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# APPLICATION OF THE MCGILL QUESTIONNAIRE IN WOMEN WITH FIBROMYALGIA AND LOW BACK PAIN: A COMPARATIVE STUDY

## APLICACIÓN DEL CUESTIONARIO MCGILL EN MUJERES CON FIBROMIALGIA Y CON LOMBALGIA: UN ESTUDIO COMPARATIVO

### APLICAÇÃO DO QUESTIONÁRIO MCGILL EM MULHERES COM FIBROMIALGIA E COM LOMBALGIA: UM ESTUDO COMPARATIVO

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**ABSTRACT**

***Objective*: to apply the McGill Questionnaire, translated and adapted to Brazil, and to identify the degree of internal association between this clinical group of women with fibromyalgia and another group of women with low back pain. ***Methods*:** this experimental research includes a case-control study. The population consisted of 83 patients diagnosed with fibromyalgia and low back pain who attended the Orthopedics and Trauma Outpatient Clinic at a Teaching Hospital in Fortaleza-CE, Brazil, from December 2005 to June 2006. The following exclusion criteria were adopted: patients with sensory and cognitive deficits, illiterate, younger than 21 and older than 60 years. A sample of 50 patients was obtained. The control and experimental groups were paired and the MPQ was applied to both. This study has been approved by the Research Ethics Committee of the Federal University of Ceará (04545014-5). ***Results***: were analyzed comparatively through non-parametrical statistics (Kruskal-Wallis). This test found significant means and standard deviations for the sensory and affective categories, with significant p-values for the descriptor "tiring". ***Conclusion***: the MPQ showed its appropriateness for pain assessment and analysis in fibromyalgia patients. ***Descriptors*:** pain; pain measurement; fibromyalgia.

**RESUMEN**

***Objetivo***: aplicar el cuestionario de McGill, traducido y adaptado al Brasil, e identificar el grado de la asociación interna entre este grupo clínico de mujeres con fibromyalgia y otro grupo de mujeres con dolor de espalda. ***Método*:** se trata de investigación experimental con el *case-control* del estudio. La población consistió en 83 pacientes diagnosticadas de fibromialgia y lumbalgia tratados en la Clínica de Ortopedia y Traumatología de un hospital universitario en Fortaleza, Brasil, desde diciembre 2005 a junio 2006. Los criterios de exclusión fueron adoptados de la siguiente manera: los pacientes con déficit sensorial y cognitiva, analfabetos, menores de 21 años y mayores de 60 años. Una muestra de 50 pacientes se obtuvo. Los grupos experimental y control fueron comparados y el MPQ fue administrado a ambos grupos. El estudio fue aprobado por el Comité de Ética de la Universidad Federal del Ceará (04545014-5). ***Resultados***: las estadísticas ningún-paramétricas fuerón utilizadas para la comparación *case-control* del descriptores con la prueba de Kruskal-Wallis. Era valores del promedio significantes y la desviación normal en las categorías sensoriales y afectivas, sin los valores significantes de p para el descriptor "pesado". ***Conclusión***: el QMP demostró ser apropiado para la evaluación y análisis del dolor en los pacientes con la Fibromialgia. ***Descriptores*:** dolor; dimensión del dolor; fibromialgia.

**RESUMO**

***Objetivo***: aplicar o questionário de McGill, traduzido e adaptado ao Brasil e identificar o grau de associação interna entre o grupo clínico de mulheres com fibromialgia e outro grupo de mulheres com dor de lombar. ***Método***: trata-se de pesquisa experimental com estudo caso-controle. A população consistiu de 83 pacientes com diagnóstico de fibromialgia e dor lombar atendidas em Ambulatório de Ortopedia e Traumatologia de um Hospital de Ensino em Fortaleza-CE, Brasil, de dezembro de 2005 a junho de 2006. Os critérios de exclusão foram adotados os seguintes: pacientes com déficits sensoriais e cognitivos, analfabetos, menores de 21 e maiores de 60 anos. Uma amostra de 50 pacientes foi obtida. Os grupos controle e experimental foram pareados e o MPQ foi aplicado aos dois grupos. O projeto desta pesquisa foi aprovado pelo Comitê de Ética da Universidade Federal do Ceará (04545014-5). ***Resultados*:** analisados comparativamente com estatística não-paramétrica (Kruskal-Wallis). Encontraram-se significativos valores de média e desvio padrão nas categorias sensorial e afetiva, com valores significantes de *p* para o descritor "cansativa". ***Conclusão***: o QMP demonstrou ser apropriado para avaliação e análise da dor em pacientes com fibromialgia. ***Descritores*:** dor; mensuração da dor; fibromialgia.

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## INTRODUCTION

Considering the complexity of the human being, assessing and measuring pain is not easy. The form, language and context of the pain assessment need to be adapted to the patients' reality.[1] In this sense, different materials, models, equipments or instruments have been used to measure pain in human beings, constituting pain assessment technology.[2]

This technology consists of unidimensional, multidimensional and behavioral instruments. Unidimensional tools assess one single pain dimension, while multidimensional ones evaluate more than one dimension, focus on pain intensity in the postoperative phase and the effect of analgesic therapy,[3] like in the case of the Tactile Pain Scale and the Pain Texture Scale.[2] In the multidimensional category, the McGill Pain Inventory,[4] the Wisconsin Brief Questionnaire[5] and the Memorial Pain Assessment Card[6] stand out. Behavioral instruments assess reactions related to the pain (Mood Scale, Beck).

The McGill Pain Questionnaire (MPQ),[4] provides quantitative and qualitative pain measures for statistical analysis. It is a self-reporting instrument in which the patient informs the pain site on anatomical drawings; indicates intensity on a ten-centimeter line with key words at the ends; pain descriptors constitute an inventory that is organized in three groups (sensory, affective and evaluative) and twenty subgroups.

In view of its cultural limitations, the MPQ requires translation. The Brazilian version has been called Br-MPQ.[7] For usage in patients with chronic pain, it includes words with different cultural meanings, added by temporal pain characteristics (continuous, rhythmic, momentary), appearance circumstance, analgesic interventions, spontaneous complaint and intensity with an alphanumerical anchor scale from 1 to 5, associated with words.[8] The need for research is justified to validate its applicability to patients with chronic pain in different cultural contexts.

Complains about chronic musculoskeletal pains are common in Trauma and Orthopedics Outpatient Clinics. Fibromyalgia is considered a syndrome or painful symptom of unknown cause and associated with other symptoms. It is characterized by diffuse musculoskeletal pain that is chronic to palpation, the tender points[9] that unleash the painful sensation. It affects 2% of the population and is responsible for 25% of consultations.[10]

Low back pain is a symptom that affects the lower dorsal region and gluteal fold, sometimes irradiating to the lower limbs. It appears in three forms: pain in the spinal column, hip pain and combined pain. Its origin has not been identified, but it can cause different degrees of motor disability. Its treatment is restricted to symptom relief.[11]

This research aimed to apply the McGill Questionnaire, translated and adapted to Brazil[8], and to identify the degree of internal association between this clinical group of women with fibromyalgia and another group of women with low back pain.

## METHOD

Clinical and experimental research that applies a multidimensional pain assessment technology, already validated in clinical pain situations[12,13] and in other cultural contexts.[7,8] Pain perception, intensity and location are compared between two groups.

The population consisted of 83 patients diagnosed with fibromyalgia and low back pain who attended the Orthopedics and Trauma Outpatient Clinic at a Teaching Hospital in Fortaleza-CE, Brazil, from December 2005 to June 2006. The following exclusion criteria were adopted: patients with sensory and cognitive deficits, illiterate, younger than 21 and older than 60 years. A sample of 50 patients was obtained.

After approval by the Research Ethics Committee (Opinion No 04545014-5) and after patients had signed the free and informed consent term, they were informed about the content and use of the McGill Questionnaire.[8] The MPQ consisted of identification data (gender, age, marital status, number of children, education level, city of origin, occupation and income); anatomical drawings of the human body to identify the pain site; an unnumbered ten-centimeter line with key words at the ends (no pain and unbearable pain); and, finally, the inventory of pain descriptors.

The sample was subdivided in two groups of 25 with fibromyalgia and 25 with low back pain, composing the test group (TG) and the control group (CG).

While applying the MPQ, the patients should indicate both the main pain site, marking it with an "X" on the anatomical drawings, and pain intensity on a ten-centimeter line. Next, they chose one descriptor from each subcategory to describe that pain, but they could also choose none of them. After applying the MPQ, the interviewer identified and wrote down the region of the

main pain site; measured and wrote down this pain measure on a ten-centimeter line; and finally added the descriptors for each subgroup: sensory (1 to 10), affective (11 to 15), evaluative (16) and miscellaneous (17 to 20).[8]

The two paired groups were compared by analyzing and discussing the results. Fibromyalgia patients constituted the test group (TG), while low back pain patients comprised the control group (CG). Data for both were organized in SPSS (Version 13.0), using the main pain site variables, pain intensity scores and descriptors.

## RESULTS

As mentioned, the sample consisted of 50 women, subdivided in 25 with fibromyalgia and 25 with low back pain. The former served as the test group and the latter as the control group. Table 1 displays the sample profile according to demographic data found without intergroup comparison.

**Table 1**. Demographical data of female research participants. Fortaleza, Ceará, Brazil, 2006.

| Number | n=50 |
|---|---|
| Mean age (interval) | 45.6 (35 – 60 years) |
| **Civil Status** | |
| Married | 32(64%) |
| Divorced | 18(36%) |
| **Education Level** | |
| Basic education | 37(74%) |
| Secondary education | 10 (20%) |
| Higher education | 3 (6%) |
| **City Of Origin** | |
| Fortaleza | 48 (96%) |
| **Children** | |
| 2 - 3 children (mean) | 25(50%) |
| **Occupation** | |
| Housewife | 37(74%) |
| Domestic servant | 13(26%) |
| **Family Income (mean in Minimum Wages)** | |
| 1 - 3 | 27.5(55%) |
| < 1 | 22.5(45%) |

According to the results, the interval average for age was 45.6 years. Most participants were married (64%), had finished basic education (74%), came from Fortaleza, Brazil (96%), had two or three children (50%), worked at home (74%) and gained a family income between one and three minimum wages (55%).

Table 2 correlates the intensity scores and pain sites in the trigger points region, mentioned by the women from the test group and control group.

**Table 2.** Comparison between main pain site and intensity between fibromyalgia and low back pain groups. Fortaleza,Ceará, Brazil, 2006.

| Main Pain Site | Fibromyalgia (N=45) | | | Low Back Pain (N=25) | | | Kruskal-Wallis* |
|---|---|---|---|---|---|---|---|
| | % | Intensity | | % | Intensity | | |
| | | MD ± | SD | | MD± | SD | |
| Occipital | 8.9 | 0.07 | 0.252 | 4.0 | 0.04 | 0.200 | 0.221 |
| Trapezium | 20.0 | 0. 21 | 0.318 | 8.0 | 0.08 | 0.277 | 0.368 |
| Chondrocostal | 48.9 | 0.47 | 0.505 | 60.0 | 0.60 | 0.500 | 0.116 |
| Epicondyle | 6.7 | 0.07 | 0.252 | 8.0 | 0.08 | 0.277 | 0.157 |
| Gluteus | 6.7 | 0.07 | 0.252 | – | – | – | 0.00 |
| Trochanter | – | – | – | 8.0 | 0.08 | 0.277 | 1.00 |
| Interscapular | 4.4 | 0.04 | 0.208 | 4.0 | – | – | 0.480 |
| Cervical | 11.1 | 0.11 | 0.318 | 4.0 | – | – | 0.157 |

* Association considered significant when p < 0.10

According to table 2, seven pain sites were mentioned by fibromyalgia patients and five by low back pain patients. The main pain intensity scores were significant in the chondrocostal muscle region for the test group (M =0.47) and for the control group (M=0.60), with a significant standard deviation between the groups (SD test = 0.505; SD control = 0.500) (Table 2).

It can also be perceived that Table 2 contains different muscle regions in both samples. In the test group, the trochanter region was not found as the main pain site. Therefore, it is of little significance ($p$=1.00) for comparative analysis. In the control group, the gluteal regions were not present as main pain sites. Thus, in the two groups, considering them as random in a single sample (Kruskal-Wallis), significance was found for the chondrocostal region ($p$ = 0.116). When observed independently, in each group, this region showed approximate calculations of mean and standard deviation.

Table 3 correlates the MPQ descriptors chosen by the women from the fibromyalgia group and from the low back pain group, using dimension.[4] The obtained scores represent percentiles of more than 30% of the sample

for both groups. As to the percentiles of the descriptors with scores below 30%, a majority (86%) belonged to the affective category in the test group and 14% of the control group.

**Table 3.** Correlation between McGill pain descriptors indicated by the fibromyalgia and back pain group. Fortaleza Ceará, Brazil, 2006.

| Category | Descriptor | Fibromyalgia (%) | Low back pain (%) | Cramer's V* |
|---|---|---|---|---|
| Sensory | Vibrating | – | 72.2 | 0.955 |
| | Beating | 60.0 | – | |
| | Jumping | 61.9 | 80.0 | 0.215 |
| | Flashing | 33.3 | – | |
| | Pricking | 55.0 | 66.7 | 0.298 |
| | Sharp | 75.0 | 72.7 | 0.265 |
| | Pinching | – | 46.7 | 0.619 |
| | Gnawing | – | 40.0 | |
| | Pinching | 31.6 | – | 0.540 |
| | Tugging | – | 62.5 | |
| | Pulling | 47.4 | – | |
| Affective | Hot | 44.4 | 33.3 | 0.437 |
| | Burning | 38.9 | – | |
| | Scalding | – | 33.3 | |
| | Itching | – | 45.8 | 0.614 |
| | Smarting | 38.1 | – | |
| | Dull | – | 47.8 | 0.409 |
| | Tender | 47.6 | 87.5 | 0.511 |
| | Tiring | 80.0 | 82.5 | 0.033 |
| | Sickening | 60.0 | 50.0 | 0.098 |
| | Suffocating | 40.0 | 50.0 | |
| | Fearful | 52.9 | – | 0.508 |
| | Frightful | 41.2 | 41.9 | |
| | Terrifying | – | 45.5 | |
| Evaluative | Punishing | – | 75.0 | 0.665 |
| | Grueling | 43.5 | – | |
| | Wretched | 52.0 | – | 0.812 |
| | Binding | – | 80.0 | |
| | Annoying | – | 56.0 | 0.669 |
| | Troublesome | 60.0 | – | |
| Miscellaneous | Spreading | 48.0 | 32.0 | 0.310 |
| | Radiating | – | 32.0 | |
| | Squeezing | 32.0 | – | 0.624 |
| | Cool | – | 72.0 | 0.558 |
| | Nagging | 38.0 | 60.0 | 0.365 |

As perceived, the fibromyalgia group presents the following predominant pain descriptors: "sharp" (75%) for the sensory category; "tiring" (80%) in the affective category; "troublesome" (60%) in the evaluative category; and, finally, "spreading" (48.0%) in the miscellaneous category. Among the women with low back pain, "tender" (87.5%) predominated in the sensory; "tiring" (82.5%) in the affective; "annoying" (56%) in the evaluative; and "cool" (72%) in the miscellaneous category. Crammer's V coefficient with $p<0.10$ showed that the nominal association among descriptors for both groups was considered significant in the affective dimension with the "tiring" ($p=0.033$) pain descriptor. Below $p=0.010$, significant descriptors were found in the test group: "sickening" (60.0%) and "suffocating" (60%) with $p=0.098$.

Table 4 shows percentages (%) and means (M) for each category in the Brazilian version[8] of the descriptor inventory in the McGill questionnaire. As evidenced, the scores were distributed in four categories (sensory, affective, evaluative and miscellaneous) for the test group and for the control group.

**Table 4.** Percentile and means of MPQ categories indicated by fibromyalgia and low back pain groups. Ceará, Fortaleza, Brasil, 2006.

| Categories | Fibromyalgia (N=985; 54.69%) | | Low back pain (N=816; 45.31%) | |
|---|---|---|---|---|
| | % | Mean ± | % | Mean ± |
| **Sensory** | 27.97 | 503.00 | 25.7 | 463.00 |
| **Affective** | 13.82 | 249.00 | 8.55 | 154.00 |
| **Evaluative** | 3.06 | 65.00 | 3.72 | 67.00 |
| **Miscellaneous** | 9.32 | 168.00 | 7.32 | 132.00 |

As identified in Table 4, the sensory category predominated with more significant scores for the test group (percentile=27.97%; M=503.00). The means and percentiles of the sensory category in both groups were higher (TG=27.97%; M=503.00). Although Table 3 shows the predominance of the sensory category, in line with these findings, the significant descriptor, i.e. "tender" (87.5%) for this category, was reported by patients in the control group. Less significant percentiles and means were found for both groups in the evaluative category (TG = 3.6% and M=65.00; CG=3.72 % and M=67.00).

## DISCUSSION

In general, chronic pain is a symptom that is hard to assess because it is a subjective experience that is influenced by different factors (environmental, emotional, behavioral and social, among others). As identified, the sample characteristics indicate the predominance of female patients with fibromyalgia, especially in the age range from 35 to 60 years. These results are also common facts in research[14-5] that highlights the prevalence of female fibromyalgia patients, with a mean age of 38.7 years old, mostly married and with low education level.

Moreover, in its gender context, the sample can add up mental, physical and social burdens due to the type of occupation (housewife), number of children (average of 2-3) and family income (1-3 minimum wages). Patients with chronic pain tend to have a long history of pain, distinct mental suffering, labor and physical commitment. These conditions can favor the extension of pain and suffering,[15] impair physical and mental mobility and deteriorate quality of life. One research about literature review showed that nursing professionals developed low back pain from multicausal factors.[16] However, gaps exist about intervention researches.

In this research, the application of the Brazilian version[8] of the McGill Questionnaire to women with fibromyalgia and low back pain, provided evidence about the location, intensity and description of the pain feeling. As to the pain location, the comparison between the fibromyalgia and the low back pain group produced significant results for the chondrocostal muscle region in both groups, although with greater dispersion for the test group of women with fibromyalgia (SD teste = 0.505; SD control = 0.500). As mentioned in literature, the chondrocostal region or chondrocostal joint, where the second rib fits into the sternal bone, has been one of the common painful points in fibromyalgia cases.[14] In a research on clinical, emotional and cognitive evidence of women with fibromyalgia,[17] a high frequency of this anatomical region was also observed, followed by the trapezium and muscle region of the hips.

In this research, the women with fibromyalgia presented seven bilateral painful points spread across the chondrocostal, trapezium and cervical regions (Table 2). This differs from the American College of Rheumatology (ACR), which defines fibromyalgia by the association of symptoms (fatigue, lack of disposition and sleep disorder) with the existence of 11 to 18 bilateral painful points in the body detected by digital pressure of 4 kg/cm$^2$.[2,11] After study results on fibromyalgia diagnoses,[18] researchers suggest that patients with less than 11 points could also be considered fibromyalgic, provided that other signs and symptoms are present.

As observed, the muscles indicated by the sample as the main pain sites were distinguished independently of the right or left since of the body, in line with the actual irradiation to both body sites. In fact, fibromyalgia is a diffuse pain present in the axial skeleton and in both hemi-bodies, above and below the waist.[10] This finding is in line with research results about pain assessment in women with fibromyalgia.[13]

Moreover, the referred main pain site and intensity, although distinct between both groups, showed significant intergroup relations. These data differ from other research findings that obtained with a low significance level[15] when relating demographic, therapeutic and psychosocial variables between the two groups. However, other comparative studies[18] between patients with fibromyalgia and low back pain found a predominance of pain dispersed across a large number of body surfaces in fibromyalgia patients.

As to the use of the MPQ word or descriptor interview, the sample has a sufficient education level to use the MPQ, justified by the fact that the majority finished basic education (74%). Moreover, cognitive and sensory deficits that could commit the understanding of the questionnaire during its application were excluded.

Both groups chose descriptors in all four categories, especially in the affective category. The group with fibromyalgia obtained a higher percentage of selected words than the group with low back pain, as the percentile of the descriptors under 30% was chosen by the first group and was inserted in the affective category (Table 3). A research[3] performed with patients in chronic pain found significant “affective” descriptors in the use of MQP.

Moreover, it was identified that patients with low back pain used more words to describe their pain, predominantly the following descriptors: “tiring” (82.5%) and “suffocating” (50%). The pain descriptor “sickening” (60%) was most mentioned by the test group. These descriptors are inserted in the affective category of the MPQ and, in this nominal association between descriptors in the test and control group, this dimension of

the MPQ was considered significant, with $p$=0.033 measured by Crammer's V-coefficient for subgroup 11, containing "tiring", and $p$=0.098 for subgroup 12, considering $p$<0.10. According to this result, the affective dimension of the pain is more evident in the group of patients with low back pain, while the sensory dimension predominates in the group of women with fibromyalgia. Other studies[13,19] that compared the use of the MPQ between patients with fibromyalgia and low back pain, as opposed to this study's findings, describe that patients with FM generally characterize their pain and qualitatively more significant, using a large number of words from the McGill Questionnaire.

## CONCLUSIONS

As concluded in this research, the MPQ showed to be multidimensional technology to effectively and reliably assess the pain quality, intensity and site in women with fibromyalgia on the one hand and low back pain on the other. Hence, it can be used in different clinical situations.

The affective perception of pain was stronger for patients with musculoskeletal pain, particularly for the women with low back pain, which differs from other studies and research. Perhaps the duration of the low back pain characterizes that this group chose more descriptors.

The main pain mentioned by both groups was located in the chondrocostal region, suggesting a more accurate clinical study in the women with low back pain to verify the existence of trigger points and associated symptoms of fibromyalgia.

Finally, this instrument can be applied in the brazilian version elaborated for Portuguese, considering the characteristics of the study sample, after eliminating the exclusion factors and in view of the sociodemographic variables.

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