



## SHORT REVIEW ARTICLE

**An investigation of the prevalence of Jaw and temporomandibular disorders and its relationship with malocclusions in children**Amirhosein Pakravan<sup>1</sup>, Tahmine Bamdadian<sup>2\*</sup>, Zohreh Taqavi<sup>3</sup>, Faeze Valipour<sup>3</sup>, Mahdi babaei hatkehlouei<sup>3</sup><sup>1</sup>Assistant Professor, Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, Mazandaran University of Medical Sciences, Sari, Iran<sup>2</sup>Assistant Professor, Department of Prosthodontics Faculty of Dentistry, Mazandaran University of Medical Sciences, Sari, Iran<sup>3</sup>Dentistry Student, Faculty of Dentistry, Student Research Committee, Mazandaran University of Medical Sciences, Sari, Iran**Corresponding Author:** Tahmine Bamdadian, E-mail: [tbamdadian@yahoo.com](mailto:tbamdadian@yahoo.com)**ARTICLE INFO***Article history*

Received: Nov 08, 2016

Accepted: Nov 26, 2016

Published: Dec 15, 2016

Volume: 1

Issue: 2

Conflicts of interest: None

Funding: None

*Key words**Jaw and Temporomandibular Disorders, Malocclusion, TMD, stress***ABSTRACT**

**Introduction:** In recent years the number of patients with temporomandibular disorders (TMD) is on the rise, given this, this paper aims to investigate the prevalence of jaw and temporomandibular disorders and its relationship with malocclusions in children. **Methods:** This study was conducted as a review article. The study is of descriptive – library type in which by referring to all the resources and literature of the existing studies, their results have been summed up. **Results:** Temporomandibular disorders or TMD is referred to clinical problems that involve masticatory muscles, temporomandibular joints, or both of them. Its prevalence is 12 to 20% and including subclinical symptoms it reaches to 65 percent. Common Age is reported to be between 20 and 40 years and its prevalence is higher in women. **Conclusion:** The most common symptoms are masticatory muscle pain, and the most common cause of it is premature contacts. Its treatment includes two phases, first phase includes reducing anxiety, medication and physiotherapy and the second phase involves orthodontic treatment.

**INTRODUCTION**

Temporomandibular joint (TMJ) due to its role in chewing, swallowing, speaking and even breathing is very important. TMJ is the only joint in body which is composed of the connection between two symmetrical joints acting coordinately (1). The system includes Temporomandibular Joint, teeth, masticatory muscles, ligaments and supporting bones (2). Temporomandibular joint and associated muscles enable the lower jaw to move in all three spatial plans (Sagittal, frontal, horizontal). The term “eccentric” refers to the movement of lower jaw from the success of centric occlusion to the sides which leads to the contact of the teeth. Thus, there are three kinds of movement outside the main center, Protrusive, backwardness and moving to the sides. The term “occlusion” is used to express contacts between the teeth, not only while mouth is closed even but also during eccentric movements and malocclusion refers to the degree of change from what is ideal and requires minimum adaptation of the patient (3). The different scenarios of diseases of tem-

poromandibular joint (TMJ) are called Temporomandibular disorders (TMD) (2).

**ETIOLOGY**

Causes of TMD include:

- 1: Occlusion
- 2: Parafunctional habits actions: Malicious activities and pressing teeth as bruxism during sleep and as rubbing movements of teeth (clenching), toe sucking, poor state of the body or holding objects under chain (telephone) during day.
- 3: Trauma
- 4: developmental disorders: condylar agenesis, abnormal muscle or ligament connection
- 5: Systemic diseases
- 6: Stress: Stress can lead to teeth chattering and teeth clenching (2).

Gelb believes that three main factors are involved in the development of TMJ disorder which include:

1. Talent
2. Histological changes
3. Psychological factors

He believes that to ensure the detection of disorder all three factors must be present. In fact, the patient should be prone to TMJ dysfunction and Nervous, muscle, skeletal and dental tissues are affected by pathological changes and there must be enough stress to cause muscle spasms, Bruxism Clenching (3). Today the role of emotional state of a person in the emergence of disorder has gained more importance. Psychological stress is one of the undeniable component of our daily life. Studies have shown that people who are under varying degrees of stress have commonly shown an increase in muscle activity. Okeson (1987) believes stressors affect body by activating hypothalamus. Hypothalamus makes the body ready to respond. Most stressful actions lead to an increase in activities particularly in the muscles of mastication system (4).

## EPIDEMIOLOGY

The prevalence of TMD in different societies ranges from 12 to 20 percent and by including subclinical symptoms are estimated to 65 %. The common age for temporomandibular disorders also has been reported between 20 and 40 years old. The prevalence of this disease is higher among women than among men. The frequency of common malocclusions in patients involves: 17% open bite, 10.3% cross bite and 20.5% deep bite (5).

In the studies conducted by Wilcox et al (1993) on 1040 patients, it was found that in a third of patients clenching has been present which has been more common among women while bruxism has been more common among men and considering grouping they were higher in the 30 to 39 age group. Clinical examinations indicated that in Parafunctional habits such as Bruxism and Clenching, In terms of occlusal interferences, there was no significant difference between men and women (4). The prevalence of TMD in children with primary dentition reaches to 16% and in mixed dentition it reaches to 90 percent (1). In A study conducted on 222 children aged 6 to 12 years old, TMD prevalence was reported to be 14.4% in the period of mixed dentition, also the prevalence was higher among girls. The highest prevalence was between the ages of 11 and 12 years (9). The prevalence of joint sound was reported to be 23.9%, Tenderness of masticatory muscles to be 20.9% and joint pain to be (5.4%) (9).

## Clinical symptoms

Signs and symptoms of TMD include:

1. Dysfunction of the muscle activity
  - Pain in muscles due to contraction of the blood vessels supplying the muscles and accumulation of metabolic wastes in muscle tissue.
  - Headache
  - Dysfunction: reduced range of mandibular movements (2).
2. Temporomandibular joint dysfunction:
  - Joint pain: when stretching or compression of the disc ligament, capsular ligament and posterior tis-

sues of disk, pain is felt.

- dysfunction: it emerges as joint sounds: Click: a single voice is heard shortly. It is a combined crepitus and rough hissing sound.
- Earache: Anatomic proximity, along with a common developmental origin and nerve-related updates confuse patients in showing the true source of pain (2).

It must be understood that TMD symptoms increases with age. Children have problem in describing and localizing pain and also connecting symptoms and signs in children is difficult (1). Other symptoms associated with these disorders include: Jaw deviation when opening the mouth and protrusive, pain and limited jaw movement, especially in eccentric movements and severe malocclusion (6). Its most common protests are the sound of temporomandibular joint of the jaw, limited jaw movement and sensitivity of masticatory muscles (4).

## DIAGNOSIS

In order to diagnose TMD First, a complete medical and dental history of patient is recorded in order to detect the existence of any inherited or acquired disorder. History of trauma must be considered (1). TMJ performance evaluation With a touch of the mandibular condyle in each side in the state of closed mouth, resting state and various states of open mouth is done. Cryptos voice

or any abnormal sound which may be heard or detected while touching must be recorded. Masticatory muscle pain is a symptom of TMD. TMD caused by temporomandibular joint ankylosis can cause restriction in opening the mouth and dysfunction in swallowing, breathing and feeding and affect the growth and development of the jaws (2). In clinical examination of people who have TMD following findings were obtained:

- Pain in the joints: by the help of touching and gentle pressure with fingers, the joint was examined at two states of resting and walking.
- Presence or absence of pain in the joint at the touch of the ear or inside the ear, at the state of rest, lateral and protrusive movements, and chewing examined (1).
- Pain in the muscles and tendons: they were touched in two states of outside and inside mouth. The masseter muscle was touched with the help of two fingers below the zygomatic arc to the lower border of the mandible.
- Temporal muscle was touched extra -orally by the finger. Temporalis tendon was touched intra-orally, so that the index finger has gone to the posterior of the mouth and coronoid process was touched in the side (1).
- Click and Cryptos: it was examined with finger touch, during mouth opening, lateral and protrusive, movements, and while chewing (1).

## TREATMENT

Basically, the goals of treatment in these patients include: Reduction or elimination of pain, reduction of destructive forces, return of easy operation of jaw and restoring normal daily activities of patient. These goals are achieved by a specific treatment plan to treat physical and mental dis-

orders and eliminating contributing factors (1). In general, treatment of temporomandibular disorders can be divided into two phases: The first phase includes patient education, reducing anxiety, behavior changes, medication, physiotherapy and splinting therapy. The second phase includes occlusion adjustment, restoration of teeth, orthodontic treatments and orthognathic surgery. According to a study carried out by Syrop, proper and principled conduct of first phase can bring Can be 75 to 90 percent success (3). In the meantime, drug therapy is one of the useful ways in the initial treatment of muscle pain, drugs used in the treatment of temporomandibular disorders include: Non-steroidal anti-inflammatories, muscle relaxants, tricyclic antidepressants, anti-anxiety and corticosteroids (2). In a study that was conducted in 1384, 57 patients with dysfunction of the masticatory muscles were divided into three groups, 24 of them received psychiatric treatment, 21 of them received occlusal therapy and 12 patients received the combination of two methods. The results showed that the opening of the mouth increased significantly after occlusal and psychiatric therapy but Psychiatric treatment showed more pain reduction compared to the occlusal therapy. Also in this study, patients were under drug treatment after examination by a psychiatrist and diagnosis of their mental disorder and the results showed that Most patients have anxiety disorders and depression and clonazepam and fluoxetine were the most drug used (7).

### Prognosis

Patients' knowledge of their disease and aiding in understanding this problem and increasing patients' cooperation

for further treatment are effective in MPDS treatment. The investigated treatment methods including ultrasound, Mobilization and soft diet with drug must be used in combination with other methods so that MPDS physiotherapy can have more favorable results in treating patients (8).

### REFERENCES

1. Relationship between occlusion and TMJ disorders in preschool children six years of Mashhad, Iran.
2. An epidemiological study on the health status of TMJ in adolescents 11 to 14 years old in 1387 Mashhad.
3. To evaluate the non-worker premature contacts and temporomandibular disorders.
4. prevalence of factors causing temporomandibular disorders in 100 patients referring to Mashhad Dental School.
5. Evaluating the prevalence of dentoalveolar malocclusions in patients with temporomandibular disorders referred to Ahvaz dental school in 85 years.
6. Health status and prevalence of symptoms of temporomandibular joint in Mashhad dental students.
7. A review of the masticatory muscles dysfunction syndrome - oral disease specialist doctor B Latifian.
8. Comparison of the effects physical therapy and pharmacotherapy in the treatment of temporomandibular disorders.
9. The relationship and TMJ disorders and dental Nahnchary during the mixed dentition in the Dental School of Tehran University.