

Assessment of Prevalent clinical findings in patients with Temporomandibular Joint Disorders

Research Article

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Abstract

The etiology of Temporomandibular joint disorder is multifactorial. Commonly reported ones are emotional tension, occlusal interference, teeth loss, postural deviation, masticatory muscular dysfunction, internal and external changes in Temporomandibular structures etc. Temporomandibular joint is one of the structure of the stomatognathic system. Complex etiology, wide range of manifestations, variability in prevalence of symptoms in different population background demands many studies among various population to achieve effective diagnosis and treatment planning, thereby by providing appropriate treatment for Temporomandibular joint disorder condition. Aim of the study is to evaluate prevalent clinical findings in patients with Temporomandibular joint disorders. It is a retrospective study, where consecutive case records of patients with Temporomandibular joint disorders were retrieved from the Electronic system in the university between June 2019-February 2020. Data was collected and then subjected to statistical analysis. IBM SPSS 2.0 software was used for data analysis. Chi square test was employed with a level of significance set at $p < 0.05$. The results were presented in the form of bar graphs. In this study it was observed that the Mean age group of participants in this study were 35.5 yrs. It was observed that symptoms of Temporomandibular joint disorders are more frequent in the age group between 21-30 yrs. Symptoms of Temporomandibular joint disorders are more prevalent in female patients (58.06%) when compared to male patients (41.94%). Most prevalent clinical findings of Temporomandibular joint disorders observed was pain on palpation together with clicking (51.61%), followed by clicking (38.71%) and least prevalent clinical finding was observed to be clicking along with pain on palpation (9.6%). Chi Square test was done and association between Gender and clinical findings of Temporomandibular Joint Disorder symptoms was found to be not statistically significant since p value is greater than 0.05 ($p = 0.293$) hence proving insignificant association between Gender and clinical findings of Temporomandibular Joint Disorder. Insignificant association between Gender and clinical findings of Temporomandibular Joint Disorder was observed. High prevalence of Temporomandibular Joint disorders was observed in the female group. Symptoms of Temporomandibular observed were mainly of mild degree and related to that of masticatory and cervical muscles.

Keywords: Associated Factors; Chewing; Population; Pain; Quality of Life.

Introduction

Temporomandibular joint is one of the structures of the stomatognathic system [1, 2]. Temporomandibular joint is a ginglymoarthrodial joint composed of synovial cavity, articular cartilage and a capsule that covers the same joint [3, 4]. Through its complex movements on different orthogonal planes and multiple rotation axes it coordinates various functions such as mouth opening,

swallowing, breathing and also various facial expressions along with dental structures including mandible, muscle tenons, salivary glands etc. [3-5, 6]. Temporomandibular joint disorders are a class of degenerative musculoskeletal conditions associated with morphological and functional deformity [7, 8]. This condition commonly comprises issues such as masticatory muscle fatigue, impaired jaw movements and articular sounds [9, 10]. Etiology of Temporomandibular joint disorder has multifactorial etiology

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commonly reported ones are emotional tension, occlusal interference, teeth loss, postural deviation, masticatory muscular dysfunction, internal and external changes in Temporomandibular structures etc [7, 8].

Studies also reported that components of Temporomandibular joints retain their capacity for remodeling and continue to change their structure and morphology with age. Moreover association of pain is an important symptom which led to increased investigations of epidemiology, etiopathogenesis of Temporomandibular joint disorders [8-10]. Complex etiology, wide range of manifestations, variability in prevalence of symptoms in different population background demands many studies among various population to achieve effective diagnosis and treatment planning, thereby by providing appropriate treatment for Temporomandibular joint disorder condition[11, 12]. Previously our team has a rich experience in working on various research projects across multiple disciplines [13-27]. Now the growing trend in this area motivated us to pursue this project. Therefore this study aims to evaluate prevalent clinical findings in patients with Temporomandibular joint disorders reported to the Institution.

Materials and Methods

Study setting:

It is a university setting study. The Pros of the study is easy retrieval of data and less time consumption. Ethical approval to utilize the case record was obtained from ethical number SDC/SIHEC//2020/DIASDATA/0619-0320. Case records of patients with mental or physical disability were excluded from the study. Two examiners were involved.

Sampling:

It is a retrospective study. Data of patients with Temporomandib-

ular Joint disorders was collected from June 2019 - February 2020. A total of 36 case sheets were reviewed. Cross verification of data errors was done by photographic evaluation and presence of additional reviewers. Simple random sampling was done to minimise sampling bias. Internal validity included the randomisation of patients with Temporomandibular joint disorders. External validity included extrapolation to the South Indian population.

Data collection:

Saveetha Dental College's exclusive patient management electronic system was used. Case sheets of 33 patients with Temporomandibular Joint disorders were used. Relevant data such as patient age, sex, clinical features such as clicking, tenderness, pain on palpation were recorded. Data was verified by an external reviewer.

Statistical Analysis:

Data was recorded in Microsoft Excel /2016 (Microsoft office 10) and later exported to the statistical package for social science for windows (version 20.0 , SPSS Inc) and subjected to statistical analysis , chi square test was employed with a level of significance set at $p < 0.05$.

Results & Discussion

The results inferred from the study are as follows. Age and gender distribution of study population was shown in Figure 1 and Figure 2. From the results of the study it was observed that the Mean age group of participants in this study were 35.5 yrs. It was observed that symptoms of Temporomandibular Joint disorders are more frequent in the age group between 21-30 yrs (Figure 1). Symptoms of Temporomandibular joint disorders are more prevalent in female patients (58.06%) when compared to male patients (41.94%) (Figure 2). Most prevalent clinical findings of Temporomandibular joint disorders observed observed was pain on palpation together with clicking (51.61%), followed by clicking

Figure 1. Shows age wise distribution of patients with Temporomandibular Joint disorders. X axis - age group; Y axis - number of patients with Temporomandibular Joint Disorders. It is seen that symptoms of Temporomandibular Joint disorders are more frequent in the age group between 21-30 years (41.94%).

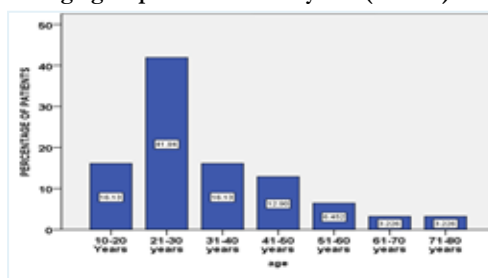


Figure 2. Bar graph depicting the gender wise distribution of the study population. X axis - gender (males and females); y axis - percentage of patients with TMD. It is seen that symptoms of Temporomandibular joint disorders are more prevalent in female (purple) patients (58.06%) when compared to male (yellow) patients (41.9%).

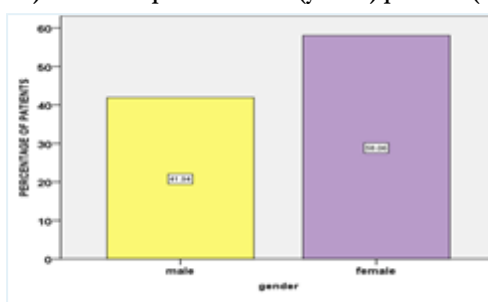


Figure 3. Bar graph depicting the prevalent clinical findings of Temporomandibular disorders among the study population. X axis - clinical findings of Temporomandibular joint disorders; y axis - percentage of population. It is seen that most prevalent clinical findings of Temporomandibular joint disorders observed was pain on palpation (51.61% - green), followed by clicking (38.71% - blue) and least prevalent clinical finding was observed to be clicking along with pain on palpation (9.6% - orange).

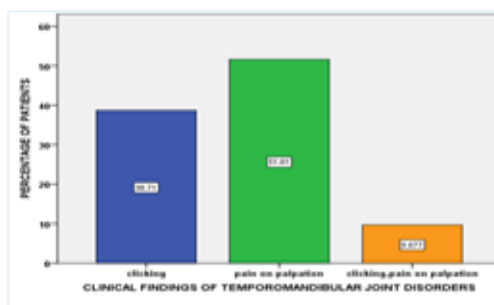


Figure 4. Bar graph depicting association between age groups and clinical findings of Temporomandibular Joint Disorder. X axis - distribution among age groups; Y axis - Percentage of patients. Incidence of clicking (50% - blue) and pain on palpation (37.3% - green) was prevalent in the age group between 21-30 years, pain on palpation together with clicking (33.3%- orange) was prevalent in the age group 21-40 years and 61-70 years. Chi Square test, $p=0.293$, $p > 0.05$. The association between age and clinical findings of Temporomandibular Joint Disorder symptoms was found to be not statistically significant hence proving insignificant association between age and clinical findings of Temporomandibular Joint Disorder.

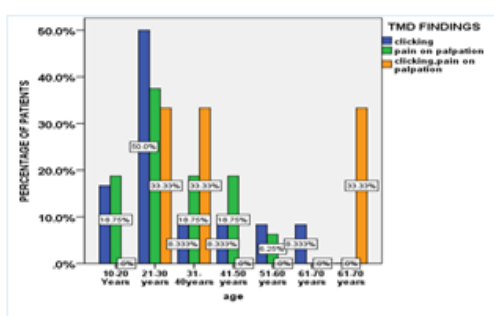
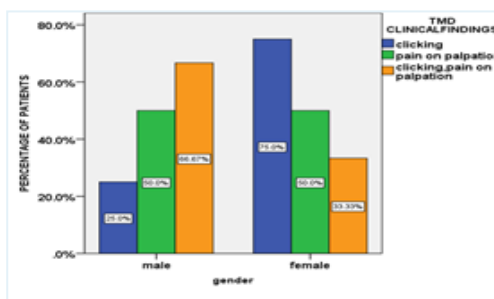


Figure 5. Bar graph depicting association between Gender and clinical findings of Temporomandibular Joint Disorder. X axis - distribution among gender; Y axis- Percentage of patients with clinical findings of Temporomandibular joint disorders. Among male participants clicking together with pain on palpation (66.6%-orange) was prevalent. Among Female participants clicking (75%- blue) was prevalent. Chi Square test, $p=0.273$, $p > 0.05$. The association between Gender and clinical findings of Temporomandibular Joint Disorder symptoms was found to be not statistically significant.



(38.71%) and least prevalent clinical finding was observed to be clicking along with pain on palpation (9.6%) (Figure3).

Incidence of clicking (50%) and pain on palpation (37.3%) was prevalent in the age group between 21-30 years. pain on palpation together with clicking was prevalent in the age group 21-40 years and 61-70 years. (33%). Chi Square test was done and association between Gender and clinical findings of Temporomandibular Joint Disorder symptoms was found to be not statistically significant since p value is greater than 0.05 ($p=0.293$) hence proving insignificant association between Gender and clinical findings of Temporomandibular Joint Disorder.(Figure 4).

Incidence of clicking (75%) in female patients compared to (25%) in male patients. Equal incidence of pain on palpation (50%) was observed in both the gender. Incidence of pain on palpation together with clicking (66.6%) in males and (33.3%) in females. Chi

Square test was done and association between Gender and clinical findings of Temporomandibular Joint Disorder symptoms was found to be not statistically significant since p value is greater than 0.05 ($p=0.273$) hence proving insignificant association between Gender and clinical findings of Temporomandibular Joint Disorder. (Figure 5).

From the results of the study it was observed that symptoms of Temporomandibular joint disorders are more prevalent in the age group between 26-50 yrs (Figure 1). Pain on palpation is less prevalent, clicking is more prevalent in the age group 25-71 yrs (Figure 4).This is supported in a study by Ow Rk et al prevalence of clicking was 2.4% compared to tenderness 1% in adolescents age group [28-29]. Results of this study show symptoms of Temporomandibular Joint disorders increase with age. This finding is supported in a study by Carlson [30-31] et al., which shows significant increase in symptoms of Temporomandibular Joint dis-

orders with age ($p < 0.005$) [32]. From Figure 3 results, it was observed that clicking, pain on palpation together with clicking was most prevalent in both the gender. This is contradictory to study by Osama et al which shows clicking is the most common sign [1, 33, 34]. Contradictory to results, reported by Schmitter et al, Signs and symptoms of TMD decrease with age group between 25-44 yrs with 10% males and 18% Females [35, 36]. Figure 5 shows that symptoms of Temporomandibular joint disorders are more prevalent in Female patients than male patients. This is supported by previous studies by Grave et al, Solberg et al, Klienberget al, Shiau and chang et al., [37-39]. This high prevalence among females could be due to physiologic uniqueness such as hormonal variation, different characteristics of connective tissue and musculature [40-42]. Our institution is passionate about high quality evidence based research and has excelled in various fields [43-53]. We hope this study adds to this rich legacy.

Limitations of this study include that symptoms of TMD are also related to vertigo and tinnitus, their sign and symptoms were not assessed in this study.

Future scope of study includes that expanded, increased follow up, larger sample size, detailed results are required for better understanding of condition thereby facilitating effective treatment.

Conclusion

High prevalence of Temporomandibular Joint disorders was observed in the female group. Symptoms of Temporomandibular observed were mainly of mild degree and related to that of masticatory and cervical muscles.

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