Reviewer's report

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

Version: 2 Date: 23 June 2006

Reviewer: Edward Vega

Reviewer's report:

General

Overall the article represents a useful and interesting research project. The issue of examining the psychometric properties of a measure applied to various populations is certainly worthwhile, as is expanding the utility of such measures by producing and testing versions in multiple languages. As such, the overall intent of the project is valuable.

Given the overall value of this project, I believe that the manuscript should be accepted following clarification of the appropriate issues and suitable editing to improve the readability of the article.

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

Two different factors are tested in this project: a new Spanish-language adaptation of the MPI, and factor analyses of the MPI in a specific population (TMD patients in Spain). A few points are unclear in the manuscript, most notably the broad psychometric properties of this new Spanish-language adaptation of the MPI, the specific rationale for modifying the measure following the mismatch of the original model tested in the confirmatory factor analyses referred to in the title, and the decision to proceed with additional confirmatory factor analyses of other available models.

First, the introduction refers to previous Spanish-language version of the MPI (Ferrer, Gonzalez, & Manassero, 1993), as well as to the method used to produce the adaptation utilized in the current project. It would be useful to include a brief description of the psychometric properties of the Ferrer, et al., version, including the purpose for producing an additional version. (Note that a discussion of the Ferrer version might in itself indicate the purpose for an additional or alternate Spanish version of the MPI). Given that this is a new adaptation of the scale, a broader examination of the psychometric properties of the scale (especially as compared to the original English-language version and/or other language versions) would be useful.

The primary aims of the project are stated as to assess the internal consistency of the MPI and test the factor structure of the MPI in a Spanish sample of patients with TMDs (p. 5). Given that the measure presented is a new adaptation, with possible substantive differences from the original version (e.g. based on the different items being included), the aim of testing the factor structure of the MPI in a Spanish sample of patients with TMDs might be better addressed initially with an exploratory factor analysis. This suggestion presupposes that the aim is to test the factor structure of [a new Spanish-language adaptation of] the MPI in a Spanish sample of patients with TMDs. If the stated aim presupposes that the new adaptation is generally equivalent to the English-language version, and simply intends then to test the original factor structure with a new population, then this assumption should first be established as valid.

Second, following the presentation of the lack of match between the data and the original model tested, a different version of the measure is described, with items 6, 11, and 19 removed. The justification/ rationale for the removal of these items is unclear (p. 9). Later in the results section mention is made that specific items from the original MPI were not included in the Spanish-language adaptation (p. 11) due to conceptual reasons (e.g. item 2) or psychometric reasons (e.g. item 18). This is confusing, given that this is a methodological element of the construction of the scale (partially described in the methods section). Further, it suggests that an exploratory factor analysis was performed in the construction of the scale, and was influential in the selection of items (independent of the presence of these items in the English-language version), although this is not mentioned earlier in the description of the scale construction. This appears to present an additional challenge to the equivalence of the two versions, as well as potentially
raising other questions about performing a confirmatory factor analysis of a model derived from a measure that differs not only in language, but also at an item level.

Third, following the initial confirmatory factor analysis with the two versions of the adapted scale, additional confirmatory factor analyses are presented (p. 10). The following paragraph in the manuscript may also refer to the new model tested. In either case, it will be important to clarify the differences in the models, and the rationale for, and implications of, testing the new model. Alternately, perhaps the primary aim of the paper could be simply stated as testing the appropriateness of several previously articulated factor structures (using CFA) in a newly produced Spanish-language adaptation of the MPI in a new, diagnostically homogenous population of TMD patients.

As a final point regarding interpretation of the data (in the Discussion), a comment is made regarding the relative value of retaining the original factor structure proposed by the authors of the MPI compared to combining scales as suggested by other factor analyses. The authors suggest that combining the scales may create a loss of relevant clinical information from an instrument that has a mainly therapeutic character and application. If, however, the analysis based on the data presented is an accurate representation of the role of cognitive, emotional, and behavioral contributions to the pain experience among TMD patients in Spain as assessed by the MPI (i.e. if this form of the measure is valid in this population), then one must consider the possibility that in this population the combined scales do represent the relevant information. The possibility should be considered that the factor structure, as well as clinical correlates, is in fact meaningfully different in different populations.

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

Significant editing (for English spelling and grammar) will be required for this article to be easily read and understood.

In a number of places in the introduction, points are made that should have supportive references included.

The race/ethnicity of participants is not mentioned.

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Discretionary Revisions (which the author can choose to ignore)

Subscales of the MPI are referred to in the manuscript as sections, a possibly confusing term. The use of the term scale or subscale would likely be better understood.

What next?: Accept after minor essential revisions

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published

Statistical review: No, the manuscript does not need to be seen by a statistician.