Pain 85 (2000) 451–456

PAIN

www.elsevier.nl/locate/pain

Some empirical evidence regarding the validity of the Spanish Version of the McGill Pain Questionnaire (MPQ-SV)

Ana I. Masedo, Rosa Esteve*

Department of Social Psychology and of the Personality, Faculty of Psychology, University of Malaga, Malaga, Spain

Received 2 September 1999; accepted 23 November 1999

Abstract

Despite the fact that the *McGill Pain Questionnaire* (MPQ) is a useful pain assessment tool with widespread acceptance, empirical analyses have questioned its validity because they have not consistently supported the three a priori factors that guided its construction. The Spanish version that has followed the most systematic and rigorous reconstruction process (Lázaro C, Bosch F, Torrubia R, Banos JE. The development of a Spanish Questionnaire for assessing pain: preliminary data concerning reliability and validity. Eur J Psychol Assess, 1994;10:145–151) lacks evidence to support its construct validity. In the present study, the internal structure of the Spanish version of the *McGill Pain Questionnaire* (Lázaro C, Bosch F, Torrubia R, Banos JE. The development of a Spanish Questionnaire for assessing pain: preliminary data concerning reliability and validity. Eur J Psychol Assess, 1994;10:145–151) was examined in a sample of 202 acute pain patients and 207 chronic pain patients. Confirmatory factor analyses were carried out to compare alternative models postulating different internal structures (one-factor model, the classic three-factor model, and the *semantic model* inspired by the alternative structure found by Donaldson in 1995 (Donaldson GW. The factorial structure and stability of the *McGill Pain Questionnaire* in patients experiencing oral mucositis following bone marrow transplantation. Pain 1995;62:101–109)). Results from the LISREL CFA analysis indicated that the semantic model fitted better than the other models. On the other hand, intercorrelations between scales were smaller than the reliability indexes. In relation to concurrent evidence, significant correlations ($P > 0.001$) were found between each subscale and the criteria measurements of every pain dimension. Only the affective subscale presented *discriminant validity*. Evidence supports the validity of the affective and sensory subscales but not the evaluative scale.

Keywords: Pain; McGill Pain Questionnaire; Spanish Pain Questionnaire; Acute pain; Chronic pain; Confirmatory factor analysis

1. Introduction

Pain is a subjective experience and due to its subjective nature it remains a difficult issue to assess only by physical examination methods. Therefore, self-report measurement techniques are essential. The *McGill Pain Questionnaire* (MPQ) (Melzack, 1975) is one of the most widely used methods for pain evaluation using verbal descriptions. Its purpose is to assess not just pain intensity but the multiple dimensions of the pain experience. The items developed for the subscales of the MPQ derives from the *Gate Control Theory* of pain (Melzack and Wall, 1965), according to which pain includes separate sensory, affective and evaluative components. Despite widespread acceptance of the MPQ in the field, many results about the construct validity of this instrument have been inconsistent.

Exploratory factor analyses have not consistently supported the presence of the three non-redundant factors predicted by Melzack's postulated model. Indeed, some factor analytic procedures identified two factors (Kremer and Atkinson, 1984), and others, four factors (Byrne, 1982; Swami, 1991), five factors (Crockett, 1977), six factors (Burckhardt, 1984; Oostdam and Duivenvoorden, 1984) and seven factors (Leavitt et al., 1979). However, exploratory factor analyses are poorly suited to test a priori postulated factor structures. On the other hand, *confirmatory factor analysis* enables direct testing of factorial structures (Turk et al., 1987; Lowe et al., 1991; Donaldson, 1995). Following a confirmatory methodology, Turk (1987) and Lowe (1991) confirmed Melzack's postulated tri-component structure. Nevertheless, Holroyd (1992) found that this ten-factor model fitted better than a single factor model, but not as well as a four-factor model inspired by

* Corresponding author. Departamento de Psicología Social y de la Personalidad, Dcho. 506, Campus de Teatinos s/n 29071, Malaga, Spain. Tel.: +35-952-132-521; fax: +35-952-131100.

E-mail address: zarazaga@uma.es (R. Esteve)

0304-3959/00/$20.00
PII: S0304-3959(99)00300-0

exploratory factor analysis. In a recent study, Donaldson (1995) reported that the a priori three-factor structure provides an acceptable fit to data but other models might fit as well or better. Donaldson (1995) found three underlying dimensions that differ somewhat from the theoretical organization implied by the *Gate Control Theory* (Melzack and Wall, 1965) and this alternative structure was called the *Semantic Model*. This model distinguishes three factors: sensory action, sensory evaluation, and affective evaluation.

Generally, the distinction between the sensory and affective dimensions has held up extremely well, but there is still considerable debate on the separation of the affective and evaluative dimensions. The *semantic model* does not assume a separate evaluative factor.

Many investigators have reported moderately high correlations between the sensory, affective and evaluative factors (Prieto et al., 1980; Byrne et al., 1982; Turk et al., 1985; Brennan et al., 1987; Lowe, 1991; McGowan and Zebon, 1991; Swami et al., 1991; Holroyd et al., 1992; Lázaro et al., 1994; Donaldson, 1995). Turk et al. (1985) found that cross-construct correlations were higher than within-correlations (reliability indexes) and concluded that the subscales are therefore not different and only the total score should be used.

Furthermore, several studies have investigated the relationship between each separate dimension of the MPQ and some external criteria. Concurrent validity of the total score (Byrne et al., 1982; Osorio and Bejarano, 1987; Ruíz López et al., 1990; Lázaro et al., 1994; Donaldson, 1995), the sensory dimension (Kiss et al., 1987; Donaldson, 1995), and the affective dimension (Kremer and Atkinson, 1981; Kremer and Atkinson, 1983; Jensen et al., 1991) has been reported. Only the affective dimension has demonstrated discriminant validity by demonstrating stronger relationships with measurements of psychological distress than with measurements of pain intensity (McCreary et al., 1981; Kremer and Atkinson, 1983; Brennan et al., 1987; Holroyd et al., 1992). There is no evidence concerning the discriminant validity of the sensory and evaluative category.

Spanish is one of the most widely-spoken languages (the fourth most-spoken language in the world). Four different versions of the *McGill Pain Questionnaire* have been developed in the Spanish language (Lahuerta et al., 1982; Molina et al., 1984; Ruiz et al., 1990; Lázaro et al., 1994). Nevertheless, the version by Lázaro et al. (1994) is the one that has been constructed following a very systematic and rigorous procedure similar to that used by Melzack and Torgerson (1971). At present, however, evidence about the validity of the Spanish Version of the *McGill Pain Questionnaire* (Lázaro et al., 1994) has not been provided. Therefore, the aim of this study is to shed light on the validity of the Spanish version of the *McGill Pain Questionnaire* (Lázaro et al., 1994) via the following: factorial evidence, intercorrelation between scales, concurrent and discriminant evidence.

2. Method

2.1. Subjects

Two separate pain populations (acute and chronic clinical pain) were sampled. The first sample consisted of 202 patients suffering from acute pain (53% females, 47% males) who received treatment in the Emergency Service section in Carlos Haya Hospital (Malaga, Spain). They had a mean age of 54.38 years (range 16–87). The mean duration of the pain was typically 2 or 3 days. classification of pain was as follows: chest pain (39.6%), post-traumatic pain (13.4%), abdominal pain (12.9%), fractures (12.4%), kidney pain (8.9%), back pain (4%), visceral pain (3.5%), headache (2.5%), orofacial pain (1.5%), hypersensitivity of skin (1.3%). The second sample was made up of 207 chronic patients (33.8% males, 66.2% females) from the Pain Clinic, Rheumatology Unit, and the Oncology Unit of Carlos Haya Hospital (Malaga, Spain). The age of this sample ranged from 15 to 92, averaging 57.40 years old. The mean duration of pain was 8.03 years with a range of 1–40 years. Classification of pain was: joint pain (30%), cancer pain (15.5%), osseous pain (14.5%), neuropathic pain (12.6%), limb pain (6.8%), fibromyalgia (4.3%), headaches (2.4%), visceral pain (1.4%) and miscellaneous (12.5%).

2.2. Procedure

For the acute sample, responses to the *McGill Pain Questionnaire* were obtained from subjects while they were waiting for treatment at the Emergency Service section of the Hospital. Data was collected by interview with a mean duration of 10 minutes. Only the *McGill Pain Questionnaire* was administered. Chronic patients were evaluated when they went to ask for treatment. Pain description was assessed with the *McGill Pain Questionnaire*: the sensory dimension with the *Numeric Scale*; the affective dimension with the Pain Discomfort Scale (Jensen et al., 1991); and the evaluative dimension with the *Evaluative Scale* (Masedo et al., 1999). The mean duration of the interview was approximately 30 min.

In both samples, informed consent was obtained prior to data collection.

2.3. Measurements

2.3.1. The Spanish Version of the McGill Pain Questionnaire (Lázaro et al., 1994)

The pain rating index (PRI) of the MPQ consists of 64 pain descriptors organized in 19 subclasses. Within each subclass, descriptors are ranked in order of intensity. Subclass scores are added to form three subscale scores: sensory (1–15), affective (16–18) and evaluative (19).

This version has been reconstructed following a systematic and rigorous process and has proven its psychometric validity. All of the rank values exhibited a high degree of correlation with the original scale values and with the VAS.

Besides this, Lázaro et al. (1994) tested the sensitivity of this version to detect changes after treatment.

2.3.2. Pain Discomfort Scale (Jensen et al., 1991)

This scale is a ten-item tool designed to evaluate the affective dimension of chronic pain. Its internal consistency and test–retest stability coefficients are high. The results of correlational and factor analyses of the *Pain Discomfort Scale* with other measurements support its discriminant and concurrent validity (Jensen et al., 1991).

2.3.3. Numerical Rating Scale

Respondents were asked to choose a number between 0 and 10 to represent their pain experience. The range of the scale is 0 (no pain) to 10 (pain as bad as it can be). In this study this scale was used as a quantitative measure of the sensorial dimension of pain.

2.3.4. Evaluative Scale

The *evaluative dimension* is defined by the *Gate Control Theory* (Melzack and Wall, 1965) as a global and subjective judgement of the experience of pain. Based on the aforementioned theory the *McGill Pain Questionnaire* was developed (Melzack and Torgerson, 1971). The evaluative category, however, presents two problems: (1) it is made up of only one item; and (2) it is a mere judgement of pain intensity and thus it oversimplifies the definition of the evaluative dimension.

In this study, and following the abovementioned definition, a ten-item scale to assess the evaluative dimension of pain was constructed. This scale could have two different subscales: stability and internal controllability of pain. Another option would be to take the total scale and add all the items. In this way we would obtain a measure of the evaluative dimension of pain. For this study we used the second option taking the highest scores as an indication of the most negative global evaluation of pain. Therefore, subjects with a high score in this scale perceive pain as stable and non-controllable. The subscales and the total scale have shown good indexes of reliability and the factorial study supported its internal structure (Masedo et al., 1999).

2.4. Data analyses

The LISREL 8.20 computer program (Jöreskog and Sörbom, 1993) was used to perform *confirmatory factor analyses* of the MPQSV. In LISREL, models are specified in advance, rather than letting the algorithm find the best solution by an empirical criterion. Model specification requires identifying a set of prohibited relationships between factors and variables. The program then estimates the remaining relationships and provides statistics of diagnosis useful to evaluate how well the data fits the specified model. In the present study, three alternative models were specified: one-factor structure model, in which all items load on the same general factor; a classic three-factor model based on the *Gate Control Theory* (Melzack and Wall, 1965) according to which there are three distinct dimensions: sensory, affective and evaluative; and the *semantic model* inspired by the alternative structure found by Donaldson (1995). This latter model presents several advantages: it does not assume the existence of a separate evaluative factor – the evaluative dimension is linked to affective and sensorial aspects. Three factors are distinguished in the *semantic model*: sensory action, sensory evaluation and affective evaluation. The sensory action factor refers to the sensory effect of pain (punctate pressure, incisive pressure, constrictive pressure, hot and dullness). Judgements about this sensory effect constitute the *sensory evaluation* factor (temporal and spatial evaluation). *Affective evaluation* is a factor referring to the assessment of the affective reaction to pain.

On the other hand, intercorrelations between subscales were compared with the reliability indexes of the subscales.

Finally, the subscales (sensory, affective and evaluative) were correlated with three external criteria that evaluate the same construct. Also, these subscales were correlated with non-referenced criteria.

3. Results

3.1. Factorial evidence

Confirmatory factor analyses for non-normal data were performed on the polychoric correlation matrix of the MPQ-SV items. Weighted Least Squares was used as the estimation method. As in other studies, subclasses 13, 14 and 15 were excluded from the analyses since they are labelled as miscellaneous items and are not classified according to the theoretical conceptualization of pain as a sensory, affective, and evaluative phenomenon (Turk et al., 1987; Lowe et al., 1990; Donaldson, 1995).

Various goodness of fit indexes for the three alternative models in acute and chronic pain are shown in Tables 1 and 2.

- Chi square to degrees of freedom ratio. Ratios in the range of 2 or 3 to 1 or smaller are indicative of an acceptable fit between the hypothetical model and the observed data (Gómez, 1996).
- Goodness of Fit Indexes (GFI and AGFI), which range between 0 and 1, with high values ($GFI > 0.90$ and $AGFI > 0.80$) being associated with a good fit of the model.
- Standardized RMR is an additional index that indicates a good fit when its value is smaller than 0.05.
- Another additional index is RMSEA. Values smaller than 0.08 and significant values (in accordance with Cfit) are generally considered suitable.
- Finally the comparative index CFI, which ranges from 0

Table 1
Goodness of fit indexes. Confirmatory factorial analysis of MPQ-SV (Lázaro et al., 1994) in chronic pain patients[a]

	Chronic pain patients							
Model	χ^2	d.f.	χ^2/d.f.	GFI	AGFI	RMR	RMSEA	CFI
1-factor	264.53	104	2.54	0.91	0.89	0.08	0.08 Cfit $<$ 0.05*	0.60
Classic 3-factor	253.68	102	2.48	0.92	0.89	0.08	0.08 Cfit $<$ 0.05*	0.65
Semantic	196.91	99	1.98	0.93	0.91	0.07	0.06 Cfit $<$ 0.05*	0.88

[a] χ^2, chi square; d.f., degrees of freedom; χ^2/d.f., ratio chi square and degrees of freedom; GFI, goodness of fit index; AGFJ, goodness of fit index corrected; RMR, standardized index of goodness of fit; RMSEA, root mean square error of approximation; Cfit, test of close fit; CFI, comparative fit index. Significance: *$P < 0.01$.

(absolute lack of fit) to 1 (perfect fit). This index reflects a good fit when its value is greater than 0.90.

All indexes indicated a rank-ordering of the three models. The alternative three-factor model fits the data best in chronic as well as in acute samples; the one-factor structure model present the worst fit; and the classic three-factor structure model is lies between the two.

3.2. Subscale intercorrelations

Correlations between subscales and reliability indexes of the total scale and each subscale are shown in Table 3. Subscale intercorrelations are moderate and smaller than reliability indexes. The reliability index for the evaluative scale cannot been computed because it has only one item.

3.3. Concurrent and discriminant evidence

In order to examine *concurrent validity*, sensory, affective and evaluative subscales were correlated with independent measurements of these pain dimensions: *Numeric Scale*, *Pain Discomfort Scale* and *Evaluative Scale*. These correlations, presented in Table 4, are all significant ($P > 0.001$).

When we examined discriminant validity, only the affective subscale showed a greater correlation with its respective criterion than with its non-referenced criterion.

4. Discussion

The primary aim of this study is to evaluate the adequacy of the internal structure of the Spanish version of the *McGill Pain Questionnaire* (Lázaro et al., 1994).

According to our results the classic three-factor model had a better fit than a one-factor model. In this sense, our results are consistent with those of Lowe (1991); Turk (1985) as they found that data had a good fit in the classic three-factor model. However, the *semantic model* (the alternative factor model) best explained covariation between items, both in chronic and acute patients. This finding might be due to the fact that the *semantic model* does not assume a separate evaluative factor, but is linked to affective and sensory components. However, the classic three-factor model assumes a separate evaluative factor only composed of one item. Regarding this issue, there is considerable debate on the separation of the affective and evaluative dimensions (Crockett, 1977; Leavitt et al., 1979; Kremer and Atkinson, 1984; Oostdam and Duivenvoorden, 1984; Brennan et al., 1987). Taking our results into account it can be questioned whether the Spanish Version of the *McGill Pain Questionnaire* evaluates the three separate dimensions of pain (sensory, affective, and evaluative) postulated by the *Gate Control Theory* (Melzack and Wall, 1965). Further evidence presented in this study supports the sensory and affective dimensions but not the evaluative dimension. *Discriminant validity* lends support to the affective dimension and *interrelation between scales* supports affective and sensory dimensions. The *semantic model* assumes one affective factor (affective evaluation) and two sensory factors (sensory action and sensory evaluation) but does not support one evaluative factor. Nevertheless, we cannot conclude that the *McGill Pain*

Table 2
Goodness of fit indexes. Confirmatory factorial analysis of MPQ-SV (Lázaro et al., 1994) in acute pain patients[a]

	Acute pain patients							
Model	χ^2	d.f.	χ^2/d.f.	GFI	AGFI	RMR	RMSEA	CFI
1-factor	266.48	104	2.56	0.91	0.89	0.09	0.09 Cfit $<$ 0.05*	0.49
Classic 3-factor	229.76	102	2.25	0.92	0.89	0.09	0.08 Cfit $<$ 0.05*	0.58
Semantic	142.28	99	1.43	0.95	0.93	0.07	0.00 Cfit $<$ 0.05*	1.00

[a] χ^2, chi square; d.f., degrees of freedom; χ^2/d.f., ratio chi square and degrees of freedom; GFI, goodness of fit index; AGFI, goodness of fit index corrected; RMR, standardized index of goodness of fit; RMSEA, root mean square error of approximation; Cfit, test of close fit; CFI, comparative fit index. *$P < 0.01$.

Table 3
Intercorrelation between sensory, affective and evaluative subscales. Diagonally, internal consistency reliabilities of each subscale and the total scale

	Sensory	Affective	Evaluative	Total score
Sensory	**0.63**			
Affective	0.52	**0.56**		
Evaluative	0.53	0.54		
Total score	0.66	0.91	0.84	**0.74**

Questionnaire evaluates pain as a unidimensional construct as proposed by Turk (1985). The first reason is that in a confirmatory factor analysis the 1-factor model is the one that worst explained the covariation of data. Second, the intercorrelation between scales was lower than the subscales' reliability indexes. Turk et al. (1987) concluded that the use of only the total scale of the *McGill Pain Questionnaire* was appropriate for pain assessment because, contrary to our results, the three subscales (sensory, affective and evaluative) were found to be highly intercorrelated. However, the reliability indexes were lower than cross-construct correlations. The conclusion of Turk et al. (1987) was not supported by our results because, as in Lowe (1990) and Donaldson (1995), the affective and sensory subscales seemed to constitute independent dimensions of the same construct: pain.

Concurrent and discriminant validity have been examined also. Significant correlations were observed between the subscales of the Spanish Version of the *McGill Pain Questionnaire* and some external criteria used to evaluate the same construct. As in other studies, significant correlations ($P > 0.001$) were found for the sensory dimension (Kiss et al., 1987; Donaldson et al., 1995) and for the affective dimension (Kremer and Atkinson, 1981; Kremer and Atkinson, 1983; Jensen et al., 1990). When *discriminant validity* was considered, however, only the affective subscale presented a higher correlation with its referenced criterion than with other criteria. This result is congruent with previous studies about the discriminant validity of the MPQ (McCreary et al., 1981; Kremer and Atkinson, 1983; Brennan et al., 1987; Holroyd et al., 1992). Perhaps the results about the sensory subscale could be explained by the criterion selected for its validation. The *numeric scale* evaluates pain from a global unidimensional point of view and in a quantitative way. The sensory dimension of the MPQ-SV, however is a more specific qualitative measurement. The sensory dimension of the MPQ might show higher correlations if it was measured qualitatively which would accord with the nature of this dimension.

Table 4
Correlations between subscales (sensory, affective and evaluative) and external criteria. Diagonally, correlation between subscales and their respective criteria[a]

	Sensory	Affective	Evaluative
Numeric Scale	0.43	0.65	0.58
Pain Discomfort Scale	0.49	0.78	0.56
Evaluative Scale	0.36	0.54	0.39

[a] All correlations are significant ($P > 0.001$).

The evaluative dimension presents the highest correlation with the *Numeric Scale*, which is not a surprising result, because the item of the evaluative scale of the MPQ-SV simply asks the subjects for a judgement about pain intensity. Following the *Gate Control Theory* (Melzack and Wall, 1965) the evaluative dimension refers to the cognitive components of pain and cannot be reduced to a mere judgement of intensity of pain. A global evaluation of pain should include other cognitive variables such as judgements about its controllability and stability. Thus, future research will be aimed of the improvement of the evaluative subscale.

Taking our results as a whole, we cannot conclude that the Spanish version of the *McGill Pain Questionnaire* evaluates pain as defined by either the *Gate Control Theory* (Melzack and Wall, 1965) or the unitary construct. Probably, the main problem with the Spanish Version of the *McGill Pain Questionnaire* is the measure of the evaluative dimension, as the sensory and affective subscale seems solid enough. However the evaluative subscale, made up of one item, is the most serious limitation of the *McGill Pain Questionnaire*. According to the *Gate Control Theory*, the evaluative dimension is defined as a global judgement of the subjective experience of pain (cognitive aspects of pain), but as this subscale consists of a mere judgement of the intensity of pain it oversimplifies such a definition.

Thus, in our opinion, future research would improve the MPQ-SV and one of the first steps should be the development of the evaluative subscale.

Acknowledgements

This research was supported by D.G.E.S. PM-152. The authors would like to thank Dr. Manuel Rodriguez from the Pain Clinic, Dr. Salvador Fernández from the Emergency Service and Dr. Antonio Ponce from the Rheumatology Service, all from Carlos Haya Hospital, Malaga Spain.

References

Brennan AF. The utility of McGill Pain Questionnaire subscales for discriminating psychological disorder in chronic pain patients. Psychol Health 1987;1:257–272.

Burckhardt C. The use of the McGill Pain Questionnaire in assessing arthritis pain. Pain 1984;19:305–314.

Byrne M, Troy A, Bradley LA, Marchisello PJ, Geisinger KF, Van der Heide LH, Prieto EJ. Cross-validation of the factor structure of the McGill Pain Questionnaire. Pain 1982;13:193–201.

Crockett DJ, Prkachin KM, Craig KD. Factors of the language of pain in patients and normal volunteer groups. Pain 1977;4:175–182.

Donaldson GW. The factorial structure and stability of the McGill Pain Questionnaire in patients experiencing oral mucositis following bone marrow transplantation. Pain 1995;62:101–109.

Gómez J. Aportaciones de los modelos de estructuras de covarianzas al

analisis psicometrico. Muniz En J, editor. Psicometria, Madrid: Universitas S.A., 1996.

Holroyd KA, Holm JE, Keefe FJ, Turner JA, Bradley LA, Murphy WD, Johnson P, Anderson K, Hinkle AL, O'Malley WB. A multicenter evaluation of the McGill Pain Questionnaire: results from more than 1700 chronic pain patients. Pain 1992;48:301–311.

Jensen MP, Karoly P, Harrist P. Assessing the affective component of chronic pain: development of the pain discomfort scale. J Psychosom Res 1991;35:149–154.

Jöreskog KG, Sörbom D. LISREL 8: structural equation modelling with the Simplis command language, Hillsdale, NJ: Lawrence Erlbaum, 1993.

Kiss I, Müller H, Abel M. The McGill Pain Questionnaire-German version. A study on cancer pain. Pain 1987;29:195–207.

Kremer EF, Atkinson JH. Pain measurement: construct validity of the affective dimension of the McGill Pain Questionnaire with chronic benign pain patients. Pain 1981;11:93–100.

Kremer EF, Atkinson JH. Pain language: affect. J Psychosom Res 1984;28:125–132.

Kremer EF, Atkinson JH, Kremer AM. The language of pain: Affective descriptors of pain are a better predictor of psychological disturbance than patterns of sensory and affective descriptors. Pain 1983;16:185–192.

Lahuerta J, Smith BA, Martinez-Lage JM. An adaptation of the McGill Pain Questionnaire to the Spanish language. Schmerz 1982;31:132–134.

Lázaro C, Bosch F, Torrubia R, Banos JE. The development of a Spanish Questionnaire for assessing pain: preliminary data concerning reliability and validity. Eur J Psychol Assess 1994;10:145–151.

Leavitt F, Garron DC, D'Angelo CM, McNeill TW. Low back pain in patients with and without demonstrable organic disease. Pain 1979;6:191–200.

Lowe NK, Walker SN, MacCallum RC. Confirming the theoretical structure of the McGill Pain Questionnaire in acute clinical pain. Pain 1991;46:53–60.

Masedo AI, Anarte MT, Ramírez C. The development of a scale of the evaluative dimension of pain. V European Conference of Psychological Assessment, 25–19 August, 1999. University of Patras.

McCreary C, Turner J, Dawson E. Principal dimensions of the pain experience and psychological disturbance in chronic low back pain patients. Pain 1981;11:85–92.

McGowan JR, Zebon MA. The relationship between the McGill Pain Questionnaire and functional status in oncology pain patients. Psychol Health 1991;5:36–41.

Melzack R. The McGill Pain Questionnaire: major properties and scoring methods. Pain 1975;1:277–299.

Melzack R, Torgerson WS. On the language of pain. Anesthesiology 1971;34:50–59.

Melzack R, Wall PD. Pain mechanism: a new theory. Science 1965;150:971–979.

Molina FJ, Molina FZ, Molina JC, Corpo C. The Argentine Pain Questionnaire. Pain 1984;(Suppl 2):S42.

Oostdam EMM, Duivenvoorden HJ. Description of pain and the degree to which the complaints fit the organic diagnosis of low back pain. Pain 1984;18:171–182.

Osorio R, Bejarano PF. Hacia una evaluación objetiva del dolor crónico y su respuesta al tratamiento: estudio del cuestionario del dolor de McGill. Revista Anál Comport 1987;3:168–174.

Prieto EJ, Hopson L, Bradley LA, Byrne M, Geisinger KF, Midax D, Marchisello PJ. The language of low back pain: factor structure of the McGill Pain Questionnaire. Pain 1980;8:11–19.

Ruíz López R, Bonilla MP, Collado Cruz A. Cuestionario del dolor en espanol. En Bahia X, Salamero M, Alonso JY, Olló A. La medida de la salud. Barcelona: PPV, 1990.

Swami DR, Nathawat SS, Solanki RK, Bhojak MM. Factorial validation of McGill Pain Questionnaire. Ind J Clin Psychol 1991;18:15–18.

Turk DC, Rudy TE, Salovey P. The McGill Pain Questionnaire reconsidered: confirming the factor structure and examining appropriate uses. Pain 1985;21:385–397.