Temporomandibular disorders are 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 myofascial pain and dysfunction syndrome, temporomandibular joint syndrome and craniofacial disorders. 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.

Classic signs and symptoms associated with TMD are pain in the masticatory region and contiguous areas to include, TMJ joint and masticatory and cervical muscles, myofascial pain and dysfunction syndromes in mandibular movements; and TMJ sounds (clicking, popping, crepitus). The pain is usually aggravated by chewing or other jaw function.

Commonly associated co-existing co-morbidity factors with TMD are hormonal influences, joint, facial pain, ear and jaw ache. Non-painful masticatory muscle hypomobility and pain associated occlusal wear resulting from oral habits and 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 psychological factors can, alone or in combination, be sufficiently strong to disrupt this balance; thus reducing the adaptive capacity of the masticatory system.

Epidemiology, the study of the distribution and determinants of health-related states and events in populations,6 must have a definitional 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; meaning they are not necessarily representative of the general population. Therefore, their presence or absence on a specific basis must be questioned.

Signs and symptoms of TMD are very common in the general population. They suggest that 40 to 75% of the normal 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.).4,5 The prevalence of signs and symptoms of TMD in childhood has been assessed but tends to be significantly lower in adults.6,7 Signs and symptoms years suggesting that either biologic, neurologic 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 menopause. Female estrogen receptors have been identified in most symptomatic joints of males and females in equal concentrations.

A relationship between a history of physical and/or sexual abuse and a range of psychologic, functional, and physical factors has been suggested. Abuse history has been identified as a significant feature of TMD chronic pain patients populations as contrasted with non-chronic TMD patients. Research have found that an abuse history was likely to increase an individual’s tendency to dwell on, amplify, and overinterpret somatic symptoms.8

Epidemiologic and etiologic factors unique to women in the reproductive age group have at least one symptom of TMD are more prevalent in the third or fourth decade of life.9,10 Studies related to the severity of pain between age groups have demonstrated no difference across all age groups.11 However, the frequency of the morphologic changes and a marked continuous decrease in signs and symptoms is observed with advancing age.12,13

Data indicate that significant gender differences in the TMD experience are observed.14 In fact, this trend is observed in most chronic pain conditions. Factors that must be taken into consideration are behavioral factors such as the neuroendocrine nature of male and female social conditioning and care-seeking behaviors have been proposed as possibly being responsible for the gender differences. Physiological factors related to hormonal influences are also reported. A natural tendency is for females to exhibit a greater potential of masticatory muscle fatigue has been suggested. This phenomenon has been attributed to a greater concentration of fast twitch, easily fatigueing white fibers, versus slow twitch, endurant red fibers in the female.6,15 Recent data also suggest that males are more likely to be predominantly responsible for gender differences in the TMD population.

Exercise-induced fatigue must also be considered in gender differences associated with TMD. During moderate-intensity long duration exercise, females demonstrated greater lip utilization and less carbohydrate and protein metabolism than males, indicating differences in muscular physiology.16 TMD appears to result from a significant impediment to successful management of pain conditions. Studies have demonstrated that pain severity can be significantly related to the exercise process. Fatigue may be largely responsible for gender differences in the TMD population.

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The value of proper nutrition intervention, particularly in patients living with chronic pain where withdrawal from normal daily activities may have compromised not only their mental well-being, but to their neuroendocrine and psychological well-being. Exercise on a regular basis boosts the body’s natural pain defense mechanisms, enhancing the production of endogenous opioids (enkephalins, endorphins, dynorphins). Balanced nutrition can enhance the body’s pain mechanism by maximizing anti-ecosfoid effects aiding in the production of antioxidants, which limit the damage caused by free radicals in both joints and muscles. Certain vitamin deficiencies have been linked to enhanced inflammation processes and free radical formation, including magnesium and B vitamins.17

Historically, TM disorders have been on stage for confusion and disagreement about what constitutes proper diagnosis, treatment, and management. The literature has demonstrated that most of the management and treatment of TM disorders has been based on belief systems and testimonials. Why so much confusion and disagreement? One possible reason exists because of the limited knowledge regarding the etiology and the natural history of the course of TMD. Probably the difficulty is establishing clinically, a significant direct cause/effect relationship because of the many variables involved that probably are too difficult, if not impossible, to exclude.

Many early theories emphasized dental morphologic factors of malocclusion, occlusal disharmony, or skeletal alignment as being primarily responsible for the development of TMD. Further, it was believed that the definition, evaluation and analysis of occlusion are important aspects in the diagnosis and treatment of TMD. The question is, is occlusion the most important factor? Little evidence is available to strongly implicate occlusion in the etiology of TMD.18

Several studies have demonstrated that the presence of predisposing factors such as structural, metabolic, and/or psychological conditions could be sufficient to increase the risk of developing TMD related problems if they are affecting the masticatory system in a negative way. It is not unusual to see extraterrestrial contact position and the intercuspal position greater than 4 mm, five or more missing posterior teeth, and unilateral maximum interincisal crossbite in children may be associated with TMD.19,20

Some contributing etiologic factors are only risk factors, others are causal in nature, and others result from, or are purely coincidental to the problem. These factors are classified as predisposing, initiating (precipitating), and perpetuating (factors that hinder or enhance the progression) of a disease process.21 The contribution of specific occlusal factors to the multifactorial etiology of TMD has been examined. Factors contributing factors to the etiology of TMD are a combination of factors and a case specific basis.