

Orofacial pain and temporomandibular disorders – the impact on oral health and quality of life*

Paulo César Rodrigues Conti^(a)
Livia Maria Sales Pinto-Fiamengui^(a)
Carolina Ortigosa Cunha^(a)
Ana Cláudia de Castro Ferreira
Conti^(b)

^(a)Department of Prosthodontics, Bauru
School of Dentistry, Univ de São Paulo -
USP, Bauru, SP, Brazil.

^(b)Department of Dentistry, Univ Norte do
Paraná - UNOPAR, Londrina, PR, Brazil.

Abstract: Many conditions may cause painful symptoms in orofacial structures. Among the chronic conditions that affect this area, temporomandibular disorders are the most common. Temporomandibular Disorder is a collective term that includes a number of clinical complaints involving the masticatory muscles, the Temporomandibular Joint and associated structures. In some cases, these complaints can be associated with depression, catastrophizing behavior and impact on quality of life. The present study aims to explain the relationship between Temporomandibular Disorders and pain chronification and their relation to a variety of psychosocial and behavioral comorbid conditions. The mechanisms of pain conduction and suggestions for management are also addressed.

Descriptors: Temporomandibular Joint Disorders; Facial Pain; Chronic Pain; Quality of Life.

Introduction

Orofacial pain and quality of life

Orofacial Pain is a term that comprises different manifestations of pain in the face and oral cavity. It is a broad classification, including many conditions highly prevalent in the general population, such as pulpal and periodontal processes, sinusitis, trigeminal neuralgia, and masticatory muscle and temporomandibular joint (TMJ) pain. The latter two conditions fall under a group of conditions named temporomandibular disorders (TMDs). TMD is a collective term embracing a number of clinical problems that involve the masticatory muscles and/or temporomandibular joints (TMJ) and associated structures.¹ It is recognized as the most common non-odontogenic-related chronic orofacial pain condition confronted by dentists and other healthcare providers.² The most frequent symptom is pain, usually located in the masticatory muscles, pre-auricular area, and/or TMJ. In addition to pain, which is usually aggravated by chewing and other jaw functions, patients with TMD often have limited or asymmetric mandibular movements and joint sounds, commonly described as clicking, popping, grating, or crepitus.³ TMD patients also describe symptoms of pain and dysfunction affecting ears, eyes and/or throat, as well as headaches, which involve some or all of the frontal, temporal, parietal, occipital and neck regions.⁴

In cases of persistent and recurrent pain, TMD may follow a chronic course. In these cases, although TMD is not a life-threatening disease, the

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Corresponding Author:
Paulo César Rodrigues Conti
E-mail: pcconti@fob.usp.br

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patients' quality of life may be reduced.⁵ Because of this presumed reduction in quality of life in TMD patients, TMDs are now studied and treated from a medical perspective that involves a biopsychosocial understanding of how chronic pain disorders affect those who have them.⁶

According to Barros *et al.*, orofacial pain has a great impact on the quality of life of individuals with TMD, with no difference between genders. However, there is a clear correlation between the severity of TMD and the impact on the quality of life of individuals with TMD seeking treatment.⁷

The present critical review of the literature aims to explain the impact of orofacial pain conditions, including that of TMD, on oral health and quality of life.

Discussion

Pain appears to be a key symptom associated with possible impairment of oral-health-related quality of life (OHQoL).⁸ It is well known and widely accepted that, before being perceived by the patient as pain in the Central Nervous System (CNS), the initial nociceptive stimulus is modulated by different descending mechanisms. The imbalance between the amount of stimuli and the efficacy of modulation mechanisms is processed as a pain sensation. It is also well-documented that either high magnitude or repetitive nociceptive impulses cause peripheral and central neuronal changes, leading to the maintenance and exacerbation of the pain sensation. These alterations are known as "sensitization," often irreversible, and responsible for patients' reporting long-term pain, even after many unsuccessful treatments. Based on this, it is thought that chronic orofacial pain not only occurs due to peripheral input, but also to CNS changes.⁹

In addition to all the biological deficits caused by the maintenance of a pain sensation and imbalance in the modulation system, as described above, chronic patients are frequently affected by a variety of psychosocial and behavioral comorbid conditions, such as impaired quality of life, depression and sleep disorders, among others. The fact is that all the circuits involved in depression and sleep problems are very similar to those present in chronic pain, and must be contemplated in the treatment of patients experienc-

ing orofacial pain.

In addition to biomechanical factors (e.g. dental occlusion and bruxism),^{10,11} psychological factors, like stress¹¹ and depression,¹² have also been related to TMD, especially chronic TMD conditions. It is well-reported that a considerable number of TMD patients are clinically depressed, and this depression may influence their response to conventional therapies.²

Patients with diverse chronic pain problems, including that of TMD, present some reactions, such as pain-related beliefs, catastrophizing (expecting or worrying about major negative consequences from a situation, even one of minor importance), and coping strategies (e.g. coping self-statements). Pain-related catastrophizing may be defined as an excessive focus on pain, magnification of the threat associated with pain, and a feeling of helplessness in controlling pain. Pain-related catastrophizing may represent another potentially powerful non-biological factor that influences symptoms and functioning among TMD patients.¹³ These reactions are strongly associated with pain intensity, psychosocial adjustment, and physical functioning,¹⁴ as well as impairment of quality of life.

Today, the most popular theories regarding TMD etiology are based on the biopsychosocial model, which involves a combination of biological, psychological and social factors that provide an excellent descriptor of the world that most patients with pain (especially patients with chronic conditions) are living in. They have a biological problem that may have psychological antecedents as well as behavioral consequences. This situation exists in a social framework that includes interpersonal relationships with friends, families and health care providers, who almost always produce major negative experiences for the patients as well as for their immediate families. Unlike the mechanistic dental theories of etiology, the biopsychosocial model encourages a rehabilitation-management approach rather than providing the unrealistic expectation of a permanent cure (which is even less likely in chronic conditions).¹⁵

Recognition and treatment of TMD is over a century old, and wide-ranging treatment philosophies have evolved over this time.¹⁶ The treatment

of TMDs by conservative and reversible approaches has proved appropriate and successful. According to Barros *et al.*, subjective indicators of oral health should confirm the success of TMD treatment, reducing its signs and/or symptoms and reestablishing the orofacial function.⁷

The treatment of acute TMD is based on an occlusal splint (Figure 1), pharmacotherapy, and physical therapy (Figure 2), among others. Behavioral changes, such as the reduction of stress levels and adequate, uninterrupted sleep, are also very important in the management of patients suffering from TMD. Sleep is necessary for joints and muscles to undergo a period of physiologic rest, recovery, and repair.¹⁶

Psychological therapies established for other chronic pain conditions may be useful in lending support to patients who are managing persistent pain and social debilitation, and enduring stress in a life associated with TMD and other forms of orofacial pain.²

Studies of patients with TMD have shown that many of them, especially females, experience a multitude of other functional (nonorganic) disorders, such as fibromyalgia, interstitial cystitis, irritable bowel syndrome and pelvic pain, while others have reported multiple pain sites throughout their bodies.¹⁷

These high levels of comorbidity with other conditions have given rise to hypotheses about centrally mediated deregulatory problems producing multiple symptoms in susceptible patients.¹⁵ In an effort to better understand and treat these disorders, they were unified under one term called “central sensitiv-

ity syndromes,” also called “functional syndromes,” “functional somatic syndromes,” or “somatoform syndromes”. Given the psychosomatic lens through which many of these disorders are viewed, demonstration of evidence-based links supporting shared pathophysiology between these disorders could provide direction to clinicians and researchers working to treat these diagnoses.¹⁸

As explained above, although the onset of several of these disorders is triggered by peripheral pain-producing mechanisms, persistent nociceptive inputs lead to changes in the central nociceptive system.¹⁸ Central sensitization is common to these central sensitivity syndromes, and is clinically and physiologically characterized by hyperalgesia (excessive sensitivity to a normally painful stimulus), allodynia (painful sensation to a normally nonpainful stimulus), expansion of the receptive field (pain beyond the area of peripheral nerve supply), prolonged electrophysiological discharge, and unpleasant after-stimulus quality of the pain (e.g., burning, throbbing, tingling or numbness).¹⁹ The rehabilitation of patients with chronic musculoskeletal pain like that of chronic TMDs should target, or at least take into account, the process of central sensitization.²⁰

Dahlström and Carlsson performed a systematic review of TMD and oral-health-related quality of life (OHRQoL) and concluded that subjective TMD symptoms had a greater impact than clinical findings, and the more painful and severe the TMDs, the greater the impact on OHRQoL. In their systemat-



Figure 1 - Occlusal splint used as treatment for TMD.



Figure 2 - Physical therapy used as treatment for TMD.

ic review, some, but not all, reports suggested that TMDs have a greater impact on OHQoL than other orofacial diseases/illnesses or conditions.²¹

Conclusion

In order to understand and manage TMD patients, it is necessary to understand temporomandibular disorders and their comorbidities from a medical perspective, and try to observe how quality of life is reduced, on an individual basis, patient-to-

patient, considerations that must be borne in mind in the management of the patient. For the dental profession, the implications of this information are serious, especially regarding chronic TMD conditions, in which modulation mechanisms of pain are reduced and comorbidities are present most of the time. The use of biopsychosocial management strategies to reduce pain and improve function is the approach that has proved successful for most TMD and orofacial pain patients.

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