

Original articles

Clinical and psychosocial aspects assessed by the research diagnostic criteria for temporomandibular disorder

Aspectos clínicos e psicossociais avaliados por critérios de diagnóstico para disfunção temporomandibular

Chaiane Facco Piccin⁽¹⁾

Daniela Pozzebon⁽¹⁾

Laís Chiodelli⁽¹⁾

Jalusa Boufleus⁽¹⁾

Fernanda Pasinato⁽¹⁾

Eliane Castilhos Rodrigues Corrêa⁽¹⁾

⁽¹⁾ Programa de Pós Graduação em Distúrbios da Comunicação Humana da Universidade Federal de Santa Maria/ UFSM, Santa Maria, Rio Grande do Sul, Brasil.

Source of support: FAPERGS

Conflict of interest: non-existent

ABSTRACT

Purpose: to analyze the association between the classification of clinical diagnoses classification (myofascial pain, disc and joint disorder) and the chronic pain graduation, depression and nonspecific physical symptoms in subjects with temporomandibular disorder.

Methods: 32 patients with a mean age of 28.71 ± 4.66 years, were included. Axis I and II - as an evaluation tool, the Diagnostic Criteria for Temporomandibular Disorders Research was used. Regarding diagnosis group, 88.13% of patients showed mixed conditions, with 43.75% of groups I and III (muscle and joint disorders) and 34.38% in groups I, II and III (muscle disorders, joint and displacement disk).

Results: according to the axis II, 96.88% of participants were classified as chronic grade I and II (low disability and low intensity, low disability and high intensity) pain. Moderate and severe degrees of depression were observed in 84.38% of the participants. In the evaluation of nonspecific physical symptoms including pain and excluding, respectively, 59.38% had severe symptoms and 71.88% had moderate or severe symptoms. There was a significant relationship between the clinical diagnosis of temporomandibular dysfunction with the degree of non-specific physical symptoms including pain.

Conclusion: some clinical and psychosocial factors are associated in patients with temporomandibular dysfunction, observing a variety of clinical diagnoses with the presence of a significant relationship between clinical diagnoses and the presence of physical symptoms nonspecific with pain. Complaint of greater severity of physical symptoms was found in patients with multiple clinical diagnosis.

Keywords: Temporomandibular Joint Disorder; Anxiety; Depression

RESUMO

Objetivo: analisar a associação entre a classificação de diagnósticos clínicos (dor miofascial, desordem discal e articular) e a graduação de dor crônica, depressão e sintomas físicos não específicos em sujeitos com disfunção temporomandibular.

Métodos: foram incluídos 32 pacientes, com média de idade de $28,71 \pm 4,66$ anos. Como instrumento de avaliação, foi utilizado o Critério de Diagnóstico para Pesquisa das Desordens Temporomandibulares – Eixo I e II. Quanto ao grupo diagnóstico, 88,13% dos indivíduos apresentaram diagnóstico misto, sendo 43,75% dos grupos I e III (distúrbios musculares e articulares) e 34,38% dos grupos I, II e III (distúrbios musculares, articulares e deslocamento de disco).

Resultados: de acordo com o eixo II, 96,88% dos participantes foram classificados com dor crônica grau I e II (baixa incapacidade e baixa intensidade; baixa incapacidade e alta intensidade). Graus moderado e grave de depressão foram observados em 84,38% dos participantes. Na avaliação de sintomas físicos não específicos incluindo e excluindo dor, respectivamente, 59,38% apresentaram sintomas severos e 71,88% apresentaram sintomas moderados e severos. Verificou-se relação significativa dos diagnósticos clínicos de disfunção temporomandibular com o grau de sintomas físicos não específicos incluindo dor.

Conclusão: alguns aspectos clínicos e psicossociais estão associados em pacientes com disfunção temporomandibular, observando uma multiplicidade de diagnósticos clínicos com a presença de uma relação significativa entre os diagnósticos clínicos encontrados e a presença de sintomas físicos inespecíficos com dor. Queixa de maior gravidade de sintomas físicos foi encontrada em pacientes com diagnóstico clínico múltiplo.

Descritores: Transtornos da Articulação Temporomandibular; Ansiedade; Depressão

Received on: May 14, 2015
Accepted on: June 29, 2015

Mailing address:

Chaiane Facco Piccin
Rua Elpidio Menezes, 265, apto 102
Santa Maria – RS – Brasil
CEP: 97105-110
E-mail: chaiane.ufsm@gmail.com

INTRODUCTION

Temporomandibular disorder (TMD) is a term used to designate several clinical signs and symptoms affecting the muscles of mastication, the temporomandibular joint (TMJ) and structures associated^{1,2}. It is considered as a multifactorial disorder^{3,4}, presenting as its etiologic factors joint trauma, occlusal discrepancies, joint hypermobility, skeletal problems, parafunctional habits, and psychosocial and behavioral factors⁵.

TMD is often associated to psychological and somatic complaints, including fatigue, sleep disturbances, anxiety and depression^{6,7}. Furthermore, psychosocial factors may be present, varying according to the etiologic diagnosis subgroup, with higher frequency in patients with myogenic TMD⁸.

Women are more likely to be diagnosed with TMD than men^{9,10}. TMD occurs predominantly during the productive years, in patients aged 20-50 years^{3,11}.

Considering the need of precise parameters for data collection and the elaboration of clinical diagnoses regarding TMD, the Research Diagnostic Criteria for Temporomandibular Disorders - RDC/TMD¹² was developed, a double-axis assessment system including physical aspects that allow the TMD (Axis I) diagnosis and classification, as well as the assessment of psychological suffering and the psychosocial disorder associated with TMD chronic pain and orofacial disability (Axis II)^{13,14}. This diagnostic system is internationally recognized and has proven reliable for the diagnosis of TMD¹⁵.

A differential of RDC/TMD is in the importance given to the assessment of intensity and pain-related disability associated, as well as the levels of depression and somatization, well-known as key factors for the onset of pain and clinical symptoms in subjects with TMD¹². Axis II has been used to describe high levels of depression and somatization¹⁶, as well as the high prevalence of pain-related impairment in social activities in patients with TMD¹⁷.

Besides being the possible triggers of TMD^{2,3,10}, the psychosocial factors are associated to the severity and persistency of clinical symptoms. Those factors influence the patients response to treatment^{5,10}, and may be important outcome predictors¹⁸. Thus, the treatment principles are currently based on a multimodal biopsychosocial approach to reduce pain and improve the function in patients with TMD².

There is strong evidence that patients with TMD have varied psychosocial profiles¹⁹, which is an important

clinical implication to be taken into account in the initial assessment and screening of these patients¹⁹.

The hypothesis of this study is the presence of physical and psychological factors involved in TMD, and that they are directly interrelated, i.e., the more psychological aspects present, the greater the repercussion in physical symptoms, and vice versa.

Keeping in mind that the psychosocial factors may exacerbate and maintain the symptoms of pain¹¹, the physiotherapist knowledge regarding the relationship among the multiple aspects involving TMJ disorders can contribute to a preventive approach and a more effective treatment.

Therefore, the objective of the present study was to analyze the association between the classification of clinical diagnoses (myofascial pain, disk and joint disorder) and chronic pain grading, depression and non-specific physical symptoms (NSPS).

METHODS

This research was carried out at the Orofacial Motricity Laboratory, from the Phonological Attendance Service of a university. The project was approved by the Research Ethics Committee of the Federal University of Santa Maria (Consolidated Opinion: 774.011) according to the National Health Council Resolution, under the number 466/2012.

Subjects aged 18-40 years were included, with the diagnosis of TMD achieved through RDC/TMD Axis I and II, and signed a Free and Informed Consent (IC) form. The participants were recruited from the Prosthesis and Occlusion Clinic of the institution and through research promotion in print and electronic media.

The exclusion criteria were: signs of neuropsychomotor impairment (reading disability, difficulty to understand and answer questionnaires, psychic problems, sensory or audio communication disability, among others), previous physiotherapy treatment for orofacial pain in the last 2 years, history of cancerous disease in the last 5 years and facial and cervical trauma and/or surgical procedures²⁰. These criteria were used with the aim of eliminating other triggering factors for orofacial pain, structural changes, as well as minimizing the interference of therapeutic outcomes previously obtained.

All subjects were informed as to the research objectives and the procedures to be performed. The diagnosis of TMD was made by a trained examiner according to RDC/TMD specifications; the physical examination was made by means of Axis I, and the

assessment of psychosocial aspects was obtained through Axis II^{14,21}. In order to classify the Axis I diagnosis from the algorithms, the individuals were classified according to 3 diagnostic groups¹⁴: Group I – muscle disorders; Group II – disk displacement, and Group III – joint disorders (arthralgia, arthritis, arthrosis).

In Axis II, the participants were assessed regarding the pain-related intensity and disability (grading of chronic pain state), and psychological status (grading of depression and somatization – NSPS level including and excluding pain).

Chronic pain is classified as grade I (low disability and low intensity); grade II (low disability and high intensity); grade III (high disability and moderate limitation); grade IV (high disability and severely limited)^{14,21}. The grading of depression, and NSPS including and excluding pain, are expressed in the table below:

Classification	Depression	NSPS including pain	NSPS excluding pain
Normal	<0.535	<0.5	<0.428
Moderate	0.535 to 1, 1.05	0.5 a 1	0.428 a 0.857
Serious/Severe	<1.105	>1	>0.857

The sample profile description data were presented in a frequency distribution table, with absolute frequency

values (n) and percentage (%). The individuals were divided into groups according to the diagnosis found in RDC/TMD – Axis I, and subsequently compared and related to the variables assessed in Axis II. In order to verify the association between the frequency of clinical diagnosis, and the degrees of chronic pain, depression and NSPS, the Fisher's exact test was used with a significance level of 5%.

RESULTS

Thirty-two subjects, mean age 28.71 ± 4.66 years, 29 females and 3 males, were assessed, with no sample loss. The frequency of clinical diagnosis of TMD and the psychosocial variables, as well as their associations, are shown in Table 1.

Regarding the clinical diagnosis, 88.13% of individuals presented mixed diagnosis, 43.75% from groups I and III (muscle and joint disorders) and 34.38% from groups I, II and III (muscle disorders, disk displacement and joint disorders). In Axis II, the diagnosis of chronic pain grade I and II (low disability and low intensity; and low disability and high intensity) was found in 96.88% of participants. Regarding chronic pain (pain intensity and disability), most of participants (56.25%) presented grade I (low disability and low intensity). In relation to the classification of

Table 1. Descriptive analysis (frequency and percentage) and association between clinical diagnoses, chronic pain degree, depression and non-specific physical symptoms with and without pain in patients with temporomandibular disorder

Psychosocial Variables		Clinical Diagnosis of TMD				Total (n)	Total (%)	Fisher's Exact Test
		I	I and II	I and III	I, II, and III			
Chronic pain degree	I	2 (50%)	2 (66.67%)	8 (57.14%)	6 (54.55%)	18	56.25	p=1.000
	II	2 (50%)	1 (33.33%)	5 (35.71%)	5 (45.45%)	13	40.63	
	III	0	0	1 (7.14%)	0	1	3.13	
	Total	4 (12.2)	3 (9.38)	14 (43.75)	11 (38.38)	32	100	
Depression degree	Normal	1 (25%)	0	3 (21.43%)	1 (9.09%)	5	15.63	p=0.996
	Moderate	2 (50%)	2 (66.67%)	7 (50%)	5 (45.45%)	16	50.00	
	Severe	1 (25%)	1 (33.33%)	4 (28.57%)	5 (45.45%)	11	34.38	
	Total	4 (12.2)	3 (9.38)	14 (43.75)	11 (38.38)	32	100	
Non-specific physical symptoms including pain	Normal	2 (50%)	1 (33.33)	0	2 (18.18)	5	15.63	p=0.006*
	Moderate	1 (25%)	0	7 (50%)	0	8	25.00	
	Severe	1 (25%)	2 (66.67)	7 (50%)	9 (81.82)	19	59.38	
	Total	4 (12.2)	3 (9.38)	14 (43.75)	11 (38.38)	32	100	
Non-specific physical symptoms excluding pain	Normal	3 (75%)	0	4 (28.57%)	2 (18.18%)	9	28.13	p=0.140
	Moderate	0	2 (66.67%)	4 (28.57%)	1 (9.09%)	7	21.88	
	Severe	1 (25%)	1 (33.33%)	6 (42.86%)	8 (72.73%)	16	50.00	
	Total	4 (12.2)	3 (9.38)	14 (43.75)	11 (38.38)	32	100	

Group I (muscle disorders), Group II (disk displacement) and Group III (joint disorders - arthralgia, arthritis, arthrosis), * Fisher's Exact Test ($p < 0.05$). Legend: TMD: temporomandibular disorder.

depression, 84.38% of subjects presented moderate to severe degree. In the assessment of NSPS including and excluding pain, respectively, 59.38% e 50% of individuals presented severe symptoms.

An association was verified between the diagnostic classifications of TMD and the grading of NSPS including pain. Fisher's exact test identified higher frequency of normal grading of NSPS including pain among individuals with exclusive diagnosis from group I. Moderate grading was associated to mixed diagnoses from group I and III, and severe grading more frequently in mixed diagnoses from group I and I, and group I, II and III. This association is illustrated in Figure 1.

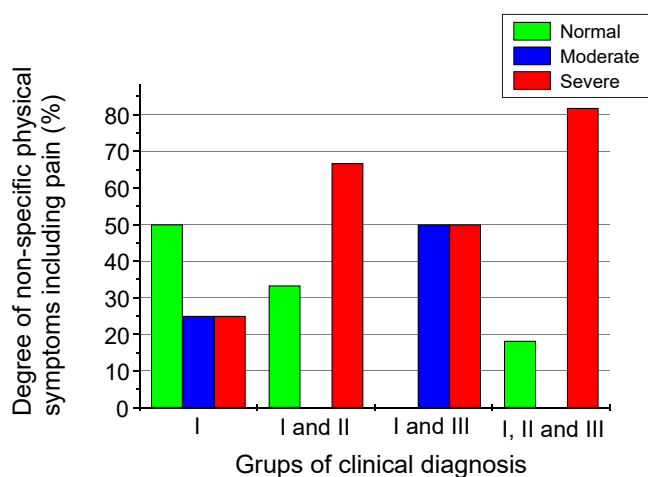


Figure 1. Association between non-specific physical symptoms including pain and groups of clinical diagnostic found (Group I; Group I and II; Group I and III, and Group I, II and III) by using the frequency analysis.

DISCUSSION

The role of psychological symptoms in patients with chronic pain associated with TMD has been investigated, verifying an association between the pain resulting from this disorder and disorders such as depression, somatization and anxiety⁷.

In this study, the mean age of the participants was 28.7 years, and this is in accordance with authors reporting that the prevalence of TMD is higher in age group between 20-45 years¹¹. Women comprised most of participants, agreeing with other studies^{11,22}.

Multiple clinical diagnoses, according to RDC/TMD, were present in this research participants, with prevalence of mixed disorder (myogenic and arthrogenic)

present in 43.75% of individuals. This is in line with a survey investigating the prevalence of diagnosis of TMD in populations of patients with TMD and in community samples, where myofascial pain was the diagnosis most often found in populations of patients with TMD (45.3% of 3,463 subjects), and disk displacement was the most usual diagnosis in community samples (11.4% of 2,491 subjects)²³.

Regarding the degree of chronic pain, most of the individuals (56.25%) presented grade I (low disability and low intensity), i.e., they did not present disabling pain or negative influence on their daily activities. In previous studies, disability related to pain was strongly correlated to high levels of depression and somatization^{12,18}, a result contrary to that found in the present study. Previous research²⁴ suggests that if the duration of pain is longer than 6 months, this may be an important indicator of high disability in patients with TMD. The importance of such relations in the sample of non-patient community may suggest that the behavior of seeking treatment and other factors related with the pain experience are more important than the physical findings to determine the level of psychosocial impairment²⁵.

It was observed a high percentage of moderate to severe depression in 50% and 34.38% of individuals, respectively. In studies assessing 111 patients with TMD, 39.6% presented severe grade depression, and 1.8% moderate grade depression²⁵. Individuals with TMD are more anxious and/or depressive than asymptomatic individuals, and the disorder symptoms have their onset in periods of psychological stress (anxiety) and exacerbate during stress situations⁹. The studies, however, do not conclude whether TMD is a predisposing factor for depression, or depression predisposes the emergence of TMD. In a study, individuals with depression were 2.65 times more likely to develop TMD compared with the group without depression²⁶. The use of RDC/TMD Axis II is considered a reliable and valid indicator of depression, somatization and psychosocial disorder in response to pain, because although it does not provide a psychiatric diagnosis, it gives initial scientific support to validate the clinical decision-taking based on evidence^{17,18}. However, it must be taken into account that RDC/TMD presents high sensitivity (87%), but low specificity (53%) in the identification of patients with depression (comparing low scores with moderate/severe scores of depression), which may generate false-positive diagnoses^{17,18}, in which case severe levels of somatization may confuse the interpretation

of the clinical examination. Due to these factors, a new RDC have been elaborated in order to address these problems²¹.

In the assessment of NSPS including and excluding items related to pain, 59.38% and 50% of individuals, respectively, presented severe symptoms. According to previous studies, patients with dysfunctional pain are more susceptible to depression^{12,24}, tend to report NSPS^{9,12,24} and present higher intensity pain¹² when compared to subjects without TMD. Contradicting the results found, a study showed that patients with high levels of pain-related disability were more likely to have higher pain intensity and to report more symptoms of somatization and mandibular functional disability. Still, they were less likely to have joint pain due to disk displacement than those with low levels of disorder-related pain².

It was verified a significant relationship between the clinical diagnoses of TMD and the degree of NSPS including items of pain, thus suggesting the influence of TMD on painful symptoms. A study suggests that patients with TMD, with diagnosis of myofascial pain might present more psychosocial impairment than those with joint disorders²⁴. It was found a higher frequency of normal grade NSPS including pain in individuals with exclusive diagnosis of myofascial pain (group I). Higher frequency of moderate grade NSPS was associated to mixed diagnoses of TMD group I and III, and severe grading of NSPS including pain were more frequent in mixed diagnoses including pain, including group I and II, and group I, II and III. These results suggest that mixed pictures of temporomandibular disorder, possibly chronic, can be associated to higher frequency of somatization including painful symptoms.

It may be observed from this research results that there is a relationship between physical symptoms and psychological symptoms in patients with TMD. Since TMD is considered as a multifactorial disorder, it is not entirely clear whether TMD pain determines the appearance of psychological symptoms, or vice versa⁹. However, the search for understanding the factors interfering in these relationships is of fundamental importance for the appropriate choice of treatment for these individuals.

The utilization of a unique psychosocial assessment tool may be considered a limitation of this study, since RDC/TMD, the only instrument contemplating the assessment of physical and psychosocial aspects of TMD (Axes I and II), presents limitations to achieve the

psychosocial diagnosis¹⁷. Other individual scales to assess pain, such as Analogue Visual Scale (AVS), and depression, like the Depression Scale, can be applied.

The clinical importance of this finding reaffirms the need of assessing not only physical but also psychosocial aspects of the patient, achieving as a result positive and more definite results through physiotherapy in conjunction with a multidisciplinary team intervention.

CONCLUSION

The present study verified an association between the clinical diagnoses found (Grade I; I and II; I and III; I, II and III) and the presence of NSPS including pain, showing that some clinical and psychosocial aspects are associated in patients with TMD. No association was found between the classification of clinical diagnoses (myofascial pain, disk and joint disorder) and the grade of chronic pain, depression and NSPS excluding pain; however, most of subjects assessed displayed moderate to severe depression. Still, complaint of more severe symptoms was found in patients with multiple clinical diagnosis, presenting myogenic, discogenic and arthrogenic components.

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