

## Original Research

### Evaluating Various Temporomandibular Joint Disorders within a Recognized Population: A Comprehensive Assessment

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#### ABSTRACT:

**Background:** Temporomandibular Joint disorders encompass a diverse range of psychological conditions, often marked by orofacial pain, chewing difficulties, or a combination of both. This study aims to evaluate the frequency of various Temporomandibular Joint disorders within a specific population already identified for analysis. **Methods:** This study involved 120 patients seeking dental treatment at the dental clinic. Each patient underwent a standard examination of the Temporomandibular Joint (TMJ), which included assessing for clicking, crepitation, limitations or deviations during mouth opening, and the presence of pain. The examination process was conducted on an individual basis, involving a comprehensive review of each patient's medical history and the completion of a specific questionnaire. Additionally, a physical examination was performed on the gathered sample, and, when required, radiographs were used to aid in the clinical assessment. **Results:** This study included 120 participants, with Temporomandibular Disorders observed in 72 males (60%) and 48 females (40%). The predominant condition within the population was identified as myofascial pain. **Conclusion:** The findings of the current study suggest a higher prevalence of temporomandibular disorders in males. The most prevalent disorder within the studied population was identified as Myofascial Pain.

**Keywords:** Temporomandibular Joint disorders, orofacial pain

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#### INTRODUCTION

Temporomandibular joint disorders (TMD) represent a multifaceted challenge in orofacial health, often causing non-dental orofacial pain and exerting significant repercussions on the intricate stomatognathic system<sup>1</sup>. These disorders manifest through a spectrum of symptoms, with muscle and/or joint pain upon palpation, compromised mandibular function, and discernible joint noises, creating a complex clinical picture. The umbrella term "Temporomandibular joint disorders" encompasses a subgroup of oro-facial issues characterized by localized pain in the temporomandibular joint (TMJ) region, fatigue affecting cranio-cervicofacial muscles, particularly those integral to mastication, limitations in mandibular movement, and the occurrence of articular clicking<sup>2</sup>. The intricate interplay of physiological and biomechanical elements

underscores the challenge of understanding and managing these disorders effectively.

Contrary to conventional assumptions that associate Temporomandibular joint disorders predominantly with adult populations, investigations have revealed similar incidences among children, suggesting a broader demographic impact than previously acknowledged. The multifactorial etiology of TMD includes emotional stress, occlusal interferences, malpositioning or loss of teeth, postural changes, dysfunctions within the masticatory musculature, and adjacent structures. Moreover, intrinsic and extrinsic alterations in the TMJ structure, alone or in combination, contribute to the onset and progression of Temporomandibular joint disorders.

Estimates of TMD prevalence range from 6% to 14%, with a noteworthy observation that younger individuals bear a higher burden of these disorders<sup>3</sup>.

This demographic prevalence underscores the importance of early recognition and intervention to mitigate long-term consequences. Furthermore, there exists a conspicuous gender disparity, with Temporomandibular joint disorders being at least twice as prevalent in women compared to men, adding another layer of complexity to the understanding of these conditions.

The present study, undertaken within a known population, serves as an endeavor to untangle the intricacies of Temporomandibular joint disorders. By assessing the prevalence of diverse manifestations within this complex spectrum, the study contributes valuable insights into the multifaceted nature of TMD, fostering a more comprehensive understanding of the factors contributing to its occurrence and persistence<sup>4</sup>. Temporomandibular Disorders (TMDs) constitute a diverse category encompassing over 30 conditions characterized by pain and dysfunction in the temporomandibular joint (TMJ) and the associated muscles governing jaw movement. It's crucial to differentiate between "TMDs," denoting the disorders themselves, and "TMJ," specifically referring to the temporomandibular joint. Individuals have two TMJs, one on each side of the jaw, easily discernible by placing fingers in front of the ears and opening the mouth. TMDs can be broadly classified into three main groups: disorders of the joints, which include disc disorders; disorders affecting the muscles utilized for chewing (masticatory muscles); and headaches linked to TMDs. This classification aids in comprehending the multifaceted nature of these disorders, guiding accurate diagnosis and tailored treatment approaches that address the specific manifestations within the joints, muscles, and associated headaches.

## MATERIALS AND METHODS

In this investigation involving 120 patients seeking dental treatment, a thorough examination of temporomandibular joint (TMJ) health was systematically conducted during routine visits to the dental clinic. The multifaceted evaluation included a meticulous assessment for various TMJ-related indicators such as clicking, crepitation, limitations or deviations encountered during mouth opening, and the presence of pain. Each patient underwent an individualized examination process, encompassing a comprehensive history-taking session and the

completion of a customized questionnaire tailored to the specifics of their case.

The physical examination of the collected sample employed two distinctive approaches: firstly, the lateral position involved evaluating mandibular condylar movement through direct palpation over the joint while the patient performed mandibular opening and closing maneuvers, focusing on the preauricular area<sup>5</sup>. Secondly, the posterior position encompassed an assessment of mandibular condylar movement through direct palpation of the mandibular condyle during mandibular opening and closing, utilizing the external auditory meatus as a reference point.

The establishment of a mandibular opening measurement criterion, specifically a dimension less than 35 mm (the distance between the edges of the upper and lower incisors), served as a significant parameter in identifying restrictions in mouth opening within the study cohort. Additionally, a comprehensive historical review was undertaken, delving into potential contributors to temporomandibular disorders, including any history of head and neck trauma, prolonged dental appointments, and habits or occupational practices that might precipitate such conditions.

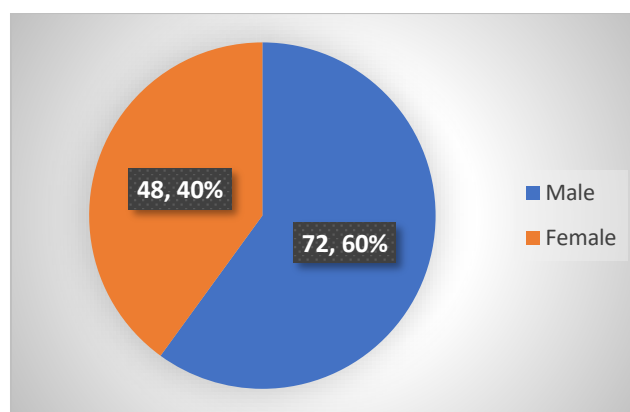
To augment the clinical examination, radiographs were utilized judiciously to provide a more in-depth visualization of the TMJ and associated structures, further enhancing the diagnostic capabilities of the study. This meticulous and comprehensive approach aimed to capture a nuanced understanding of the prevalence and characteristics of various Temporomandibular joint disorders within the studied population, contributing valuable insights to the broader understanding of these complex conditions.

## RESULTS

In this study involving 120 participants, a gender-stratified analysis revealed that Temporomandibular Disorders were more prevalent among males, with 72 cases (60%), compared to females, where the incidence was 48 cases (40%). Within the studied population, the prevailing condition was identified as Myofascial Pain, emerging as the most common manifestation among the participants. This finding underscores the significance of understanding gender-specific variations in the prevalence of Temporomandibular Disorders and highlights the prominence of Myofascial Pain within the spectrum of these conditions.

**Table 1: Distribution of Temporomandibular disorders according to gender**

Gender	N(%)	p-value
Male	72(60%)	<0.05
Female	48(40%)	
Total	120(100%)	



**Table 2: Distribution of different Temporomandibular disorders**

Temporomandibular joint disorders	N
<b>Muscle disorders</b>	
Myofascial pain	56
Myositis	6
Myospasm	4
<b>TMJ disorders</b>	
Inflammatory conditions	16
Osteoarthritis	12
TMJ dislocation	8
Disc displacement without reduction	6
Disc displacement with reduction	12
Total	120

## DISCUSSION

Chronic facial pain, a pervasive issue, often finds its origin in Temporomandibular Disorders (TMDs), a complex cluster of conditions that collectively impact the intricate temporomandibular joint (TMJ) and surrounding structures. These disorders are characterized by multifaceted symptoms, including pain localized in the preauricular area, TMJ, or masticator muscles, alongside limitations or deviations in mandibular range of motion and audible clicking sounds during mandibular function. Crucially, TMDs are distinguished from other conditions by their exclusion of growth or developmental disorders, systemic diseases, or macrotrauma in their etiology.

The present study, encompassing a cohort of 120 patients, delved into the gender-specific prevalence of Temporomandibular Disorders<sup>6</sup>. Strikingly, the findings revealed a higher incidence among males, constituting 60% of the cases, compared to females at 40%. Within this diverse spectrum of TMD presentations, Myofascial Pain emerged as the predominant condition, emphasizing its noteworthy prevalence within the studied population.

To contextualize these findings, it's insightful to reference related research. For instance, Lee et al.'s study also noted a male predominance in the realm of TMJ disorders, aligning with the observations of the current study. The findings from Lee et al.'s study, which also observed a male predominance in the context of temporomandibular joint (TMJ) disorders,

align closely with the observations made in the current study. This congruence in outcomes underscores a consistent pattern suggesting a higher prevalence of TMJ disorders among males within the broader demographic of individuals experiencing these conditions.

Understanding and acknowledging such gender-specific patterns are crucial in unraveling the complexities of temporomandibular disorders (TMDs). The alignment of results between different studies lends weight to the notion that gender dynamics may indeed play a significant role in the manifestation and prevalence of TMJ disorders. It prompts further exploration into the potential underlying factors, whether biological, hormonal, or sociocultural, that might contribute to the observed differences in the occurrence of TMJ disorders between male and female populations.

The synergy between the current study and Lee et al.'s<sup>8</sup> findings provides a more robust foundation for the broader scientific community to appreciate and integrate gender-related considerations when investigating, diagnosing, and treating individuals with TMJ disorders. This collective knowledge contributes to the ongoing efforts to tailor interventions that account for the diverse manifestations of temporomandibular disorders across different demographic groups.

Conversely, Hirsch et al.'s investigation reported a predominance of females experiencing TMJ disorders during pubertal development, although the specific

diagnoses remained elusive. Hirsch et al.'s investigation, reporting a predominance of females experiencing temporomandibular joint (TMJ) disorders during pubertal development, introduces an intriguing contrast to the gender dynamics observed in some other studies, including the current one. While this study aligns with the prevalent notion of male predominance in TMJ disorders, Hirsch et al.'s<sup>9</sup> findings emphasize the nuanced nature of these conditions and the potential influence of developmental stages, especially during puberty.

The documented predominance of TMJ disorders among females during pubertal development raises important questions about the interplay of hormonal changes, growth factors, and other physiological transitions during this critical period. The fact that specific diagnoses remained elusive in Hirsch et al.'s study adds an additional layer of complexity to our understanding of TMJ disorders, suggesting that the factors contributing to these conditions during puberty may be multifaceted and not easily categorized.

Incorporating these findings into the broader context of TMJ research underscores the importance of considering developmental stages and gender-specific factors in comprehending the variability of TMJ disorders across diverse populations. It calls for a more nuanced and holistic approach to both diagnosis and intervention, recognizing that the etiology and manifestation of TMJ disorders can differ based on gender and developmental stages.

The coexistence of seemingly conflicting observations between studies highlights the intricate and multifactorial nature of TMJ disorders. Future research endeavors that delve deeper into the complexities of gender-specific and developmental influences on TMJ health will contribute significantly to refining our understanding and enhancing the efficacy of interventions for individuals experiencing these disorders. These divergent findings underscore the intricate nature of Temporomandibular Disorders, suggesting that gender dynamics may play a significant role in both the manifestation and prevalence of these conditions.

This nuanced understanding, augmented by insights from various studies, contributes to a more comprehensive comprehension of TMDs. Such insights hold potential for refined diagnostic approaches and tailored interventions, recognizing the diversity of presentations and the influence of gender-related factors in the complex landscape of chronic facial pain associated with Temporomandibular Disorders.

## CONCLUSION

The conclusion drawn from the present study indicates a higher prevalence of temporomandibular disorders (TMD) among males. This observation aligns with the broader context of TMD research that has suggested gender-based differences in the occurrence of these disorders. Additionally, the study

identifies myofascial pain as the most prevalent disorder within the studied population. The prominence of myofascial pain in the observed cases underscores the significance of this particular manifestation within the spectrum of temporomandibular disorders. Myofascial pain, characterized by discomfort in the muscles responsible for jaw movement, is a common facet of TMD and often contributes substantially to the overall burden experienced by individuals with these disorders. This study's insights contribute valuable information to the growing body of knowledge surrounding temporomandibular disorders, emphasizing not only the gender-based variations but also shedding light on the prevalence of specific subtypes, such as myofascial pain. Such nuanced understanding is instrumental in guiding healthcare practitioners towards more targeted diagnostic and therapeutic strategies, ultimately enhancing the quality of care for individuals grappling with temporomandibular disorders.

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