of the original model, the authors have tried to modify some items and factors, within certain statistical parameters that led to the existence of previous results backing up that decision. A structure with a good adjustment has finally been found.

Discussion: The comment from the reviewer has been taken into account, and the paragraph referred has been modified.

**MINOR ESSENTIAL REVISIONS**

1. The English in the entire article has been revised and corrected by experts.

2. Some missing references have been added.

3. The race of the participants has been described.