Temporomandibular Disorders: Epidemiology, the Study of Numbers, Considerations (Part 1)

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Temporomandibular disorder is a collective term embracing a number of clinical problems that involve the masticatory musculature, the temporomandibular joint (TMJ), associated structures, or both that have many common symptoms. The term is synonymous with others frequently utilized such as nocturnal pain and dysfunction syndrome, temporomandibular joint syndrome, and arthropathies. Temporomandibular disorders are currently recognized as a major cause of non-dental pain in the orofacial region and are considered a subclassification of musculoskeletal disorders.1

Classic signs and symptoms associated with TMD are pain in the masticatory area and region and consist of symptoms in mandibular movements; and TMJ sounds (clicking, popping, crepitus). The pain is usually aggravated by chewing or other jaw function.

Commonly associated coexisting morbidity factors with TMD include nighttime bruxism, headaches, facial pain, ear and jaw ache. Non-painful masticatory muscle hyperactivity is also very common. Specific occlusal wear resulting from oral parafunctional activities such as bruxism may be related problems.1,2

A functional homeostatic balance between the various components of the masticatory system must be maintained for long-term stability. In addition, there are other contributing factors that can disrupt this dynamic balance. Anatomical, neurological, physiologic and psychologic factors can, alone or in combination, be sufficient to disrupt this balance; thus reducing the adaptive capacity of the masticatory system and contributing to the expression of symptoms of TMD.3

Epidemiology, the study of the distribution and determinants of health-related states and events in populations, should have a definitive application to the problem in question. Epidemiologic studies related to TMD have been primarily focused on prevalence and the associated signs and symptoms. Most of the studies are cross-sectional samples, meeting the areas are not necessarily representative of the general population. Therefore, their presence in a specific population is questionable.

Signs and symptoms of TMD are very common in the general population. They suggest that 40 to 75% of the general population have at least one sign of TMD (joint noise, tenderness, etc.), 33% of the general population have at least one symptom (face pain, joint pain, etc.).1,2 The prevalence of signs and symptoms of TMD in childhood has been assessed but tends to be significantly lower in adults.2,3 Signs and symptoms years suggesting that either biological, neurological, or psychological factors unique to women in this period of life could increase the risk of developing or maintaining this condition. It has been long recognized that females demonstrate a greater pain sensitivity during the menstrual cycle, at ovulation, and following menstruation. Functional estrogen receptors have been identified in most synovial joints of males and females in equal concentrations.1,2 There exists a significant difference in the frequency of the morphologic changes and a marked continuous decrease in signs and symptoms is observed with advancing age.1,2

Data indicate that significant gender differences in the TMD population. Differences between males and females can still be observed and this trend is observed in most chronic pain conditions. Factors that must be taken into consideration are behavioral factors such as the masticatory pattern of males and females, social conditioning and care seeking behaviors have been proposed as possible contributing factors to the gender differences.3,4,5

Physiological factors related to TMD experience. The relationship of the psychological factors to TMD appears to be direct or indirectly important.3,6 Psychological pain is causative must be determined on a case-specific basis. Catastrophizing (thinking of the worst) has been identified as a significant impediment to successful management of pain conditions. Studies have demonstrated that pain severity to be significantly related to the depressive illness intensity and to the negative affect (depression, anxiety, anger).3,6 Additionally, depressed mood is associated with a decrease in the concentration of central nervous system neurotransmitters noradrenalin and serotonin. A decrease in these neurotransmitters is associated with impairment of endogenous pain inhibition and disrupted sleep patterns. Anxiety and stress have been found to cause compromise in the immune system; lowering individual host resistance.

The value of proper nutrition and meal pattern has been proposed to be related to TMD experience. The relationship of the psychological factors to pain inhibition and disrupted sleep patterns. Anxiety and stress have been found to cause compromise in the immune system; lowering individual host resistance.

Historically, TM disorders have been on stage for confusion and disagreement about what constitutes proper diagnosis, treatment, and management.
exceed the normal capacity of while sleeping makes forces characterized by repetitive muscular masticatory muscle activity, is mainly associated with rhythmic effects and a number of psychological signs of depression, anxiety, or adverse loading through positional imbalances.

Forces leading to structural failure, loss of function may follow. Stretching, twisting, or compressing forces during eating, yawning, yelling, or prolonged mouth opening have also been reported to trigger or aggravate TMD. The results of several studies indicate that the majority of TMD patients experience a more gradual and mostly unperceived onset of their symptoms, likely related to micro-trauma or a repetitive stress response. Micro-traumatic factors include bruxism, clenching, postural dysfunction, or repetitive behaviors. Experimentally induced parafunctional has shown similar effects as those reported by those with TMD.

The importance of sleep has been underestimated by the majority of the population. 63% of American adults do not get the recommended amount of sleep that their bodies need, and must be considered as important as diet and exercise. Getting enough sleep is vital, but just as important is the quality of our sleep. Sleep disturbance has been reported in many epidemiological studies in persons experiencing not only acute but also chronic pain. It is estimated that one in seven Americans suffers from some kind of sleep disorder. It has been shown that disturbed sleep has significant physical effects on health, including hormonal and psychological relationships have been demonstrated.

Sleep bruxism is reported by 4% of the general population and is mainly associated with rhythmic masticatory muscle activity, characterized by repetitive muscle contractions primarily during the REM stage of sleep. The reduction in the inhibitory controls while sleep makes forces during nocturnal bruxism 3 to 4 times greater than during waking hours, forces that potentially could cause damage to the system. Sleep bruxism may eventually lead to many signs and symptoms of muscle dysfunction and temporomandibular joint pathology related to age, sex, and dentition in autopsy material. Oral Surg Oral Med Oral Path Oral Radiol Endod 1978;44:353–8.

TMD examination re remote approach to the TMJ is necessary, and good patient care depends upon the clinician's ability to think outside of the box. Albert Einstein said, “Science without religion is blind, religion without science is deaf.”

**Literature**


**TMD examination** requires a comprehensive approach understanding all potential factors. The physical examination should consist of a review of systems including not only a patient's actual chief concern(s), but also the medical history, family history, present illness, and past medical history. The examination should include general physical examination, comprehensive orthopedic evaluation of the TMJ joint, evaluation and palpation of the masticatory and cervical muscles, gross screening of the cranial nerve system, evaluation of the cranial reflexology, and introral evaluation of hard and soft tissues including occlusal analysis.

Basic assessment of all TMD patients should include behavioral and psychological screening by the dentist during the history taking process. Their history should include questions to evaluate behavioral, social, emotional, and cognitive factors that may initiate, maintain, or exacerbate the patient's pain. Consideration to relevant factors such as oral habits, jaw opening and closing range, stressful life events, lifestyle, social, and physical health care should also be given. Imaging of the TMJ (joint and orofacial structures) may be necessary to rule out structural disorders, and must be prescribed primarily when the clinical examination suggests some form of disorder.