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Research Article

### TEMPOROMANDIBULAR JOINT DISORDERS; ITS PREVALENCE AND SEVERITY OF SYMPTOMS

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**Abstract:**

**Objectives:** The objective of this study is to evaluate frequency of temporomandibular joint disorder and its distribution in different age groups among male versus female population.

**Study Design:** Descriptive cross-sectional study.

**Setting:** Shahina Jamil Teaching Hospital, Frontier Medical and Dental College, Abbottabad.

**Period:** December 2019 to May 2020.

**Material & Method:** The study sample comprises of total 140 patients with TMD, meeting the inclusion and exclusion criteria. Fonseca's questionnaire and Anamnestic Index were used to assess the subjective response and severity of TMD symptoms. WHO sample size calculator used to determine sample size. Consecutive sampling technique used. P-value < 0.05 was considered significant.

**Results:** The results are arranged and statistically evaluated. Overall, 45% answered positive to questions with respect to symptoms. Majority of patients reported positive for neck pain or stiff neck (16%) and muscular fatigue while chewing (17%). 50 % of patients suffering from TMD symptoms belong to Age Group 1 (15 – 35 years). 94.3 % female patients suffer from some degree of TMD. Based on Fonseca's Anamnestic Index of severity, 65.9% of patients have Mild TMD symptoms, 18.9% with Moderate severity and 1.5% with severe symptoms of TMD.

**Conclusion:** This study concludes that TMD are more common in females with age group of 15 – 35 years of age. The most prevalent symptom is muscular pain / tiredness of jaws during chewing and stiffness of neck. In this study sample, majority of patients suffer from Mild TMD symptoms

**Key words:** Anamnestic Index, Fonseca's Questionnaire, Prevalence of TMD, Temporomandibular Joint Disorder

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## INTRODUCTION

The temporomandibular joint is the articulation between the mandible and cranial base. Via the occlusion, teeth form the contacts between the mandible and maxilla while muscles move the mandible.<sup>1</sup>Temporo–Mandibular Joint Disorders cause pain in the jaws and / or surrounding muscles, leading to significant pain, distress and functional disturbance / limitations.<sup>2</sup> TMD is the prevailing musculoskeletal condition after chronic low back pain. For clinical and research settings, current diagnostic criteria for Temporomandibular Disorders (DC/TMD)<sup>3</sup> defines 12 common TMDs including but not limited to Arthralgia, Myalgia Myofascial pain dysfunction syndrome, Myofascial pain with referral, Anterior disc displacement disorders, Degenerative joint disease, systemic arthritic conditions, Subluxation, Close and Open lock, Trismus and Headache attributed to TMD.<sup>4,5</sup>

Common symptoms present in patients of TMD are toothache, facial pain, TMJ joint sounds, earache and limited jaw movements. Often these patients present in dental clinics with complain of toothache because they naturally assume that tooth is causing the problem. Consequently, it is imperative for the dentist to recognize these patients, diagnose the actual cause of the symptoms, ascertain their needs and select appropriate treatment / intervention options.<sup>6,7</sup>

The etiology of TMD is fairly complex and multifactorial, including structural abnormalities of TMJ, stress induced muscle hyperactivity and overuse of joint. In 1973, a research study proposed four (4) foremost theories underlying the etiology of temporomandibular disorders (TMDs), whereby two of these were psychological and psychophysiological.<sup>8,9</sup> Diagnosis of TMD is carried out by evaluating patients' history with subsequent physical examination.<sup>10</sup> Additionally, diagnostic TMJ imaging methods provide an assessment of TMJ components' integrity and their functional association which confirm the extent and/ or progression of existing disease.<sup>11</sup> These disorders are most common among the 20-45 years age group with an increasing tendency in female gender. Following are the most common symptoms of temporomandibular joint disorders.<sup>12</sup>

## MATERIAL & METHODS:

This is a cross-sectional study carried out at Shahina Jamil Teaching Hospital, Frontier Medical and Dental

College, Abbottabad from December 2019 to May 2020. The study sample comprises of total 140 patients visiting the oral and maxillofacial surgery department meeting the inclusion and exclusion criteria. Sample size was calculated using WHO sample size formula. Patients were selected using consecutive sampling technique. Along with patient history, a thorough clinical examination is carried out to establish the prevalence and severity of temporomandibular joint disorders using Fonseca's Questionnaire and Fonseca's Anamnestic Index (IAF). Patients are categorized on basis of presenting symptoms and frequencies for various categorical variables like gender, age group etc. are calculated.

### Inclusion Criteria

- Patients of both genders with age ranging from 15 to 70 years.
- All patients diagnosed with TMD having symptoms of pain, clicking and limited mouth opening.
- Patients who have previously received treatment for TMDs.

### Exclusion Criteria

- Patients with organic dental disease and other disorders, which may mimic TMD pain.
- Patients with bone diseases like Osteoporosis, osteopetrosis• or osteomalacia.
- Patients with debilitating diseases including rheumatoid arthritis, poliomyelitis• or Systemic Lupus erythematosus.
- Patients with neurological disease including Dyskinesia (Abnormality in performing voluntary muscle movements Female patients with pregnancy.
- Patients with any previous history of Orthodontic treatment, Cleft surgery or Orthognathic surgery.

### Data Collection Procedure

A detailed history is obtained from each patient based on Fonseca's Questionnaire (Table-I). Follow-on oral examination is carried out to evaluate and rule out any other organic or dental condition which may mimic symptoms of TMD.

Patients are assessed on basis of symptoms such as facial pain, TMJ tenderness, locking / stiffness or tenderness of jaw muscles, joint sounds, limitations in mandibular movement and difficulty in chewing.

Patients presenting with one or more of these symptoms are included in the study. The severity assessment and diagnosis of type of TMD is carried out using Fonseca's Anamnestic Index (IAF). Data collected from patients entered in SPSS ® version 20.0 for statistical analysis.

### RESULTS:

Total 140 cases were studied. Age range of the patients was 15-68 years with mean age of  $35.4 \pm 5.7$  years. There were 50% cases between age 15-35 years, 27%

between 36-50 years and 22.8% between 51-70 years. There were 39.3% male and 60.7% female cases. Overall 54% answered positive to questions with respect to symptoms. Majority of patients reported positive for neck pain or stiff neck (35.7%) and Myofacial pain while chewing (50%). Difficulty in opening mouth was noticed in 7.1% cases, difficulty related in mandible translation in 12.1% and clenching of teeth with signs of bruxism was reported in 15.7% cases.

**Table-I: Age distribution of study cases**

| Age Group | Age (Years) | Frequency of Patients |
|-----------|-------------|-----------------------|
| 1         | 15–35       | 70 (50.0%)            |
| 2         | 36–50       | 38 (27.1%)            |
| 3         | 51–70       | 32 (22.8%)            |

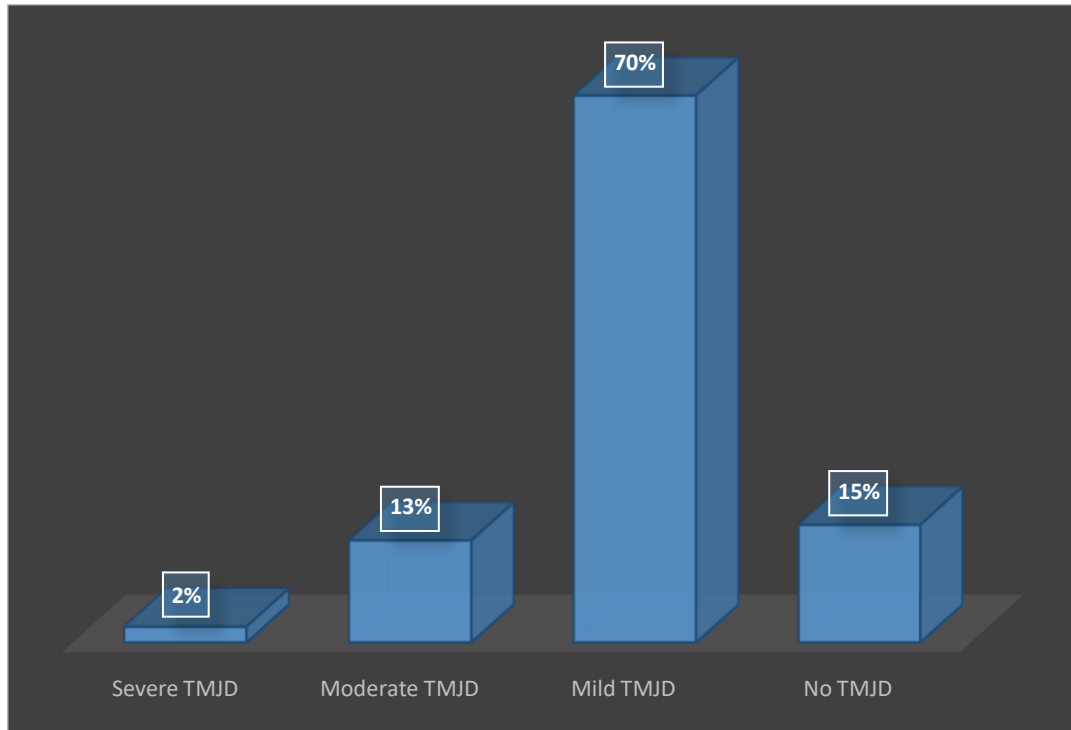
**Table-II: Age distribution among male and female cases**

| Gender | Age group |    |    | Total |
|--------|-----------|----|----|-------|
|        | 1         | 2  | 3  |       |
| Male   | 30        | 10 | 15 | 55    |
| Female | 40        | 25 | 20 | 85    |

**Table-III: Frequency of patient's response to the questionnaire**

|    | Question  | Yes        | No          | Sometimes  |
|----|---|------------|-------------|------------|
| 1  | Is it difficult for you to open your mouth?                                   | 10 (7.1%)  | 121 (86.4%) | 09 (6.4%)  |
| 2  | Is it difficult for you to move mandible from side to side?                   | 17 (12.1%) | 100 (71.4%) | 23 (16.4%) |
| 3  | Do you get tired or have pain during chewing food?                            | 70 (50%)   | 45 (32.1%)  | 25 (17.8%) |
| 4  | Do you have recurrent headaches?  | 48 (34.3%) | 62 (44.2%)  | 30 (21.4%) |
| 5  | Do you have any pain on the nape or stiff neck?                               | 50 (35.7%) | 40 (28.6%)  | 50 (35.7%) |
| 6  | Do you have recurrent earaches or pain in craniomandibular joints?            | 36 (25.7%) | 64 (45.7%)  | 40 (28.6%) |
| 7  | Have you noticed any TMJ clicking when you open your mouth or during chewing? | 33 (23.6%) | 77 (55%)    | 30 (21.4%) |
| 8  | Do you clench or grind your teeth?  | 22 (15.7%) | 92 (65.7%)  | 26 (18.6%) |
| 9  | Do you feel your teeth do not articulate well?                                | 18 (12.8%) | 122 (87.1%) | 10 (7.1%)  |
| 10 | Do you consider yourself an anxious / nervous / tense patient?                | 45 (32.1%) | 65 (46.5%)  | 30 (21.4%) |

Based on Fonseca's Anamnestic Index of severity, 70% of patients have Mild TMD symptoms, 13% with moderate severity and 2% with severe symptoms of TMD, while 15% cases were having no symptoms at all.



**Figure-I: Severity of TMD among study cases**

### DISCUSSION:

This cross-sectional descriptive study carried out amongst the patients visiting Oral and Maxillofacial Surgery department at Shahina Jamil Teaching Hospital, Frontier Medical and Dental College Abbottabad, Pakistan provides an outline of prevalence of TMD's symptoms at Abbottabad. This study is to evaluate the presence of TMDs symptoms which are often misdiagnosed by inexperienced dental clinicians. In this study, 54 % answers are positive for subjective symptoms based on "Yes" and "Sometimes", while Agerberg and Carlsson<sup>16</sup> and Szentpetery *et al*<sup>13</sup> found that 57% and 20.6% patients have reported subjective symptoms respectively. The results of this study suggest overwhelming female predilection which corroborate the previous finding of Pedroni *et al*,<sup>14</sup> Garcia *et al*,<sup>15</sup> and Otuyemi *et al*.<sup>16</sup>

Nevertheless, it is recommended that a detailed clinical examination and psychological health assessment of female patients in these settings be carried out to elicit reasons of high prevalence in female gender.

Nomura *et al* had found that 35.78% of patients have mild TMD, 11.93% of patients had moderate TMD and 5.5% of patients had severe TMD.<sup>17</sup> Wänman and Agerberg had determined that 13% and 7% patients had moderate and severe TMD respectively.<sup>18</sup> Yet another study conducted by Rieder *et al* had determined that 10.3% individuals suffered from advanced and severe TMD.<sup>19</sup> Although the results of this study corroborate with previous findings, it further establishes that mild TMD is 70%, moderate TMD is 13% and severe TMD is only 2% , while no disease found in 15% cases. This can be explained by the fact that people in rural areas are inherently having little

rest due extensive manual work in agricultural fields. Other reason could be inability of clinicians to diagnose initial concealed symptoms which can be prevented from further aggressiveness.

With respect to gender, the results of this study, 94.3%, corroborate the findings of Garcia et al, Solberg et al, Shiau and Chang.<sup>20</sup> Higher prevalence of signs associated with mandibular disorder have been reported in female gender in these studies. The higher prevalence of women diagnosed with some degree of TMD may be related to physiologic differences in female

### CONCLUSION:

This study concludes that TMD are more common in females with age group of 15 – 35 years of age. The most prevalent symptom is muscular pain / tiredness of jaws during chewing and stiffness of neck. In this study sample, majority of patients suffer from Mild TMD symptoms.

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