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Original Article

Pattern of Temporomandibular Joint Disorders and Associated Intra-Oral Findings Among Patients Reporting To Oral and Maxillofacial Surgery OPD, with History of Psychiatric Illness in a Tertiary Care Hospital of Taxila Cantt

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ABSTRACT

Temporomandibular joint illness impairs normal existence. Many disagree on this condition's cause. To comprehend this illness, know the signs. Understanding the prevalence of temporomandibular disorder will help people prevent them and schedule regular temporomandibular joint exams. **Objective:** To observe the pattern of temporomandibular joint disorders and associated intra-oral signs and symptoms among patients who are being treated for psychiatric illnesses and mental health issues. **Methods:** This prospective, cross-sectional study was conducted at the dental college HITEC-IMS Taxila Cantt from 1st September 2022 to 31st December 2023 and comprised of 181 patients. A detailed history of para-functional habits, headache, otalgia, smoking and stress was acquired along with a clinical examination of joint clicking, and occlusal variation. Fisher's exact test and pearson's chi-square found factor connections. **Results:** There were 112 (61.9%) females and 69 (38.1%) males in all patients. The patients mean age was 33.7 ± 10.47 years and had a mean BMI 24.12 ± 6.26 kg/m2. Among the symptoms that patients experienced, 125 (69.1%) heard noises in their joints, while 116 (64.1%) of the total reported feelings of emotional stress or strain. Most symptoms were more common in women. Men showed a substantial connection ($p<0.005$) between para-functional habits and stress/tension. Age also correlated with occlusal variation, joint sound, missing teeth, mastication side, parafunctional behaviors, tension, and stress. **Conclusions:** The study indicated that temporomandibular disorders were more common in women. Psychiatric patients most often complained of headache, clicking, and limited mouth opening.

INTRODUCTION

There is evidence that the effective functioning of the TMJ which includes the mandibular condyles, meniscus, glenoid fossa, ligaments, and muscles depends on the harmony of these components [1, 2]. Until mechanical, psychological, occupational, or habitual factors disrupt the normal functioning of the joint, the TMJ continues its normal function [3]. The body keeps trying to fix aggressiveness, but eventually, it stops being able to fix aggressiveness and symptoms start to show. Orofacial and preauricular discomfort, difficulty opening the mouth, noise from the TMJ when chewing, and disc displacement are all indications of TMJ disorder [4]. Symptoms are often experienced between the ages of 20 and 40, making this demographic another risk factor for masticatory system disorders among students. The vast majority of TMD cases occur in reproductive-aged women [5]. During

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adolescence, the incidence of TMD rises worldwide and can range from 7–30% [5]. The symptoms related to the masticatory system are more common in women than in males, according to many researchers [5, 6]. Hormonal shifts in biology and mental factors could be to blame. Literature supports that, students are more prone to TMD and oral dysfunction due to the high levels of stress they endure [5]. A few examples of possible sources of stress include exams, research paper presentations, the desire to become self-reliant, money problems, studying in an awkward position, and low academic achievement. New research from the Orofacial Pain: Prospective Evaluation and Risk Assessment (OPPERA) study provide credence to the biopsychosocial theory of illness and the multifactorial origins of TMD. On the other hand, malocclusion's significance has been diminished, despite it being previously believed to be one of the main etiological consequences of TMD symptoms. The likelihood of TMD is higher in patients with crossbite, maximum intercuspal instability, and Class II malocclusion [5]. Occlusal changes may also increase the likelihood that a person with a history of TMD may experience TMD symptoms. Thus, TMD and malocclusion are entangled in a complicated chain of causes and effects [5-7]. One must not underestimate the significance of maintaining a healthy TMJ. Pain in the face and mouth can be caused by TMDs. Limitations in jaw mobility, clicking or crepitation noises, discomfort felt when moving the jaw, and pain felt when palpating the masticatory muscles are all symptoms that can be identified during a clinical examination for a diagnosis of TMJ disorders. The mandible can develop TMDs for a variety of reasons, such as occlusal interferences, tumor growth, misalignment of the condylar head and temporal fossa, destructive movement (nonfunctional movement), emotional stress, anxiety, tooth misalignment or loss, and grinding or clenching habits [8, 9]. An estimated 3- 10% of the population seeks medical attention [10]. More than 60% of patients with orofacial discomfort, including 95% of those with TMD, had tried non-dental treatments, with physiotherapy being the most common (42.2%), according to a research by Schiffman E et al [11]. Not only that, physiotherapy wasn't the only non-dental therapy that most patients received; osteopathy and relaxation training were among the others. With 27.7% being either very unhappy or unsatisfied and just 18.5% being extremely satisfied, patient satisfaction with treatment outcomes and provided care was modest [12]. Thus it is evident from the literature that there is a strong relationship between stress, anxiety, and temporomandibular joint disorders.

The aim of the study was to investigate the pattern of temporomandibular joint disorders and other intraoral signs and symptoms like para-functional habits, missing teeth, occlusal variations, headache, and joint sound among patients who are being treated for psychiatric illnesses.

METHODS

This prospective cross-sectional study was conducted at Dental College HITEC-IMS Taxila Cantonment from 1st September 2022 to 31st December 2023 with REF# Dental/HITEC/IRB/30 approved on 19th August, 2022. Non probability consecutive sampling technique was used for data collection. Using an assumed percentage of patients with TMJDs, a 95% confidence interval, and an acceptable difference of 0.08%, a sample size of 181 was calculated. The study included both male and female adult patients who reported to the Oral and Maxillofacial Surgery Department with complaints of discomfort in the temporomandibular joint and also gave a positive history of psychiatric illness. The exclusion criteria were individuals who were experiencing discomfort or pain as a result of eruption or impacted wisdom teeth or any other gum disease. Individuals who ever had orthodontic work done as well as those who suffer from neurological or musculoskeletal conditions. Patients who have had a history of face trauma, TMJ surgeries, TMJ trauma, fractures, or craniofacial deformities were also excluded. Informed consent was acquired from all subjects. A detailed history was acquired and a clinical examination was performed for each subject. A two-part self-explanatory screening questionnaire was used to gather data through in-person interviews. Demographic information, including age and sex, was recorded in the first section. Section 2 asked patients to indicate if they engaged in a variety of parafunctional habits by checking either patient involved in bruxism, thumb sucking or nail bitting [28]. The information gathered was entered into a data extraction sheet. Information regarding patient's demographics, etiology, symptoms, joint discomfort, occlusal variations, missing teeth, parafunctional habits, chewing with one, emotional stress, treatment, referrals from other medical specialties, and total visits were documented. Numbers and percentages were used to represent categorical data, whereas means and standard deviations (SD) were used to represent quantitative variables. Using either Fisher's exact or Pearson's Chi-square test, we looked for a correlation between gender and variables like age and symptoms. Statistical significance was defined as a p-value below 0.05. Excel was utilized for both data entry and analysis.

RESULTS

There were 112 (61.9%) females and 69 (38.1%) males in all patients. The patients mean age was 33.7 ± 10.47 years and had mean BMI 24.12 ± 6.26 kg/m2. Majority of the cases 108 (59.7%) were from urban areas. There were 43 (23.8%) patients had smoking history. Referral cases were 17 (9.4%). 45 (24.9%) cases had 4 number of visits and 136

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(75.1%) cases had 6 visits to hospital as shown in table 1.

Table 1: Demographics of the Enrolled Cases

Variables	N (%) (n=181)
Gender N (%)	
Male	69 (38.1%)
Female	112 (61.9%)
Age (Mean ± SD)	
Mean Age (Years)	33.7 ± 10.47
Mean BMI (Kg/m^2)	24.12 ± 6.26
Residence N (%)	
Urban	108 (59.7%)
Rural	73 (40.3%)
Smoking History N (%)	
Yes	43 (23.8%)
No	138 (76.2%)
Referral Cases N (%)	
Yes	17 (9.4%)
No	164 (90.6%)
Total Visits N (%)	
6	136 (75.1%)
4	45 (24.9%)

Regarding the main complaint, pain was the most prevalent complain followed by clicking and limited mouth opening. Most common etiology was stress followed by facial trauma, bruxism stress, trauma stress and bruxism as shown in table 2.

Table 2: Complaint and Etiology of TMJD's

Variables	N (%)
Pain	115 (63.5%)
Clicking	40 (22.1%)
Limited Mouth Opening	26 (14.4%)
Etiology of TMJD's N (%)	
Stress	70 (38.7%)
Facial Trauma	48 (26.5%)
Bruxism Stress	25 (13.85)
Trauma Stress	13 (7.2%)
Bruxism	6 (3.3%)
Other	19 (10.5%)

Among the symptoms that patients experienced, 125 (69.1%) had joint sounds, while 116 (64.1%) of the total reported feelings of emotional stress or strain as shown in figure 1.

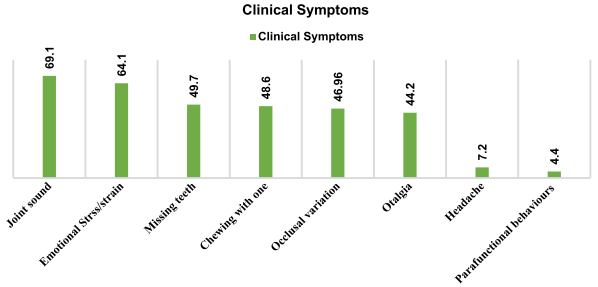

Figure 1: Clinical Symptoms of the Enrolled Cases

The frequency of most symptoms was higher in females compared to males. The correlation between parafunctional habits and stress/tension was statistically significant ($p<0.005$) in men as shown in table 3.

Table 3: Clinical Symptoms with Respect to Gender

Symptoms	Male N (%)	Female N (%)	Total N (%)	p-value
Joint Sounds	40 (22.1%)	85 (46.96%)	125 (69.1%)	<0.004
Stress/Strain	36 (19.9%)	80 (44.2%)	116 (64.1%)	<0.005
Missing Teeth	35 (19.3%)	55 (30.4%)	90 (49.7%)	<0.102
Chewing With One	40 (22.1%)	48 (26.5%)	88 (48.6%)	<0.215
Occlusal Variation	33 (18.2%)	52 (28.7%)	85 (46.96%)	<0.112
Otalgia	38 (20.9%)	42 (23.2%)	80 (44.2%)	0.000
Headache	5 (2.8%)	8 (4.4%)	13 (7.2%)	<0.004
Parafunctional Behaviours	2 (1.1%)	6 (3.3%)	8 (4.4%)	<0.005

Furthermore, there were correlations between age and occlusal variation, joint sound, missing teeth, side chewing, parafunctional behaviours, tension, and stress levels as shown in table 4.

Table 4: Various Clinical Signs and Symptoms are Seen Throughout Different Age Groups.

Symptoms	18-30 Years N (%)	31-60 Years N (%)	Total N (%)	p-value
Joint Sounds	34 (18.8%)	91 (50.3%)	125 (69.1%)	<0.005
Stress/Strain	20 (11.04%)	96 (53.03%)	116 (64.1%)	<0.005
Missing Teeth	30 (16.6%)	60 (33.1%)	90 (49.7%)	<0.005
Chewing With One	35 (19.3%)	53 (29.3%)	88 (48.6%)	<0.003
Occlusal Variation	23 (12.7%)	62 (34.3%)	85 (46.96%)	<0.005
Otalgia	33 (18.2%)	47 (25.96%)	80 (44.2%)	<0.002
Headache	4 (2.2%)	9 (4.97%)	13 (7.2%)	<0.005
Parafunctional Behaviours	3 (1.7%)	5 (2.8%)	8 (4.4%)	<0.005

DISCUSSION

The masticatory muscles and joint function can be impacted by TMJDs. Pain in the Temporomandibular Joint (TMJ) could originate from issues with the joint itself, nearby structures, or both. This study's results are in line with those of earlier research showing that females, not males, are more likely to experience TMJ discomfort and symptoms [13]. Several variables contribute to the development of Temporomandibular Disorders (TMDs), including a robust bio-psychosocial component [14]. Those between the ages of 45 and 64 had the highest documented prevalence of TMJ problems [15]. Among the participants in this study, those between the ages of 31 and 60 made up the largest proportion (59.1%), followed by those between the ages of 18 and 30 (40.9%). Findings from this study are in line with those from Alhussini DA *et al.*, where the average age of TMJ patients was 33.7 years [16]. A quarter to half of the population may have temporomandibular joint noises, according to a recent study [17]. The therapeutic relevance of these noises is a matter of debate, with some arguing that they indicate joint

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disease and others that they indicate mechanical interference inside the joint. Crepitus and tenderness are common symptoms of intra-articular derangement, whereas headaches and referred pain together with discomfort when moving the jaw indicate a problem with the muscles [18]. Compared to Miyake R *et al.*, the current investigation revealed that 69.1% of TMJ patients had joint noises [19]. Still up for debate is the question of whether or not tooth loss causes TMJ discomfort. An absence of molar teeth may cause discomfort due to mandibular overclosure and auriculotemporal nerve entrapment, according to some [20]. Five patients with missing molar teeth in the current investigation experienced TMJ discomfort. A person's standard of living is greatly diminished when they are in constant agony. Compared to men, girls and adult women experience a higher prevalence of orofacial discomfort, which includes TMJ pain [21]. Anxieties, melancholy, and stress are on the rise among young people, which might explain why orofacial discomfort is so common among this age group. 64.1% of participants in this research acknowledged experiencing stress on their own. Bruxism, clenching and other parafunctional habits, as well as occlusal irregularities, might aggravate TMJ discomfort of the patients with TMJ discomfort who participated in this study, 46.96% had occlusal abnormalities and 4.4% had parafunctional habits [22]. Common symptoms of TMD include headaches, especially tension headaches. Studies conducted by RamachanDRan S discovered a positive link between TMD and the occurrence of headache, suggesting that TMD might be a cause of headaches [23]. Among the 44.2 patients surveyed for this study, otalgia was most common in those between the ages of 31 and 60. The enhanced sensitivity to biological cues and hormonal variables may explain why TMJ issues are more common in women [24]. Cultural norms and social expectations regarding the expression of suffering may also be relevant [25]. Consistent with earlier research, this study found that TMJ problems are more common in women that they tend to affect people of a certain age, that they are connected with certain noises made by the joints and differences in their occlusal surfaces, and that they can cause other symptoms such as headaches and otalgia. Symptoms of TMDs extend beyond just the jaw joint and can manifest in various areas of the body, including the neck, head, and other joints. Systemic conditions including fibromyalgia, IBS, and sleep problems are frequently linked to TMDs [26]. As a degenerative kind of TMJ dysfunction is common in rheumatoid patients, joint noises may be due to less synovial fluid and condylar wear. The current investigation indicated that 48.6% of patients chewed on one side, although a previous study by Souza RC *et al.*, did not find any relationship between unilateral mastication and mouth opening crepitus, myofascial discomfort, or joint locking [27, 28].

CONCLUSIONS

Individuals suffering from psychiatric illnesses have a greater prevalence of temporomandibular joint discomfort. Female patients are more inclined to TMJ discomfort than male patients. Joint noises (clicking, crepitus) were reported by patients at a higher rate than any other symptom. There was a statistically significant correlation between gender and parafunctional behaviors as well as stress and tension. Patients ranging in age from 31 to 60 made up the bulk of the patient population.

Authors Contribution

Conceptualization: SRRG
Methodology: SM
Formal analysis: SZM
Writing, review and editing: MS, SK, UFK

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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