Temporomandibular Joint Pain Assessment

The aim of this study was to evaluate pain characteristics of patients with temporomandibular joint-related pain and propose a rationale for the assessment of pain and its impact on patients with temporomandibular disorders. Based on anamnestic information, the 88 patients in the sample were classified according to pain grade: (1) acute/subacute nonrecurrent or recurrent pain, n = 41 (46.6%); (2) persistently recurring pain in relatively high frequency, or nonsevere persistent pain, n = 32 (36.4%); (3) persistent and impairing pain, n = 8 (9.1%); (4) persistent and disabling pain, n = 7 (7.9%); and (5) persistent and handicapping pain, n = 0. Regarding TMJ pain provoked during the clinical examination, there was a significant difference among diagnostic subgroups, subgroups with different pain intensity levels, and pain grade subgroups, but no significant differences could be found based on the duration of the pain symptoms. Subgroups also did not significantly differ in scores on the Multidimensional Pain Inventory and the General Health Questionnaire. Based on the results of the study, the assessment of nonchronic TMJ pain may generally be limited to an accurate description of the pain complaint and thorough clinical assessment. Multidimensional assessment may be useful when the TMJ pain persists or is persistently recurring. Depending on individual circumstances, additional assessment procedures may prove to be useful. A general strategy for pain assessment in temporomandibular disorders is proposed.

J OROFACIAL PAIN 1993; 7:23–37

B. Stegenga, DDS, PhD
TMJ Research Group
Department of Oral and Maxillofacial Surgery

L.G.M. de Bont, DDS, PhD
Associate Professor
Department of Oral and Maxillofacial Surgery

G. Boering, DDS, PhD
Professor and Chairman
Department of Oral and Maxillofacial Surgery

University of Groningen Hospital
PO Box 30.001
9700 RB Groningen, The Netherlands

Correspondence to Dr Stegenga

Temporomandibular disorders (TMD) comprise disorders of the temporomandibular joint (TMJ) itself (eg, osteoarthrosis, internal derangement, fractures, infections and tumors, and inflammatory disorders) and of its associated muscles (eg, myofascial pain, bruxism, muscle contracture, cramps, tenomyositis).[1] Of the symptoms and signs of TMD, the presence of pain is a common reason for many patients to seek treatment. As a consequence, these patients tend to judge the treatment result primarily by the reduction of this symptom.

The major objectives of pain assessment are:

1. To obtain a precise description of the pain problem
2. To determine the contribution of any existing pathology
3. To determine the impact of the pain on the functioning, psychologic state, and general well-being of the patient

The information relevant to the individual pain problem should be systematically assessed to provide a baseline for subsequent follow-up examinations and evaluation of treatment or management results.

Usually, assessment of pain associated with TMD is far from comprehensive. In many studies, only the presence or absence of pain is reported.[2-8] When pain is actually assessed, rating scales[9-11] or visual analog scales[12-16] are most frequently used, thus reflecting the tendency to limit the assessment to a single dimension, ie, pain intensity.

This is in contrast with the progress made regarding pain assessment during the past decade.[17–21] In the modern literature about pain, its multidimensional nature is emphasized.

Melzack[22] suggested a three-dimensional model of pain, including sensory, affective, and evaluative components. Price et al[23] recently supported the importance of using separate measures for the affective and sensory dimensions of pain. This model has led to more comprehensive approaches to pain measurement, such as the McGill Pain Questionnaire.[22] Contrary to the studies in support of a three-dimensional model,[24,25] others suggest that the distinction between affective and evaluative components is superfluous[26–28] This would favor a two-component model: a sensory and a reactive pain component, the latter including cognitive and emotional factors.

Loeser[29] developed a model that is generally accepted today, incorporating four categories involved in any type of pain:

1. *Nociception*, involving mechanisms associated with the reception and conversion of tissue-damaging (noxious) stimuli into neural impulses and the transmission of such impulses to the system
2. *Pain perception,* which is the interpretation of the stimulus as being painful (sensory discomfort)
3. S*uffering,* referring to the pain experience, in which the sensory discomfort is modified by psychologic, cognitive, emotional, behavioral, motivational, and environmental factors
4. *Pain behavior,* involving the patient's actions that indicate suffering

Because it is the suffering for which the patient seeks treatment, pain assessment relies on indirect estimation of nociceptive input and the resulting sensory discomfort (the sensory component), and on aspects that determine the pain experience (the reactive component). Thus, the Loeser model appears to support the two-component approach to pain assessment.

Pain associated with TMD may result from stimulation of nociceptors located in the TMJ, the masticatory muscles, or both. Temporomandibular nociceptors are located in the capsule and ligamentous attachments (eg, disc attachments and retrodiscal tissue), at perivascular sites, and in the subchondral bone. Myogenous pain may originate in skeletal muscles, their tendons, and fascial sheaths. Effective therapy depends on accurate identification of the primary sources of pain. An objective of temporomandibular pain assessment is therefore to distinguish joint pain from muscle pain, and to identify the type of arthralgia or myalgia as precisely as possible. An important complementary objective is to evaluate the effects of the pain to establish the extent of suffering and to provide a baseline for evaluating the course of therapy. While pain assessment for diagnostic purposes focuses on the intensity of pain caused by a particular disorder, evaluation of the impact of pain can be expressed in more general terms, such as its impact on functioning, behavior, the psychologic state, and general well-being. Therefore, as a methodologic strategy for pain assessment it is useful to distinguish between these two basic objectives.

There is agreement about the need to distinguish between acute and chronic pain in the context of pain assessment.[29,30] Both acute and chronic pain consist of a complex constellation of unpleasant sensory, perceptual, and emotional experiences and associated psychologic and behavioral responses. Acute pain is accompanied by a transient, continuously changing state that differs radically from normal daily life. Chronic pain, by contrast, is an enduring, relatively constant condition that has become a stable element in the daily life of the patient. Despite the general agreement regarding the need to distinguish between acute and chronic pain, there is less agreement about how to operationally define these terms. For many years, pain lasting longer than an arbitrary fixed time interval (usually 6 months) has been considered chronic pain. However, many acute disorders or injuries heal in several weeks at the most and should, if pain persists beyond healing, be considered chronic.[29] On the other hand, acute pain may last several months without being chronic, depending on the time required for the injury to heal. Currently, there is a tendency to consider pain as chronic when it persists beyond the normal time for healing of an acute injury without repetition of the initiating causal factors.[29]

There is general agreement that the viewpoint of acute pain being somatic and chronic pain being equivalent to psychogenic pain is obsolete.[29] The term chronic pain syndrome has been introduced for patients with persistent intractable pain complaints to distinguish these patients from those with persistent nociception.[31] The use of this term has caused much confusion and is frequently used as an equivalent of psychogenic pain. Because of this confusion and because there are many conditions termed chronic pain syndromes, Bonica[29] suggests that the use of this term be discontinued. Nevertheless, the distinction between persistent

Table 1 Overview of Pain Assessment Methods

Methods	Dimension(s)	Remarks / comments
Unidimensional assessment		
Verbal rating scales (Melzack and Torgerson[35])	Intensity	Adjectives
Visual analog scales (Scott and Huskisson[36])	Intensity*	Rating on 10-cm or 100-mm line; frequently used, simple and practical method
Numerical rating scales (Downie et al[37])	Intensity*	Numeric rating (0–10; 0–100)
Pain chart (Keele[38])	Intensity	Every 2 h scaling of pain intensity on five point scale
Facial expression assessment (LeResche and Dworkin[39])	Nonverbal observation of facial expression	Rating using the Facial Action Coding System
Multidimensional pain assessment		
McGill Pain Questionnaire (MPQ) (Melzack[22])	Sensory, affective, and evaluative components, intensity, topography	Adjectives describing the patient's pain
Card sort method (Reading and Newton[40])	Intensity, evaluative, sensory, and temporal quality	Based on MPQ adjectives; patient chooses relevant descriptors and rates them on a five-point scale (rank hierarchy)
Wisconsin Brief Pain questionnaire	Location, intensity, consequences for psychic functioning, prior treatments	Rating scales; like MPQ
Dartmouth pain questionnaire (Corson and Schneider[42])	MPQ + self perception of affective variables, behaviors affected by pain	Five-part questionnaire incorporating the MPQ
Pain/activity diary (Follick et al[43])	Intensity, medication, activity and position	Self-assessment at fixed times of day
West Haven-Yale multidimensional pain Inventory (MPI) (Kerns et al[44])	Interference, social support, affective distress, severity, activities	Questionnaire consisting of three sections: pain experience, responses of significant others, activity

*May also be used separately to assess other aspects.

pain with and without obvious continuing nociceptive input is certainly useful. Therefore, in this regard we propose pain be classified as follows:

1. Acute and subacute pain
2. Persistent pain
   - — with an obvious nociceptive substrate (eg, musculoskeletal, visceral)
   - — without an obvious nociceptive substrate (eg, deafferentiation pain, somatoform pain disorder or chronic intractable pain, criteria according to DSM-IIIR[32])

It should be emphasized that within each category both somatic and psychic factors may play a role. Patients not responding or continuing to respond to medical intervention may be the victims of their doctors' unawareness that other factors besides physical pathology are involved in the pain experience.[33]

Considering its complexity and subjectivity, pain appears to be difficult to quantify. Nevertheless, the need to measure pain has become apparent. Because of its complexity, Turk[34] cautions for relying on a single operational dimension of pain and suggests that the assessment of pathologic, behavioral, and psychosocial variables be integrated. A considerable number of methods for measuring the many facets of pain have been suggested in the literature (Table 1).[22,35–44] This makes it difficult to select the most appropriate method of assessing pain. In general, a useful strategy is to relate the methods of assessment to the goal of measurement, ie, diagnosis, impact of pain, or treatment evaluation. In addition, the persistence of the pain should be taken into account.

Pain associated with TMD is usually of the musculoskeletal type. Musculoskeletal pain is intimately related to biomechanical function, and its response to provocation is more or less proportional to the stimulus.[45] It seems logical to follow the recommendation by Kippes[46] that any pain assessment should start with differentiating nonstimulus-provoked pain from stimulus-provoked pain, and that within the latter category patients with movement- or pressure-related pain must be separated from other patients. The clinical assess-

ment of temporomandibular pain should involve tests that elicit pain as specifically as possible to a particular disorder. Joint pain related to osteoarthrosis is very complex because it may originate in different tissues (eg, capsule, ligaments, subchondral bone). In addition, it may result from mechanical stimuli (increased pressure, traumatic stretch), from chemical stimuli (inflammatory mediators), or from a combination of the two.[47] Consequently, different types of pain may be associated with TMJ osteoarthrosis. Their major characteristics are described elsewhere.[45,48]

Temporomandibular disorders commonly cause recurrent or persistent pain patterns.[49] With the persistence of pain, its potential to influence behavior, methods of coping, and emotional state increases. Conversely, psychologic factors may intensify temporomandibular pain and in this way increase suffering.[45]

The aim of this study was to evaluate pain characteristics of patients with TMJ pain related to osteoarthrosis and internal derangement, and to propose a rationale for the assessment of pain in these patients and in patients with TMD in general.

Materials and Methods

Subjects

The subjects of this study were patients referred to the Department of Oral and Maxillofacial Surgery (University of Groningen Hospital) for treatment of movement-related pain in the TMJ region. All patients received a thorough clinical and radiographic examination (orthopantomogram and transpharyngeal and transcranial radiographs). Inclusion criteria were provocation or aggravation of preauricular pain by joint movement or loading, and joint tenderness on palpation, maximal voluntary clenching, joint compression, or distraction.

For internal derangements to be diagnosed as reducing disc displacement and permanent disc displacement, specific criteria were required in addition to the inclusion criteria regarding joint pain. A diagnosis of reducing disc displacement (RDD) was made when there was a history of clicking and when reproducible clicking during protrusion or opening was clinically present. A diagnosis of permanent disc displacement (PDD) required a history of clicking followed by a sudden onset of movement restriction, as well as a restricted range of opening movement after passive stretch and restricted movement toward the opposite side. A patient who met the inclusion criteria regarding joint pain but not internal derangement was classified in a separate synovitis (SYN) group. If a specific diagnosis could not be established, the patient was excluded from the study. The presence of a medical disorder that could have a major impact on the patient's general health status was also a reason for exclusion. Additional exclusion criteria were the presence of condylar growth disturbances, generalized musculoskeletal disorders such as rheumatoid arthritis, and somatoform pain disorder (according to DSM-IIIR[32] criteria).

The study sample consisted of 88 patients (78 women and 10 men). Their mean age was 25.7 years (SD 8.4, range 15 to 51 years). Fifty-nine patients had an internal derangement; 28 patients were classified in the RDD group and 31 patients in the PDD-group. The remaining 29 patients had synovitis without a clinically obvious internal derangement (SYN group).

Pain Variables

For this study, pain was assessed in the same way in all patients. The aim of the assessment was to obtain a global description of the pain complaint in our study sample, to quantify the clinical pain, and to evaluate the impact of pain on daily functioning and on general well-being.

Pain Inventory. General information about the pain complaint was obtained using a short-form pain inventory and a complementary interview. The inventory was designed to obtain as much basic information about the pain as possible, within the limits of brevity, clarity, and self-administration. This information was completed during the interview. All patients were interviewed by the same clinician. The following variables were recorded:

1. Onset and duration of pain symptoms: rate of onset (acute, gradual), course since onset (continuing, recurring), and time since onset.
2. Pain responses (ie, increase, decrease, or no change) to jaw activities (chewing, speaking, swallowing, opening wide), general activities (work, physical activity), and other circumstances not related to specific activities (irritation, concentration, temperature changes) to verify that the pain was intimately related to jaw use.
3. Impact of pain on the global functional ability related to jaw use, assessed using a 6-point scale, the global pain impact (GPI) scale (Table 2).

Table 2 Global Pain Impact (GPI) Scale: Operational Definition

Rating	Pain	Ability to perform usual jaw activities	Description
0	–	No impairment	No pain at all
1	+	No impairment	Pain is present, but is not disturbing
2	+	No impairment	Disturbing pain is present; despite the pain I can perform any usual activity or task I like without difficulty
3	+	Impairment*	Disturbing pain is present; although difficult because of the pain, it is possible to perform any usual activity or task I like
4	+	Disability*	Disturbing pain is present; because of the pain, I cannot perform some usual activities or tasks
5	+	Handicap*	Disturbing pain is present; because of the pain, I cannot perform any usual activity or task without help

*In accordance with WHO; impairment = disturbance of function; disability = activity-specific limitation of performance; handicap = disability with dependency.

4. Medication intake.
5. Intensity rates of pain, for which visual analog scales (VAS) were used. A VAS consisted of a 100-mm-long continuum, the extremes of which were labeled "no pain" and "worst possible pain." The patient marked a certain length of this line that was equivalent to the intensity of pain experienced. The distance of this mark from the "no pain" end of the scale was measured. Assessments were made of intensity of the pain at its worst as provoked by mechanical stimulus; the intensity of the usual pain; and the intensity of the least pain. As an overall measure of pain intensity, the mean of the subjective pain rating of usual pain and the most severe mechanically provoked pain scores was calculated.

The GPI was adjusted to a more specific pain grading scale by incorporating pain severity and pain persistence in the assessment according to the following operational guidelines:

0 No pain
1 Acute or subacute nonrecurrent or recurring pain (i.e., pain-free episodes with acute pain attacks; pain resolution related to healing of organic pathology)
2 Frequently and persistently recurring pain or nonsevere persistent pain (possibly with acute episodes)
3 Persistent pain with impairment
4 Peristent pain with disability
5 Persistent pain with handicap

For operational definitions of the terms *impairment, disability,* and *handicap,* see Table 2.

Clinical Pain Assessment. The subjective pain intensity present with the jaw at rest was assessed using a VAS. Subsequently, increase of pain in response to voluntary opening and closing as well as to moving the jaw anteriorly and laterally was recorded. During subsequent assessments, joint tenderness was scored as being either absent or present. Joint tenderness was considered to be present when the patient reported onset or increase of pain or responded to provocation by a palpebral reflex or withdrawal. Joint tenderness was assessed in response to the following provocations (performed in fixed order): joint palpation from the lateral aspect, joint palpation from the posterior aspect, static compression, dynamic palpation, dynamic compression, joint distraction, and passive stretch following maximal active opening. From these assessments, the following variables were derived: static clinical joint pain (including pain at rest, on palpation, and on static compression), unloaded dynamic pain (in response to free movements), and loaded dynamic pain (in response to palpation, dynamic compression, distraction, and passive stretch). A total clinical joint pain score was calculated using all assessments. The scores on the variables were standardized to a grade ranging from 0 to 1.

The presence of muscle tenderness was assessed by means of resistance tests and verified by digital palpation of accessible muscles (ie, masseter belly and tendon, medial pterygoid at inner side of mandibular angle, anterior and posterior parts of temporalis muscles, temporalis tendon at coronoid process, digastric muscles).[50,51] Muscle tenderness was scored as being either present or absent.

Assessment of Pain Impact. To determine the degree of pain suffering and psychologic distress, the West Haven-Yale Multidimensional Pain Inventory (MPI) and the General Health Questionnaire (GHQ-28) were used. The MPI is a multidimensional inventory assessing subjective, behavioral, and psychophysiologic components of pain experience.[44] It is a relatively brief questionnaire with strong psychometric properties. It consists of three sections. The first section comprises five scales that address the experience of pain and suffering, interferences with daily life and work, and social support received from significant others. These are labeled pain severity, interferences, support, life control, and affective distress. The second section assesses the patient's perception of responses of others on the pain. The frequency of engagement in common daily activities is assessed in the third section. Each item is scored on a 7-point scale, ranging from 0 (not at all or never) to 6 (very much or very often). Kerns et al.[44] presented data on the reliability and validity of the MPI, which appeared to be satisfactory. The potential utility of the MPI for use with TMD patients has been confirmed recently by Rudy et al.[52] In a heterogenous group of TMD patients, they identified three distinct MPI profiles which they labeled dysfunctional, adaptive coper, and interpersonally distressed.

Psychologic distress was assessed using the General Health Questionnaire (scaled version, GHQ-28),[53,54] which consists of four scales (somatic symptoms, anxiety and insomnia, social dysfunction, and severe depression) and a total scale as a measure of psychological distress. Each item is scored on a 4-point scale, ranging from 1 (not at all or less than usual) to 4 (much more than usual).

Data Analysis

Multivariate analyses of variance (MANOVAs) were performed to detect differences in pain scores between patients of subgroups with respect to the specific diagnosis (RDD, PDD, SYN), the duration of pain complaints (<1 month, 1 to 3 months, 3 to 6 months, >6 months), subjective pain intensity levels (mild; <30 mm VAS; moderate, 30 to 60 mm VAS; severe; >60 mm VAS) and the grade of pain (1 to 5 as defined in the previous section). With a significant MANOVA, post hoc analyses were performed, using univariate analyses of variance (ANOVAs) and the modified least significant difference multiple range test.

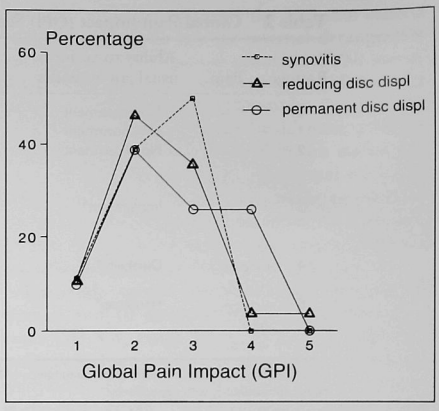

Fig 1 Global pain impact in diagnostic subgroups. GPI score of 1 or 2 indicates no impairment; GPI score >2 indicates impairment or disability. See Table 3 for a more detailed description of GPI score.

Results

Most patients (62.5%) reported a gradual onset of pain. A sudden onset was most commonly associated with a traumatic injury. A majority of the patients (60.2%) reported having recurrent pain as opposed to continuous pain (39.8%). Fluctuating pain, whether recurrent or continuous, was reported by 90.9% of the patients. In one third of these patients, an average pain increase lasted for 1 hour or longer. The mean duration of the pain symptoms at the first consultation was 1 year, while the median duration was 3.5 months (ie, more than half of the sample had complaints for more than 3 months).

Most patients reported an increase of pain in response to chewing hard foods (77.2 %), taking a large bite (79.5%), and wide opening (92.0%). Other reasons for pain increase were speaking (35.2%), clenching (37.5%), and cold weather (22.7%). Spontaneous increase of pain was reported by 26.1% of the patients.

The pain was experienced as impairing or disabling (as assessed on the GPI scale) by 48.9% of the patients. The percentages of impairment and disability within the diagnostic subgroups were comparable (RDD 42.9%, PDD 51.0%, SYN 50.0%), although more cases of disability were found among patients with a permanent disc displacement (Fig 1).

Table 3 Clinical Pain Measures in Diagnostic Subgroups and in the Total Sample

Pain measures	Reducing disc displacement		Permanent disc displacement		Synovitis		Total sample	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Clinical joint pain measures								
Static joint pain	0.31	0.31	0.41	0.30	0.42	0.30	0.37	0.30
Unloaded dynamic pain	0.40	0.26	0.52	0.17	0.37	0.23	0.43	0.23
Loaded dynamic pain	0.61	0.37	0.87	0.24	0.61	0.32	0.69	0.34
Total clucal pain index	0.45	0.29	0.65	0.20	0.50	0.27	0.53	0.28
MPI scales								
Interference	0.17	0.23	0.10	0.17	0.18	0.19	0.13	0.19
Support	0.48	0.25	0.41	0.34	0.40	0.30	0.43	0.30
Pain severity	0.35	0.26	0.28	0.19	0.35	0.24	0.31	0.22
Life control	0.18	0.24	0.21	0.26	0.23	0.24	0.19	0.24
Affective distress	0.32	0.22	0.25	0.22	0.31	0.21	0.28	0.22
Activity	0.47	0.20	0.45	0.14	0.41	0.14	0.45	0.16
GHQ scales								
Somatic symptoms	0.31	0.21	0.28	0.17	0.29	0.19	0.30	0.19
Anxiety / insomnia	0.24	0.16	0.26	0.19	0.29	0.19	0.26	0.17
Social dysfunction	0.33	0.10	0.34	0.13	0.36	0.11	0.33	0.11
Severe depression	0.03	0.06	0.06	0.09	0.07	0.10	0.05	0.09
Total score	0.17	0.08	0.17	0.09	0.19	0.09	0.18	0.09

Pain medication on at least a weekly basis was used by 28 patients (31.8%). The mean overall pain intensity as measured on VAS was 46.2 mm VAS. Slightly more than a quarter of the sample (26.1%) reported a pain intensity of more than 60 mm VAS.

The anamnestic information resulted in the following pain grading:

Grade 1: acute/subacute pain, n = 41 (46.6%)
Grade 2: frequently and persistently recurring/nonsevere persistent pain, n = 32 (36.4%)
Grade 3: persistent and impairing pain, n = 8 (9.1%)
Grade 4: persistent and disabling pain, n = 7 (7.9%)
Grade 5: persistent and handicapping pain, n = 0

Of the total sample, 36.4% reported presence of pain at rest. The majority of these patients had permanent anterior disc displacement or traumatic synovitis. Joint pain provoked during the clinical examination appeared to be most prominently present in patients with permanent disc displacement (Table 3, Fig 2a). With respect to pain in response to dynamic loading, patients with PDD differed from both other groups ($P < .05$). The 95% confidence intervals for the pain score estimates on dynamic loading were 0.46 to 0.75 and 0.45 to 0.77 in the RDD and SYN groups, respectively. In the PDD group this interval was 0.78 to 0.95. There was a significant difference between the means of all clinical pain measures, except for pain on unloaded movement, with respect to subgroups with different pain intensity levels (Table 4, Fig 2b). No significant difference in clinical pain was found between subgroups based on the duration of the pain symptoms ($F = .81$, $P = .64$; Table 4, Fig 2c). Clinical pain significantly differed between the patients when classified according to their pain grade ($F = 2.15$, $P = .006$; Table 4, Fig 2d). A definite trend could be detected in the relationship between the grade of pain and joint tenderness at the clinical examination.

Muscle tenderness was present in 46.6% of the total sample, most frequently in the SYN group (72.2%).

Similar MPI profiles were obtained in our sample, irrespective of patient classification. Figure 3a shows a representative pattern. The profile was characterized by relatively low scores on the interference scale, and relatively high values on the support and activity scales. The GHQ also showed stable profiles across the subgroups. Figure 3b shows a representative GHQ profile for our sample. No significant differences between subgroups could be detected on the MPI or on the GHQ (Table 4).

Figs 2a to 2d Pain measures during clinical examination in response to static loading (Static), unloaded movement (Dynamic load –), loaded movement (Dynamic load +), and a total clinical joint pain score (Total).

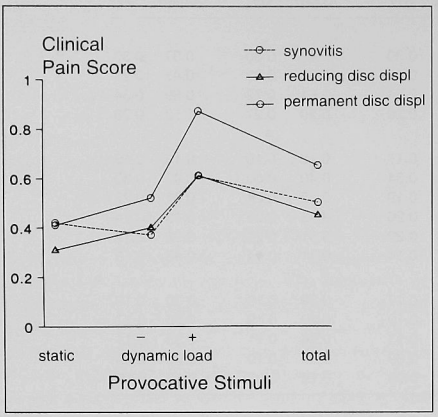

Fig 2a Diagnostic subgroups.

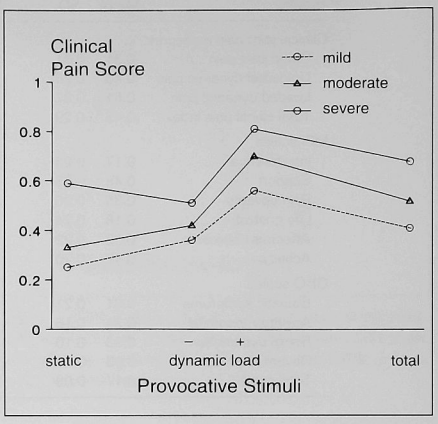

Fig 2b Subgroups with different subjective pain intensity levels.

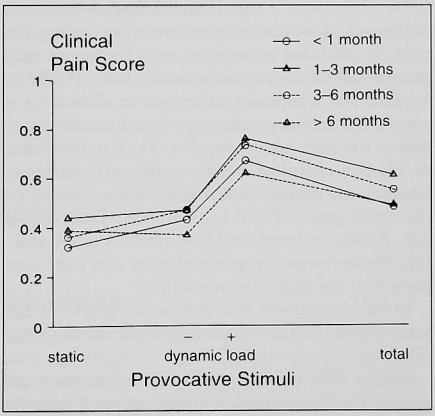

Fig 2c Subgroups based on the duration of the pain symptoms since their onset.

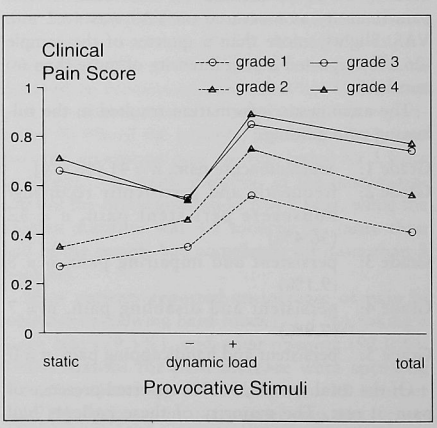

Fig 2d Subgroups classified according to pain grades.

Table 4 Results of MANOVAs and Subsequent ANOVAs of Clinical Pain Measures, and Measures on the MPI and GHQ.

Pain and distress measures	Multivariate analysis			Univariate analysis		
	Pillai's V*	Approx F		df	F	
Diagnostic subgroups						
Clinical pain measures	0.31	3.30	$P < .01$	2,86		
Static pain					0.99	NS
Unloaded movement					3.30	$P < .05$
Loaded movement					6.35	$P < .01$
Total pain score					4.95	$P < .01$
MPI scales	0.08	0.52	NS			
GHQ scales	0.09	0.85				
Subgroups according to duration of pain symptoms since onset						
Clinical pain measures	0.11	0.81				
MPI scales	0.25	1.22	NS			
GHQ scales	0.10	0.70				
Subgroups according to subjective pain intensity						
Clinical pain measures	0.25	2.92	$P < .01$	2,86		
Static pain					9.76	$P < .01$
Unloaded movement					2.83	NS
Loaded movement					3.38	$P < .05$
Total pain score					6.32	$P < .01$
MPI scales	0.15	1.11	NS			
GHQ scales	0.13	1.46				
Subgroups according to graded pain level						
Clinical pain measures	0.38	2.15	$P < .01$	4,84		
Static pain					6.17	$P < .01$
Unloaded movement					3.76	$P < .01$
Loaded movement					3.61	$P < .01$
Total pain score					5.37	$P < .01$
MPI scales	0.18	0.62	NS			
GHQ scales	0.20	1.07				

*Pillai's trace V = test criterium for evaluating multivariate differences.

Discussion

For most TMD, pain is a common symptom.[51] Therefore, pain assessment is an important part of the clinical evaluation of the TMD patient. In agreement with the major objectives of pain assessment, the following assessment techniques may be distinguished: (1) diagnostic techniques (pain description, physical examination), and (2) assessment of the impact of the pain on daily functioning and behavior (multidimensional pain assessment) and on the psychologic state and general well-being (psychologic testing).

The first step in TMD pain assessment is to verify the musculoskeletal nature of the pain and to obtain a global idea about the pain complaint in terms of its onset, frequency, and duration; its course; pain responses to jaw movement and function; its global impact on functioning; and medication intake. Although most scales suggested to assess pain intensity yield similar results,[55,56] the visual analog scale (VAS) is used most frequently. An important advantage of this scale is its simplicity. Simple, unidimensional scaling methods can be used quickly, require only minimal instructions, and are easily scored. The VAS, in particular, has been shown to be a reliable and sensitive measure of the patient's subjective pain experience.[35,36] Price et al[57] support the validity of the VAS. A limitation of the VAS, however, is that it assesses only one aspect of pain.

We summarized the basic information obtained in a pain grading system. This may be useful in choosing additional steps in pain assessment. A similar pain grading system has recently been suggested by von Korff et al.[58] In their study, 45.0%

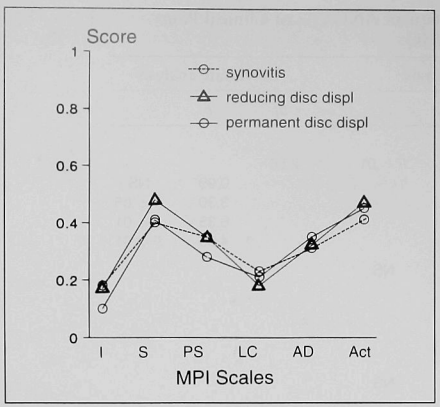

Fig 3a MPI profiles of the three diagnostic subgroups (similar profiles were found in all other subgroup classifications). Interference (I), Support (S), Pain Severity (PS), Life Control (LC), Affective Distress (AD), General activity (Act).

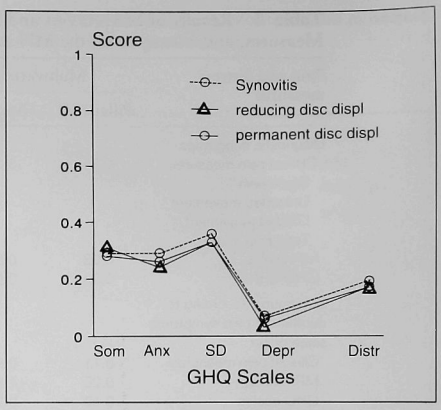

Fig 3b GHQ profiles of the three diagnostic subgroups (similar profiles were found in all other subgroup classifications). Somatic complaints (Som), Anxiety and Insomnia (Anx), Social Dysfunction (SD), Severe Depression (Depr), Total score of psychologic distress (Distr).

of the TMD patients had "recurrent or mild persistent pain" (comparable to grade 2 in our study), while 21.1% had "persistent pain without disability" (grade 3), and 22.7% of their patients had "persistent pain with disability" (grades 4 and 5). The corresponding percentages in our study were 36.4%, 9.1%, and 7.9%, respectively. Besides the group with "recurrent or mild persistent pain," our sample mainly consisted of patients with pain complaints of recent onset (46.6% versus 9.1% in the von Korff study), whereas the study of von Korff et al consisted mainly of patients with chronic pain (43.8%, versus 17.0% in our study). This difference can be largely attributed by the criteria used for patient selection. Our study was confined to patients with pain associated with the TMJ, while the study of von Korff et al comprised a heterogenous group of TMD patients, including myofascial pain patients. Perhaps TMJ-related pain is more alarming and intense as compared to myofascial pain, which is frequently described as dull, persistent, and fluctuating in time.

The primary goal of clinical pain assessment is to identify the source(s) of the pain. A key characteristic of musculoskeletal pain is its more or less proportional response to provocation.[45] The results suggest that the musculoskeletal nature of TMJ-related pain can be operationalized by the assessment method employed in this study. Accurate clinical assessment of pain responses in combination with findings obtained from the history and other signs and symptoms frequently provides the clinician with sufficient information to establish the diagnosis.[59] An additional technique that may be useful in cases of doubt is to assess the patient's response to selective anesthetic blocking.[51]

In our study sample, patients with permanent disc displacement showed significantly higher scores in response to provocation by dynamic loading than the other patients. This suggests that the joint tissues are more readily irritated by provocative manipulation in these patients. Because this applies to the retrodiscal tissue in particular, this finding supports the concept that secondary synovitis is a frequently occurring sequela of this stage of the disorder.[60,61] Synovitis is thought to elicit a protective muscle splinting response that may result in muscle tenderness.[62] Although this is supported by the relatively high frequency of patients with muscle tenderness in the SYN group, muscle tenderness was present in far fewer patients with PDD (30% in the PDD group versus 72% in the SYN group). It is possible that patients with permanent disc displacement became more adapted to the clinical situation than did patients with synovitis. The higher frequency of recent trauma in the latter group supports this. The clinical scores for pain in response to un-

loaded movement did not differ significantly between the diagnostic groups. This suggests that this test is less specific than techniques using palpation, static loading, or manipulation. Apparently, joint tissues are more specifically provoked with the latter techniques than when the jaw is moved actively.

Clinical pain measures appeared to be independent of the duration of pain symptoms. This is probably due to the more or less equal distribution of patients with continuous pain and those with recurrent pain complaints among the pain-duration groups. This would imply that pain persistence, rather than duration since onset, is indicative of chronicity.

The outcome of the clinical pain assessment tests appeared to be related to the level of subjective pain intensity (Fig 2b) and to the grading of pain (Figs 2d and 4). These findings support the validity of the method of clinical pain assessment. In patients with acute pain (grade 1) with high levels of pain intensity, the performance of a proper clinical examination may be difficult, if not impossible. In these cases, the major objective of pain assessment is to monitor the short-term effect of pain management (eg, medication), and therefore it is sufficient to assess pain using a brief pain intensity rating on a VAS before and after medication administration. In patients with lower pain intensity and in cases with subacute or nonpersistent pain (grade 1 and possibly grade 2), indicating that the pain is either of recent onset or transient, respectively, proper diagnosis is usually the primary goal of assessment.

Multidimensional assessment to evaluate the impact of pain on general functioning is increasingly believed to be a valuable addition to diagnostic pain assessment in patients with frequently occurring pain episodes or with persistent pain (grade 3 or higher). According to Eggenbregt et al,[63] important to the determination of functional disability is not the estimation of pain intensity but rather a subjective appreciation of disabilities in normal daily activities. According to this concept, functional disability consists of a combination of objective somatic changes, pain behavior, and disturbances in social interaction, the assessment of which requires a multidimensional procedure.

When our project was initiated, the MPQ,[22] which is the most popular and most frequently used multidimensional instrument for pain assessment, was considered for use. The MPQ is based on the use of words representing several dimensions of experience for the scaling of pain.[35] The measures employed by the MPQ include the pain

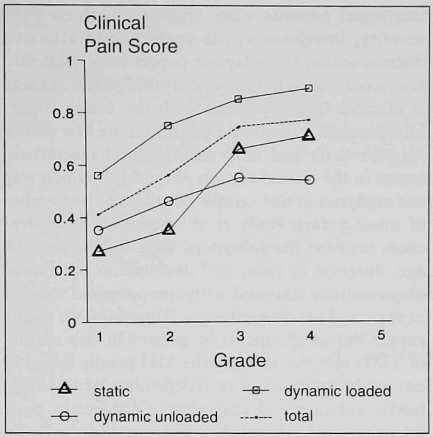

Fig 4 Relationship between the grade of pain (x-axis; for description of the grades, see text) and scores of joint tenderness during the clinical examination (y-axis). Loaded movement has the greatest impact on the clinical pain score.

rating index, number of words chosen, and present pain intensity. Corson and Schneider[42] addressed several omissions of the MPQ when they designed the Dartmouth Pain Questionnaire. This questionnaire incorporates the MPQ and additional assessments of self-perception of affective variables, pain intensity, and behaviors affected by pain. Despite these important improvements, the main argument against its use remained, namely that the MPQ was not yet operational for clinical use in the Dutch language when our study was initiated. Moreover, translations are fraught with semantic problems because the meaning and intensity of adjectives must be assessed extremely carefully to reach a level of precision comparable to the original MPQ. The Multidimensional Pain Inventory (MPI) has been suggested as a useful alternative to the MPQ.[21,44,64] Compared to the MPQ and its Dartmouth extension, the MPI is briefer and more classic in its psychometric approach.[21] In addition, it addresses the aspects of pain suggested by Corson and Schneider.[42] As a broad-spectrum questionnaire,[64] it might be a useful screening instrument for psychologic distress.

Using the MPI, Rudy et al[52] identified three subgroups in a sample of TMD pain patients based on psychosocial and behavioral variables. The subgroups were labeled dysfunctional, adaptive copers, and interpersonally distressed. While the dys-

functional patients score relatively high on pain severity, interference, life control, and affective distress scales, the adaptive copers have relatively low scores. In addition, the dysfunctional patient is inactive in comparison with the active coper. Interpersonally distressed patients score low on the support scale and have additional characteristic scores in the second section of the MPI, which was not analyzed in our sample because of the number of missing data. Rudy et al[52] reported that differences between the subgroups were independent of age, duration of pain, oral dysfunction, structural abnormalities (assessed with computerized tomography), and psychopathology. Therefore, we might expect the subgroups to be present in our sample of TMD patients as well. The MPI profile found in our study appeared to be independent of the diagnostic category, of the relative subjective pain intensity, of the duration of pain, and of the grade of pain. In this sense, our findings support those of Rudy et al. However, the profile we identified was characterized by relatively high scores on support and activity scales and low scores on interference (Fig 3a). Only 1% of our patients fitted the dysfunctional profile, and 16% displayed the characteristics of an adaptive coper. Consequently, the majority of the patients in our sample did not fit the MPI profiles described by Rudy et al. A possible explanation may be the relatively small number of chronic pain patients in our sample. In this sense, the MPI would provide a useful screening instrument for detecting signs of chronicity. To evaluate this, additional studies using the MPI in other specific subgroups of TMD (eg, TMJ osteoarthrosis patients with chronic pain, myofascial pain patients) are necessary.

Acute and subacute pain may cause anxiety states and may amplify somatic complaints.[63] Persistent pain may be responsible for high anxiety levels as long as the condition causing pain remains undiagnosed. According to Sternbach,[65] a depressive mood is often a reaction to chronic pain but may also be masked by the pain. Therefore, screening for psychologic distress may be useful in TMD patients, especially when the pain is persistent. To this end, the General Health Questionnaire (GHQ) has been demonstrated to be a useful instrument.[54] It is brief (28 items) in comparison to the more widely used Minnesota Multiphasic Personality Inventory (566 items) and Symptom Check List (SCL-90R, 90 items). The latter questionnaire is useful to provide a psychometric clarification for the psychologic status,[66,67] for example as a basis for professional consultation.

The GHQ profile of the patients of our sample was similar to that found in a large sample from the community,[54] indicating normal levels of psychologic distress. Like the MPI profile, the GHQ profile appeared to be stable across subgroups of our sample. Several authors[66,68,69] have suggested that TMD and nonarticular TMD such as myofascial pain differ not only in the presence of signs of internal TMJ derangements but also on psychopathologic features. This would justify the use of a practical screening instrument such as the GHQ. Of the patients in our sample, 24% had an anxiety score on the GHQ of at least 0.1 above the average level. These patients also showed slightly higher scores than average on the interference and affective distress scales of the MPI. This suggests that the MPI may reflect the level of anxiety and psychologic distress to some extent. As such, it would be a satisfactory primary screening instrument. However, further experiments in this regard must be carried out as has been stated above.

Related to the individual pain complaint, a multidimensional approach to pain assessment involves a balanced appraisal of sensory input and the degree to which this input is modulated by psychologic factors to result in a reactive component of pain. In this sense, based on the results of this study, the assessment of nonchronic TMJ pain may generally be limited to an accurate description of the pain complaint and a comprehensive clinical assessment. Multidimensional screening is useful when the TMJ pain persists or persistently recurs. Multidimensional screening may also detect psychologic or environmental circumstances that might support the development of a chronic problem.[70] Furthermore, a systematic assessment of behavioral responses to pain can guide treatment efforts. Recognition that pain may continue in spite of the therapist's attempts to resolve it should encourage clinicians to assess other aspects of pain than its supposed physical cause and to deal more with the means by which patients can cope with their pain and lead productive lives.[71,72]

As a summary, a proposed strategy for the assessment of temporomandibular pain is presented in Table 5. For all types of pain, an accurate description and thorough clinical assessment is recommended. A clinician's initial detailed interest in the physical aspects of the pain problem helps to establish an accurate picture of the complaints and helps assure the patient that the doctor believes the pain to be real. Depending on the individual circumstances (mainly based on the persistence of the pain for which the grading system may be a useful tool), additional assessment procedures may prove to be useful.

Table 5 Assessment Strategy or Temporomandibular Pain

		Recurrent pain		Persistent pain	
	Acute pain	Low-frequency: – Pain episodes short – Pain-free episodes long	High-frequency / Persistent – Pain episodes long – Pain-free episodes short	No impairment or disability	Impairment or disability
Strategy	Basic information Diagnostic pain assessment, if possible	Basic information Diagnostic pain assessment	Basic information Diagnostic pain assessment	Basic information Diagnostic pain assessment	Basic information Diagnostic pain assessment
			Multidimensional screening	Multidimensional screening Psychologic screening	(Repeated) multidimensional assessment Psychologic assessment Coping strategy assessment
Instruments	VAS Short-form inventory Interview	Short-form inventory Interview	Short-form inventory Interview	Short-form inventory Interview	Short-form inventory Interview
	Clinical assessment, if possible	Clinical assessment	Clinical assessment	Clinical assessment	Clinical assessment
			MPI (esp first section)	MPI (esp first section) GHQ-28	MPI GHQ-28 SCL-90R CSSQ (coping*)

*Coping questionnaire (from Jaspers JPC, Heuvel F, Stegenga B, de Bont LGM. Strategies for coping with pain and psychologic distress associated with temporomandibular joint osteoarthrosis and internal derangement. Clin J Pain (submitted for publication).

Acknowledgments

The authors wish to express their appreciation to Leo Th. van der Weele for his advice regarding the statistical procedures, and to Dr Jan P.C. Jaspers (medical psychologist) and Dr Pim J. Meyler (neurologist) for their valuable comments on the manuscript.

References

1. Stegenga B, de Bont LGM, Boering G. A proposed classification of temporomandibular disorders based on synovial joint pathology. J Craniomand Pract 1989;7:107–118.
2. Gelb H, Bernstein I. Clinical evaluation of two hundred patients with temporomandibular joint syndrome. J Prosthet Dent 1983;49:234–243.
3. Eriksson L, Westesson P-L. Long-term evaluation of meniscectomy of the temporomandibular joint. J Oral Maxillofac Surg 1985;43:263–269.
4. Sanders B, Buoncristiani R. Diagnostic and surgical arthroscopy of the temporomandibular joint: Clinical experience with 137 procedures over a 2-year period. J Craniomandib Disord Facial Oral Pain 1987;1:202–213.
5. Okeson JP. Long-term treatment of disk-interference disorders of the temporomandibular joint with anterior repositioning occlusal splints. J Prosthet Dent 1988;60:611–616.
6. Tsuga K, Akagawa Y, Sakaguchi R, Tsuru H. A short-term evaluation of the effectiveness of stabilization-type occlusal splint therapy for specific symptoms of temporomandibular joint dysfunction syndrome. J Prosthet Dent 1989;61:610–613.
7. Kerstein RB, Farrell S. Treatment of myofascial pain-dysfunction syndrome with occlusal equilibration. J Prosthet Dent 1990;63:695–700.
8. Sanders B, Kaminishi R, Buoncristiani R, Davis C. Arthrosopic surgery for treatment of temporomandibular joint hypomobility after mandibular sagittal osteotomy. Oral Surg Oral Med Oral Pathol 1990;69:539–541.
9. Benson BJ, Keith DA. Patient response to surgical and nonsurgical treatment for internal derangement of the temporomandibular joint. J Oral Maxillofac Surg 1985;43:770–777.
10. Burgess JA, Sommers EE, Truelove EL, Dworkin SF. Short-term effect of two therapeutic methods on myofascial pain and dysfunction of the masticatory system. J Prosthet Dent 1988;60:607–610.
11. Tallents RH, Katzberg RW, Macher DJ, Roberts CA. Use of protrusive splint therapy in anterior disk displacement of the temporomandibular joint: A 1- to 3-year follow-up. J Prosthet Dent 1990;63:336–341.
12. Wenneberg B, Nystrom T, Carlsson GE. Occlusal equilibration and other stomatognathic treatment in patients with mandibular dysfunction and headache. J Prosthet Dent 1988;59:478–483.

13. Clark GT, Lanham F, Flack V. Treatment outcome results for consecutive TMJ clinic patients. J Craniomandib Disord Facial Oral Pain 1988;2:87–95.
14. Lunch H, Westesson P-L. Long-tem follow-up after occlusal treatment to correct abnormal temporomandibular joint disk position. Oral Surg Oral Med Oral Pathol 1989;67:2–10.
15. Suvinen T, Reade P. Prognostic features of value in the management of temporomandibular joint pain-dysfunction syndrome by occlusal splint therapy. J Prosthet Dent 1989;61:355–361.
16. Clark GT, Moody DG, Sanders B. Arthroscopic treatment of temporomandibular joint locking resulting from disc derangement: Two-year results. J Oral Maxillofac Surg 1991;49:157–164.
17. Melzack R (ed). Pain Measurement and Assessment. New York: Raven Press, 1983.
18. Syrjala KL, Chapman CR. Measurement of clinical pain: a review and integration of research findings. Adv Pain Res Ther 1984;7:71–101.
19. Chapman CR, Casey KL, Dubner R, Foley KM, Gracely RH, Reading AE. Pain measurement: An overview. Pain 1985;22:1–31.
20. Chapman CR, Loeser JD (eds). Issues in Pain Measurement. New York: Raven Press, 1989.
21. Chapman CR, Syrjala KL. Measurement of pain. In: Bonica JJ (ed). The Management of Pain, vol 1, ed 2. Philadelphia: Lea & Febiger, 1990.
22. Melzack R. The McGill Pain Questionnaire: Major properties and scoring methods. Pain 1975;1:277–299.
23. Price DD, Harkins SW, Baker C. Sensory-affective relationships among different types of clinical and experimental pain. Pain 1987;28:297–307.
24. Prieto EJ, Hopson L, Bradley LA, et al. The language of low back pain: Factor structure of the McGill Pain Questionnaire. Pain 1980; 8:11–19.
25. Byrne M, Troy A, Bradley LA, et al. Cross-validation of the factor structure of the McGill Pain Questionnaire. Pain 1982;13:193–201.
26. Leavitt F, Garron DC, Bieliauskas A. Stressing life events and the experience of low back pain. J Psychosom Res 1978;23:49–55.
27. Reading AE. The internal structure of the McGill Pain Questionnaire. Pain 1979;7:353–358.
28. Reading AE. An analysis of the language of pain in chronic and acute patient groups. Pain 1982;13:185–192.
29. Bonica JJ. Definitions and taxonomy of pain. In: Bonica JJ (ed). The Management of Pain, vol 1, ed 2. Philadelphia: Lea & Febiger, 1990.
30. Stembach RA. Acute versus chronic pain. In: Wall PD, Melzack R (eds). Textbook of Pain, ed 2. Edinburgh: Churchill Livingstone, 1989.
31. Black RG. The chronic pain syndrome. Surg Clin North Am 1975;55:999–1011.
32. Diagnostic and Statistical Manual of Mental Disorders Revisited (DSM-IIIR), ed 3 revised. Washington: American Psychiatric Association, 1987.
33. Black RG. Evaluation of the patient with the complaint of pain. In: Prithvy Raj P (ed). Practical Management of Pain. Chicago, Year Book, 1986.
34. Turk DC. Assessment of pain: The elusiveness of latent constructs. Adv Pain Res Ther 1989;12:267–279.
35. Melzack R, Torgerson WS. On the language of pain. Anesthesiology 1971;34:50–59.
36. Scott J, Huskisson EC. Graphic representation of pain. Pain 1976,2:175–184.
37. Downie WW, Leatham PA, Rhind VM, et al. Studies with pain rating scales. Ann Rheum Dis 1978;37:378–381.
38. Keele KD. The temporal aspects of pain: The pain chart. In: Melzack R (ed). Pain Measurement and Assessment. New York: Raven Press, 1983.
39. LeResche L, Dworkin SF. Facial expressions of pain and emotions in chronic TMD patients. Pain 1988;35:71–78.
40. Reading AE, Newton JR. A card-sort method of pain assessment. J Psychosom Res 1978;22:503–512.
41. Daut RL, Cleeland CS, Flanery RC. Development of the Wisconsin brief pain questionnaire to assess pain in cancer and other diseases. Pain 1983;17:197–210.
42. Corson JA, Schneider MJ. The Dartmouth Pain Questionnaire: An adjunct to the McGill Pain Questionnaire. Pain 1984;19:59–69.
43. Follick MJ, Ahern DK, Laser-Wolston N. Evaluation of a daily activity diary for chronic pain patients. Pain 1984;19:373–382.
44. Kerns RD, Turk DC, Rudy TE. The West Haven-Yale Multidimensional Pain Inventory (WHYMPI). Pain 1985;23:345–356.
45. Bell WE. Orofacial Pains, ed 4. Chicago: Year Book, 1990.
46. Kippes M. Chronic pain syndromes and measurement technology: Further issues. Adv Pain Res Ther 1989;12:455–461.
47. Dieppe PA, Harkness JAL, Higgs ER. Osteoarthritis. In: Wall PD, Melzack R (eds). Textbook of Pain, ed 2. Edinburgh: Churchill Livingstone, 1989.
48. Pachas WN. Joint pains and associated disorders. In: Aronoff GM (ed). Evaluation and Treatment of Chronic Pain. Baltimore: Urban & Schwarzenberg, 1985.
49. Dworkin SP, LeResche L, Von Korff M, et al. Constant, remittent and cyclic pain patterns in TMD: Three year follow-up. J Dent Res 1991;70:441.
50. Friedman MH, Weisberg J. Temporomandibular Joint Disorders. Diagnosis and Treatment. Chicago: Quintessence, 1985.
51. Mahan PE, Alling CC. Facial Pain, ed 3. Philadelphia: Lea & Febiger, 1991.
52. Rudy TE, Turk DC, Zaki HS, Curtin HD. An empirical taxometric alternative to traditional classification of temporomandibular disorders. Pain 1989;36:311–320.
53. Goldberg DP, Hillier VF. A scaled version of the General Health Questionnaire. Psychol Med 1979;9:139–145.
54. Sanderman R, Stewart R. The assessment of psychological distress: Psychometric properties of the General Health Questionnaire (GHQ). Int J Health Sci 1990;1:195–202.
55. Ohnhaus EE, Adler R. Methodological problems in the measurement of pain: A comparison between the verbal rating scale and the visual analogue scale. Pain 1975;1:379–384.
56. Jensen MP, Karoly P, Braver S. The measurement of clinical pain intensity: A comparison of six methods. Pain 1986;27:117–126.
57. Price DD, McGrath PA, Rafii A, Buckingham B. The validation of visual analogue scales as ratio measures for chronic and experimental pain. Pain 1983;17:45–56.
58. von Korff M, Dworkin SF, LeResche L. Graded chronic pain status: An epidemiologic evaluation. Pain 1990;40:279–291.
59. Stegenga B, de Bont LGM, van der Kuijl B, Boering G. Classification of temporomandibular joint osteoarthrosis and internal derangement. Part I: Diagnostic significance of clinical and radiographic symptoms and signs. J Craniomand Pract 1992;10:96–106.

60. Fassbender H. Significance of endogenous and exogenous mechanisms in the development of osteoarthritis. In: Helminen HJ, Tammi M, Kiviranta I, et al (eds) Joint Loading. Biology and Health of Articular Structures. Bristol, England: Wright, 1987.
61 Nickerson JW, Boering G. Natural course of osteoarthrosis as it relates to internal derangement of the temporomandibular joint. Oral Maxillofac Surg Clin North Am 1989;1:27–45.
62. Bell WE. Temporomandibular Disorders: Classification, Diagnosis, Management, ed 3. Chicago: Year Book, 1991.
63. Eggenbregt DB, Bautz MT, Brenig MID, et al. Psychometric evaluation. In: Camic PM, Brown FD. Assessing Chronic Pain. A Multidisciplinary Clinic Handbook. New York: Springer, 1989.
64. Keefe FJ, Crisson JE. Assessment of behaviours. In: Lynch NT, Vasudevan SV (eds). Persistent Pain: Psychosocial Assessment and Intervention. Boston: Kluwer Academ Publ, 1988.
65. Sternbach RA. The Psychology of Pain. New York: Raven Press, 1978.
66. Butterworth JC, Deardorff WW. Psychometric profiles of craniomandibular pain patients: Identifying specific subgroups. J Craniomand Pract 1987;5:225–232.
67. Lee YO, Lee SW. A study of the emotional characteristics of temporomandibular disorder patients using SCL-90-R. J Craniomandib Disord Facial Oral Pain 1989;3:25–34.
68. Eversole LR, Stone CE, Matheson D, Kaplan H. Psychometric profiles of facial pain. Oral Surg Oral Med Oral Pathol 1985;60:269–274.
69. Bush FM, Whitehill JM, Martelli MF. Pain assessment in temporomandibular disorders. J Craniomand Pract 1989;7:137–143.
70. Marciani RD, Haley JV, Moody PM, Roth GI. Identification of patients at risk for unnecessary or excessive TMJ surgery. Oral Surg Oral Med Oral Pathol 1987;64:533–535.
71. Melzack R. Psychological concepts and methods for the control of pain. Adv Neurol 1974;4:275.
72. Keefe FJ. Behavioral measurement of pain. Adv Pain Res Ther 1989;12:405–424.

Resumen

Evaluación del dolor en la articulación temporomandibular

El propósito de este estudio fue el de evaluar las características del dolor que sufren los pacientes con problemas de articulación temporomandibular (ATM); como también el de proponer un fundamento para la evaluación del dolor y su impacto en los pacientes afectados por desórdenes temporomandibulares. Basados en la información anamnéstica, los 88 pacientes de la muestra, fueron clasificados de acuerdo a la clase de dolor: (1) dolor no recurrente o recurrente agudo/subagudo, n=41 (46.6%); (2) dolor persistentemente recurrente con una frecuencia relativamente alta, o dolor persistente no severo, n=32 (36.4%); (3) dolor persistente y menoscabador, n=8 (9.1%); (4) dolor persistente e incapacitador, 7 pacientes (7.9%); y (5) dolor persistente e impeditivo, n=0. En cuanto al dolor de la ATM provocado durante el examen clínico, hubo una diferencia significativa entre los subgrupos de diagnóstico, los subgrupos con diferentes niveles de intensidad de dolor, y subgrupos de acuerdo a la clase de dolor, pero no se encontraron diferencias significativas basados en la duración de los síntomas del dolor. Los subgrupos tampoco se diferenciaron significativamente en cuanto a los puntajes del inventario del Dolor Multidimensional y el Cuestionario de Salud General. Basados en los resultados del estudio, la evaluación del dolor temporomandibular no crónico, puede limitarse generalmente a una descripción precisa del dolor y una evaluación clínica minuciosa. La evaluación multidimensional puede ser útil cuando el dolor de la ATM persiste o recurre persistentemente. Dependiendo de las circunstancias individuales, los procedimientos evaluativos adicionales podrían ser útiles. Se propone una estrategia general para la evaluación del dolor en los desórdenes temporomandibulares.

Zusammenfassung

Einschätzung des temporomandibularen Gelenkschmerzes

Das Ziel dieser wissenschaftlichen Untersuchung war die Einschätzung der charakteristischen Schmerzmerkmale in Patienten mit temporomandibularem Gelenkschmerz, und einen Vorschlag für die Bewertung des Schmerzes und seinem Einfluss auf Patienten mit temporomandibularen Störungen zu machen. Auf Grund von anamnestischen Detailen wurden die 88 Patienten in diesem Beispiel nach dem Grad ihres Schmerzes klassifiziert: (1) akut/subakut, nicht periodisch oder wiederholend, Schmerz n = 41 (46.6%). (2) hartnäckig wiederholend, in relativer Hochfrequenz, oder weniger scharf, anhaltend, Schmerz n = 32 (36.4%); (3) anhaltender und beeinträchtigender Schmerz, n = 8 (9.1%); (4) anhaltender und arbeitsunfähigmachender Schmerz, 7 Patienten (7.9%); und (5) anhaltender und behindernder Schmerz, n = 0. Diagnostische Untergruppen zeigten bedeutende Unterschiede hinsichtlich TMJ Schmerz, der während der klinischen Untersuchung hervorgerufen wurde. Es gab Untergruppen mit verschiedenen Niveaus von Schmerzintensität, mit Schmerzgrad Untergruppen, doch konnten keine besonderen Unterschiede gefunden werden, die auf der Dauer der Schmerzsymptome beruhten. Die Untergruppen unterschieden sich auch nur unbedeutsam auf der Punktliste des Multidimensionalen Schmerz Inventars and des Allgemeinen Gesundheits Fragebogens. Auf Grund dieser Untersuchung, die Einschätzung des nichtchronischen TMJ Schmerzes ist wahrscheinlich auf eine genaue Beschreibung der schmerzvollen Beschwerden und eine ausführliche klinische Einschätzung beschränkt. Eine multidimensionale Einschätzung kann zweckdienlich sein wenn der TMJ Schmerz anhält oder hartnäckig wiederholend ist. Abhängig von individuellen Umständen, weitere Einschätzungsverfahren können sich als nützlich erweisen. Eine allgemeine Strategie für Schmerzeinschätzung in temporomandibularen Störungen ist vorgeschlagen.