

Prevalence of myofascial pain in students of selected secondary schools in Baghdad city

Toka T. Alnesary, B.D.S., M.Sc. ⁽¹⁾

Rafil H. Rasheed, B.D.S., M.Sc. ⁽²⁾

Raja H. AL-Jubouri, B.D.S., M.Sc., Ph.D. ⁽³⁾

Raya R. Al-Dafaai, B.D.S., M.Sc. ⁽⁴⁾

ABSTRACT

Background: Myofascial face pain (MFP) is painful disorder of masticatory muscles thought to be the most common type of temporomandibular disorder (TMD). This study was done to evaluate the prevalence of MFP in students of secondary schools of Baghdad city

Materials and methods: The sample comprised 242 females' students and 222 males' students of secondary schools, aged 17-18 years. The MFP evaluated according to the specific screening questionnaire of research diagnostic criteria of temporomandibular disorders (RDC/TMD) axis I with clinical examination.

Results: the study revealed that (50.8%) of the students had history of pain where females reported higher percentage than males with statistical significant difference. The history of pain in muscles of mastication was higher than joint pain in both genders. After clinical examination this study also showed that (25.4%) of students with history of pain had MFP. The differences between both genders regarding the diagnosis of MFP were higher in females than males but statistically not significant.

Conclusion: high percentage of students reported a history of pain which could be attributed to MFP in (25.4%) of the students. The prevalence of pain history and MFP was higher in females' than males.

Keywords: Myofascial pain, temporomandibular disorders, orofacial pain. (J Bagh Coll Dentistry 2012; 24(Sp. Issue 2):84-87).

INTRODUCTION

Myofascial pain (MFP) is very common. It is complex because of the singularities of the trigeminal nervous system, which often leads to spread and diffuse pain ⁽¹⁾. TMD is characterized by functional abnormalities and/or musculo-skeletal pain at the masticatory muscles. Pain can be continuous or occasional and brief during mastication, and it is frequently associated with jaw restricted movements and joint sounds ⁽²⁾. It is present in 16–59% of the population ⁽³⁾.

Etiological factors of TMD are undefined and include anatomical, articular, neuromuscular and psychological factors ^(3; 4). Psychological aspects, coping and catastrophizing differ among orofacial pains. TMD is considered easily handled by patients when compared to neurovascular headaches, e.g. tension headaches that have similar symptoms and signs ⁽⁵⁾. Levels of anxiety, depression, and illness behavior change during time, depending on external factors (e.g. family, job) and the course of the disease (e.g. pain intensity, crises) ⁽⁵⁻⁶⁾.

Previous studies reported that over one-third of adolescents were under stress ^(8; 9). Many of these emotional disturbances seem to be caused by school-related stress such as inappropriate workloads or assignments, examinations, falling behind compared to others and inappropriate treatment by teachers ⁽⁹⁾. There are many studies about the psychological aspects of TMD, and in general they are similar to other chronic pain syndromes in many samples around the world ^(10; 11).

As there is no previous Iraqi study concerned in the prevalence of MFP in the school's student of Baghdad city, this study was done to evaluate the prevalence of MFP in students of secondary schools of Baghdad city in relation to gender by history and clinical examination.

MATERIALS AND METHODS

This study was carried out in selected secondary schools of Baghdad city for assessment of Myofascial pain (MFP) in students according to the research diagnostic criteria of TMD (RDC/TMD axis I) which is the most successful diagnostic protocol for temporomandibular muscle and joint disorder ⁽¹²⁾. The RDC/TMD Axis I is standardized series of diagnostic tests based on clinical signs and symptoms. Diagnostic algorithms using different combination of clinical and questionnaire measures are used to

(1) Specialist in Oral Medicine, Ministry of Health, Iraq.

(2) Professor, Dean of College of Dentistry, University of Al-Anbar, Iraq

(3) Professor. Department of Oral Diagnosis, College of Dentistry, University of Baghdad

(4) Lecturer. Department of Pedodontics and Preventive Dentistry, College of Dentistry, University of Baghdad

differentiate eight RDC/TMD-defined Axis I diagnosis for TMD. These diagnoses include:

Ia- Myofascial pain.

Ib- Myofascial pain with limited opening.

IIa- Disc displacement with reduction.

IIb- Disc displacement without reduction with limited opening.

IIc- Disc displacement without reduction without limited opening.

IIIa- Arthralgia.

IIIb- Osteoarthritis.

IIIc- Osteoarthrosis⁽¹³⁾

The sample size was (464) of students in the fifth and sixth class(242 females and 222 males) in some secondary schools in Baghdad city subjected to specific screening questionnaire for Myofascial pain and TMD according to the RDC/TMD (Axis I)from December 2010 to April 2011. A questionnaire inquiring about the initial joint symptoms was filled by the students. Subjects gave their informed consent and the local ethical committee approval. The selected students whom subjected to clinical examination had no history of head injury and without orthodontic treatment, dental pain, muscle tenderness due to systemic diseases as fibromyalgia, neuralgia or local infection and had no more than 2 missing posterior teeth.

The students who had pain in the face, jaw, temple, priauricular or in the ear and headaches or migraine(is the most common of vascular headaches which cause pain of face and jaw, it start with prodromal aura that is usually visual includes flashing lights or localized area of depressed vision followed by increasingly severe unilateral throbbing headache that is frequently accompanied by nausea and vomiting⁽¹⁴⁾ or pain that limit these activities: chewing, exercising, eating hard or soft food or drinking, smiling, oral hygiene, yawning and talking depending to specific screening questionnaire for Myofascial pain and TMD according to the RDC/TMD (Axis I)⁽¹⁵⁾ were asked about the pain history with conformation of pain location plus palpation of masticatory muscle sites, results in report of familiar pain, then determination of masticatory muscles pain during active mouth opening (un-assisted mouth opening) and passive mouth opening (assisted mouth opening).This accomplish by palpation of masticatory muscles when the patient open his mouth as wide as he could and after application of downward pressure on the mandible by the second and third fingers of investigator respectively and determination of tender points by examination of masticatory muscles⁽¹⁶⁾

RESULTS

Table (1) revealed that 236(50.8%) of the students had history of pain when subjected to specific screening questionnaire for Myofascial pain and TMD (192, 41.3% females' students and 44, 9.5% males' students). The history of pain were in the face, jaw, temple, priauricular or in the ear and headaches or migraine or pain that limit these activities: chewing, exercising, eating hard or soft food or drinking, smiling, oral hygiene, yawning and talking.

Table (2) demonstrated that the females' students, who had jaw joint pain, were 22 (11%) while males' students recorded no jaw joint pain. Females with masticatory muscle pain were 158 (82%) and with both muscles and jaw joint pain were 12(6%). Males showed 38 (86%) masticatory muscle pain and 6 (14%) with both muscles and jaw joint pain. The differences between both genders were significantly higher in females than males regarding the total students with history of pain. The history of pain in muscles of mastication was higher than joint pain in both genders.

After clinical examination this study showed that (60, 25.4%) of students with history of pain had MFP according to the RDC/TMD (54, 22.8% females and 6, 2.5% males), table (1).

The students had pain in temporalis, masseter muscles or both muscles during palpation, and some students had pain during mouth opening with or without pain on palpation. The differences between both genders regarding these finding were higher in females than males but statistically not significant as listed in table (3).

Table 1: The percentage of students with pain history and MFP according to gender

Variables	Female		Males		Total	
	No	%	No	%	No	%
Pain history	192	41.3	44	9.5	236	50.8
MFP	54	22.8	6	2.5	60	25.4

Table 2: The differences in the frequency of pain history between both genders

Pain history	Female		Males		total	
	No	%	No	%	No	%
Jaw joint	22	11	0	0	22	11
muscle	158	82	38	86	196	83
Both	12	6	6	14	18	7.6

P value =0.022 (Significant by chi square test)

Table 3: the differences in the frequency of MFP between both genders

MFP	Female		Males		total	
	No	%	No	%	No	%
masseter	22	41	1	16	23	38.3
temporalis	10	18.5	2	33	12	20
both	18	33	2	33	20	33.3
Pain on opening	13	24	2	33	15	25

P value=0.78 (not significant by chi square test)

DISCUSSION

This study revealed that the percentage of students in the secondary schools (17-18) years old with pain history were relatively higher than the percentage reported by other studies^(17,18). The higher percentage of pain may be due to other causes (complaints of pain are often related with depression, migraine, stress and tension- type headaches) rather TMD pain. Complaints of pain are often related with depression and school related stress. Several authors have observed that the prevalence of psychological distress is higher among students than among working nonstudent populations of the same sex and age⁽¹⁹⁾.

The history of pain was reported higher in females than males with statistical significant differences generally females have more signs and symptoms than males. This is in agreement with other reports in the literature^(20, 17). It has been stated that these sex differences could probably be explained by mental factors i.e. young females seem to present a lower pain threshold⁽²⁰⁾. Other factors such as stress is well known from TMD studies in adults that women are more affected than men^(20,21). Sex difference may also be explained by some physiological changes seen at pubescence, as in the present study. The pattern of onset of TMD after puberty and lowered prevalence rates in the postmenopausal years suggest that female reproductive hormones may play an etiologic role in temporomandibular disorders⁽²²⁾. This is also supported by the longitudinal data reported by Magnusson et al., 2005⁽²³⁾. They found that gender difference in signs and symptoms was small in childhood, but from late adolescence females reported more symptoms and exhibited more clinical signs than males did.

History of pain was recorded higher in the muscles of mastication than joint pain in both genders. Lobbezoo et al at 2004⁽²⁴⁾ revealed that between 50% and 70% of all patients with TMDs reported masticatory muscle pain, and in 25% of these patients, pain in masticatory muscle is the principle source of pain.

This study showed that (25.4%) of students with history of pain had MFP according to the RDC/TMD. This percentage agrees with the

results that observed in previous studies^(25, 17, 18) and higher than that observed in another's^(26, 27), this disagreement may be related to different samples and different examining methods.

The higher prevalence of MFP in females than in males has been attributed to an interaction of a variety of factors ranging from biological and hormonal factors to psychological and social ones.

REFERENCES

1. Sessle BJ. Acute and chronic craniofacial pain: Brainstem mechanisms of nociceptive transmission and neuroplasticity, and their clinical correlates. *Critical Reviews in Oral Biology and Medicine* 2000; 11: 57-91
2. IASP—International Association for the Study of Pain. Classification of chronic pain. Seattle: IASP Press 1994.
3. Carlsson GE, DeBoever JA. Epidemiology. In Zarb G A, Carlsson G E, Sessle J B, Mohl N D (Eds.), *Dysfunctions of TMJ and mastication muscles*. São Paulo: Livraria Santos; 2000. p.159-70.
4. Turp JC, Jokstad A, Motschall E, Schindler HJ, Widecker-Getaz I, Ettlin, DA. Is there a superiority of multimodal as opposed to simple therapy in patients with temporomandibular disorders? A qualitative systematic review of the literature. *Clinical Oral Implants Research* 2007; 18: 128-50.
5. Jerjes W, Madland G, Feinmann C, Hopper C, Kumar M., Upile T. A psychological comparison of temporomandibular disorder and chronic daily headache: Are there targets for therapeutic interventions? *Oral Surg Oral Med Oral Pathol Oral Radiol and Endod* 2007; 103: 367-73.
6. Litt MD, Shafer D, Napolitano C. Momentary mood and coping processes in TMD pain. *Health Psychology* 2004; 23: 354-62.
7. Turner JA, Mancl L, Aaron LA. Brief cognitive behavioral therapy for temporomandibular disorder pain: Effects on daily electronic outcome and process measures. *Pain* 2005; 117: 377-87.
8. Khalid SAG. Depression, anxiety and stress among Saudi adolescent school boys. *J R Prom Health* 2007; 127(1):33-7.
9. Yusoff MSB. Stress, stressors & coping strategies among secondary school students in a Malaysian government secondary school: Initial findings. *ASEAN J Psychiatry* 2010a; 11(2): 1-15.
10. Aaron LA, Turner JA, Mancl LA, Sawchuk, CN, Huggins K H, Truelove EL. Daily pain coping among patients with chronic temporomandibular disorder pain: An electronic diary study. *J Orofac Pain* 2006; 20: 125-37.
11. Turner JA, Holtzman S, Mancl, L. Mediators, moderators, and predictors of therapeutic change in

- cognitive behavioral therapy for chronic pain. *Pain* 2007; 127: 276–86.
12. Dworkin SF, Le Resche L. Research diagnostic criteria for temporomandibular disorders: review, criteria, examinations and specifications, critique. *J Craniomandib Disord* 1992; 6:301-55.
 13. Smith TW. Measurement in health psychology research. In: Friedam HS, Silver RC, ed. *Foundation of health psychology*. New York: Oxford University Press; 2007. p. 19-51.
 14. Martin S, Michael G, Jonathan A. *Oral medicine, Diagnosis and treatment*. 11th ed. BC Decker Inc; 2008. p. 286.
 15. Look JO, John MT, Tai F, Huggins KH, Lenton PA, Truelove EL et al. Research diagnostic criteria for temporomandibular disorders: reliability of Axis I diagnosis and selected clinical measure. *J Orofac Pain* 2010; 24:25-34.
 16. Okeson JP. Management of temporomandibular disorders and occlusion. *J Prosthet Dent* 2003; 69(1): 1-4.
 17. Farsi NM. Symptoms and signs of temporomandibular disorders and oral parafunctions among Saudi children. *J Oral Rehabil* 2003; 30:1200-8.
 18. Feteih RM. Signs and symptoms of temporomandibular disorders and oral parafunctions in urban Saudi Arabian adolescents: a research report. *Head and face medicine* 2006; 5:567-71.
 19. Dyrbye LN, Thomas MR, Shanafelt TD. Systematic review of depression, anxiety, and other indicators of psychological distress among U.S. and Canadian medical students. *Acad Med* 2006; 81:354–3.
 20. Dao TT, Le Resche L. Gender differences in pain. *J Orofac Pain* 2000; 14:169-84.
 21. Nassif NJ, Al-Salleeh F, Al Admawi M. The prevalence and treatment needs of symptoms and signs of temporomandibular disorders among young adult males. *J Oral Rehabil* 2003; 30:944-50
 22. Nekora-Azak A. Temporomandibular disorders in relation to female reproductive hormones a literature review. *J Prosthet Dent* 2004; 91:491-3.
 23. Magnusson T, Egermarki I, Carlsson GE. A prospective investigation over two decades on signs and symptoms of temporomandibular disorders and associated variables. A final summary. *Acta Odontol Scand* 2005; 63:99–109.
 24. Lobbezoo MD, Shafer D, Napolitano C. Momentary mood and coping processes in TMD pain. *Health Psychology* 2004; 23, 354–62.
 25. Thilander B, Rubio G, Pena L, Mayorga C. Prevalence of temporomandibular dysfunction and its association with malocclusion in children and adolescents: an epidemiologic study related to specified stages of dental development. *Angle Orthod* 2002; 72:146-54.
 26. Deng Y, Fu MK, Hagg U. Prevalence of temporomandibular joint dysfunction (TMJD) in Chinese children and adolescents. A cross-sectional epidemiological study. *Eur J Orthod* 1995; 17:305-9.
 27. Farsi N. Temporomandibular dysfunction and emotional status of 6–14 years old Saudi female children. *Saudi Den J* 1999; 11:114-9.