PREVALENCE OF DIAGNOSED TEMPOROMANDIBULAR DISORDERS IN CENTRAL KERALITE POPULATION- A CROSS SECTIONAL STUDY

Dr. Annie Susan Thomas1, Ariel Hannah Philip2, Dr. Philip Oommen3 and Dr. Aby Mathew T4
1. Professor, Department of Prosthodontics, Pushpagiri College of Dental Sciences, Thiruvalla, Pathanamthitta, Kerala, India.
2. 2nd year BDS student, Christian Dental College, Ludhiana, Punjab, India.
3. Lecturer, Department of Pulmonary Medicine, GTDMC Alappuzha, Kerala, India.
4. Professor & HOD, Dept. Of Prosthodontics, Pushpagiri College of Dental Sciences, Thiruvalla, Pathanamthitta, Kerala, India.

Abstract

Aim: To investigate the prevalence of TMD in Central Keralite population.

Materials and Methods: A representative population-based sample of 368 people was randomly selected of which 152 were men and 216 were females. A cross sectional study was conducted in both males and females aged 18-65 years. TMD prevalence was assessed by self-reported questionnaire. The diagnosis of TMD was based on Research Diagnosis Criteria for TMD (RDC-TMD) Axis1.

Results: Of the total sample size selected, 51.35% had TMD. Of this, 53.2% of the females and 48.6% of the males were diagnosed to have TMD. TMD patients were categorised according to RDC TMD Criteria. In Category I (Myofascial pain dysfunction) - 47%, Category II (Internal derangement) - 51% and in Category III (Inflammatory Joint Disorder) - 2%

Conclusion: The present study indicates that more than half of the general population in Central Kerala is affected by TMD. Proper awareness of this disorder and possible treatment options should be well informed to the general population.

Introduction:

Temporomandibular disorder (TMD) embraces a cluster of conditions involving masticatory muscles, temporomandibular joints and associated structures1. TMD is considered as the second most common musculoskeletal problem after backache2. TMD represent a significant public health problem as it affects a large portion of the population. 50-75% of the general population has at least one sign of TMD and 33% have at least one symptom3-5. Common signs and symptoms of TMD are TMJ sounds, limitation on mandibular movements, tenderness in relation to TMJ, masticatory muscles or associated structures, restricted mouth opening etc. The TMD pain can also radiate to adjacent structures such as teeth, ears, neck, head and back muscles6-11.

Corresponding Author:- Dr. Annie Susan Thomas
Address:- Professor, Department of Prosthodontics, Pushpagiri College of Dental Sciences, Thiruvalla, Pathanamthitta, Kerala, India.
Etiology of TMD has been considered as multifactorial and may be related to psychological stress, occlusal discrepancies, mal-positioning and loss of teeth especially in the posterior region, masticatory muscle dysfunction, TMJ structural incompatibility, postural changes, habits and or combination of such factors\textsuperscript{12-15}.

The usual TMD clinical presentations can generally fall into three main categories (RDC-TMD)\textsuperscript{16}
1. Myofacial pain dysfunction involving pain or tenderness in masticatory muscles.
2. Internal derangement (disc interference) of TMJ involving anterior displacement of disc with or without auto reduction.
3. Arthritis represents a group of inflammatory or degenerative joint disorders.

Only few epidemiological studies of TMD were published in regard to Indian population and moreover there has not been any published article on TMD epidemiology in relation to general Keralite population. So, the aim of the present study is to investigate the prevalence of TMD in Central Keralite population according to Research Diagnostic Criteria for Temporomandibular Joint Disorders (RDC-TMD).

**Materials and Methods:**
A cross sectional study was conducted in both males and females aged 18-65 years. A total of 368 people were randomly selected of which 152 were men and 216 were females. TMD prevalence was assessed by self-reported questionnaire. The Questions examined whether they had any sign or symptom of TMD. The signs or symptoms assessed were,
1. Pain in relation to masticatory muscles
2. Difficulty in opening mouth fully
3. Pain in relation to TMJ
4. Joint Sounds
5. Deviation on opening the mouth
6. Locking of the Joints
7. Difficulty in chewing, talking and using the jaws

The answers were Yes, No or at times.
The diagnosis of TMD was based on Research Diagnosis Criteria for TMD (RDC-TMD) Axis1.

**Results:**
Of the total sample size selected 51.35% had TMD. 53.2% of the females and 48.6% of the males were diagnosed to have TMD. Different categories of TMD patients in this study, according to RDC TMD Criteria (Axis1) are given below.

| Category I (Myofascial pain dysfunction) | - | 47% |
| Category II (Internal derangement) | - | 51% |
| Category III (Inflammatory Joint Disorder) | - | 2% |

**Discussion:**
Depending on the dominant etiological factor involved, prevalence has regional variation.

Most of the earlier studies report a strong female preponderance for TMD\textsuperscript{17-20}. Some studies found out almost equal distribution of TMD in both males and females\textsuperscript{21}. Male preponderance was reported in studies conducted by Lee et al and Kashef K. AlShaban and Zainab Gul Abdul Waheed\textsuperscript{22,23}.

In the present study, females had only slight increase in TMD compared to males. It denotes that TMD percentage in male community is almost equal to female counterparts and males should be given equal importance while providing treatment. Hard food and psychological stress may the contributing factors for the increase in the male predominance compared to older studies.

In the present study internal derangement of TMJ has a slightly higher prevalence than myofascial pain disorder. This may be due to non-painful clicking and deviation in general population.
Conclusion:
The epidemiological data has paramount importance as this data paves the pathway in establishing prevention or control of a particular disease. The present study clearly indicates that more than half of the general population is affected by TMD. Awareness of this disorder, ways to reduce the aggravating factors and the importance of seeking treatment in the acute stage itself should be well educated to the general population.

References:
1. Okeson J. Management of temporomandibular disorders and occlusion, 7th. St. Louis, Missouri: Elsevier, 2012.
2. Schiffman E, Ohrbach R, Truelove E, 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 Specialist Interest Group. J Oral Facial Pain Headache. 2014; 28:6-27.
3. Gray R J, Davies SJ, Quayle AA. A clinical approach to temporomandibular disorders. Classification and functional anatomy. Br Dent J 1994; 176(11):429-435.
4. de Oliveira AS, Dias EM, Contato RG, Berzin F. Prevalence study of signs and symptoms of temporomandibular disorder in Brazilian college students. Braz Oral Res 2006;20(1):3-7.
5. Solberg WK, Woo MW, Houston JB. Prevalence of mandibular dysfunction in young adults. J Am Dent Assoc 1979; 98(1):25-34.
6. Bonjardim LR, Gravio MBD, Pereria LJ, Castelo PM, Gracia RCMR. Signs and symptoms of temporomandibular disorders in adolescents. Braz Oral Res 2005;19:93-98.
7. Bonjardim LR, Lopes-Filho RJ, Amado G, Albuquerque RL Jr, Goncalves SR. Association between symptoms of temporomandibular disorders and gender, morphologic occlusion and psychological factors in a group of university students. Indian J Dent Res. 2009; 20:190-194.
8. Carvalho CM, de Lacerda JA, Dos Santos Neto FP, Cangussu MC, Marques AM, Pinheiro AL. Wavelength effect in temporomandibular joint pain: a clinical experience. Lasers Med Sci. 2010;25:229-232.
9. Casanova-Rosado JF, Medina-Solis CE, Vallejos Sanchez AA, Casanova- Rosado AJ Hernandez-Prado B, Avila-Burgos L. Prevalence and associated factors of temporomandibular disorders in a group of Mexican adolescents and youth adults.Clin Oral Investig. 2006 Mar;10:42-49.
10. Thilander B, Rubio G, Pena L, de Mayorga C. Prevalence of temporomandibular dysfunction and its association with malocclusion in children and adolescents; an epidemiologic study related to specific stages of dental development. Angle Orthod2002;72:146-154.
11. Macfarlane TV, Gray RJM, Kincey J, Worthington HV. Factors associated with the temporomandibular disorder, pain dysfunction syndrome (PDS): Manchester case control study. Oral Diseases 2001;7,321-330.
12. Pallegama RW, Ranasinghe AW, Weerasinghe VS, Slintheque MAM. Anxiety and personality traits in patients with muscle related temporomandibular disorders. J Oral Rehabil2005;32:701-707.
13. Bonjardim LR, Gravio MB, Pereria LJ, Castelo PM. Anxiety and depression in adolescents and their relationship with signs and sympyoms of temporomandibular disorders. Int. J. Prosthodont2005;18:347-352.
14. Glarios AG, Karen W, Leonard L. The role of parafunctions emotions and stress in predicting facial pain J Am Dent assoc 2005;136:451-458.
15. Grossi ML, Goldberg MB, Locker D, Tenenbaum HC. Reduced neuropsychological measures as predictors of treatment outcome in 15:329-339
16. Dworkin SF, LeReshe L.” Research Diagnostic Criteria for temporomandibular disorders: review, criteria, examinations and specifications, critique”. J CraniomandibDisord 1992;6(4):301-55.
17. M. Ebrahimi et al. Temporomandibular disorders and related factors in a group of Iranian patients with temporomandibular disorders. J Orofac Pain. 2001; adolescents: a cross-sectional survey. Journal of Dental Research, Dental Clinics, Dental Prospects 2011; vol. 5, no. 4, pp. 123-127.
18. G. Fernandes et al. Parafunciional Habits are associated cumulatively to painful temporomandibular disorders in adolescents. Brazilian Oral Research 2016; vol. 30, no. 1.
19. B. Murad et al. Parafunciional habits among undergraduate clinical students and house officers at Khyber College of Dentistry. Journal of Khyber College of Dentistry 2016; vol.6, no. 2.
20. F. Bahrami et al. Comparison of temporomandibular disorders in Iranian dental and non-dental students. Journal of Dental Contemporary Practice 2012; vol. 13, no. 2, pp. 173-177.
21. P. Modi et al. A cross sectional study of prevalence of temporomandibular disorders in university students. International Journal of Scientific and Research Publications 2012; vol. 2, no. 9.
22. J. Y Lee et al. Evaluation of Journal of the Korean teenagers with temporomandibular joint disorders. Journal of the Korean Association of Oral and Maxillofacial Surgeons 2013; vol.39, no. 5, pp. 231-237.

23. Kashef K. AlShaban and Z.G.A. Waheed. Prevalence of TMJ Disorders among the patients attending the Dental Clinic of Ajman University of Science and Technology. Fujairah Campus, UAE, Int. Journal of Dentistry 2018; 6 pages.