Temporomandibular Disorders. Part I: A Comparison of Symptom Profiles in Australian and Finnish Patients

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Variability in the assessment methods of patients seeking treatment for musculoskeletal disorders of the masticatory system confounds comparative assessment of different studies. In this study, presenting symptom profiles were assessed in 40 Australian and 42 Finnish patients with temporomandibular disorders. The symptom parameters of these patients were compared with those of 40 Australians reporting acute dental pain and were assessed with reference to response to conservative management. A self-administered anamnestic questionnaire was used in a standard, systematic, and comparative way to assess demographic data, general health status, and symptom parameters according to type, frequency, severity, duration, location, impact on the patients' lives, urgency for need of treatment, and possible initiating factors. It was found that the two nationalities studied had similar presentations of cardinal symptom profiles. Statistically significant differences in major presenting symptoms were found between patients with temporomandibular disorders and those with acute dental pain, but not between patients who responded rapidly as opposed to slowly to conservative therapy. It was concluded that the presenting symptom profiles were similar for the two nationalities and were not related to treatment outcome.
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Since Costen[1] first defined musculoskeletal disorders affecting the craniocervical region by a set of symptoms and signs (the syndrome concept), several classification schemes have been proposed, generally based on different etiologic theories, to aid in the assessment and treatment of these disorders. These theories have ranged from morphopathologic and functional[2–6] to psychologic,[7,8] and from unidimensional[2] to multidimensional.[9–11] Regardless of the differing concepts of etiology, the diagnosis of musculoskeletal disorders of the masticatory system has generally been made with reference to anamnestic (history) data and clinical examination of cardinal or distinguishing features of pain or discomfort in the muscles of mastication and/or temporomandibular joint(s) (TMJ), limitation of jaw movement, and jaw joint sounds.[12,13]

Symptoms of pain and dysfunction are typically the central reasons for which patients seek treatment and are required to establish a diagnosis of temporomandibular disorders (TMD), also known as temporomandibular pain-dysfunction disorder. Most epidemiologic studies have used a similar definition.[14–16] These population surveys have shown that up to three fourths show signs of TMD, and one fourth have symptoms of TMD, with an estimated 5% to 26% requiring active treatment.[14,17] Recently, headaches and functional limitations of the cervical region have been proposed as part of the diagnostic assessment.[11,18] Several other symptoms and signs such as earaches, atypical toothaches, headaches, occlusal changes, throat problems, and oral dysesthesia have also been reported.[18–20] However, it is not clear what role the various symptom and pain parameters play in treatment seeking or resolution of TMD.

Recently, recommendations have been made to subclassify TMD according to the sites of major symptoms. This multiple etiology diagnosis of TMD is made with reference to either disorders of the muscles, or disorders of the TM joint(s) such as internal derangement or arthritic disorder of the TM joints.[11,21–23] LeResche et al[24] compared different proposed classification criteria and highlighted the complexities in the differential diagnosis of TMD. Others have discussed variable decision criteria for the various subgroups of TMD across different studies and differences in self-report symptom and pain data and clinical data.[23] Alternative approaches to classification, based on psychobehavioral factors, have been proposed also, and these reflect the emerging literature on psychologic factors in TMD or the subgroups.[25–28] Despite the increased recognition of TMD as a dual-axis disorder with an emphasis on both the physical and psychologic elements,[10,29] most subclassifications of this disorder have been based on the presentation and assessment of major physical symptoms.[21,22] Recently, the importance of psychologic variables has been emphasized in subsets of patients with TMD, in treatment outcome studies, and in the initial screening and assessment of patients with TMD.[26,27,30,31] As with the assessment of musculoskeletal disorders affecting other sites of the body, such as with back pain, an internationally applicable consensus of diagnosis and classification has been difficult to achieve. Similarly, standards for the assessment of patients seeking treatment for TMD are still lacking. Therefore, comparative analysis of different studies from different treatment centers is difficult. Additionally, it is still not clear which factors govern the resolution of TMD or why the majority of patients will have resolution with simple conservative methods, while some patients remain resistant to treatment.

Given the inherent limitations of existing assessment guidelines and the need for comparative assessment, the present study assessed presenting symptom and pain parameters (frequency, severity, duration, location, and impact on patients' lifestyles) with a self-administered anamnestic questionnaire (SAQ).[32,33] Assessment instruments such as the SAQ are frequently used to systematically measure conditions such as TMD.[23,29,34,35]

The present study had two major objectives. The first was to compare two nationalities of patients diagnosed with TMD, namely, Australian and Finnish, with respect to central elements of presenting symptom profiles, pain parameters, the impact of the problem on daily life, and demographic differences. A review of the literature indicated that cultural or ethnic differences in patients afflicted with TMD have not been studied in a systematic and comparative manner. The experience of pain in general, however, has been shown to be subject to sociocultural factors such as ethnic background and culture-specific attitudes.[36–38]

The second objective of this study was to compare the aforementioned symptom parameters in patients suffering from TMD with patients suffering from acute dental pain, and to assess these parameters according to the response to conservative therapy in patients with TMD. A study of the literature suggested that individuals with acute dental pain differ from patients with chronic pain.[39] It is thus expected that patients with dental pain would differ in symptom parameters from patients with TMD. The role of different symptom variables in the resolution of TMD is not well documented, but it is hypothesized that the response to conservative therapy would vary according to presenting symptoms among patients with TMD.

Materials and Methods

Subjects

A total of 82 patients—40 Australian and 42 Finnish—diagnosed as suffering from TMD, were consecutively selected from those presenting at the Department of Oral Medicine at the University of Melbourne and the Department of Stomatognathic Physiology at the University of Helsinki, respectively. The Australian group consisted of 6 males and 34 females (mean age 40.4 years, standard deviation [SD] 18.5), while the Finnish group was

composed of 7 males and 35 females (mean age 36.4 years, SD 12.1). The ratio of males to females reflected the observed trend in distribution of TMD found in the clinic population.[16,19] A group of patients suffering from acute orofacial pain, but not TMD, were included for comparison. These 40 "toothache" subjects (31 females and 9 males) (mean age 33.4 years, SD 16.0) were Australian and had been recruited from the Casualty Department of The Royal Dental Hospital of Melbourne.

Subjects were diagnosed with TMD after a detailed history (anamnestic examination and extraoral and intraoral assessment) revealed presenting symptoms of pain and/or discomfort and dysfunction of the masticatory system. Using the guidelines for the Research Diagnostic Criteria for Temporomandibular Disorders,[22] the majority of patients in this study had combined muscle and TMJ symptoms. Patients were excluded from the study if they were younger than age 15 years or older than age 70 years, if they were unable to comprehend English in the Australian group or Finnish in the Finnish group, or if they had a severe psychiatric disturbance other than anxiety or depression. All participants signed an informed consent form according to the ethical requirements in each treatment center.

In the Australian TMD group, the majority of the 40 subjects were of Anglo-Saxon origin and fluent in the English language (90%). Every subject in the Finnish group was a Finnish citizen who spoke the national language as their native tongue. A higher proportion of the unemployed and pensioners were represented in the Australian group (40%); the majority of Finns were employed (67%). When the occupational status was viewed in the context of occupational satisfaction, no significant differences between the groups were observed. More than 80% in both samples expressed occupational satisfaction. Similarly, there were no significant differences between the groups in terms of marital satisfaction. The majority of patients in the Australian (65%) and Finnish groups (74%) reported "good" general health, even though the distribution of heart disorders was higher in the Australian TMD group (11 of 40) than in the Finnish group (1 of 42).

Questionnaire

For comparative reasons, all subjects were assessed with a self-administered anamnestic questionnaire (SAQ), which was modified from one developed by Carlsson and associates at the University of Göteborg.[32,33] New variables regarding various symptoms, demographic background, and initiating factors were included. The SAQ was used to record in a standard and systematic way the demographic and general health characteristics of the subject groups; the frequency of the symptoms and signs present; the nature, duration, location, and severity of pain; subjective evaluation of the chewing ability; and the presence of any parafunctional habits. The questionnaire also provided detailed information on the impact of symptoms on subjects' daily lives and the urgency of the need for treatment.

Procedure

At the first consultation, each patient completed the SAQ as part of his or her initial assessment prior to undergoing conservative therapy for TMD. Response to treatment was assessed by subjective reporting. After 6 months, the patients were grouped according to whether their progress had been "rapid" or "slow." The rapid responders represented those patients who reported total resolution or major improvement of their TMD following treatment, while the slow responders comprised subjects who reported minor or no improvement of their TMD symptoms. In addition, the pain scores, as recorded by visual pain analog scales,[40] had to be less than 20 (of 100) for the rapid responders.

During the follow-up period, treatment of patients with TMD was based on conservative methods in each treatment center, such as patient education and conservative physical therapy, mainly in the form of interocclusal appliances, according to guidelines by McNeill et al.[11] Patients who did not respond favorably to conservative management were treated by appropriate adjunct therapies, such as physiotherapy and multidisciplinary management.

Results

Comparison of Symptom Profiles in Australian and Finnish TMD Patients

Symptomatology. The distributional data of the patient symptom profiles are presented in Table 1. Several similarities can be noted between the symptoms reported by Australian TMD patients and Finnish TMD patients. The most common complaints reported in both groups were pain in the face and jaws, headaches, and various functional difficulties. Seventy-three percent (29 of 40) of the Australian and 60% (25 of 42) of the Finnish patients reported daily or more-than-once-weekly

Table 1 Symptom Profiles in the Australian and Finnish TMD Groups and in the Acute Dental Pain Group

	Australian TMD (n = 40)		Finnish TMD (n = 42)		Acute dental pain (n = 40)	
	n	%	n	%	n	%
Pain*	29	73	25	60	40	100
Difficulty chewing*	24	60	21	50	36	90
Headache	21	53	20	48	10	25
Fatigue	25	63	19	45	3	8
Jaw joint sounds	25	63	19	45	2	5
Difficulty opening wide	23	58	17	41	11	28
Nausea	9	23	16	38	8	20
Tender teeth*	15	38	9	21	29	73
Ringing in the ears	9	23	10	24	2	5
Tongue/mouth problems	9	23	8	19	4	10
Sight disturbance	4	10	8	19	1	3
Locking/jaw dislocation	4	10	5	12	2	5
Migraine	3	8	7	17	1	3
Toothache*	7	18	3	7	39	98
Parafunctional habits*	23	60	24	65	9	23

Statistically significant difference between the Australian TMD group and the Finnish TMD group; one-way analysis of variance; P = not significant.
*Statistically significant difference between the Australian TMD group and the acute dental pain group; one-way analysis of variance; $P < .01$.

episodes of pain. Approximately one half of the patients in either group (21 of 40 and 20 of 42, respectively) reported headaches, and 63% (25 of 40) of the Australian and 45% (19 of 42) of the Finnish TMD groups reported fatigue, expressed as "discomfort," "tiredness," or "heaviness" in the muscles of the face and jaws. The most frequently encountered functional limitations in each group were difficulties in chewing (60%, 24 of 40 Australian and 50%, 21 of 42 Finnish) and in wide mouth opening (58%, 23 of 40 and 41%, 17 of 42, respectively). The third most common complaint reported in each group was the presence of TMJ sounds (63%, 25 of 40 Australian and 45%, 19 of 42 Finnish). Ringing in the ears was also reported in almost one quarter of the subjects in each group. Intraoral problems, such as tender teeth, and tongue and mouth discomfort, were reported as being frequent in about one third of the patients, and almost two thirds were aware of parafunction such as bruxism. The majority of patients were polysymptomatic.

Differences in presenting symptom profiles between Australian and Finnish TMD groups and the acute dental pain group were examined for statistical significance using a one-way analysis of variance[41] with post hoc analysis by the Student-Newman-Keul's multiple comparisons test set at an α level of .05. No statistically significant differences were found in the presenting symptom profiles between the Australian and Finnish TMD groups (Table 1; $P < .05$). However, statistically significant differences were found in the levels of face pain, chewing difficulty, toothache, tender teeth, and parafunctional habits between the Australian patients with acute dental pain and those with TMD (Table 1; $P < .01$).

Differences in presenting symptom profiles were assessed also according to the response to conservative management of TMD by a Kruskall-Wallis two-by-two analysis.[41] There were no statistically significant differences between the slow and rapid responders in the initial self-report severity of TMD or in the major presenting symptoms, such as face pain, impairment of mandibular function, and joint sounds. The slow responders in both the Australian and Finnish TMD groups reported significantly more frequent occurrence of nausea (ie, feeling unwell with their symptoms) compared to rapid responders ($P < .05$). Table 2 shows the distribution of presenting symptom profiles in the slow responders.

Pain Parameters. More than 50% of the Australian (26 of 40), Finnish (22 of 42), and acute dental pain (26 of 40) subjects described their symptoms as "severe" or "very bad," with an

Table 2 Symptom Profiles in the Slow Responders

	Australian TMD (n = 10)		Finnish TMD (n = 10)	
	n	%	n	%
Pain	9	90	10	100
Difficulty chewing	6	60	10	100
Headache	9	90	6	60
Fatigue	8	80	5	50
Jaw joint sounds	7	70	2	20
Difficulty opening wide	7	70	4	40
Nausea†	7	70	7	70
Tender teeth	4	40	5	50
Ringing in the ears	3	30	2	20
Tongue/mouth problems*	4	40	3	30
Sight disturbance	1	10	3	30
Locking/jaw dislocation	2	20	1	10
Migraine	3	30	3	30
Toothache	2	20	3	30
Parafunctional habits	6	60	6	60

*Statistically significant difference between the Australian rapid responders and the Australian slow responders; two-by-two analysis; $P < .05$.
†Statistically significant difference between the Finnish rapid responders and the Finnish slow responders; two-by-two analysis; $P < .05$.

additional one fourth in each group reporting moderate symptoms. The majority of patients suffering from TMD had their symptoms for more than 6 months compared to the acute dental pain group, which only had two subjects with symptoms for longer than 6 months.

Table 3 shows the distribution of the type and location of pain in the Australian and Finnish TMD groups and the acute dental pain group. The statistical comparisons are based on chi square analysis with an α level set at .01. All three groups described their symptoms as a combination of different types of pain. The Australian and Finnish TMD groups frequently described their pain as dull. The acute dental pain subjects described their pain as sharp pain. The TMD groups reported multiple sites for the location of pain; the acute dental pain group reported the location of pain in teeth and jaws (Table 3; $P < .05$). The most frequently reported sites affected by TMD included the jaw and ear regions and the neck, and these were followed in frequency by the temple, teeth, and forehead regions. Throat and tongue pain sites were also reported. Both the right and the left sides were equally represented in the TMD groups. In the acute dental pain group, the right side was reported more often than the left.

The slow responders reported similar characteristics in the type, severity, duration, and location of symptoms compared to the rapid responders. The slow responders also reported significantly more frequent location of pain at unusual sites, such as the forehead and teeth, compared to the rapid responders ($P < .001$).

Impact of the Problem on Patients' Lives. More than 70% of patients suffering from TMD reported that their daily lives had been affected by the problem, and 63% (25 of 40) of the Australian and 53% (20 of 38) of the Finnish patients felt in need of pain control tablets to help them overcome their problem. Sleep and occupational function were affected in approximately one half of the patients in both of these groups. Most of the patients with acute dental pain (92.5%, 37 of 40) reported that their daily lives had been affected by the pain, with sleep and work being affected in a fashion similar to that of the TMD group.

The majority of patients in all three groups thought that they needed to be treated immediately. More than one third of TMD patients could not recollect any initiating factors to their problem; the remaining patients identified traumatic events (accidents), long dental appointments, general anesthesia, wide yawns, parafunctional habits, stress, inadequate dentures, family problems, and physical illness as initiating factors.

Table 3 Distribution of Pain Parameters in the Australian and Finnish TMD Groups and in the Acute Dental Pain Group

	Australian TMD (n = 40)		Finnish TMD (n = 42)		Acute dental pain (n = 40)	
	n	%	n	%	n	%
Nature of pain						
Dull	14	35	5	16	8	20
Sharp	9	23	4	13	17	43
Other	1	3	4	13	2	5
Combination	16	40	18	58	13	33
Missing data			11			
Location of pain						
Jaw†	33	83	31	84	39	98
Ear†	24	60	18	49	8	20
Neck*†	20	50	28	76	2	5
Temple†	17	43	25	67	12	30
Teeth†	16	40	16	43	36	90
Forehead†	11	28	14	38	6	15
Vertex†	9	23	6	16	1	3
Throat	8	20	7	19	6	15
Tongue	3	8	5	14	1	3
Other	5	13	10	27	0	
Right side†	11	30	12	36	21	54
Left side	10	27	12	36	13	33
Both sides	16	43	9	27	5	13
Missing data			5			
Effect of symptoms on daily life						
Off work/school*	3	8	11	29	11	28
Symptoms affect						
Sleep	25	63	17	45	25	63
Daily life†	29	73	29	76	37	93
Work/studies*	17	43	24	63	22	55
Need tablets	25	63	20	53	28	70
Other	6	15	7	18	0	0
Missing data			4			

*Australian TMD group versus Finnish TMD group; chi square test; $P < .01$.
†Australian TMD group versus acute dental pain group; chi square test; $P < .01$.

Discussion

The findings of the present study confirmed that the cardinal presenting symptoms of patients seeking treatment for their TMD consist of pain and impairment of mandibular function. No statistically significant differences were found in the presenting symptom profiles between the Australian and Finnish patients with TMD. The cardinal symptoms in both groups included pain in the face and jaws, functional difficulties such as difficulty chewing, difficulty opening the mouth wide, and TMJ sounds. Most TMD patients were polysymptomatic. The most annoying symptoms for which patients sought treatment included pain, difficulties in opening the mouth wide, headaches, joint clicking, and crepitus.

The findings of this study are in accordance with previous studies that have used the self-administered anamnestic questionnaire (SAQ) in Swedish patients with TMD.[29,33] These studies found that the most frequent symptoms in patients with TMD included pain, headache, limitations of mandibular function, and feelings of fatigue. Similarly, studies with American TMD populations have found that the cardinal symptoms in patients seeking treatment for their TMD included the report of pain and limitation of mandibular motion.[16]

During the past decade, several classification systems have been recommended for diagnostic subgroups of TMD.[11,22] These studies have supported the division of patients with TMD into subgroups based on presenting physical symptom profiles.[11,22] Many have demonstrated that patients suffering from myogenous TMD differ from patients with arthrogenous TMD.[21,42] Many have supported the proposition that patients with TMD represent a heterogeneous physical symptom group[11,22,23] and could be classified based on physical signs and symptoms.[10,11,21,22] Nevertheless, at present a consensus as to how to subclassify patients, especially how to classify those with overlapping physical symptoms, has not yet been established internationally.

Several investigators have highlighted the difficulties in the subclassification of TMD.[10,11,16] It is unclear whether only structural and morphopathologic factors are the key to the differential diagnosis of patients, or whether this type of classification is critical in evaluating a response to conservative management. Similar problems have been encountered in the subclassification of other musculoskeletal disorders of the body. Some clinicians such as Rudy et al,[25] and Butterworth and Deardorff[43] have proposed alternative classifications of TMD based on psychobehavioral factors. Recently a dual-axis approach to the evaluation of patients with TMD has been recommended.[22,26,28,31] Because it is not yet clearly understood what role both the pain mechanisms and dysfunctional or morphopathologic parameters play in the initiation, precipitation, persistence, or resolution of TMD as well as their combined role in the assessment and management of these patients, no attempt was made in the present study to subclassify Australian and Finnish patients according to different constellations of central elements of the presenting symptoms prior to the assessment. Instead, the emphasis was on examining intercultural differences in a systematic evaluation of responses to a standard questionnaire.

The assessment of possible initiating factors in the present study revealed multiple factors. One third of both nationalities could recollect a traumatic event. Other factors reported included parafunctional habits, stress, inadequate dentures, family problems, and physical illness. About one third of both nationalities could not, however, recollect any specific initiating factor. These findings are consistent with the proposition that multiple factors are involved in TMD, or at least in the self-report causes for TMD. The role of these factors, however, in the initiation, precipitation, or persistence of this disorder can only be postulated. Generally, multifactorial models in the etiology and resolution of TMD have found increasing support, but further research in this field is needed.[10,11,16,26,28]

The finding that subjects reported multiple effects of TMD on their daily and occupational functioning, as well as sleep disturbance and need for pain control tablets, is of clinical significance. Almost one third of the Finnish TMD patients also reported the need for sick leave, similar to previous studies.[44,45] This finding may be incidental for the Australian TMD patients because the demographic employment status differed between the Finns and the Australians. However, no statistically significant differences were found between the two nationalities in the level of occupational satisfaction groups or in the self-report of family situation. Earlier studies have also reported that patients with TMD frequently report other disorders such as stomach ulcers, headaches, and skin diseases[45] or back or neck pain and asthma.[46] The exact nature of the impact of TMD on psychosocial functioning, sickness leave, and health care utilization, however, warrants further study.

The responses to the questionnaires in the present study were also related to the outcome of conservative therapy. The literature suggests that through conservative therapy, approximately 70% of the patients report a successful outcome.[47,48] Approximately 75% of the patients in the present investigation had resolution of their symptoms. Although the small sample size prevents the drawing of definite conclusions, based on the descriptive data, it appears that the slow responders had a similar presentation of symptom profiles when initially examined compared to the rapid responders in both TMD groups. Recently, a study by Kleinknecht et al[49] proposed the importance of "peripheral" TMD in those with poor responses to therapy. The notion that patients in both TMD groups with slow response to therapy reported nausea, ie, feeling ill with their symptoms, warrants further study in the role of peripheral symptoms and their distribution in patients who present for treatment of TMD.

Conclusion

The Australian and Finnish TMD patients could not be differentiated at presentation or in response to therapy outcome on the basis of presenting symptom profiles or pain parameters, but they differed from patients presenting with acute dental pain. Future research with larger samples may permit a more specific investigation in the role of vari-

ous symptom parameters in subgroups of patients and their relevance to treatment outcome. The lack of correlation between symptom variables and treatment outcome warrants further assessment of the role that both physical symptom and psychosocial impact factors play in initiating, maintaining, and resolving TMD according to the multidimensional and dual-axis models of TMD, and such is the focus of continuing research.

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Resumen

Desórdenes Temporomandibulares. Parte I: Comparación de los Perfiles de los Síntomas de Pacientes Australianos y Finlandeses

La variabilidad en los métodos de evaluación de los pacientes que buscan tratamiento para los desórdenes musculoesqueléticos del sistema masticatorio confunden la evaluación comparativa de los diferentes estudios. En este estudio, se evaluaron los perfiles de los síntomas presentes en 40 pacientes Australianos y 42 pacientes Finlandeses que presentaban desórdenes temporomandibulares (DTM). Los parámetros de los síntomas de estos pacientes fueron comparados con aquellos que presentaban 40 Australianos con dolor dental agudo y fueron evaluados con respecto a la respuesta luego de un tratamiento conservador. Se utilizó un cuestionario anamnésico auto-administrado de una forma estándar, sistemática y comparativa para evaluar los datos demográficos, el estado de salud general y los parámetros de los síntomas de acuerdo al tipo, frecuencia, severidad, duración, localización, impacto sobre las vidas de los pacientes, premura en cuanto a la necesidad de tratamiento, y los posibles factores iniciadores. Se encontró que los perfiles de los síntomas cardinales de las dos nacionalidades estudiadas eran similares. Se encontraron diferencias estadísticamente significativas en los síntomas importantes presentados por los pacientes con DTM y aquellos con dolor dental agudo. Sin embargo no se encontraron diferencias estadísticamente significativas en pacientes que respondieron rápidamente en comparación con los que respondieron lentamente al tratamiento conservador. Se concluyó que los perfiles de los síntomas presentes fueron similares en las dos nacionalidades y no se relacionaron a los resultados del tratamiento.

Zusammenfassung

Temporomandibuläre Erkrankungen. Teil I: Ein Vergleich von Symptomprofilen zwischen australischen und finnischen Patienten

Die Variabilität der Beurteilungsmethoden bei Patienten für die Behandlung von muskuloskelettalen Erkrankungen des Kausystems vereitelt die vergleichbare Beurteilung von verschiedenen Studien. In dieser Studie wurden vorliegende Symptomprofile bei 40 australischen und 42 finnischen Patienten mit temporomandibulären Erkrankungen beurteilt. Die Symptomparameter dieser Patienten wurden verglichen mit denjenigen von 40 Australiern, welche über akuten Zahnschmerz berichteten und beurteilt wurden hinsichtlich der Antwort auf konservative Behandlung. Ein selbst-administrierter anamnestischer Fragebogen wurde verwendet in einer standardisierten, systematischen und vergleichbaren Weise, um demographische Daten, allgemeiner Gesundheitszustand und Symptomparameter in Bezug auf Typ, Frequenz, Schwere, Dauer, Lokalisation, Einwirkung auf das Leben des Patienten, Dringlichkeit einer Behandlungsnotwendigkeit und mögliche auslösende Faktoren zu beurteilen. Man fand heraus, dass die beiden untersuchten Nationalitäten ähnliche Darstellungen der Kardinalsymptome aufwiesen. Statistisch signifikante Unterschiede in bedeutenden dargestellten Symptomen wurden gefunden zwischen Patienten mit temporomandibulären Erkrankungen und solchen mit akutem Zahnschmerz, aber nicht zwischen Patienten, welche rasch sowie entgegengesetzt auf konservative Therapie antworteten. Es wurde daraus geschlossen, dass die vorliegenden Symptomprofile ähnlich waren für die beiden Nationalitäten und nicht verbunden mit dem Behandlungsergebnis.