

TEMPOROMANDIBULAR JOINT DYSFUNCTION: EPIDEMIOLOGY AND THERAPEUTIC OUTCOMES

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Abstract: Temporomandibular joint (TMJ) dysfunction represents a multifactorial pathological condition affecting the integrity of the dentofacial system and significantly impacting quality of life. This study examined the epidemiological characteristics, etiopathogenic factors, and treatment efficacy in TMJ dysfunction patients. Analysis of 52 clinical studies involving 18,500 patients from diverse geographical regions demonstrated that the overall prevalence of TMJ pathology in the general population ranges from 14% to 67%, with symptomatic manifestations occurring in 7–15% of cases. Gender distribution reveals a pronounced female predominance (woman/man ratio = 4–5:1), with peak incidence in the 25–45 age group.

Keywords: Temporomandibular joint; TMJ dysfunction; myofascial pain syndrome; disk displacement; occlusal disorders; arthrokinematics; psychosomatic factors; rehabilitation; gnathology

Introduction

The temporomandibular joint is a complex bilateral articulation integrating skeletal, muscular, and neurovascular components within a coordinated functional system. The normal operation of this system depends on precise anatomical relationships between the mandible, temporal bone, articular disk, and associated musculature. Any disruption in these relationships initiates a cascade of compensatory mechanisms that, when exceeded, result in symptomatic dysfunction.

TMJ dysfunction has become increasingly prevalent in contemporary populations, attributed to multiple concurrent factors including increased psychological stress, poor postural habits, dental malocclusion, and the expanding scope of orthodontic interventions. Population-based epidemiological studies consistently identify TMJ disorders as the third most



common dental pathology, following only dental caries and periodontal disease. The economic burden of TMJ dysfunction is substantial, encompassing direct medical costs and indirect expenses related to lost work productivity and reduced quality of life.

In dental practice, the iatrogenic potential of orthodontic treatment warrants particular attention, as inappropriate tooth movement without concurrent attention to joint biomechanics can precipitate or exacerbate pre-existing dysfunction. Furthermore, the increasing prevalence of temporomandibular pathology among younger populations suggests that early intervention strategies may significantly alter disease trajectories.

A prospective observational study was undertaken at three regional clinical centers in Central Asia to comprehensively evaluate the epidemiological, clinical, and radiological characteristics of TMJ dysfunction in adults. The study population consisted of 156 patients meeting standardized diagnostic criteria for confirmed TMJ dysfunction, supplemented by a control group of 89 asymptomatic individuals.

The findings of this study corroborate previous epidemiological evidence regarding the high prevalence and significant female predominance of TMJ dysfunction, while providing novel insights into the complex interplay of biomechanical, psychological, and degenerative factors. The predominance of anterior disk displacement as an imaging finding aligns with the high prevalence of clicking symptoms, though the dissociation between imaging abnormalities and symptom severity in some patients underscores the multifactorial nature of the condition.

The strong correlation between elevated anxiety levels and symptom intensity suggests that psychological factors serve not merely as secondary consequences of chronic pain but as primary contributors to dysfunction development and perpetuation. This finding has significant implications for treatment strategy, indicating that purely mechanical interventions may prove inadequate without concurrent psychoemotional management.

The high prevalence of occlusal disorders in the dysfunction population supports the classical gnathological perspective that malocclusion contributes to TMJ pathology. However, the presence of normal occlusion in a substantial proportion of dysfunction cases (28.21%) demonstrates that malocclusion, while contributing, is neither necessary nor sufficient for dysfunction development.



Conclusions

The range of reported TMJ dysfunction prevalence (14–67%) across different populations reflects heterogeneity in diagnostic criteria and population sampling; however, conservative estimates suggest 8–15% of populations experience symptomatic manifestations requiring clinical intervention. The consistent 4–5:1 female-to-male predominance appears independent of geographical and cultural factors, suggesting underlying physiological or psychological mechanisms beyond purely sociocultural influences.

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