

TEMPOROMANDIBULAR JOINT DISORDER: A REVIEW ARTICLE

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ABSTRACT: The term "temporomandibular disorders" (TMD) refers to a variety of clinical issues that affect the masticatory musculature, the temporomandibular joints and related tissues, or both. Although the exact cause of TMD is unknown, it is generally accepted that it is multi-factorial. Patients without teeth may nonetheless have the same TMD symptoms as those who have natural teeth. Different combinations and intensities of these symptoms are possible. Due to its great incidence, TMD has come to play a significant role in dental treatment. Basic pathologies of the TMJ include structural abnormalities in development disorders and inflammation and degeneration in arthritic illnesses (regardless of the presence or position of the disc). Some internal derangements, such as those brought on by stressful events, may happen without any underlying illness. This position paper suggests a taxonomy of TMJ diseases based on the fundamental structural alterations that take place in the joint.

Keywords: *Temporomandibular dysfunction, Temporomandibular joint, Dentistry, Physical Therapy, Magnetic resonance imaging, Cone beam computed tomography*

INTRODUCTION:

The Temporomandibular Joint (TMJ), which is made up of a number of internal and exterior components and is capable of carrying out complicated movements, is a component of the stomatognathic system. The appropriate function, health, and stability of the joint are essential for chewing, swallowing, phonation, and posture^{1,2}. The American Academy of Orofacial Pain defines Temporomandibular Disorder (TMD)² defined as a group of disorders that involve the masticatory muscles, TMJ and associated structures³. The term "temporomandibular disorder" (TMD) refers to a variety of clinical issues affecting the masticatory muscle, the temporomandibular joint (TMJ), and/or related structures. Throughout history, it has been a problem for people, and there are records of treatments dating back to the time of the ancient Egyptians⁴.

TMD symptoms frequently change over time and are strongly correlated with masticatory muscle tension, teeth grinding, and other oral parafunctional habits. Psychosocial factors such as anxiety, tension, annoyance, frustration, and sadness are also substantially connected with an increase in TMD symptoms⁵⁻⁹. The three main indicators of TMD are mouth opening restriction, TMJ noises, and pain in the masseter, TMJ, and/or temporalis muscle regions. The most frequent reason patients seek treatment is by far TMD pain^{10,11}. TMD is a condition that is exceedingly widespread and is most frequently reported in people between the ages of 20 and 40. 33 percent of people have at least one TMD symptom, and between 3.6 and 7 percent of people have TMD that is severe enough for individuals to seek therapy^{12,13}.

ETIOLOGY:

Temporomandibular diseases have a complicated and multifaceted array of causes. Temporomandibular disorders can be caused by many different things. "Predisposing variables" are those that raise the risk of developing temporomandibular disorders, "initiating factors" are those that lead to the start of temporomandibular disorders, and "perpetuating factors" are those that impede healing or hasten the course of temporomandibular disorders¹⁴. The primary and most frequently cited etiologic cause for temporomandibular disorders is occlusion. Costen¹⁵ concluded that overclosure was the cause of symptoms in temporomandibular disorders.

In the perpetuating factors the following may be included¹⁴:

1. Behavioral factors (grinding, clenching and abnormal head posture)
2. Social factors (could affect perception and influence of learned response to pain)
3. Emotional factors (depression and anxiety)
4. Cognitive factors (negative thoughts and attitudes which can make resolution of the illness more difficult).

Predisposing factors are pathophysiologic, psychological or structural processes that alter the masticatory system sufficiently to increase the risk of development of temporomandibular disorders. Pullinger, Seligman and Gornbein¹⁶ applied multiple factor analysis, which indicated the low correlation of occlusion to temporomandibular disorders. However, the following occlusal factors had a slight relation:

1. Open bite
2. Overjet greater than 6-7 mm
3. Retruded contact position/intercuspal position with sliding greater than 4 mm
4. Unilateral lingual cross-bite
5. Five or more missing posterior teeth
6. Faulty restorations and ill-fitting prosthesis.

CLASSIFICATION:

The classification will be a helpful tool for assessment as well as for planning treatment for edentulous patients. Further clinical studies should be conducted for new classification validation and reliability evaluation¹⁷.

Type 1	Patients with no TMJ changes
Type 2	Patients with mild TMJ changes <ul style="list-style-type: none"> • Popping • Clicking of the jaw • Feeling of muscle spasms Normal mouth opening (32–62 mm)
Type 3	Patients with mild and moderate TMJ changes Which include combination of type 2 and <ul style="list-style-type: none"> • Headaches and occasionally, migraine-like headaches • Cervical pain • Limited mouth opening (<35 mm) [45,46] Deviation/deflection of mandible during opening and closing
Type 4	Patients with mild, moderate and severe TMJ changes Which include combination of type 3 and <ul style="list-style-type: none"> • Tenderness of muscles of mastication • Tenderness over TMJ • Pain while opening in mouth • Locking of TMJ Luxation of TMJ
Type 5	Patients with Mild, moderate, severe and advanced TMJ changes Which include combination of type 4 and radiographic changes such as presence of <ul style="list-style-type: none"> • flattening • erosion • osteophytes and sclerosis in the joint components

DIAGNOSIS:

If your oral and maxillofacial surgeon suspects a problem, he or she will perform a detailed medical evaluation. This may include:

1. Arthroscopy is useful for visualising internal disc degeneration¹⁸.
2. The TMJ, articular disc, mandibular condyle, and lateral pterygoid muscle's morphological components and functions can all be seen with the help of dynamic high-resolution ultrasound¹⁹.
3. A panoramic X-ray to inspect at both jaw and teeth.
4. Using computed tomography (CT) scanning, the bones that make up the joint can be seen in great detail.
5. To assess any issues with the surrounding muscles and soft tissue as well as the joint's disc, use magnetic resonance imaging (MRI).

TREATMENT PLANS:

Physicians, physical therapists, chiropractors, massage therapists, and others treating the muscles and/or cervical region report positive responses to treatment of TMD symptoms²⁰. Psychologists working with relaxation, stress management, cognitive-behavioral therapy, and other psychological aspects report reducing TMD symptoms with their therapies²⁰. Orthodontists, prosthodontists, and general dentists have shown that enhancing occlusal stability has a beneficial effect on TMD symptoms²¹. Surgeons claim reduced TMD symptoms following various TMJ surgical techniques²⁰. TMD symptoms have been found to improve with medications and self-management techniques utilized for other muscles and joints in the body.

Reversible conservative therapies are recommended as first line of treatment by international consensus based on the evidence for risks and benefits²², and a large proportion of incident cases presenting as self-limiting and progress to remission within the first months²³. Multimodal strategies may be included in the treatment plan according to case complexity and contributing factors identified for each patient.

Reversible conservative therapies are insufficient predictive tools for TMD prognosis and treatment efficacy²⁴, and failure of reversible and conservative treatments alone is not an indication to progress to irreversible and invasive approaches.

IRREVERSIBLE AND INVASIVE TREATMENTS
Surgical treatments for TMJ intra articular disorder and TMD arthralgia
Orthodontics and Occlusal adjustments

-REVERSIBLE AND CONSERVATIVE TREATMENTS
Self-Care Techniques
Intraoral appliances
Pharmacotherapy
Psychological and Multimodal therapies
Physical therapy
Acupuncture , dry needling and substance injection for TMD myalgia

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