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Original Article

Temporomandibular Disorders in Patients with Occlusal Interferences

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ABSTRACT

Objective: To assess the temporomandibular disorders among patients with occlusal interferences.
Study Design: Cross-sectional study.
Place and Duration of Study: Prosthodontics Department, Armed Force Institute of Dentistry, Rawalpindi Pakistan, from Jul to Dec 2020.
Methodology: Consecutive patients presenting with symptoms of occlusal interferences, including pain, clicking and limited mouth opening to the prosthodontics department, were included in the study. History was taken from each patient, and a detailed oral checkup was done to evaluate the presence or absence of TMDs in patients with occlusal interferences after informed consent.
Results: The mean age was 30.44±5.95 years. Out of 380 patients with occlusal inferences, 208(54.7%) patients were diagnosed with temporomandibular disorders. No significant difference was found in the distribution of TMDs with regard to age (p=0.559) and gender (p=0.755).
Conclusion: The presence of temporomandibular disorders among patients with occlusal interferences was quite common. This presence is equally common in different age groups and both genders.

Keywords: Balancing interferences, Occlusal interferences, Protrusive interferences, Temporomandibular joint, Temporomandibular disorders,

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INTRODUCTION

Temporomandibular disorders (TMDs) are used for disorders known to cause pain and malfunction of the temporomandibular joint.[1] Multiple factor have been suggested to cause TMDs, including macro and micro injury to the joint, stress-induced hyperactivity of the mastication muscles and structural abnormalities of the temporomandibular joint. However, its association with occlusal factors remains controversial.[2,3] TMDs are characterized by decreased range of mandibular movements, limited mouth opening clicking sounds, tinnitus, and discomfort in muscles of mastication, both during rest and function. Pain is the most common complaint of most patients seeking treatment.[4,5]

Signs and symptoms of temporomandibular disorders are commonly reported in the general population and more frequently by females than males.[6,7] The most common symptom is pain which is four to five times more likely to be the cause for seeking consultation from the dentist. Similarly, the prevalence of temporomandibular disorders is reported to be higher among younger age groups, and the prevalence tends to reduce with increasing age.[8-10]

As dental practitioners, the role of teeth in TMDs has to be identified and isolated as a different cause. Hence the rationale of the study was to help the dental community identify occlusion as one of the major causes of TMD, thus helping in patient education and management. In addition, this study was planned to assess the temporomandibular disorders among patients with occlusal interferences.

METHODOLOGY

This cross-sectional study was conducted at Department of the Armed Forces Institute of Dentistry, Rawalpindi, Pakistan, from July to December 2020. The study was approved by the Institutional Review Board of the Armed Forces Institute of Dentistry. The sample of 380 was calculated for this study using the WHO sample size calculator. The confidence level was taken at 95%, absolute precision at 1.8% and the anticipated population proportion of malocclusion 41.6%.[11] Non-probability consecutive sampling method was used to include the patients.

Inclusion Criteria: Patients with occlusal interferences, age between 20–40 years, either gender and presence of complete dentition,presenting with the symptoms of occlusal interferences, including pain, clicking and limited mouth opening were included in the study.

Exclusion Criteria: Patients with bone diseases including osteomalacia, osteoporosis or osteope-trosis, patients with debilitating diseases including poliomyelitis, rheumatoid arthritis or chronic obstructive pulmonary disease, patients with dyskinesia, crossbite, history of orthodontic treatment, history of orthognathic surgery, and history of any fracture of maxillary/mandibular region all were excluded from the study.

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The patients were screened for eligibility in the Outpatient Department, and those fulfilling the eligibility criteria were referred to the prostho-dontics department, where history and complete oral examination were performed after consenting the patients. Patient history and detailed oral examination were carried out to evaluate the presence or absence of TMDs in patients with occlusal interferences. The occlusal interferences were assessed using an articulating paper. Bull's eye appearance on functional cusps of the teeth (buccal cusp of the mandibular teeth and palatal cusps on the maxillary teeth) with the articulating paper was considered normal. All other marks were considered interference. TMDs were assessed based on the presence or absence of pain in the temporoman-dibular joint, clicking and limitation in mouth opening. Information obtained from each patient was noted on the data collection tool. The data collection tool comprised a questionnaire related to demographics and clinical data elements. The researcher carried out all the procedural observa-tions under the supervisor's supervision.

The data for this study were analyzed using IBM Statistical Package for the social sciences (SPSS) version 21.0. The descriptive statistics were calculated for both categorical and numerical variables. Categorical variables, including age, were presented as mean±SD, whereas numerical variables, including gender, intracapsular temporo-mandibular disorders and occlusal interferences, were presented as frequencies and percentages. The Chi-square test was applied to assess the association between TMDs and occlusal interferences. The *p*-value of ≤0.05 was considered to be significant.

RESULTS

A total of 380 patients with occlusal interferences were included in the present study. The mean age was 30.44±5.95 years, with an age range of 20–40 years. There were 173(45.5%) males and 207(54.4%) females in the study group (Table-I).

Table-I: Summary of Demographic Characteristics (n=380)

Characteristics	Frequency (%)
Age (Mean±SD)	30.49±5.87 years
Age Range	20-40 years
Age Groups	
<30 years	163(42.9%)
≥30 years	217(57.1%)
Gender	
Male	173(45.5%)
Female	207(54.5%)

Out of 380 patients with occlusal inferences, 208(54.7%) patients were diagnosed with temporomandibular disorders. Therefore, about half of the patients presenting with occlusal inferences were later diagnosed with temporomandibular disorders.

No significant difference was found in the distribution of TMDs with regard to age and gender (p>0.05), as shown in Table-II. However, it was found that the temporomandibular disorders among patients younger than 30 years was slightly lower than among those more than 30 years of age. However, the difference was not statistically significant (44.2% vs 55.7%, p=0.559). Similarly, it was noted that the temporomandibular disorders among males was slightly lower than that of females, but again the difference was not statistically significant (46.1% vs 53.8%, p=0.755).

Table-II: Presence of Temporomandibular disorders (TMDs) with regards to Pre-Specified Age and Gender Groups (n=380)

	Temporomandibular Disorders (TMDs) n (%)		*p*-value
	Yes (n=208)	No (n=172)	
Age Groups			
<30 years	92(44.2%)	71(41.3%)	0.563
≥30 years	116(55.7%)	101(58.7%)	
Gender			
Male	96(46.1%)	77(44.7%)	0.787
Female	112(53.8%)	95(55.2%)	

DISCUSSION

The study was conducted to assess the temporomandibular disorders among patients with occlusal interferences. Out of 380 patients, the temporomandibular disorders were 54.7%, with no significant differences between the presence of temporomandibular disorders regarding age or gender.

A previous study explored the prevalence and clinical symptoms of temporomandibular disorders in normal young adults. The prevalence of clinical diagnoses of TMD was reported to be 64.40%, with clinical symptoms indicating that 65.7% had no symptoms, 5.7% had muscle disorder, 9.1% had temporomandibular disc displacement, and 19.6% had the temporomandibular joint disorder.[12] In another study no significant relationship was reported between temporomandibular disorders and age (0.761) & gender (0.912), as observed in our study.[13]

The controversy concerning the relationship between TMD and occlusion still exists, and according to the literature, it still needs to be resolved.[14,15] The major chunk of the contradictory opinions might be due to a need for strong evidence derived from research in this field.[16] Most professionals dealing with temporomandibular disorders pay little importance to occlusion inferences in the aetiology of temporomandibular disorders. On the other hand, most professionals do focus on occlusal factors while diagnosing, treating and dealing with temporomandibular disorders.[17,18] An earlier study reported that the overall prevalence of temporomandibular

disorders varies widely, and the true prevalence lies between 40-60%.[19]

CONCLUSION

The presence of temporomandibular disorders among patients with occlusal interferences was quite common. This presence is equally common in different age groups and both genders.

Conflict of Interest: None.

Author's Contribution

Following authors have made substantial contributions to the manuscript as under:

MS: Data acquisition, data analysis, data interpretation, critical review, approval of the final version to be published.

AA: Conception, study design, drafting the manuscript, approval of the final version to be published.

SH: Critical review, drafting the manuscript, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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