

## Severity of Temporomandibular Joint Disorder Among Patients Presenting to Tertiary Care Hospital

Asfandyar\*, Zubair Khan Durrani

Department of Oral and Maxillofacial Surgery, Rehman Medical Institute, Peshawar, Pakistan

\*Corresponding author's email address: [khanasfandyar313@gmail.com](mailto:khanasfandyar313@gmail.com)

(Received, 29<sup>th</sup> May 2025, Accepted 25<sup>th</sup> June 2025, Published 30<sup>th</sup> June 2025)

**Abstract:** Temporomandibular joint disorders (TMDs) comprise a group of musculoskeletal conditions affecting the temporomandibular joint, masticatory muscles, and associated structures. These disorders can result in pain, joint sounds, restricted jaw movement, and functional impairment, significantly affecting quality of life. Assessing the severity of TMD is important for early diagnosis and appropriate management. **Objective:** To determine the severity of temporomandibular joint disorder among patients presenting to a tertiary care hospital. **Methods:** This cross-sectional study was conducted on 145 patients aged 18–60 years of either gender presenting with symptoms suggestive of temporomandibular joint disorder, including aching pain in or around the ear, difficulty or pain during chewing, joint locking, and jaw tenderness at department of Oral and Maxillofacial Surgery Department, Rehman Medical Institute, Peshawar from 28-February-2025 to 28-May-2025. Patients with a history of temporomandibular joint pathology, ear disease, orthodontic treatment, dental fillings, or facial trauma were excluded. The severity of TMD was assessed using the Fonseca Anamnestic Questionnaire. Clinical manifestations, including temporomandibular joint pain, clicking, tenderness, pain during eating, headache, and earache, were recorded. Data were analyzed using SPSS version 21. Descriptive statistics were calculated, and associations between clinical features and TMD severity were evaluated using appropriate statistical tests, with a  $p$ -value  $<0.05$  considered statistically significant. **Results:** The mean age of the participants was  $37.72 \pm 12.54$  years. There were 82 (56.6%) males and 63 (43.4%) females. Based on Fonseca's classification, 72 (49.7%) patients had no TMD, 44 (30.3%) had mild TMD, 25 (17.2%) had moderate TMD, and 4 (2.8%) had severe TMD. Overall, TMD was identified in 73 (50.3%) patients. Temporomandibular joint pain was present in 32 (22.1%) patients and showed a significant association with increasing TMD severity ( $p < 0.001$ ). Joint clicking was observed in 40 (27.6%) patients and was also significantly associated with greater TMD severity ( $p = 0.022$ ). **Conclusion:** Temporomandibular joint disorder was observed in approximately half of the study population, with mild TMD being the most common presentation. Temporomandibular joint pain and clicking were significantly associated with increasing disease severity. Early recognition of these clinical features may facilitate timely diagnosis and management of TMD.

**Keywords:** Temporomandibular Joint Disorders; TMD Severity; Fonseca Questionnaire; Tertiary Care Hospital; Peshawar; Pakistan

**[How to Cite:** Asfandyar, Durrani ZK. Severity of temporomandibular joint disorder among patients presenting to tertiary care hospital. *Biol. Clin. Sci. Res. J.*, 2025; 6(6): 759-762. doi: <https://doi.org/10.54112/bcsrj.v6i6.2301>

### Introduction

Temporomandibular joint disorder (TMD) is an umbrella term for a collection of disorders that cause discomfort in the jaw joint and its surrounding structures. Parafunctional habits, occlusion, emotional stress, trauma, and anatomical differences in the disc have all been linked to TMDs (1, 2). TMJ issues affect anywhere from 20% to 50% of the world's population. Anxiety and depression are two examples of psychological factors that play a role in the development and maintenance of TMDs (3). One study found that TMD patients also reported high levels of stress in their daily lives. Anxiety and depression are two of the most common mental health issues among students, as they are among the general population (4). Patients with anxiety and depression frequently suffer from headache and temporomandibular issues (5). Some of the varied clinical manifestations of TMD include discomfort in the TMJ and/or surrounding tissues, restricted jaw opening, joint noises, mandibular deviation, clicking in the TMJ during motions and muscle tenderness (6). There are many advantages to using Fonseca's questionnaire (FQ) for diagnosing TMD, including its low cost and ease of administration. It's easy to implement, has minimal impact on the examiner, and yields consistent results. So, it is useful for both primary care physicians and epidemiologists (7). It consists of 10 questions designed to gauge the frequency with which symptoms including TMJ pain, difficulty chewing, and other sources of head and back pain are present in individuals with TMD. Parafunctional habits, movement limits, joint clicking, the impact of malocclusion, and the experience of emotional stress are also assessed (8). A study reported the included participants with TMD dysfunction

observed was (42.5%), mild TMD dysfunction was in 35.5%, moderate in (18.6%), and severe in (3.5%) respectively (9).

The occurrence of TMD symptoms has been the subject of several research, although none such type of study has been conducted in our local health setup. That is why, this study is determine to evaluate the severity of temporomandibular joint disorders among patients presenting to tertiary care hospital and to compare them to other populations with and without tooth loss. This study will also focus on clinical evaluation to investigate the common TMJ complaints.

### Methodology

The current descriptive study was conducted in the department of Oral and Maxillofacial Surgery Department, Rehman Medical Institute, Peshawar from 28-February-2025--28-May-2025, after acquiring ethical approval from the hospital. Sample size was 145, which was calculated using the WHO sample size calculator with the help of following assumptions, using the rate of severe temporomandibular joint disorder 3.5%, (9) keeping 95% confidence level, and 3% absolute precision. Non-probability consecutive sampling was used.

Eligible patients were 18 to 60 years old, of either gender presenting with one or more of the following symptoms: aching pain in and around the ear, difficulty in chewing or pain, joint locking i.e difficulty in opening or closing of the mouth and jaw tenderness/pain. Patients with history of joint pathology, pathology of ear, history of orthodontic treatment, fillings and trauma were excluded.

All the patients meeting the inclusion criteria were enrolled in the study from the OPD. Patients were given briefing about the study purpose,



benefits, and risks before obtaining the informed written consent from them. The demographic information like age, and gender were noted down. To confirm that inclusion criteria is efficiently followed, a comprehensive medical history was taken and physical examination was performed. All the patients with indications such as jaw tenderness/pain, difficulty in opening or closing of the mouth, difficulty in chewing or pain, and aching pain in and around the area of the ear were evaluated for temporomandibular joint disorders and its severity Fonseca's questionnaire.

For each question, participants were instructed to mark only one of three possible responses ("Yes," "Sometimes," or "No") before the questions were presented. Answers of "Yes" and "Sometimes" were assigned scores of 10 and 5, respectively, while "No" was assigned 0 points in the comprehensive analysis of TMD frequency and severity. When the maximum points for each of the 10 answers were added up, the result was a score out of 100. Participants in this study were not be under any pressure to complete out the Questionnaire in a timely manner because there was no rush in completing the questionnaire. The TMD severity was categorized as no TMD (0-15), mild TMD (20-40), moderate TMD (45-65) and severe TMD (70-100). Patients detail indications such as TMJ pain, clicking, Tenderness, pain during eating, headache, and ear ache were recorded on a pre-designed proforma (Annexure B), and this entire evaluation was done under the monitoring of a consultant.

The data entry and analysis were performed by utilizing the SPSS v.21 software. Frequencies and percentages were determined as qualitative data such as gender, TMD severity, TMJ pain, clicking, Tenderness, pain during eating, headache, and ear ache. Mean ± SDs were determined for quantitative data like age. Effect modifiers like age, gender, TMJ pain, clicking, Tenderness, pain during eating, headache, and ear ache were controlled through stratification. Post-stratification chi-square test was performed at 5% level of significance. Results were presented as tables.

**Results**

A total of 145 patients were enrolled in the study. The mean age of the patients was 37.72 ± 12.54 years. Regarding gender distribution there were 82 (56.6%) male patients and 63 (43.4%) female patients.

**Table 3: Stratification of severity of TMD with age, gender and clinical symptoms**

Variables		TMD severity								p value
		No TMD		Mild		Moderate		Severe		
		n	%	n	%	n	%	n	%	
Age distribution (years)	18 to 40	41	56.9%	27	61.4%	12	48.0%	1	25.0%	0.432
	> 40	31	43.1%	17	38.6%	13	52.0%	3	75.0%	
Gender	Male	38	52.8%	28	63.6%	14	56.0%	2	50.0%	0.708
	Female	34	47.2%	16	36.4%	11	44.0%	2	50.0%	
TMJ pain	Yes	4	5.6%	20	45.5%	7	28.0%	1	25.0%	< 0.001
	No	68	94.4%	24	54.5%	18	72.0%	3	75.0%	
Clicking	Yes	13	18.1%	13	29.5%	12	48.0%	2	50.0%	0.022
	No	59	81.9%	31	70.5%	13	52.0%	2	50.0%	
Tenderness	Yes	7	9.7%	8	18.2%	6	24.0%	1	25.0%	0.286
	No	65	90.3%	36	81.8%	19	76.0%	3	75.0%	
Limited mouth opening	Yes	14	19.4%	16	36.4%	4	16.0%	1	25.0%	0.147
	No	58	80.6%	28	63.6%	21	84.0%	3	75.0%	
Pain during eating	Yes	9	12.5%	6	13.6%	6	24.0%	0	0.0%	0.430
	No	63	87.5%	38	86.4%	19	76.0%	4	100.0%	
Headache	Yes	26	36.1%	17	38.6%	14	56.0%	2	50.0%	0.351
	No	46	63.9%	27	61.4%	11	44.0%	2	50.0%	
Ear ache	Yes	6	8.3%	7	15.9%	3	12.0%	1	25.0%	0.527
	No	66	91.7%	37	84.1%	22	88.0%	3	75.0%	

**Discussion**

The present study was conducted to determine the severity of temporomandibular joint disorder in 145 c patients. The findings of this

study contribute to the growing body of literature on TMD prevalence and severity in Pakistan. The study observed that 72 patients (49.7%) had no TMD 44 (30.3%) had mild TMD, 25 (17.2%) had moderate TMD and 4 (2.8%) had severe TMD Aldhalai et al. conducted a cross-sectional study

TMJ pain was present in 32 (22.1%) cases. Clicking of the joint was observed in 40 (27.6%) cases. Tenderness on palpation was noted in only 22 (15.2%) cases. Limited mouth opening was seen in 35 (24.1%) cases. Pain experienced during eating was reported by 21 (14.5%) cases. A frequent headache was a common complaint present in 59 (40.7%) cases. Ear ache was noted in 17 (11.7%) cases (Table I). The severity of temporomandibular joint disorder showed no TMD in 72 (49.7%) cases. Mild TMD was observed in 44 (30.3%) cases. Moderate TMD was found in 25 (17.2%) cases while severe TMD was present in 4 (2.8%) cases. (Table II)

Table III presents the stratification of severity of TMD with age, gender and clinical symptoms.

**Table 1: Clinical symptoms**

Variables		n	%
TMJ pain	Yes	32	22.1%
	No	113	77.9%
Clicking	Yes	40	27.6%
	No	105	72.4%
Tenderness	Yes	22	15.2%
	No	123	84.8%
Limited mouth opening	Yes	35	24.1%
	No	110	75.9%
Pain during eating	Yes	21	14.5%
	No	124	85.5%
Headache	Yes	59	40.7%
	No	86	59.3%
Ear ache	Yes	17	11.7%
	No	128	88.3%

**Table 2: Severity of TMD**

Severity of TMD	n	%
No TMD	72	49.7
Mild	44	30.3
Moderate	25	17.2
Severe	4	2.8

on 318 participants and reported that 35.5% had mild TMD, 18.6% moderate TMD and 3.5% severe TMD with no significant gender difference (9). Bilal et al. studied 215 dental students in Iraq and found that 43.3% had mild dysfunction, 8.8% moderate and 3.3% severe with older students showing significantly higher severity (10). Jain et al. examined 390 orthodontic patients in India and reported that in the 19-30 years age group 30.32% of females had some degree of TMD compared to 19.23% of males (11).

Rehman et al. analyzed 375 dental students in Karachi and found that 36.3% had mild TMD, 4.8% moderate and 0.5% severe with female predominance (12). Mustafa et al. (2022) studied 81 rheumatoid arthritis patients and reported 39.5% mild, 24.7% moderate and 6.2% severe TMD (13). Talpur et al. examined 120 dental patients in Jamshoro and found 23% mild, 30% moderate and 21% severe TMD with clicking as the most frequent symptom at 62.5% (14).

The present study found a strong association between TMJ pain and TMD severity. In patients with mild TMD 20 (45.5%) reported TMJ pain. Among those with moderate TMD 7 (28.0%) reported TMJ pain. In contrast among those with no TMD only 4 (5.6%) reported TMJ pain. This association was significant ( $p < 0.001$ ). This finding aligns with the work of Matheson et al. who reported that pain at the temporomandibular joint is one of the most common symptoms in TMD patients present in 54% of cases (15). The present study validates that TMJ pain is not only a common symptom but also a strong predictor of TMD severity. Clinically this means that a patient presenting with TMJ pain is much more likely to have mild to moderate TMD than no TMD at all.

The present study makes several important contributions to the existing literature on TMD in the region. It is one of the few studies conducted in a tertiary care hospital setting in Khyber Pakhtunkhwa rather than among university students or dental college attendees. Most previous Pakistani studies such as those by Rehman et al. and Wahid et al. focused on student populations, limiting their generalizability to older adults seeking hospital care. The present study provides data on a broader age range (18-60 years) and a mixed-gender population

## Conclusion

In conclusion, the present study found a high frequency of temporomandibular joint disorder, with 30.3% patients having mild TMD, 17.2% having moderate TMD and 2.8% patients had severe TMD. TMJ pain and clicking were significantly associated with increase in severity of TMD.

## Declarations

### Data Availability statement

All data generated or analysed during the study are included in the manuscript.

### Ethics approval and consent to participate

Approved by the department concerned.

### Consent for publication

Approved

### Funding

Not applicable

## Conflict of interest

The authors declared the absence of a conflict of interest.

## Author Contribution

### A (Postgraduate Resident)

Contributed to study design, data collection and initial manuscript drafting

Assisted in data acquisition, literature review and manuscript editing

Performed statistical analysis and contributed to interpretation of results

Helped in methodology development, data organization and manuscript formatting

### ZKD (Professor)

Contributed to patient recruitment, data entry and results compilation

Assisted in referencing, proofreading and final revisions of the manuscript

Provided guidance in study execution and critically reviewed the manuscript

Supervised the research, coordinated among authors, finalized the manuscript and approved the final version

All authors reviewed the results and approved the final version of the manuscript. They are also accountable for the integrity of the study.

## References

- Shafiq N, Khan MA, Khan A, Khan MI, Ali K, Sajjad S. Temporomandibular disorder amongst undergraduate students of dentistry in Khyber Pakhtunkhwa. *J Khyber Coll Dent.* 2020;10(3):21-24. <https://doi.org/10.33279/jkcd.v10i03.204>
- Xia WD, Fu KY, Lu WX, Zhao CM, Yang HY, Ye ZX. The prevalence of temporomandibular disorder symptoms in 898 university students and its relationship with psychological distress and sleep quality. *Zhonghua Kou Qiang Yi Xue Za Zhi.* 2016;51(9):521-525. <https://doi.org/10.3760/cma.j.issn.1002-0098.2016.09.003>
- Rokaya D, Suttagul K, Joshi S, Bhattarai BP, Shah PK, Dixit S. An epidemiological study on the prevalence of temporomandibular disorder and associated history and problems in Nepalese subjects. *J Dent Anesth Pain Med.* 2018;18(1):27-33. <https://doi.org/10.17245/jdapm.2018.18.1.27>
- Habib SR, Al Rifaiy MQ, Awan KH, Alsaif A, Alshalan A, Altokais Y. Prevalence and severity of temporomandibular disorders among university students in Riyadh. *Saudi Dent J.* 2015;27(3):125-130. <https://doi.org/10.1016/j.sdentj.2014.11.009>
- Nazeri M, Ghahrechahi HR, Pourzare A, Abareghi F, Samiee-Rad S, Shabani M, et al. Role of anxiety and depression in association with migraine and myofascial pain temporomandibular disorder. *Indian J Dent Res.* 2018;29(5):583-587. <https://doi.org/10.4103/0970-9290.244932>
- Valesan LF, Da-Cas CD, Réus JC, Denardin ACS, Garanhani RR, Bonotto D, et al. Prevalence of temporomandibular joint disorders: a systematic review and meta-analysis. *Clin Oral Investig.* 2021;25(2):441-453. <https://doi.org/10.1007/s00784-020-03710-w>
- Zareef U, Arshad S, Abid M, Qureshi NR, Ali SA. Frequency of temporomandibular joint disorders among medical and dental undergraduate students in Karachi by Fonseca questionnaire. *J Oral Hyg Health.* 2018;6(2):242. <https://doi.org/10.4172/2332-0702.1000242>
- Fonseca DM, Bonfante G, Valle AL, Freitas SFT. Diagnóstico pela anamnese da disfunção craniomandibular. *Rev Gaucha Odontol.* 1994;42(1):23-28.
- Aldhalai MA, Alyami YAS, Al Haider YMB, Aldhili MK, Alyami DAS, Alyami SAS, et al. Prevalence and severity of temporomandibular joint disorders among populations in Najran Province, Kingdom of Saudi Arabia. *World J Dent.* 2017;8(2):90-95. <https://doi.org/10.5005/jp-journals-10015-1419>
- Bilal MF, Al-talabani S, Ahmed SA. Assessment of temporomandibular disorder prevalence and severity in relation to occlusal characteristics among dental students at Hawler Medical University. *Gomal J Med Sci.* 2025;23(3):303-308. <https://doi.org/10.46903/gjms/23.3.1875>
- Jain S, Chourse S, Jain D. Prevalence and severity of temporomandibular disorders among the orthodontic patients using Fonseca's questionnaire. *Contemp Clin Dent.* 2018;9(1):31-34. [https://doi.org/10.4103/ccd.ccd\\_689\\_17](https://doi.org/10.4103/ccd.ccd_689_17)
- Rehman A, Raja IM, Ahmed S, Azeem SA, Iqbal S, Khan MI. Prevalence of temporomandibular disorders among undergraduate dental

- students using Fonseca questionnaire. *Liaquat Natl J Prim Care.* 2023;5(2):87-91. <https://doi.org/10.37184/lnjpc.2707-3521.5.19>
13. Mustafa MA, Al-Attas BA, Badr FF, Jadu FM, Wali SO, Bawazir YM. Prevalence and severity of temporomandibular disorders in rheumatoid arthritis patients. *Cureus.* 2022;14(1). <https://doi.org/10.7759/cureus.21276>
14. Talpur N, Khan HA, Hussain N, Imtiaz S, Arif LM, Panhwar MA, et al. Evaluating the frequency of temporomandibular joint disorders in patients attending the dental OPD of LUMHS Jamshoro. *J Health Rehabil Res.* 2024;4(3). <https://doi.org/10.61919/jhrr.v4i3.1414>
15. Matheson EM, Fermo JD, Blackwelder RS. Temporomandibular disorders: rapid evidence review. *Am Fam Physician.* 2023;107(1):52-58.



**Open Access** This article is licensed under a Creative Commons Attribution NonCommercial 4.0 International License, <http://creativecommons.org/licenses/by-nc/4.0/>. © The Author(s) 2025