ORIGINAL ARTICLE

PATTERN OF TEMPOROMANDIBULAR PAIN DYSFUNCTION SYNDROME SEEN AT KMU INSTITUTE OF DENTAL SCIENCES

[1]SANNA SAFI , [2]ZAHID QAYYUM , [3]SADDIQUE ASLAM

ABSTRACT

The objective of this study was to see the pattern of Temporomandibular pain dysfunction syndrome in patients attending Khyber Medical University Institute of Dental Sciences, KMU-IDS, Kohat. This study was carried out at Department of Oral and Maxillofacial Surgery of KMU-IDS, Kohat from January 2018 to June 2019. A total of 34 patients with clinical presentation of TMPDS were included in the study. Data about demographics, chief complaint, etiology, stress and history of depression was collected. In this study, out of 34 patients, 12 (35%) were males and 22 (65%) were females. Mean age was 23.5 ± 13.4 years with 14 (41%) patients in age group 10-19. With regard to chief complaint, 22 out of 34 patients (65%) complained of pain. Click was reported by 5 patients (14%), 4 patients (12%) attended OPD for limited mouth opening (LMO). Etiology was elicited as trauma to face in 2 out of 34 patients (6%). Bruxism only was documented for just 1 person (3%). Stress was the only etiology in 9 people (26%). Stress collectively was reported in 20 patients (59%). In 11 patients (32%), etiology could not be elicited. Of the people with stress, 8 were on psychiatric medicines for clinical depression (23%).

In this study, TMPD was prevalent in females with a mean age of 23 years. Pain was the commonest chief complaint. Stress was the most common main etiology. Clinical depression was also found in 23% of people with stress.

Key words: *Temporomandibular pain dysfunction syndrome, stress, pain*

This article may be cited as: Safi S, Qayyum Z, Aslam S. Pattern of temporomandibular pain dysfunction syndrome seen at KMU Institute of Dental Sciences . Pak Oral Dent J 2019; 39(4):341-344.

INTRODUCTION

Temporomandibular pain dysfunction syndrome (TMPDS) is a frequently encountered musculoskeletal disorder of orofacial region, involving the masticatory muscles and/or temporomandibular joint. [1] TMPDS show an increased incidence in women, relative to men. Several studies have highlighted this gender disparity for TMPDS. Estrogen, the female sex hormone, seems to have an important role in this. [2] TMPDS is generally considered a disorder of adults but various studies have demonstrated its presence in children as well. [3]

Multiple factors are involved in etiology of TMPDS.[4,5] Today, mental health has an important role in TMPDS pathogenesis. [6] Behavioral and psychologic factors are the most significant etiology among potential causes of TMPDS.[7] Direct relation between stress and TMPDS exist as stressors like anxiety, depression and sleep disorders are closely related to the syndrome as shown by various studies.[8] Another possible cause of TMPDS is trauma, both micro- and macro-trauma.[9] A strong association between bruxism and TMPDS also exist.[10]

TMPDS is characterized by limited mouth opening, decreased mandibular motion and clicks, pops, crepitations of temporomandibular joint (TMJ).[11] A significant clinical feature of TMPDS is pain , disturbing quality of life and stomatognathic system function.[12]

In the United States, about 65-85% people, during their lives experience some symptoms of TMPDS. Chronic symptoms due to prolonged pain or disability is seen in approximately 12%. Despite the high prevalence in the population, only about 5 - 7% have symptoms severe enough to render treatment . A study in Nigeria showed that varying degrees of symptoms and signs of temporomandibular disorders are exhibited in 62.8% of population.[13] To see the proportion and distribution

[1] **For Correspondence:** Sanna Safi, BDS, FCPS-II, Registrar, Department of Oral & Maxillofacial Surgery, KMU-IDS, Kohat. Cell: 0331-4304365 Email: sannasafi15@gmail.com

[2] Zahid Qayyum, BDS, FCPS, Assistant Professor, Oral & Maxillofacial Surgery, Khyber Girls Medical College/Hayatabad Medical Complex, Peshawar.

[3] Saddique Aslam, BDS, FCPS, Professor, Oral & Maxillofacial Surgery, KMU-IDS, Kohat.

Received for Publication: Aug 17, 2019
First Revised: Sept 18, 2019
Second Revised: Sept 30, 2019
Approved: Oct 2, 2019

of problems associated with TMPDS, a large number of studies have been carried out. These studies showed variable results among different populations.[14] Unfortunately, local data about this common disorder in local population is very scarce in Pakistan.

The objective of this study was to see the pattern of TMPDS in patients attending Department of Oral and Maxillofacial Surgery at Khyber Medical University Institute of Dental Sciences, KMU-IDS, Kohat.

METHODS AND MATERIALS

This descriptive cross-sectional study was carried out at Department of Oral and Maxillofacial Surgery of KMU-IDS, Kohat from January 2018 to June 2019.

A total of 34 patients with clinical presentation of TMPDS were included in the study. Data about demographics, chief complaint, etiology, stress and history of depression was collected. Demographics about age and gender were specifically noted. Chief complaint was marked for pain, click and limited mouth opening (LMO). Etiological causes included bruxism, trauma to face (road traffic accident, blow/hits to face, falls), stress, and unknown factors.

Stress was elicited by asking about sleep quality, appetite, and level of energy. History of clinical depression and psychiatrist medications was also sought carefully.

Data obtained was analyzed by taking out mean, SD for age and percentages for the other variables including age (gender, chief complaint, etiology, stress, depression) using SPSS version 20.0.

RESULTS

In this study, out of 34 patients, 12 (35%) were males and 22 (65%) were females with a male to female ratio of 6:11. See table 1.

The age range was 15 – 68 years. Mean age was 23.5 ± 13.4 years with 14 (41%) patients in age group 10-19 followed by age group 40-49 with 8 (23%) patients. Minimum number of 1(3%) was seen in 60-69 age group. See table 2.

With regard to chief complaint, 22 out of 34 patients (65%) complained of pain. Click was reported by 5 patients (14%), 4 patients (12%) attended OPD for limited mouth opening (LMO) whereas pain along with LMO as chief complaint was documented for 3 patients (9%).

Etiology of the patients is shown in figure 1. Stress collectively was reported in 20 patients (59%). Of the people with stress, 8 were on psychiatric medicines for clinical depression (23%).

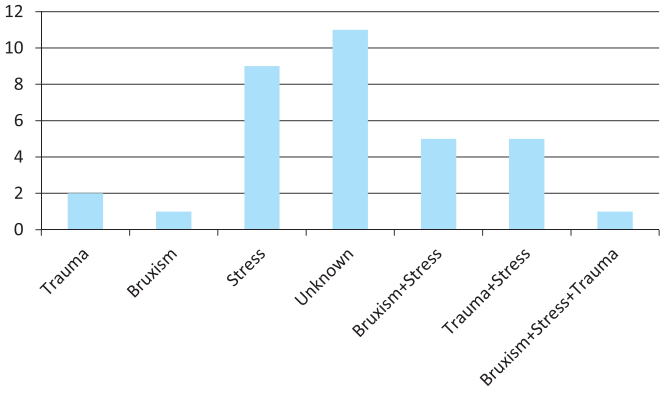

Fig 1: Etiologies

TABLE 1: GENDER DISTRIBUTION OF PATIENTS

Gender	Frequency	Percentage
Males	12	35%
Females	22	65%
Total	34	100%

TABLE 2: AGE DISTRIBUTION OF PATIENTS

Age group	Frequency	Percentage
10 to 19	14	41%
20-29	6	18%
30-39	5	15%
40-49	8	23%
50-59	0	0%
60-69	1	3%
Total	34	100%

DISCUSSION

In our study, TMPDS was more prevalent in females (65%) than males (32%). Ahuja *et al* study with higher incidence of TMPDS among females (66%) relative to male dental students is in line with our study.[7] This is also consistent with results of Kitsoulis *et al* study which showed that TMPDS is not only common but also more severe in women than men.[15] Also according to literature, women seek specialised treatment for this disorder three times more frequently than men. For greater prevalence in women is the hypothesis that estrogen receptor changes metabolic functions in women's TMJ increasing ligament laxity. Estrogen, by modulating limbic system, also causes increased susceptibility to painful stimuli. [16] Increased incidence and increased severity in women can also be due to the low threshold of females for both depression and pain.

Age group 10 – 19 years had maximum number of patients 14(41%) with a mean age of 23.5 years. This is in accordance to study by Eweka *et al* showing prev-

alence of TMPDS in adults. [13] Manfredini *et al* findings showed a similar peak incidence between 20 and 40 years. [17] Adulthood is an age of initial exposure to the stress of education, selection of profession, employment, and different kinds of social pressures, predisposing young adults to TMPDS.

Pain was the most common chief complaint (22 patients, 65%). In addition to this, pain together with limited mouth opening was also seen (3 patients, 9%). A study by Ogunlewe *et al* also reported pain as the most common presenting complaint. [18] Similarly, Kitsoulis *et al* study documented pain as the most common TMPDS symptom. [15] Pain is a symptom which can not be ignored by a person and thus, becomes the most common presenting complaint.

Joint click (14%) as presenting complaint was followed by limited mouth opening (12%). Motta LJ *et al* showed a similar pattern of symptoms with pain as most common complaint followed by joint noises and finally, limited mouth opening. [19] Eweka *et al* documented clicking as presenting complaint in 35% and pain in 95.2% of subjects. [13] Clicking and limited mouth opening are two other frequently seen features of TMPDS as reported by Eweka *et al* and others.

Stress was the most common known aetiology (26%) with 32% patients of unknown cause. Stress, collectively, was seen in 59% patients. Similarly, in Patil *et al* study, stress and depression were present in 60% and 53.3% of TMPDS patients respectively, as compared to controls. [20] Stress and TMPDS symptoms usually have a very close relationship. Its difficult to ascertain that whether chronic TMPDS symptoms lead to stress or prolonged stress results in TMPDS. Its a common notion that pain has psychological sequele like depression and somatization. [21] It can affect the emotional and mental health by interfering with day to day activities and social life of a patient. On the other hand, dental clamping occurs as a result of extreme tension which changes local circulation of muscles and affects the ion exchange in cell membranes. This causes lactic and pyruvic acid accumulation which stimulates the pain receptors. [22]

Ogunlewe *et al* study revealed parafunction habits in 5.3% which is consistent with our finding of 3% subjects with bruxism. [18] Bruxism, grinding or clenching, induces microtrauma in TMJ and sets the stage for TMPDS. Bruxism and stress together were seen in 15% patients which can be correlated to the reports of studies showing bruxism in 7.4 % to 27.2% of TMPDS subjects. [23]

Stress, anxiety, and psychological factors stimulate excessive jaw-muscle activity identified as bruxism, and thus may result in initiating TMPDS.

In our study, trauma was seen as cause in 6%, stress and trauma in 15% with stress, trauma and bruxism together in 3%. Also in Kolk *et al* study, osteoarthritis occurred in 9.1-11.5% of intracapsular fractures. [24] Similarly, Wang *et al* study showed that in acute mandibular injury without condylar fracture resulted in 18-66% of cases with displaced disc. [25] Direct blow to joint, or trauma to jaw can occur in road traffic accidents, assault and sports and can end up in TMPDS. Traumatic episode can lead to post traumatic stress disorder as well. Thus trauma and stress together can unite to cause TMPDS.

TMPDS individuals, as compared to controls, exhibit increased levels of stress, anxiety, depression, somatic awareness, pain catastrophizing and kinesiophobia. [9] In our study, clinical depression was present in 23% of patients. In contrast, Majumder *et al* observed 66.2% patients of TMPDS with anxiety and depression. [22] Celic *et al* also demonstrated an increased level of depression and somatization in TMPDS patients. [21] This difference in our study may be due to the patients with undiagnosed clinical depression who had not yet been labelled depressed by psychiatrist and were not on any psychiatric medication.

The limitation of our study was small sample size. This is probably due to study was carried out in a single center.

As TMPDS and biopsychosocial factors like increased anxiety, depression, stress are closely related, therefore consultation with a psychologist or psychiatrist should always be considered whenever dealing with TMPDS patients.

CONCLUSION

In this study, TMPD was prevalent in females with a mean age of 23 years. Pain was the commonest chief complaint. Stress was the most common etiology. Clinical depression was also found in 23%. Trauma to face and bruxism were other reported causes.

REFERENCES

1 Jamot SR, Khan ZA, Khan TU, Warraich RA, Farooq M. Arthrocentesis For Temporomandibular Joint Pain Dysfunction Syndrome. J Ayub Med Coll. 2017;29(1):54-57.

2 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.

3 Khan SQ, Agha D, Ashraf B, Khan NQ. Association of temporomandibular joint sounds with malocclusion. Pak Oral Dent J. 2016; 36(1): 95-98.

4 Fazal M, Bukhari SGA, Durrani OK. Effectiveness of arthrocentesis in treatment of temporomandibular joint disorders: A double blind, randomised controlled trial. Pak Oral Dent J. 2017; 37(2): 205-09.

5 Wahid A, Raza A, Ullah F, Iqbal M. Occlusal splint therapy in the treatment of myofacial facial pain dysfunction syndrome.

Pak Oral Dent J. 2018;38(2):274-77.

6 Wiekiewicz M, Boening K, Wiland P, Shiau YY, Paradowska-Stolarz A. Reported concepts for the treatment modalities and pain management of temporomandibular disorders. J Headache Pain. 2015;16:106.

7 Ahuja V, Ranjan V, Passi D, Jaiswal R. Study of stress-induced temporomandibular disorders among dental students: An institutional study. Natl J Maxillofac Surg. 2018; 9(2): 147–54.

8 Urbani G, Cozendey- Silva EN, Jesus LF. Temporomandibular joint dysfunction syndrome and police work stress: an integrative review. Cien Saude Colet. 2019;24(5):1753-65.

9 List T, Jensen RH. Temporomandibular disorders: Old ideas and new concepts. J Cephalagia. 2017;37(7):692-704.

10 Albagieh H, Aldosari A, Alhalaq E, Alwakeel A, Alshalan A, Haque T, Akhter F, Aldosari G, Alturki S. A comparative study between temporomandibular joint disorders (TMDS) and TMDS associated with bruxism. Pak Oral Dent J. 2018; 38(2): 173-77.

11 Sharif M, Hussain S, Amjad A, Riaz MU. Prevalence of different types of temporomandibular disorders seen at Armed Forces Institute of Dentistry. Pak Oral Dent J. 2018; 38(1): 123-26.

12 Amin M, Khan A, Khan MA. Frequency of common signs of temporomandibular disorders in patients with reduced occlusal support due to partial edentulism. Pak Oral Dent J. 2019; 39(2): 206-11.

13 Eweka OM, Ogundana OM, Agbelusi GA. Temporomandibular pain dysfunction syndrome in patients attending Lagos University Teaching Hospital, Lagos, Nigeria. J West Afr Coll Surg. 2016;6(1):70-87.

14 Ishfaq M, Bangash TH, Munim A. Associated features of temporomandibular pain dysfunction syndrome. J Postgrad Med Inst. 2007;21(3):178-82.

15 Kitsoulis P, Marini A, Iliou K, Galani V, Zimpis A, Kanavaros P, Pareskevas G. Signs and symptoms of temporomandibular joint disorders related to the degree of mouth opening and hearing loss. Ear Nose Throat Disord. J Amer Dent Assoc. 2011;11:5.

16 Chisnoiu AM, Picos AM, Popa S, Chisnoiu PD, Lascu L, Picos A, Chisnoiu R. Factors involved in the etiology of temporomandibular disorders - a literature review. Clujul Med. 2015; 88(4): 473–78.

17 Manfredini D, Guarda-Nardini L, Winocur E, Piccotti F, Ahlberg J, Lobbezoo F, et al. Research diagnostic criteria for temporomandibular disorders: A systematic review of axis I epidemiologic findings. Oral Surg Med Pathol Radio J. 2011;112:453–62.

18 Ogunlewe MO, Agbelusi GA, Gbotolorun OM, James O. A review of temporomandibular joint disorders (TMD's) presenting at the Lagos University Teaching Hospital. Nig Q J Med. 2008;18(2):57–60.

19 Motta LJ, Guedes CC, Santis TO, Fernandes KP, et al. Association between parafunctional habits and signs and symptoms of temporomandibular dysfunction among adolescents. Prev Dent J.2013;11 (1):3-7.

20 Patil DJ, Dheer DS, Puri G, Konidena A, Dixit A, Gupta R. Psychological appraisal in temporomandibular disorders: A cross-sectional study. Ind J Pain. 2016;30(1):13-18.

21 Celic R, Panduric J, Dulcic N. Psychologic status in patients with temporomandibular disorders. Int J Prosthodont. 2006;19(1):28-9.

22 Majumder K, Sharma S, JK D R, Siwach V, Arya V, Gulia S. Prevalence and Sex Distribution of Temporomandibular Disorder and Their Association with Anxiety and Depression in Indian Medical University Students. Int J Clin Med. 2015; 6:570-78.

23 Kolk, A, Neff, A. Long-term results of ORIF of condylar head fractures of the mandible: A prospective 5-year follow-up study of small-fragment positional-screw osteosynthesis. J Craniomaxillofac Surg. 2015;43(4):452–61.

24 Wang JX, Deng Y, Fang YM. Early MRI display in the tramatic temporomandibular joints. J Oral Sci Res.2008;24:443–47.

CONTRIBUTIONS BY AUTHORS

1 Sanna Safi:	Conception of study idea, study design, collection of data, analysis of data, manuscript writing, final draft of the manuscript.
2 Zahid Qayyum:	Literature review, discussion.
3 Saddique Aslam:	Recommendation, review and edition of the manuscript writing.