



Incidence of Temporomandibular Disorders in Patients in a University Hospital Setting

Sagana M¹, Senthil Murugan P^{*2}, Jeevitha³

¹Saveetha Institute of Technical Sciences (SIMATS), Saveetha University, Chennai, Tamil Nadu, India

²Department of Oral Maxillofacial Surgery, Saveetha Dental College, Saveetha Institute of Medical and Technical Sciences (SIMATS), Saveetha University, Chennai, Tamil Nadu, India

³Department of Periodontics, Saveetha Dental College, Saveetha Institute of Medical and Technical Sciences (SIMATS), Saveetha University, Chennai, Tamil Nadu, India

Article History:

Received on: 13 Jul 2020
Revised on: 15 Aug 2020
Accepted on: 31 Aug 2020

Keywords:

Temporomandibular disorder,
Pharmacotherapy,
TMJ surgery,
Arthrocentesis

ABSTRACT

Temporomandibular Disorders (TMD) is one of the most common musculoskeletal pain disorders. TMD is defined as a heterogeneous group of psychological disorders, commonly characterized by orofacial pain, difficulty in chewing or both. It is one of the commonest problems affecting common people. This is also one of the most common undiagnosed disorder due to its varied vague signs and symptoms, which makes the common dentist to diagnose wrongly, which ultimately led to wrong treatment. The etiology of temporomandibular disorders is complex, the foremost normally cited factors are emotional tension, occlusal interference, genetics, teeth loss, postural deviation, masticatory dysfunction, internal and external changes in TMJ structure, either alone or both. The disorders of TMJ, masticatory muscles and associated structure sometimes occur throughout childhood and adolescence, however with less intensity than in the adult population. Throughout adolescence, TMJ presents with mild or moderate signs and symptoms. So a study of this disorder is needed to create awareness among general dentist. This study aims to evaluate the incidence of temporomandibular disorders in patients reported to Saveetha Dental College. A total of 77 patients who underwent treatment for TMD were included in this study. From the analysis, females were more prevalent than the male population. The most common treatment undergone by patients diagnosed with temporomandibular disorders is pharmacotherapy. Females are shown more prevalent than Male. A detailed examination should be done for better diagnosis and prognosis.



*Corresponding Author

Name: Senthil Murugan P
Phone: 9790869469
Email: senthilmuruganp.sdc@saveetha.com

ISSN: 0975-7538

DOI: <https://doi.org/10.26452/ijrps.v11iSPL3.2924>

Production and Hosted by

IJRPS | <https://ijrps.com>

© 2020 | All rights reserved.

INTRODUCTION

Temporomandibular disorders are a set of joint and muscle dysfunctions of the craniofacial area (de Paiva Bertoli *et al.*, 2018). Temporomandibular disorders represent a genetic designation for subgroups of orofacial pain disorders (Hafila *et al.*, 2017). This will significantly have an effect on the quality of life (Al-Khotani *et al.*, 2016).

Temporomandibular disorders are taken into account to be a standard problem within the population, affecting people from adolescence to adulthood (AlWarawreh *et al.*, 2018). The disorder

ders of TMJ, masticatory muscles and associated structure sometimes occur throughout childhood and adolescence, however with less intensity than in the adult population. Throughout adolescence, TMJ presents with mild or moderate signs and symptoms (Sari and Sonmez, 2002). Common symptoms of temporomandibular disorders are pain (Kumar, 2017b; Abhinav et al., 2019b), headache, limitation of mouth opening and masticatory difficulty (AlWarawreh et al., 2018).

The etiology of temporomandibular disorders is complex, the foremost normally cited factors are emotional tension, occlusal interference, genetics, teeth loss, postural deviation, masticatory dysfunction, internal and external changes in TMJ structure, either alone or both (Dworkin, 2010). Some studies also suggested that psychological disturbances, parafunctional habits like bruxism and trauma (Abhinav et al., 2019a) also contribute to the etiology of TMD (Agarwal et al., 2016). Intra Alveolar medication lessens pain, inflammation and infection and better wound healing in dry sockets where the pain mimics TMJ pain (Jesudasan et al., 2015; Marimuthu et al., 2018; Christabel et al., 2016).

The combination of psychological, structural and postural factors ends up in the derangement of the purposeful balance between 3 components of the stomatognathic system, namely dental occlusion, masticatory muscles and TMJ. Thus, it causes a spread of conditions and symptoms corresponding to pain within the muscle of mastication and TMJ, presence of noise and joint deviation, headache and hearing disorders. These characteristics vary from person to person, whose quality of life is negatively affected by their presence. The person's physiological and structural tolerance is the aspect which will confirm whether or not they will develop the disorder (de Lima Amarante et al., 2018).

The radiographic techniques used for diagnosis of the temporomandibular disorder are MRI, CBCT, high resolution ultrasonography and CT (Talmaceanu et al., 2018; Packiri, 2017). The commonly used treatments for TMD are pharmacotherapy (Rao and Kumar, 2018), occlusal splint therapy, TMJ arthrocentesis and TMJ surgery (Kumar and Sneha, 2016; Patil et al., 2017; Jain et al., 2019) depending upon the severity. A study suggests that botulinum toxin is more efficacious and less invasive in the treatment of orofacial pain (Kumar, 2017c). This study aims to evaluate the incidence of temporomandibular disorders in patients referred to Saveetha Dental College.

MATERIALS AND METHODS

This retrospective study was done in Saveetha Dental College and Hospitals, Chennai. Data of patients who underwent treatment for TMD were collected from patients dental records. Sample collected was from June 2019 to March 2020. A total sample data of 77 patients were included in this study. All the case sheets were reviewed and cross verified with photographs. Both internal and external validity is available. Data collected are age, gender and the treatment undergone by the patient. Approval from the ethical committee was taken before the start of the study.

Both male and female patients were included. The patients who underwent treatment for temporomandibular disorders were included in the study. Incomplete and rejected data were excluded. All these dates were entered in Microsoft excel sheet and analysed by SPSS software using Chi-Square test.

RESULTS AND DISCUSSION

Out of these 77 patients, 51% were female and 49% were male. From the graph, it is evident that there is an increased number of female patients who underwent treatment for TMD Figure 1. The proportion of patients who underwent treatment for TMD was higher in females. About 72% of patients indicated for temporomandibular disorder underwent pharmacotherapy as treatment. From the graph, it is evident that most of the patients diagnosed with TMD underwent pharmacotherapy as treatment Figure 2. About 25% of patients underwent arthrocentesis and about 3% of patients who were diagnosed with temporomandibular disorder underwent surgery as management. Gender is not significantly associated with different treatment modalities for temporomandibular disorders (Chi-Square test; p-value 0.7-not statistically significant) Figure 3.

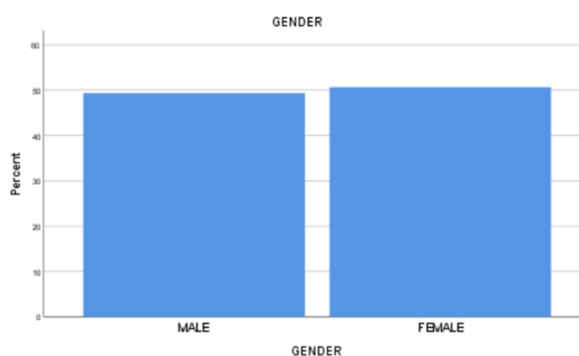


Figure 1: Bargraph showing gender distribution of patients with temporomandibular disorders

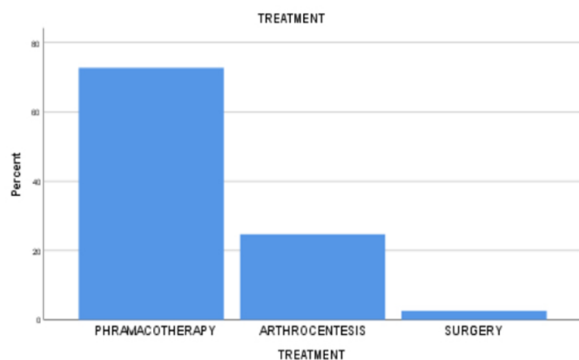


Figure 2: Bargraph showing frequency distribution of different treatment modalities undergone by patients for temporomandibular disorders

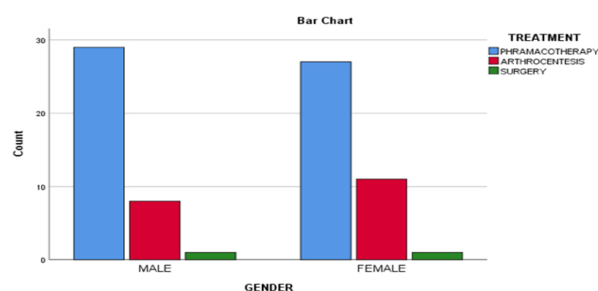


Figure 3: Bargraph showing the correlation of patients who underwent treatment for temporomandibular disorders with gender

In recent times temporomandibular disorders have been identified as a frequent pathological disorder (Akhter, 2019). Temporomandibular disorder (TMD) is a collective term embracing a number of clinical conditions involving the temporomandibular joint (TMJ), masticatory muscles and/or associated structures (Thilander *et al.*, 2002). Numerous studies Johansson *et al.* (2003); Pow *et al.* (2001); Goulet *et al.* (1995) have been reported about the incidence of signs and symptoms of patients with temporomandibular disorders. Most studies reported that the patients with temporomandibular disorders presented with symptoms of Pain from TMJ, Joint sounds, Difficulty opening jaw, Bruxism, Sensitive teeth, Burning mouth and Chewing difficulty.

A study by Johansson *et al.* (2003) stated that women reported more often than men from the TMJ sounds, bruxism, sensitive teeth and burning mouth symptoms. Our study findings stated that females are more prevalent than Male. The results of our study were in concordance with this literature. A study by Wright and North (2009) stated that about 2.5% of patients underwent TMJ surgery as

the management of temporomandibular disorders. The results obtained by our study is that only 3% of patients underwent surgery as management. The result of our study is comparable with the results of this literature.

A study by Gauer and Semidey (2015) stated that about 50-90% of patients had undergone pharmacotherapy as a management measure for TMD. Our study findings (pharmacotherapy was undergone by 72% of patients) were comparable with the literature.

Numerous studies Hafila *et al.* (2017); AlWarawreh *et al.* (2018); de Paiva Bertoli *et al.* (2018) have been reported Lai *et al.* (2020) stating that females are more prevalent than Male. There is a higher incidence of female patients with temporomandibular disorders than Male. Our study findings revealed that 51% of patients with temporomandibular disorders with females. Our study findings are similar with the literature. Female reproductive hormones are well-known to be related to an enhanced risk of TMD pain (LeResche *et al.*, 2005). Likewise, pubertal development is more related to pain than age because the presence of reproductive hormones will increase the risk of developing pain. TMD pain prevalence ought to increase throughout puberty in girls (LeResche *et al.*, 1997). If gender is expounded to TMD onset, this factor could begin to play a role throughout the adolescent period (Pereira *et al.*, 2009).

The importance and complete knowledge and awareness about TMD should be emphasised to the practitioners (Patturaja and Pradeep, 2016; Kumar and Rahman, 2017; Kumar, 2017a).

Limitations

The incidence of patients who underwent treatment for TMD is observed with the fact that the subjects examined represent a selected population. Further studies can be done with a larger sample size.

CONCLUSION

Within the limitations of the study, the incidence of temporomandibular disorders in patients reported to Saveetha Dental College was observed. A detailed examination should be done for early diagnosis and better prognosis. Awareness to clinicians should be done on various other temporomandibular treatments. More importance should be given towards educating the patients as a patient's education is a key for successful TMD rehabilitation. Further investigations should be done to spot risk factors related to TMD so as to ascertain measures for prevention and treatment.

Funding Support

The authors declare that they have no funding support for this study.

Conflict of Interest

The authors declare that they have no conflict of interest for this study.

REFERENCES

- Abhinav, R., Selvarasu, K., Maheswari, G., Taltia, A. 2019a. The patterns and etiology of maxillofacial trauma in South India. *Annals of Maxillofacial Surgery*, 9(1):114–114.
- Abhinav, R. P., Sweta, V. R., Ramesh, A. 2019b. Role of virtual reality in pain perception of patients following the administration of local anesthesia. *Annals of Maxillofacial Surgery*, 9(1):110–110.
- Agarwal, K., Saha, S., Sinha, P. 2016. Prevalence of temporomandibular disorders and its association with parafunctional habits among senior-secondary school children of Lucknow, India. *Journal of Indian Association of Public Health Dentistry*, 14(2):139–139.
- Akhter, R. 2019. Epidemiology of Temporomandibular Disorder in the General Population: a Systematic Review. *Advances in Dentistry & Oral Health*, 10(3).
- Al-Khotani, A., Naimi-Akbar, A., Albadawi, E., Ernerberg, M., Hedenberg-Magnusson, B., Christidis, N. 2016. Prevalence of diagnosed temporomandibular disorders among Saudi Arabian children and adolescents. *The Journal of Headache and Pain*, 17(1).
- AlWarawreh, A. M., AlTamimi, Z. H., Khraisat, H. M., Kretschmer, W. 2018. Prevalence of Temporomandibular Disorder Symptoms among Orthognathic Patients in Southern Germany: Retrospective Study. *International Journal of Dentistry*, 2018:1–4.
- Christabel, A., Anantanarayanan, P., Subash, P., Soh, C. L., Ramanathan, M., Muthusekhar, M. R., Narayanan, V. 2016. Comparison of pterygomaxillary dysjunction with tuberosity separation in isolated Le Fort I osteotomies: a prospective, multi-centre, triple-blind, randomized controlled trial. *International Journal of Oral and Maxillofacial Surgery*, 45(2):180–185.
- de Lima Amarante, E., de Lima, J. A. S., Bandeira, R. N., de Moura, A. P. A., de Figueiredo Pessoa, L. S., de Araújo Pernambuco, L., Anderson dos Santos Alves, G. 2018. Masseter muscle surface electromyography in college students with a high degree of anxiety and temporomandibular disorder. *Revista CEFAC*, 20(1):44–52.
- de Paiva Bertoli, F. M., Bruzamolín, C. D., Pizzatto, E., Losso, E. M., Brancher, J. A., de Souza, J. F. 2018. Prevalence of diagnosed temporomandibular disorders: A cross-sectional study in Brazilian adolescents. *PLOS ONE*, 13(2):e0192254–e0192254.
- Dworkin, S. F. 2010. Research Diagnostic Criteria for Temporomandibular Disorders: current status & future relevance1. *Journal of Oral Rehabilitation*, 37(10):734–743.
- Gauer, R. L., Semidey, M. J. 2015. Diagnosis and treatment of temporomandibular disorders. *American Family Physician*, 91(6):378–386.
- Goulet, J. P., Lavigne, G. J., Lund, J. P. 1995. Jaw Pain Prevalence Among French-speaking Canadians in Quebec and Related Symptoms of Temporomandibular Disorders. *Journal of Dental Research*, 74(11):1738–1744.
- Hafila, M. F., Karthik, R., Saravanan, C., Vivek, N., Priyadarsini, P., Ashwath, B. 2017. Assessing prevalence of temporomandibular disorders among university students: A questionnaire study. *Journal of International Society of Preventive and Community Dentistry*, 7(7):24–24.
- Jain, S. V., Muthusekhar, M. R., Baig, M. F., Senthilnathan, P., Loganathan, S., Wahab, P. U. A., Madhulakshmi, M., Vohra, Y. 2019. Evaluation of Three-Dimensional Changes in Pharyngeal Airway Following Isolated Lefort One Osteotomy for the Correction of Vertical Maxillary Excess: A Prospective Study. *Journal of Maxillofacial and Oral Surgery*, 18(1):139–146.
- Jesudasan, J. S., Wahab, P. A., Sekhar, M. M. 2015. Effectiveness of 0.2% chlorhexidine gel and a eugenol-based paste on postoperative alveolar osteitis in patients having third molars extracted: a randomised controlled clinical trial. *British Journal of Oral and Maxillofacial Surgery*, 53(9):826–830.
- Johansson, A., Unell, L., Carlsson, G. E., Söderfeldt, B., Halling, A. 2003. Gender difference in symptoms related to temporomandibular disorders in a population of 50-year-old subjects. *Journal of Orofacial Pain*, 17(1):29–35.
- Kumar, S. 2017a. Knowledge, Attitude and Awareness of Dental Undergraduate Students Regarding HIV/AIDS Patients. *Asian Journal of Pharmaceutical and Clinical Research*, 10(5):175–180.
- Kumar, S. 2017b. Relationship Between Dental Anxiety And Pain Experience During Dental Extractions. *Asian Journal of Pharmaceutical and Clinical Research*, 10(3):458–458.
- Kumar, S. 2017c. The Emerging Role of Botulinum

- Toxin In The Treatment Of Orofacial Disorders: Literature Update. *Asian Journal of Pharmaceutical and Clinical Research*, 10(9):21.
- Kumar, S., Rahman, R. 2017. Knowledge, Awareness and Practices Regarding Biomedical Waste Management Among Undergraduate Dental Students. *Asian Journal of Pharmaceutical and Clinical Research*, 10(8):341-341.
- Kumar, S., Sneha, S. 2016. Knowledge and Awareness Regarding Antibiotic Prophylaxis For Infective Endocarditis Among Undergraduate Dental Students. *Asian Journal of Pharmaceutical and Clinical Research*, 154.
- Lai, Y. C., Yap, A. U., Türp, J. C. 2020. Prevalence of temporomandibular disorders in patients seeking orthodontic treatment: A systematic review. *Journal of Oral Rehabilitation*, 47(2):270-280.
- LeResche, L., Mancl, L. A., Drangsholt, M. T., Saunders, K., Korff, M. V. 2005. Relationship of pain and symptoms to pubertal development in adolescents. *Pain*, 118(1):201-209.
- LeResche, L., Saunders, K., Korff, M. R. V., Barlow, W., Dworkin, S. F. 1997. Use of exogenous hormones and risk of temporomandibular disorder pain. *Pain*, 69(1):153-160.
- Marimuthu, M., Andiappan, M., Wahab, A., Muthusekhar, M. R., Balakrishnan, A., Shanmugam, S. 2018. Canonical Wnt pathway gene expression and their clinical correlation in oral squamous cell carcinoma. *Indian Journal of Dental Research*, 29(3):291-291.
- Packiri, S. 2017. Management of Paediatric Oral Ranula: A Systematic Review. *Journal of Clinical and Diagnostic Research*, 11(9):6-09.
- Patil, S. B., Durairaj, D., Kumar, G. S., Karthikeyan, D., Pradeep, D. 2017. Comparison of Extended Nasolabial Flap Versus Buccal Fat Pad Graft in the Surgical Management of Oral Submucous Fibrosis: A Prospective Pilot Study. *Journal of Maxillofacial and Oral Surgery*, 16(3):312-321.
- Patturaja, K., Pradeep, D. 2016. Awareness of Basic Dental Procedure among General Population. *Research Journal of Pharmacy and Technology*, 9(9):1349-1349.
- Pereira, L. J., Pereira-Cenci, T., Pereira, S. M., Cury, A. A. D. B., Ambrosano, G. M. B., Pereira, A. C., Gavião, M. B. D. 2009. Psychological factors and the incidence of temporomandibular disorders in early adolescence. *Brazilian Oral Research*, 23(2):155-160.
- Pow, E. H., Leung, K. C., Mcmillan, A. S. 2001. Prevalence of symptoms associated with temporomandibular disorders in Hong Kong Chinese. *Journal of orofacial pain*, 15(3):228-234.
- Rao, T. D., Kumar, M. P. 2018. Analgesic efficacy of Paracetamol vs Ketorolac after dental extractions. *Research Journal of Pharmacy and Technology*, 11(8):3375-3379.
- Sari, S., Sonmez, H. 2002. Investigation of the relationship between oral parafunctions and temporomandibular joint dysfunction in Turkish children with mixed and permanent dentition. *Journal of Oral Rehabilitation*, 29(1):108-112.
- Talmaceanu, D., Lenghel, L. M., Bolog, N., Hedesiu, M., Buduru, S., Rotar, H., Baciut, M., Baciut, G. 2018. Imaging modalities for temporomandibular joint disorders: an update. *Medicine and Pharmacy Reports*, 91(3):280-287.
- Thilander, B., Rubio, G., Pena, L., Mayorga, C. D. 2002. Prevalence of temporomandibular dysfunction and its association with malocclusion in children and adolescents: an epidemiologic study related to specified stages of dental development. *The Angle Orthodontist*, 72(2):146-154.
- Wright, E. F., North, S. L. 2009. Management and Treatment of Temporomandibular Disorders: A Clinical Perspective. *Journal of Manual & Manipulative Therapy*, 17(4):247-254.