**CORRELATION BETWEEN FIBROMYALGIA AND TEMPOROMANDIBULAR DYSFUNCTIONS – A SYSTEMATIC REVIEW**

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**Abstract**

**Aim:** The aim herein was to evaluate, by a literature review, articles that correlate fibromyalgia and temporomandibular dysfunctions. **Methods:** Literature was searched in PubMed and Medline databases, using the following keywords "fibromyalgia", "facial pain" and "temporomandibular joint". Exclusion criteria were review articles and those not related to the topic. Seven papers were selected. **Results:** This papers reported that these two diseases do not only present coexistence relations, but also fibromyalgia may predispose to the appearance of temporomandibular disorders. The diffuse pain characteristic of fibromyalgia compromises the nociceptive pathways, causing greater sensitization to the pain in the muscles and damaging the nervous system. Indeed, there is the commitment of the stomatognathic system, which leads patients to develop the symptoms of temporomandibular disorders. **Conclusion:** It is concluded that the greater part of patients diagnosed with Fibromyalgia developed over the years temporomandibular disorders, which indicates that diffuse pain may predispose the pain in the facial muscles.

**Keywords:** Fibromyalgia, facial pain, craniomandibular disorders and temporomandibular joint dysfunction.

**Introduction**

The Fibromalgia - FM is a musculoskeletal disease characterized by chronic widespread pain and increased sensitivity due to the commitment of nociceptivas channels, which causes the patient with this syndrome feel constant pain as responses to stimuli that normally do not cause pain. [1] Temporomandibular joint dysfunction (TMD) consists of a set of conditions that affect the masticatory muscles and temporomandibular joints, and the pain as your main feature. [2] Although the FM and the TMD are considered different diseases to each other, recent studies point to a similarity between the two, due to chronic pain, common in both situations. [3]

Studies indicate that muscle soreness from the DTM, although it is considered a regional condition, can, in certain individuals, coexist with systemic pain syndromes, such as FM. [4] On the other hand, patients diagnosed with FM feature TMD. [4,1,5] Both FM and TMD have been associated with a high number of concurrent disorders such as sleep disturbance, anxiety, stress and digestive problems. [1]

Temporomandibular dysfunction has a multifactorial origin, that way you can't say that Fibromyalgia triggers the appearance of TMD. [4] In Fibromyalgia, the DTM has an insidious onset and the etiology is not fully known. [2] As such subject is unusual to be studied in schools of dentistry, it would be interesting to do a roundup on the interrelation between current DTM and FM, providing clinicians greater knowledge about the diagnosis and treatment. Thus, the aim of this study was to review the literature evaluating the relationship between Fibromyalgia with signs and symptoms of temporomandibular joint dysfunction.

**Methodology**

**Data source**

The survey was conducted in PubMed databases and portal of the virtual health library VHL, seeking human studies published in English between the period of 05/03/2013 and 05/03/2018 with the descriptors “Fibromyalgia”, “Temporomandibular joint disorders”, “craniomandibular disorders”, “facial pain”. Being also included research on the list of references of articles selected. Pubmed research was performed as follows the table 1, and Medline as table 2.

 **Eligibility criteria**

The inclusion criteria were:

* Articles published in the last 5 years;
* Articles published in the English language;
* Articles that made a direct relationship between Fibromyalgia and Temporomandibular dysfunctions;

The exclusion criteria were:

* Articles that only cited Fibromyalgia or Temporomandibular dysfunctions, without correlating;

**Screening process articles**

Initially the articles were selected for title and summary according to the search strategy described. Articles that have appeared in more than one database were considered only once. The titles were reviewed by two reviewers (H.A, A.K.L), regardless, and the ones that were interesting for this research had summaries read, or if the summary was insufficient the full article was read. In case of disagreement, a third reviewer was consulted to decide if the article would be included or not in the review.

**Search result of articles**

(Table 3)

**Results**

The results of review are shown in table 4**.** Most patients with fibromyalgia are prone to develop temporomandibular dysfunctions. Similarly, TMD patients are more sensitive to fibromyalgia. On average, the selected studies tested 57 patients, where most were females. The studies showed the importance of the multidisciplinary diagnosis, involving professionals from different areas to obtain a better treatment.

**Discussion**

Fibromyalgia and Temporomandibular dysfunctions are diseases considered distinct from each other, but recent studies have shown the correlation between the two, first because they are considered chronic pain diseases and with an uncertain etiology and also by Presenting similar clinical symptoms as: pain in the chewing muscles, in the cervical muscles, difficulty in opening the mouth, joint noises, among others. It is not known exactly why the clinical manifestations of TMD in patients with FM, but it is believed that generalized pain predisposes the onset of dysfunctional pain. The study Gui et al,. 2013 evaluated the muscular activity using electromyographers in women diagnosed with FM and others with TMD, the results showed muscular fatigue in both groups and difficulty to perform an efficient muscular contraction without pain. However, the nociceptors of patients with FM seem to be more sensitized to pain than those of patients with TMD, making the patient with FM feel pain with a lower muscle workload.

When assessing painful symptoms in a group of patients with FM, Moya et al,. 2014 showed the prevalence of TMD signs and symptoms, such as pain at palpation of the facial and cervical muscles and also limitation in mouth opening. This agrees with the results of Pimentel et al,. 2013, which discussed the discomfort reported by patients with FM in the temporal muscles, masseter, TMJ region and other sites of the head. Patients diagnosed with FM present diffuse and chronic pain, it is believed that this persistent stress in the body can alter the sympathetic activity and its way of reacting to pain. [3]

Pain in patients with FM is localized mainly in the cervical muscles, while pain in TMD patients manifests in areas of the face, involving the chewing muscles. This can be understood through pathophysiological mechanisms, in which patients with TMD have a greater sensitization of trigeminal neurons than patients with FM presenting spinal sensitization. [6] Despite the apparent differences in the distribution of pain, similarities between these pain syndromes are observed, such as the presence of pain-sensitive muscle points in more than one muscle. [7]

There are several causes for pain, one of which is deregulation in the mechanism of endogenous analgesic substances associated with nerve fibers sensitivity. The study by Janal et al. 2016 tested the temporal sum and post sensation of stimuli in patients who reported facial pain for at least one year, the test was also performed in participants without pain. The objective was to evaluate the late sensations from C-nociceptive fibers and to observe if some repetitive stimulus becomes more painful. At the end of the test, as shown in table 1, the case groups had difficulty in having a reduction in pain after stimuli. In an attempt to offer a better therapeutic approach to the two dysfunctions, Fernández et al. 2016 sought to understand in its study the pathophysiology of pain in FM and TMD. It was perceived that patients with FM have nociceptive hypersensitivity of the central nervous system, this causes the stimuli that could cause minimal pain to have a different response. From the painful continuous stimuli that reach the CNS, pain-causing substances that will eventually result in muscular oxidative stress are released and, therefore, trigger dysfunctions as TMD.

It is known of the importance of professionals such as the rheumatologist and the dentist in the diagnosis and follow-up of patients with these dysfunctions, the study by Brigitte et al. 2017 showed the relevance of orthopedics involved also in the treatment of FM associated with TMD when he researched the possible relationship of these two with craniocervical dysfunction. She conducted her research with more than 500 patients who had never previously received the diagnosis of FM, but suffered from some craniomandibular or craniocervical dysfunction. At the end of the study, 63% of the patients had positively fulfilled the diagnostic criteria for FM and this says a lot about the complexity of these diseases and also the importance of interdisciplinarity among the professions.

It is important to assess which pain predisposed the other, facial pain or bodily pain. In his article, Fujarra et al,. 2015 sought to identify and describe the complaints of patients with FM and observed that in most cases the same symptoms of patients with TMD are reported. In this case, the coexistence of the two is real and is still underestimated by professionals, not being thought of as an integrative treatment. FM needs to be considered in the clinical management of TMD, since the lack of identification of comorbidities may lead to the inability to reduce the patient's pain. In addition, treating these disorders requires observation of the patient's lifestyle so that habits are changed and collaborate with the improvement of the painful symptomatology. [10]

In addition to Fibromyalgia, Temporomandibular dysfunctions may be associated with other diseases. In the cross-sectional study by author Blini et al,. 2009 the bruxism was identified in at least 50% of patients who reported TMD symptoms, suggesting a certain correlation between these dysfunctions as well. The pathophysiological mechanisms of pain from TMD can trigger primary headache, the studies of Franco A. L 2009 showed that most patients seeking treatment for TMD report symptoms of migraine and tension-type headache.

**Conclusion**

Within the limitations of this review, it is possible to observe that all the selected studies affirm that there is a positive correlation between FM and TMD. Both affecting the musculoskeletal system and presenting resembling clinical characteristics. Therefore, it is relevant that patients with these dysfunctions have a multidisciplinary follow-up.

**Disclosure statement**

The authors report no conflicts of interest.

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