

# Pain Descriptors Characteristic of Persistent Facial Pain

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*The McGill Pain Questionnaire is an instrument that is widely used to assess the multidimensional experience of pain. Although it was introduced more than 20 years ago, limited information is available about its use in patients suffering from persistent facial pain. The aim of this study was to investigate the response patterns of persistent facial pain patients to the McGill Pain Questionnaire, to correlate these patterns with patients' beliefs about the seriousness of the condition, and to compare the findings with data reported from other painful conditions. The study sample consisted of 200 consecutive female patients referred to a tertiary care facial pain clinic. The Pain Rating Index scores of the McGill Pain Questionnaire subscales and the total number of words chosen by these patients closely matched the summary scores reported by Wilkie et al, who pooled data from seven pain conditions (cancer, chronic back, mixed chronic, acute/postoperative, labor/gynecological, dental, and experimentally induced) in their meta-analysis. On the other hand, when the data collected in this study were compared with those from specific clinical subsets, such as cancer patients, chronic back pain patients, or dental patients, differences in McGill Pain Questionnaire scores could be identified. Differences were also found in the choice of specific pain descriptors. More than 20% of the facial pain patients selected "radiating" and "pressing"; this was not the case for those suffering from other pain conditions. Facial pain patients who felt that their condition was more serious or different from what the treatment providers had told them had a greater likelihood of choosing specific word categories of the McGill Pain Questionnaire.*

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**I**t is generally recognized that pain is a personal, subjective experience that comprises sensory, affective, evaluative (cognitive), and behavioral components.<sup>1,2</sup> The McGill Pain Questionnaire (MPQ) is a well-established tool designed specifically for assessing the multidimensional aspects of pain.<sup>3,4</sup> The main portion of this instrument consists of 78 adjectives (pain descriptors) arranged according to their semantic meanings into 20 different word categories. These categories reflect the sensory (eg, temporal and spatial properties), affective (eg, tension and fear), and cognitive-evaluative dimensions of the pain experience.<sup>5</sup>

Although the MPQ was introduced more than 20 years ago<sup>4</sup> and has been used for the assessment of pain in a variety of different conditions,<sup>6,7</sup> only limited data are available about how patients suffer-

ing from persistent facial pain score on this instrument or which words they select. In light of the relatively high prevalence of facial pain,<sup>8</sup> this dearth of information is surprising.

The purpose of this study was (1) to investigate the response patterns of persistent facial pain patients to the MPQ, (2) to correlate these patterns with the patients' beliefs about the seriousness of the condition, and (3) to compare these findings with data reported about other painful conditions.

## Materials and Methods

### Patients

This study was based on 200 consecutive female patients referred to a university-based tertiary care facial pain clinic. The investigation was limited to females because they represent the overwhelming majority (> 95%) of patients seen in this clinic. Patients were predominantly of European descent (91.5%); and their median age was 36 years, ranging from 15 to 74 years. Patients experienced pain for a median of 48 months, with a range from 1 to 588 months. They were seen by a median of 3 treatment providers (range = 1 to 32).

The majority (57%) of the patients were married. Thirty percent were single (never married), 7% were divorced, 2% separated, and 2% widowed; another 2% reported a stable relationship with a significant other. One hundred ninety-eight (99%) of the patients had musculoskeletal problems that are often collectively described as "temporomandibular disorders" (TMD). Four patients (2%) in this sample were diagnosed with trigeminal neuralgia, with or without concomitant TMD symptoms.

### Data Collection

On the MPQ, patients were instructed to circle only those words that they believed would best describe their current facial pain. They were reminded that they should never circle more than one word in a group, and that they should not circle any word in a group if no word in that group described their pain. Patients were also asked whether they thought their pain was caused by something more serious than or different from what their doctors had told them.

### Data Analysis

A summary score known as the Pain Rating Index (PRI) was calculated for each patient by adding the

rank values attached to the specific words within their category. Individual scores were then totaled, and an average PRI score was calculated. Similarly, the scores for the MPQ subscales—namely PRI-sensory, PRI-affective, PRI-evaluative, and PRI-miscellaneous—were computed, as were the number of words chosen (NWC). The MPQ pain descriptors were ranked according to the frequency with which they were selected. Additionally, the frequency with which each word group was and was not chosen was determined, and the groups were ranked accordingly.

### Statistical Analysis

Spearman's rank correlation coefficients between the MPQ scores of the 20 word groups, the PRIs of the four MPQ subclasses, and the NWC were computed. Nonparametric statistics were used because the distributions of many of the variables were not normal. Fisher's Exact test was used to assess the relationship between (1) the likelihood of choosing a word from a particular group on the MPQ and (2) whether or not patients felt that their pain was caused by something more serious than or different from what providers had told them. All statistical analyses were performed with SPSS Professional Statistics 6.1.<sup>9</sup>

## Results

The mean PRI-total score was 24.3 (maximum possible score = 78); the corresponding mean values for the four MPQ classes were 14.4 for PRI-sensory (maximum possible score = 42), 2.6 for PRI-affective (maximum possible score = 14), 2.9 for PRI-evaluative (maximum possible score = 5), and 4.4 for PRI-miscellaneous (maximum possible score = 17). Thus, the mean score for PRI-evaluative reached 58% of the maximum possible value, and those for PRI-total and PRI-sensory exceeded 30% of the maximum, whereas the mean score for PRI-miscellaneous was about 25% and for PRI-affective less than 20% of the maximum possible score. The median number of words selected was 10.

Adjectives were ordered according to the frequency with which they were selected; Table 1 shows the words that were most frequently selected by more than 20% of the patients. Eight words, including *aching*, *tight*, *throbbing*, and *tender*, were chosen by more than 30% of the patients. Among the 20 word groups, the category that assesses the evaluative dimension of pain was

**Table 1** Ranking of MPQ Words Chosen by More Than 20 Percent of Patients (n = 200)

Adjective	Group	Rank	No. chosen	Percent
Arching	S9	4	105	52.5
Tight	M18	1	92	46.0
Throbbing	S1	4	87	43.5
Tender	S10	1	85	42.5
Exhausting	A11	2	73	36.5
Nagging	M20	1	72	36.0
Sharp	S4	1	71	35.5
Tiring	A11	1	70	35.0
Shooting	S2	3	60	30.0
Stabbing	S3	4	57	28.5
Radiating	M17	2	51	25.5
Annoying	E16	1	49	24.5
Sickening	A12	1	45	22.5
Burning	S7	2	45	22.5
Pressing	S5	2	44	22.0
Intense	E16	4	41	20.5

S = sensory; A = affective; E = evaluative; M = miscellaneous.  
In the Group column, the number following S, A, E, or M refers to the MPQ word group. The number in the Rank column refers to the rank of the specific adjective within its word group.

**Table 2** MPQ: Number and Percentage of the Times a Specific Group of Words Has Not Been Chosen (n = 200)

No.	Percent	Group
182	91.0	M19 (Miscellaneous: sensory)
171	85.5	A15 (Affective: miscellaneous)
158	79.0	A13 (Affective: fear)
148	74.0	A12 (Affective: autonomic)
148	74.0	A14 (Affective: punishment)
135	67.5	S8 (Sensory: brightness)
132	66.0	S7 (Sensory: thermal)
124	62.0	S2 (Sensory: spatial)
123	61.5	S6 (Sensory: traction pressure)
112	56.0	S4 (Sensory: incisive pressure)
99	49.5	S3 (Sensory: punctate pressure)
67	33.5	M18 (Miscellaneous: sensory)
67	33.5	M17 (Miscellaneous: sensory)
67	33.5	S1 (Sensory: temporal)
65	32.5	S5 (Sensory: constrictive pressure)
62	31.0	S10 (Sensory: miscellaneous)
57	28.5	A11 (Affective: tension)
052	26.0	M20 (Miscellaneous: affective-evaluative)
12	06.0	S9 (Sensory: dullness)
09	04.5	E16 (Evaluative)

**Table 3** Spearman's Rank Correlation Coefficients for MPQ-Related Parameters

	Pain Rating Index					NWC
	Total	Sensory	Affective	Evaluative	Miscellaneous	
Pain Rating Index						
Total	1.0					
Sensory	.90	1.0				
Affective	.71	.45	1.0			
Evaluative	.60	.35	.54	1.0		
Miscellaneous	.76	.51	.57	.51	1.0	
NWC	.90	.84	.70	.42	.68	1.0

NWC = number of words chosen.

selected most often. On the other hand, some groups of adjectives were chosen very infrequently (Table 2).

The correlations between the 20 MPQ word groups were quite low (minimum:  $r_s = .03$ ; maximum:  $r_s = .57$ ), suggesting that the groups measure different aspects of the pain experience. The correlation coefficients between each pair of the four MPQ subclasses ranged between  $r_s = .35$  (sensory

and evaluative) and  $r_s = .57$  (affective and miscellaneous) (Table 3). Spearman's correlation coefficients greater than  $r_s = .8$  were obtained for the following three subscales of the MPQ: PRI-sensory and PRI-total ( $r_s = .90$ ), PRI-total and NWC ( $r_s = .90$ ), and PRI-sensory and NWC ( $r_s = .84$ ).

Thirty-six patients believed their condition to be more serious than or different from what they had been told by their providers. When relating this

**Table 4** Relation Between the Patient's Belief About the Seriousness of Her Condition and Her Likelihood of Choosing a Particular Group on the MPQ

Group	Condition more serious?		P value
	No	Yes	
S2 (Sensory: spatial)	35.0	55.6	.033
S3 (Sensory: punctate pressure)	45.3	80.6	<.001
S8 (Sensory: brightness)	26.5	52.8	.005
A12 (Affective: autonomic)	22.2	44.4	.018
A13 (Affective: fear)	12.8	50.0	<.001
A14 (Affective: punishment)	17.1	41.7	.005
A15 (Affective: miscellaneous)	11.1	30.6	.008
M17 (Miscellaneous: sensory)	63.2	83.3	.026
M19 (Miscellaneous: sensory)	6.8	22.2	.024
S1 (Sensory: temporal)	65.0	69.4	.691
S4 (Sensory: incisive pressure)	46.2	50.0	.707
S5 (Sensory: constrictive pressure)	62.4	72.2	.323
S6 (Sensory: traction pressure)	37.6	38.9	1.0
S7 (Sensory: thermal)	28.2	38.9	.301
S9 (Sensory: dullness)	95.7	91.7	.393
S10 (Sensory: miscellaneous)	64.1	72.2	.425
A11 (Affective: tension)	65.8	75.0	.414
E16 (Evaluative)	96.6	91.7	.356
M18 (Miscellaneous: sensory)	62.4	69.4	.552
M20 (Miscellaneous: affective-evaluative)	69.2	86.1	.053

This table shows how often (in percent) patients who thought their condition was not ("no") more serious than or different from what they had been told by their providers chose a word in a certain MPQ group. This distribution of the choice of words is compared with patients who thought their condition was ("yes") more serious than or different from what they were told. For example, 55.6% of those who thought their condition was more serious or different chose a word from the "sensory: spatial" group, whereas only 35% of the patients who believed their condition was not more serious or different from what they had been told selected a word from that group.

P values (Fisher's Exact test, two-tailed) indicate statistically significant differences with regard to the number of times a word in a particular MPQ group had been chosen when the "no" and "yes" groups were compared. The P values are not corrected for multiplicity. Since a total of 20 tests was performed, Bonferroni-corrected P values may be obtained by multiplying those shown by 20.

P values above the horizontal line indicate significant differences between the two groups.

perception to the likelihood of choosing a particular group of the MPQ, nine groups of words showed a statistical difference, ie, patients who thought their condition was more serious than or different from what their providers had told them were more likely than other pain patients to choose words from these groups (Table 4).

## Discussion

These results were compared with the meta-analysis by Wilkie and coworkers,<sup>7</sup> which was based on a MEDLINE literature search covering the years 1975 to 1987. Of the 102 articles identified, 51 met the inclusion criteria of either having reported mean scores for at least two of the seven MPQ scores (PRI-total, PRI-sensory, PRI-affective, PRI-evaluative, PRI-miscellaneous, NWC, and present pain index), or having provided data about the percentage of a study sample selecting particular words. Altogether, 3624 subjects with seven different pain

conditions (cancer, chronic back, mixed chronic, acute/postoperative, labor/gynecological, dental, and experimentally induced) were included in their meta-analysis. To ensure that average scores from those studies with a large number of subjects were more influential, the authors computed weighted mean scores.<sup>7</sup>

Overall, the MPQ scores from the present study, as well as the number and kind of words selected, were remarkably similar to the pooled scores of the seven pain conditions from the study by Wilkie and coworkers.<sup>7</sup> These authors reported a pooled PRI-total mean score of 23, a PRI-sensory score of 13.9, a PRI-affective score of 3.3, a PRI-evaluative score of 2.5, and a PRI-miscellaneous score of 4.9; the NWC was 9.2. The corresponding scores in our sample were 24.3, 14.4, 2.6, 2.9, 4.4, and 10.

Wilkie et al<sup>7</sup> also calculated separate PRI scores for each of the seven pain conditions, which highlight the distinct differences between those suffering from the various other pain conditions and the patients in our investigation. For example, the

patients in our sample were clearly distinguishable from low back pain patients, who had markedly higher mean PRI-sensory (16.3), PRI-affective (5.5), and PRI-miscellaneous (5.6) scores. On the other hand, cancer patients are characterized by a noticeably lower PRI-sensory score (12.1) and a higher PRI-affective score (4.8). Patients with dental pain have low PRI-sensory (10.7), PRI-affective (1.8), PRI-miscellaneous (3.8), and NWC (8.2) scores.

Certain adjectives seem to be unique to specific pain conditions. For example, the pain descriptors *radiating* and *pressing* were selected by facial pain patients in more than 20% of the cases, but less frequently by patients suffering from any of the other pain conditions. In cancer pain, patients chose 18 words more than 20% of the time, among them *torturing* (54%; facial pain patients, 9.5%) and *terrifying* (38%; facial pain patients, 5.5%).<sup>7</sup> In other pain conditions, such as headache,<sup>10,11</sup> toothache,<sup>12</sup> leg pain,<sup>13</sup> and low back pain,<sup>14</sup> the MPQ has been shown to have discriminative capacity. Melzack and colleagues<sup>15</sup> considered the discriminative power of the MPQ for trigeminal neuralgia and atypical facial pain, two relatively rare facial pain conditions. They suggested that pain descriptors can indeed be helpful in discriminating between these pain conditions. Trigeminal neuralgia patients were more likely to choose the words *flashing* (S2), *terrifying* (A13), *blinding* (A15), and *torturing* (M20). Atypical facial pain patients, in contrast, tended to select *vicious* (A14), *excruciating* (verbal descriptor for the assessment of present pain intensity), and *diffuse* (this word was added to the list of adjectives for the purpose of the study). Melzack et al argued that these word choices were related to differences in the emotional states of the patients. Atkinson et al<sup>16</sup> observed that the degree of affective disturbance in persistent pain patients has an influence on their choice of words. Patients with a greater affective disturbance not only have the tendency to select more words, but they are also more likely to choose pain descriptors with a higher rank value.<sup>16</sup> Thus, increased emotional disturbance can be one of several confounders that decreases the discriminative power of the MPQ in distinguishing different pain conditions.

In our study, those patients who believed their pain to be more serious than or different from what providers had told them selected more affective words, and the adjectives assessing fear (A13) were most significant. Since patient beliefs about the seriousness of the conditions influenced their likelihood of choosing words from a specific cate-

gory, we conclude that the selection of pain adjectives was modified by cognitive factors.

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## Resumen

### Características de las Palabras Utilizadas para la Descripción del Dolor en los Casos de Dolor Facial Persistente

El cuestionario de Dolor de McGill es un instrumento utilizado ampliamente para evaluar la experiencia multidimensional del dolor. Aunque fue introducido hace más de 20 años, existe sólo información limitada acerca de su uso en pacientes que sufren de dolor facial persistente. El propósito de este estudio fue el de investigar los patrones de respuesta de los pacientes con dolor facial persistente, al Cuestionario de Dolor de McGill, para correlacionar estos patrones con las creencias de los pacientes acerca de la severidad de la condición, y para comparar los hallazgos con la información reportada en otros estados de dolor. La muestra del estudio incluyó a 200 mujeres consecutivas remitidas a una clínica de dolor facial, de cuidado terciario. Las puntuaciones del Índice de Clasificación del Dolor de las subescalas del Cuestionario de Dolor de McGill y el número total de palabras seleccionadas por estas pacientes, concordaban fielmente con el resumen de las puntuaciones reportadas por Wilkie y colaboradores en su meta-análisis. Estos autores combinaron la información de las condiciones de siete estados de dolor (dolor por cáncer, dolor de espalda crónico, estados de dolor crónicos mixtos, dolor postoperatorio/agudo, dolor ginecológico y durante el parto, dolor de origen dental, y dolor inducido experimentalmente). Por otra parte, cuando se comparó la información reunida en este estudio con aquella de subgrupos clínicos específicos, tales como pacientes con cáncer, pacientes con dolor de espalda crónico, o pacientes odontológicos, se pudieron identificar diferencias en las puntuaciones del Cuestionario de Dolor de McGill. También se encontraron diferencias en la selección de las palabras específicas para describir el dolor. Más del 20% de los pacientes con dolor facial seleccionaron las palabras "irradiado" y "apremiante"; este no fue el caso para aquellos que sufrían de otros estados de dolor. Los pacientes con dolor facial quienes percibieron que su estado era más serio o diferente en comparación con lo que les habían informado las personas que les habían suministrado el tratamiento; tenían más probabilidad de seleccionar categorías de palabras específicas del Cuestionario de Dolor de McGill.

## Zusammenfassung

### Verbale Schmerzcharakterisierung bei persistierendem Gesichtsschmerz

Der McGill Pain Questionnaire (MPQ) ist eine mehrdimensionale Adjektivliste, mit deren Hilfe Patienten eine qualitative Beschreibung ihres Schmerzerlebens geben können. Der MPQ besteht aus 78 Adjektiven, die in 20 Wortgruppen zusammengefaßt sind. Obwohl der MPQ vor mehr als 20 Jahren eingeführt wurde, fand er nur selten für die Diagnostik von Patienten mit Gesichtsschmerzen Anwendung. Ziel der vorliegenden Untersuchung war es, Informationen über die verbale Schmerzcharakterisierung bei 200 Patientinnen mit persistierenden Schmerzen im Gesichtsbereich zu gewinnen. Wir verglichen unsere Ergebnisse mit denen von Wilkie et al (1992), welche in einer auf 51 Studien beruhenden Meta-Analyse sieben verschiedene Schmerzzustände berücksichtigten (Tumorschmerzen, chronische Rückenschmerzen, verschiedene chronische Schmerzen, akute/postoperative Schmerzen, Wehen-/gynäkologische Schmerzen, Zahnschmerzen, experimentell erzeugte Schmerzen). Wenn, jeweils getrennt für die vier MPQ-Subskalen sowie die Gesamtzahl der gewählten Wörter, die Werte aller bei Wilkie et al (1992) genannten sieben Schmerzzustände zu einem gepoolten Gesamtwert zusammengefaßt werden, ergibt sich eine enge Übereinstimmung mit den Ergebnissen unserer Studie. Demgegenüber werden bei einem Vergleich der Gesichtsschmerz-Patientinnen mit definierten Patientengruppen (z. B. Tumorpatienten, Patienten mit chronischen Rückenschmerzen, Patienten mit Zahnschmerzen) Unterschiede bezüglich der in den MPQ-Subskalen erzielten Durchschnittswerte deutlich. Auch im Hinblick auf die Wahl bestimmter Adjektive sind Differenzen vorhanden: Mehr als 20% unserer Patientinnen wählten "ausstrahlend" und "drückend," was bei keinem der von Wilkie und Mitarbeitern aufgeführten Schmerzzustände der Fall war. Gesichtsschmerzpatientinnen, die glaubten, ihre Schmerzen seien ernsterer Natur oder hätten eine andere Ursache als von ihren jeweiligen Behandlern dargestellt, wählten bestimmte MPQ-Wortgruppen mit einer höheren Wahrscheinlichkeit.

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