

PREVALENCE OF TMJ DISORDERS AMONG THE GENERAL POPULATION IN SOUTHERN REGION OF KINGDOM OF SAUDI ARABIA- A SURVEY REPORT FROM DENTAL CENTRE OF AFHSR.

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Abstract

Objective: Temporomandibular joint disorder is a broad term used to describe many conditions with various etiologies. The aim of this study was to evaluate the prevalence, severity and sex distribution with the signs and symptoms of TMJ disorders in the patients who attended the Dental Centre of AFHSR Khamis Mushait KSA. The main objective of this study was to pay deeper attention to TMD in the region.

Introduction: The prevalence of temporomandibular joint and muscle disorder, in general, is usually between 2% to 5% unusual for chronic pain conditions as per various studies, it has been found by various studies that the prevalence rates of TMJ disorders are higher among younger persons. TMJ disorders are at least twice as prevalent in women as men. As many patients ignore this type of pain and function, so our aim during this study was too aware the patient regarding this problem and provoke them that there is a proper treatment for the same.

Materials and Methods:

Study design: - This study was conducted at Dental Centre of Armed Force Hospital Southern Region Khamis Mushait Kingdom of Saudi Arabia. A total number of 400 patients with the age group of 21-55 years. Among them 37% were males and 63% were females. A questionnaire was designed which include all the demographic information of the patient and these patients were screened for symptoms. Data were collected from December 2016 to December 2017. Patients were given no time limit to fill questionnaire so as to reduce error in answering the questionnaire. The researchers did a clinical examination of the survived population under the supervision of two investigators to minimize the error. Ethical Committee clearance was obtained from the Academic Department of AFHSR. The patients who were included in this study were not having any history of orthodontic treatment, and have not undergone any TMJ surgical procedure for any underlying disease. Initially, proper instructions were given to the participants about the goal and benefits of this study. The descriptive static analysis was done for the results.

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Result: Among the 400 patients screened 148 (37%) were males and 252 (63%) were females. Among 400 patients 160 (40%) patients were asymptomatic and were free from any TMJ disorders symptoms and 240 (60%) patients have clicking, pain or deviation.

Conclusion: A high prevalence was found in the female population, average cases were mild and gender severity was statistically significant. Despite suffering from TMJ disorders, the average population was not aware. So it is important for the dental practitioner to seldom examine TMJ during a routine examination. Try to identify any underlying asymptomatic disorder and educate the sequences of the cause and its ill effect. So that the patient can take early treatment to prevent the severity of the disorder.

Introduction

Temporomandibular joint disorder (TMD) represents a common health problem²³. A temporomandibular disorder is a collective term for a group of disorders that include the disease of temporomandibular joint, masticatory muscle and associated structures. Temporomandibular joint (TMJ) function has been the subject of considerable study for over a century, and despite voluminous literature, the multifactorial etiology of temporomandibular dysfunction is even today a cryptic issue. It affects a large part of the population and may be related to unpleasant signs and symptoms, such as masticatory muscles or TMJ pain, joint noises, mouth opening limitations, gum retraction, inadequate occlusion, auditory disorders, headache, and sensitivity in all stomatognathic and cervical system, among others^{2, 3, 4}

Patients visiting a dental clinic with a complaint of symptoms of TMD are very rare; the reasons could be either complete absence of symptoms and if symptoms exist, it could be either due to patient's ignorance, confusion, excuses, or disability. Apart from disability, others could be attributed to lack of awareness, and lack of awareness can be related to lack of knowledge²². The prevalence of TMD in the general population is

High between 40% to 60%^{6, 8}. One study reported that 87% of a sample of 1040 subjects had one or more positive symptoms or clinical signs of TMD¹⁴. Individuals with

low self-esteem are more likely to suffer from TMD¹¹; psychological and emotional factors are clearly involved in the development of the disorder^{10, 13}. The prevalence of temporomandibular joint and muscle disorder (TMJD) is between 5% and 12%. Unusual for chronic pain conditions, the prevalence rates of TMJ disorders are higher among younger persons. TMD can affect any patients regardless of age including children or gender with varying signs and symptoms¹⁵. TMJ disorders are at least twice as prevalent in women as men, and women using either supplemental estrogen or oral contraceptives are more likely to seek treatment for these conditions. The prevalence of temporomandibular disorders (TMD) is higher in females, reaching their high peak during reproductive years, probably because of the action of some female hormones, which alter pain threshold¹⁸.

TMJ disorders are specific to the joint and encompass disc displacements and degenerative diseases¹⁹. TMDs affect the articulation of the condyle with the glenoid fossa, the masticatory muscles, and the occlusion. Pain in the masticatory muscles or TMJ, impaired joint function, or a combination of factors are typical signs of TMD^{7, 7}. Clicking or crepitation sounds from the TMJ as well as reduced mobility of the joints may occur¹⁹.

Questionnaires are usually used to gather the information about the prevalence of TMD in the population. The objectives of the present investigation were to study the

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prevalence of TMD among patients who attended the Dental Centre of AFHSR Khamis Mushait KSA using the guidelines recommended by the American Dental

Association in 1982¹⁴, the main objective of this study was to pay deeper attention to TMD in the region.

Materials Methodology

The prevalence of and risk factors for temporomandibular disorders (TMD) have been assessed in different study populations. This study was conducted at Dental Centre of Armed Force Hospital Southern Region Khamis Mushait Kingdom of Saudi Arabia. A total number of 400 patients randomly were seen with the age group of 21-65 years. Among them 37% were males and 63% were females.

Inclusion Criteria: - Subjects who have pain in the TMJ, who have no pain but

exhibits TMJ sound, difficulty in opening or closing the mouth.

Excursion Criteria; - Subjects who have no pain or any other sign and symptoms.

A questionnaire was formulated, as following is a part of that questioner was designed which includes all the demographic information of the patient and these patients were screened for symptoms. Data were collected from Dec. 2016 to Dec. 2017. The patients were required to sign a consent form prior to filling the questionnaire. After obtaining the consent of the subjects to participate in the study. They were then examined using diagnostic instruments and the findings were recorded. The total number of patients reporting with signs of TMJ disorder was recorded using survey form.

Name : _____
Age : _____
Gender : _____
Occupation : _____

- | | | |
|--|-----|----|
| 1. Do you hear any type of sound in your temporomandibular joint on both sides | Yes | No |
| 2. Do you have any type-restricted movement in your TMJ after wakening up | Yes | No |
| 3. Do you feel any type of fatigue in your TMJ | Yes | No |
| 4. Do you have any difficulty while opening and closing of mouth | Yes | No |
| 5. D you have any type of pain in the TMJ or in the face | Yes | No |
| 6. Do you have problem with when you were not able to close the mouth without aid. | Yes | No |
| 7. Do you suffer from any psychic-somatic disorder | Yes | No |
| 8. Do you have any type of stress at home, job, college etc? | Yes | No |

Patients were given no time limit to fill questionnaire so as to reduce error in answering the questionnaire. The researchers did a clinical examination of the survived population under the supervision of one investigator to minimize the error. Ethical Committee clearance was obtained from the Academic Department of AFHSR. The patients who were included in this study were not having any history of orthodontic treatment. And have not undergone any TMJ

surgical procedure for any underlying disease. Initially, proper instructions were given to the participants about the goal and benefits of this study. The descriptive static analysis was done for the results. The data were collected and analyzed for demographic variables such as gender has been mentioned. The questionnaire was received, and it was analyzed according to anamnestic scale as follows:

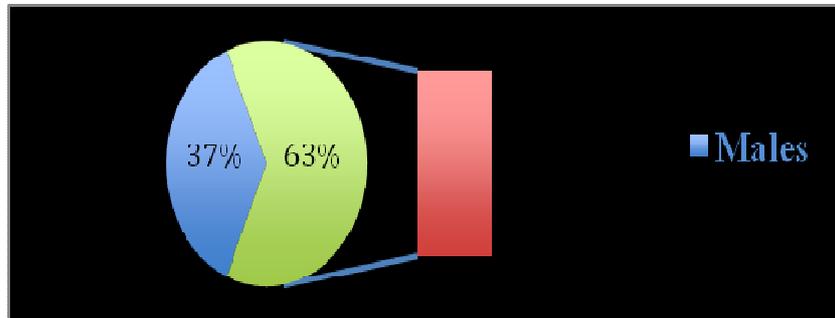
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- ✚ 0: No symptoms
- ✚ I: Mild symptoms included sensation of the jaw fatigue, jaw stiffness, and TMJ sounds (clicking or crepitus)
- ✚ II: Severe symptoms included one or more of the following: (a) Difficulty in the mouth opening, (b) jaw locking, (c) mandible dislocation and its painful movement, and (d) painful TMJ region and/or masticatory muscles⁵.

In the dental center, we used examination forms especially in order to register examination results.

Results

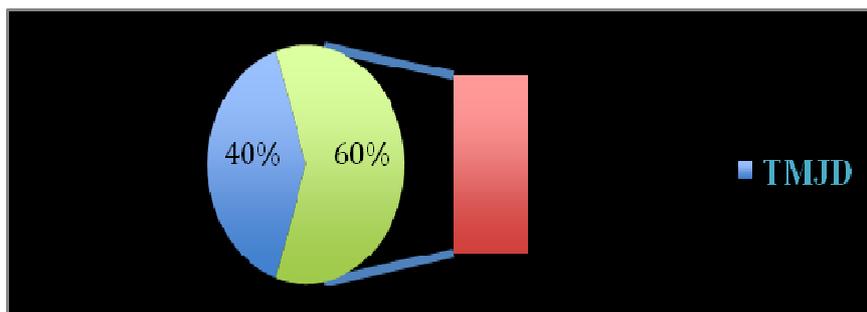
Out of 450 forms only 400 patients respond to questionnaires, some patients rejected with this answer that they don't want to be part of this survey. Among 400 patients screened 148 (37%) were males and 252 (63%) were females. From the age group of the subjects in the survey, 135 (34%) were lesser than or equal to 40 years of age and 265 (66%) were greater than 40 years of age.



Graph I Distribution of patients according to gender

Among 400 patients 160 (40%) patients were asymptomatic and were free from any TMJD symptoms and 240 (60%)

patients have clicking, pain or deviation. Majority of subjects were females. Subjects of higher age group were majority

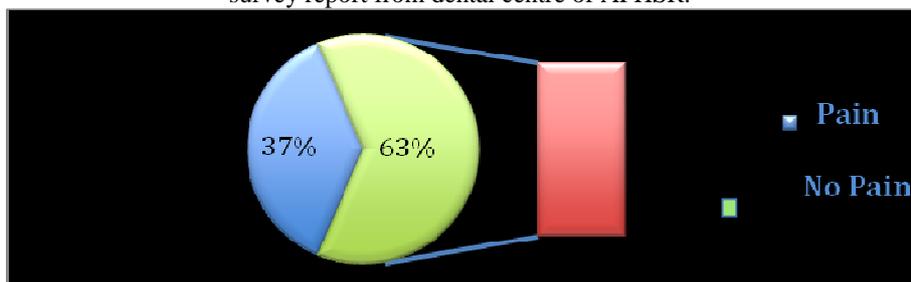


Graph II Prevalence of Temporomandibular Disorders

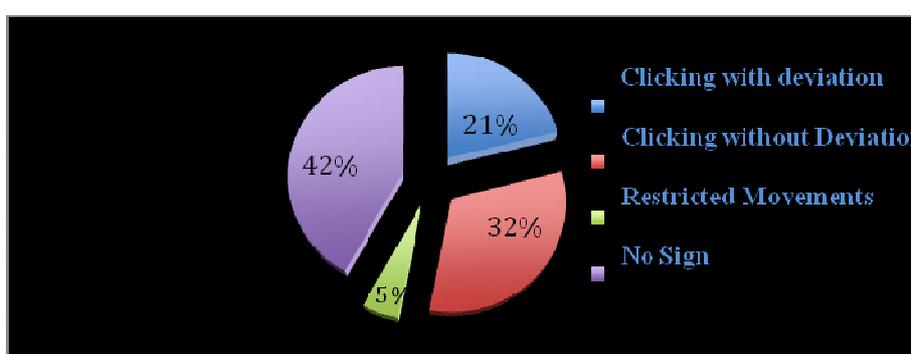
Out of 400 subjects. 149 (37%) reported pain in the TMJ while as 252 (63%) patients did not have pain. Patients having a sign of clicking in the joint with deviation

84 (21%), complaining of clicking without deviation 128 (32%), patient companies have restricted movement 20 (5%) while as 168 (42%) did not show any symptoms.

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Graph III Prevalence of Tempromandibular Disorders (Pain or No Pain)



Graph IV Prevalence of Tempromandibular Disorders (Clicking/ Restricted Movements)

Discussion

The identification of possible TMD signs and symptoms is a major resource to early diagnose this dysfunction. The influence of stress and anxiety on pressure pain threshold on masticatory muscles has been recognized, in addition to subjective pain reports². High anxiety levels increase the risk of suffering illness and make it necessary to plan educational control strategies bearing in mind the factors which stress men or women and the activities carried out in each academic year³. It is accepted that TMD symptoms are more common in females^{10,13}. The findings of the present study pointed to some significant differences in the prevalence of TMD symptoms between the two sexes, with the females showing a higher prevalence of pain⁶

This study demonstrates that the 1-year incidence of TMJ pain and or dysfunction is high and confirms a fluctuating pattern of this disorder. Females were twice as likely as men to have TMJ pain and or dysfunction during the 1-year period studied. The study sample in this study was drawn from a population of predominantly healthy, young adults and old population who came to the center from whom approximately 34% were lesser than or equal to 40 years of age and 265 (66%) were greater than 40 years of age. Among them, 160 (40%) patients were asymptomatic and were free from any TMJD symptoms and 240 (60%) patients have clicking, pain or deviation. Majority of subjects were females. Subjects of higher age group were the majority. Subjects reporting of pain in TMJ were 149 (37%) while as 252 (63%) patients did not have

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pain. Patients having a sign of clicking in the joint with deviation 84 (21%), complaining of clicking without deviation 128 (32%), patient complained have restricted movement 20 (5%) while as 168 (42%) did not show any symptoms.

Using a questionnaire filled before clinical examination collected symptoms, the clinical examination followed a standardized routine protocol using well-known methods in clinical research and was carried out by two experienced examiners. In accordance with the recommendations for prospective clinical studies⁵, the same examiner at baseline and at follow-up examined each subject. The prevalence of pain located in the TMJ region was in line with previous epidemiological studies of adult samples^{1, 12} and the median value reported in a review of younger samples¹⁶. The clinical impact of this study was to determine the high prevalence of TMD in patients with dental treatment attending on a dental practice in Armed Force Hospital Southern Region KSA. This prevalence is similar to those reported in other regions of KSA to direct the attention to diagnosis of such conditions.

Conclusion

In conclusion, the present study found a prevalence of TMD in a Female population of the patients who attended the Armed Force Hospital Southern Region KSA. This prevalence is similar with prevalence reported in other parts of KSA and countries around the world.

References

1. Agerberg G, Bergenholtz A. Craniomandibular disorders in adult populations of West Bothnia, Sweden. *Acta Odontol, Scand* 1989;47:129-40.
2. Al-Ani Z, Gray R. TMD current concepts: An update. *Dent Update* 2007; 34(6): 278-88.
3. Barbería E, Fernández-Frías C, Suárez-Clúa C, et al. Analysis of anxiety

- Variables in dental students. *Int Dent J*. 2004; 54(6): 445-9.
4. Berta Priscilla Nogueira Bezerra, Ana Isabella Arruda Meira Ribeiro, et al. Prevalence of temporomandibular joint dysfunction and different levels of anxiety among college students. *Rev. dor* vol.13 no.3 São Paulo July/Sept. 2012.
5. Carlsson GE, Egermark-Eriksson I, Magnusson T. Intra- and inter-observer variation in the functional examination of the masticatory system. *Swed Dent J* 1980;4:187-94.
6. Chuang SY. The incidence of temporomandibular disorders (TMDs) in senior dental students in Taiwan. *J Oral Rehabil* 2002;29(12):1206-1211.
7. Da Cunha SC, Nogueira RV, Duarte AP, Vasconcelos BC, Almeida Rde A. Analysis of helkimo and craniomandibular indexes for temporomandibular disorder diagnosis in rheumatoid arthritis patients. *Braz J Otorhinolaryngol* 2007; 73:19-26.
8. De Leeuw R. Internal derangements of the temporomandibular joint. *Oral and Maxillofacial Surgery Clinics of North America* 2008;20(2):159-168 -2007
9. Farooq Ahmad Naikoo, Altaf Hussain Chalkoo. Prevalence of anxiety levels in patients with temporomandibular disorder among Kashmiri population, *International Journal of Applied Science*, 2017; 3(1):101-10
10. Gerke DC, Goss AN, Bassett DL. Psychological factors in temporomandibular joint dysfunction: life events. *Aust Prosthodont J* 1990;4(29-34).
11. Godoy F, Rosenblatt A, Godoy-Bezerra J. Temporomandibular disorders and associated factors in Brazilian teenagers: a cross-sectional study. *Int J Prosthodont*. 2007; 20(6): 599-604; discussion 605.

- “Prevalence of TMJ disorders among the general population in southern region of Kingdom of Saudi Arabia- A survey report from dental centre of AFHSR.”
12. Lipton JA, Ship JA, Larach-Robinson D. Estimated prevalence of and distribution of reported orofacial pain in the United States. *J Am Dent Assoc* 1993;124:115-21
 13. Manfredini D, Landi N, Bandettini Di Poggio A, Dell’Osso L, Bosco M. A critical review on the importance of psychological factors in temporomandibular disorders. *Minerva Stomatol* 2003;52(6):321-326, 327-330
 14. Nassif NJ, Hilsen KL. Screening for temporomandibular disorders: history and clinical examination. *American Dental Association. J Prosthodont* 1992; 1(1): 42-46.
 15. Nilner M, Lassing SA. Prevalence of functional disturbances and diseases of the stomatognathic system in 7-14-year-old Swed Dent J. 1981;5(5-6):173-187.
 16. Nydell A, Helkimo M, Koch G. Craniomandibular disorders in children. A critical review of the literature. *Swed Dent J* 1994;18:191-205.
 17. Okeson JP: *Management of Temporomandibular Disorders and Occlusion* (ed 3). St. Louis.
 18. Lora VR, Canales Gde L, Gonçalves LM, Meloto CB, Barbosa CM. Prevalence of temporomandibular disorders in postmenopausal women and relationship with pain and HRT. *Braz Oral Res.* 2016 Aug 22; 30(1): e100. doi: 10.1590/1807-3107BOR-2016. Vol 30. 0100.
 19. Scivani S. J., Keith D. A., Kaban L. B. Temporomandibular disorders. *The New England Journal of Medicine* 2008; 359(25): 2693-2705
 20. Schiffman, Eric, et al. "Diagnostic criteria for temporomandibular disorders (DC/TMD) for clinical and research applications: recommendations of the International RDC/TMD Consortium Network and Orofacial Pain Special Interest Group." *Journal of oral & facial pain and headache* 28.1 (2014): 6.
 21. Taylor, Shelley E., et al. "Biobehavioral responses to stress in females: tend-and-befriend, not fight-or-flight." *Psychological Review* 107.3 (2000): 411.
 22. Choudhary, Sneha H., et al. "An institutional survey for knowledge-based and self-awareness assessment in temporomandibular joint disorders among dental students." *Indian Journal of Dental Research* 27.3 (2016): 262.
 23. Ryalat, Soukaina, et al. "Prevalence of temporomandibular joint disorders among students of the University of Jordan." *Journal of clinical medicine research* 1.3 (2009): 158.
 24. Østensjø, Vegard, et al. "Prevalence of Painful Temporomandibular Disorders and Correlation to Lifestyle Factors among Adolescents in Norway." *Pain Research and Management* 2017 (2017).